THE KEY DETERMINANTS OF THE VOLUNTARY ADOPTION OF CORPORATE INTERNET REPORTING AND ITS CONSEQUENCE ON FIRM VALUE: EVIDENCE FROM EGYPT

By

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Abstract

Corporate Internet reporting represents one of the voluntary types which helps to achieve transparency by disseminating various types of timely information by using different presentation types and easily accessible tools. Corporate governance has become one of the most crucial issues in recent years due to the consequent scandals that have happened either in developed or developing countries. Therefore, most stakeholders demand greater transparency within the disclosed information provided by various companies. Consequently, the current study aims to contribute to the disclosure literature by examining the association between corporate Internet reporting and its main components, and corporate governance and ownership structure variables in one of the developing countries, namely Egypt, based on a comprehensive theoretical framework and explore the economic consequences of corporate Internet reporting and its main components.

By using a self-construct disclosure index, the study measures corporate Internet reporting based on an un-weighted checklist that includes 100 items. Of the Egyptian listed companies, 343 are surveyed to explore the extent of corporate Internet reporting. The findings reveal that about half of the Egyptian listed companies have a website. However, the level of corporate Internet reporting is slightly low relatively to the developed countries.

The results of the empirical findings demonstrate that corporate Internet reporting by Egyptian listed companies is influenced by various variables such as company size, leverage, legal form, asset in place, financial type, foreign listing, audit type, shares volatility, shares activity, shares issuance, block holder ownership, managerial ownership, governmental ownership, institutional ownership, board size and family members on the board. In addition, the study indicates that these determinants vary among the various components of corporate Internet reporting: content, presentation, timeliness and usability. Finally, the study provides empirical evidence that corporate Internet reporting has a positive impact on firm value. Such a finding demonstrates the importance of corporate Internet reporting in the Egyptian context and reveals the motivation for applying such a disclosure medium.

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Dedication

To my **respected parents,** for their infinite love and careness

To my **sincerely wife,** for her sacrificing and sharing

To my **lovely sons, Ahmed, Mohamed and Youssef** for making me happy

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Declaration

I declare that this thesis has not been previously submitted either in this university or any other university for a degree or any other qualification. In addition, I declare that all of the work done in this thesis is my own work.

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The following activities have been undertaken:

1. Attendance at research training courses in:
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CHAPTER 1 INTRODUCTION

1.1 General introduction

The disclosure of information plays a critical role in the efficient allocation of scarce resources in the capital market (Healy and Palepu, 2001). Therefore, the lack of disclosed information to stakeholders may hinder their ability to make rational decisions. Many studies have mentioned the importance of disclosed information for stakeholders' decisions through capital market studies conducted in different countries and cross-country surveys of users (Bhushan and Lessard, 1992; Barker, 1998; Mangena, 2004).

Many methods have been used to convey information about a company's affairs to stakeholders. As a result of the diversification in stakeholders' need, the traditional means of disclosure will no longer be useful to fulfil these needs. Many studies discuss the usefulness of information in corporate annual reports either in developed or developing countries (Hines, 1982; Givoly and Palmon, 1982; Day, 1986; Wallace, 1988; Solas and Ibrahim, 1992; Abu-Nassar and Rutherford, 1996; Bartlett and Chandler, 1997).

In the same direction, the revolution in information technology has paved the way for the discovery of new tools, which may help in different aspects of life. Elliott (1992), states that "information technology is changing everything. It represents a new, post-industrial paradigm of wealth creation that is replacing the industrial paradigm and is profoundly changing the way business is done.... If the purpose of accounting information is to support business decision-making, and management's decision types are changing, then it is natural to expect accounting to change".

One of the most popular developments of information technology is the spread usage of the Internet. In recent years, the Internet and its application have been increasingly employed in modern business operations, educational operations, personal use and for governmental purposes. One of the main aspects of the Internet is its commercial uses which have flourished in the recent years.

Consequently, it is not surprising to find that most companies have begun to benefit from the wide spread of the Internet in conveying useful information to their stakeholders. As financial accounting is responsible for the preparation and distribution of financial information to stakeholders, it should be particularly interested in this shift. Many studies have argued the potential effects of using the Internet in disclosing information and examining the determinants of disseminating that information on companies' websites (Ashbaugh et al., 1999; Bagshaw, 2000; Bonson and Escobar, 2002; Debreceny et al., 2002; Marston and Polei, 2004; Xiao et al., 2004; Bollen et al., 2006; Sriram and Laksmana, 2006; Trabelsi and Labelle, 2006; Spanos and Mylonakis, 2007; Abd-Elsalam and Street, 2007).

Currently, great concern is directed towards the scandals that have happened recently in the western markets. One of the major reasons for these scandals is the lack of a good disclosure and transparency system. Therefore, these markets have begun to process some reform steps to improve their disclosure and transparency. One of these steps is providing a good corporate governance system.

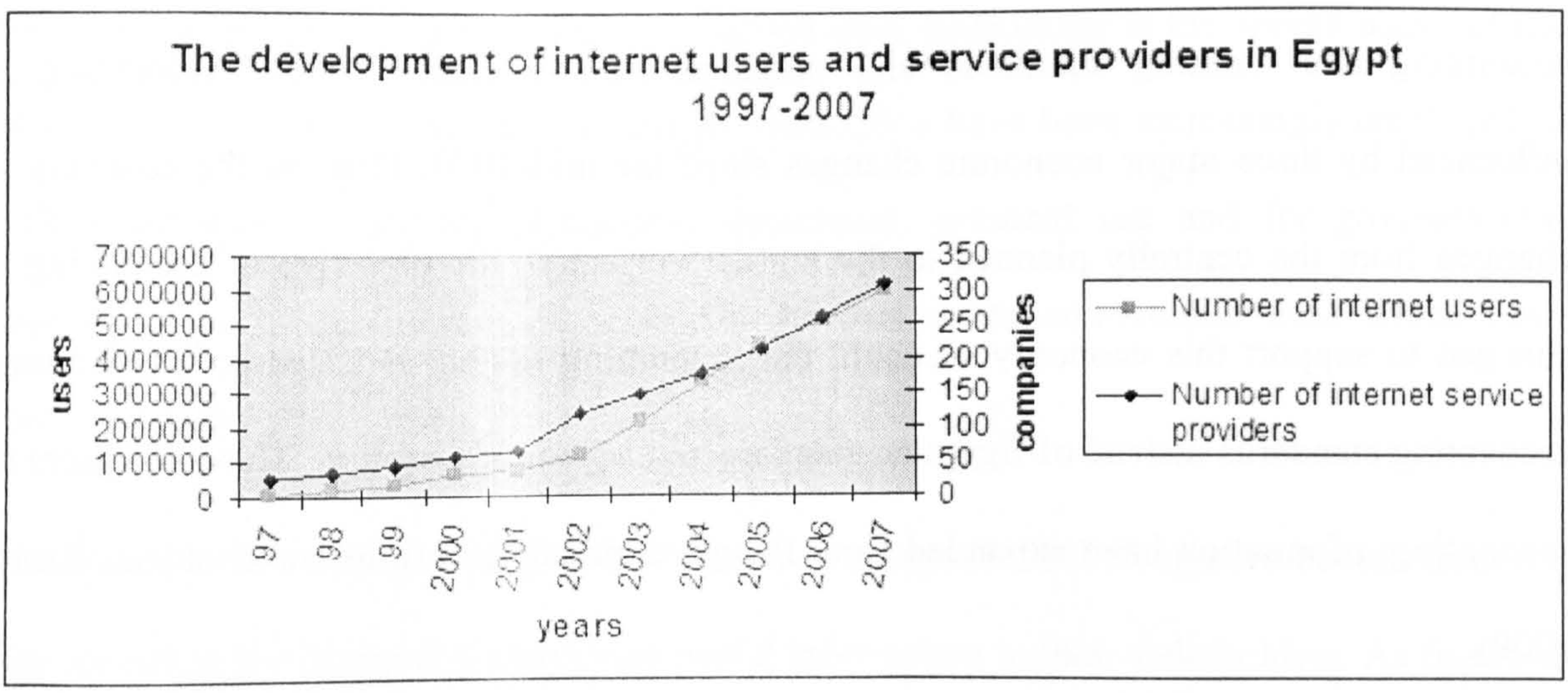
In the same vein, emerging markets are directing their attention to these changes and have begun to execute some reforms to implement good corporate governance systems and fulfil the required disclosure and transparency needs. The Egyptian government has launched several plans to improve financial reporting and disclosure requirements, as well as

accounting and auditing standards and practices (World Bank, 2002). Accounting is influenced by three major economic changes since the mid-1970. First, as the economy is changed from the centrally planned to the market –oriented, the objective of accounting is changed to support this economy. Second, the accounting system is based on international accounting standards instead of Egyptian standardized accounting system. Third, the users of accounting information have expanded from the government to various stakeholders (Farag, 2009).

The Egyptian Exchange (EGX) has witnessed a massive increase in the value –which rose by 248%- and volume –which rose by 288%- of traded shares over 2007 causing a dramatic increase in the market capitalisation value of the traded companies to £E768.18 billion, with an increase of about 51% and a ratio of 88% to GDP (EGX, 2007). Appendix 1 presents the core indicators of the EGX within the period from 1998 to 2007. This in turn increases the confidence in the EGX which enables it to be one of the stable markets that are preferable from the point of view of either the international institutions or individual investors (CBE, 2006-2007).

Pursuant to these changes, the nature of the Egyptian users of accounting information and their needs will change, as they look ahead to receiving more timely, accurate and adequate information to help them in making rational decisions. This will require a change in the disclosed information in the corporate annual report and its disclosure means.

At the same time, the Internet begins to increase broadly in the Egyptian environment as an effective tool for support in many different areas. Figure 1-1 illustrates the increase in using the Internet in the Egyptian Environment.



Source: Internet Usage Statistics (2007)

Figure 1-1: The development of the number of Internet users and Internet service providers in Egypt from 1997-2007

Consequently, it is useful to benefit from the new technology in order to satisfy the required needs of stakeholders in the Egyptian environment by providing useful information through the websites of companies. Many objectives are expected to be achieved by conducting this study, and this will be discussed in the next section.

1.2 Research Objectives

The current study focuses on all the Egyptian listed companies in 2007 to evaluate the extent of corporate Internet reporting (CIR). In addition, it aims to identify the factors that determine CIR in the Egyptian context by investigating its relationship with various firm characteristics, market related, ownership structure and corporate governance variables. Further, the study aims to examine the consequence of CIR on Egyptian companies' value. To achieve these goals, many objectives are derived and they are illustrated as follows:

***OBJ1*: Evaluating the extent of the website for the Egyptian listed companies and their disclosed information.**

The first objective is to investigate whether Egyptian listed companies have a website or not. If they have, then the study explores whether the companies disclose any type of information either financial or non-financial. The aim of this is to discover the current practices of CIR by the Egyptian listed companies and compare these practices with those of the developed countries.

***OBJ2*: Examining the content of disclosed information.**

Determining the content of disclosed information by Egyptian listed companies is related to the types of information. CIR content provides stakeholders with various types of information which help them to make rational decisions. Therefore, the current study aims to discover the various contents of the disclosed information on the Egyptian listed companies' websites.

***OBJ3*: Examining the presentation of disclosed information.**

Examining the presentation of disclosed information is related to the format types of information which determines how to disclose information on Egyptian listed companies' websites. Many presentation tools can be used to disseminate information on these companies' websites. The study aims to determine the various presentation tools that are used by Egyptian listed companies to disseminate information via their websites.

***OBJ4*: Examining the timeliness of disclosed information.**

The timeliness of disclosed information is related to when the information is disclosed on the websites of Egyptian listed companies. The timeliness of the information is one of the basic

characteristics of the useful information which stakeholders aim to obtain. As the Internet provides the ability to access the websites of the companies at any time, companies can supply their stakeholders with the required timely information that helps them in investment decisions. Consequently, the study aims to examine whether disclosed information on the companies' websites is provided in a timely way to the stakeholders or not.

***OBJ5*: Examining the usability of disclosed information.**

Usability of disclosed information is related to the quality of the website and its ease of use to disseminate the required information. In other words, usability deals with the ability to reach and obtain required information easily. The Internet by its unique facilities can provide useful usability tools that help stakeholders to access a website and obtain their information in an easy way from anywhere. Therefore, the current study aims to examine the usability tools on the Egyptian listed companies' websites to shed light on the ease of obtaining the disclosed information.

***OBJ6*: Investigating empirically the factors that may affect CIR total and its components by Egyptian listed companies.**

Many factors are discussed in the literature review in the field of CIR. These factors vary according to the environment in which the companies are performing. Therefore, the study aims to scan the previous studies in the field of CIR and determine all the factors which explain the using of CIR and seeks to apply these variables in the Egyptian context.

***OBJ7*: Assessing the economic consequence of CIR total and its components.**

Determining the key factors that affect the usage of the Internet as a disclosure tool by the Egyptian listed companies is not enough to present the importance of CIR. Consequently, the

current study aims to provide further empirical evidence regarding the importance of CIR for the Egyptian listed companies by investigating its impact on firm value.

These objectives will be accomplished through asking many questions, which will be illustrated in the next section.

1.3 Research questions

In order to address the research objectives, the following general research questions need to be answered:

***RQ1*: To what extent do the Egyptian listed companies disclose their information on their websites?** This question has been classified into:

SRQ1.1: What is the percentage of the Egyptian listed companies that have a website?

SRQ1.2: What is the main type of information that is disclosed frequently on the websites of the Egyptian listed companies?

SRQ1.3: What is the content level of the information disclosed by the Egyptian listed companies?

SRQ1.4: How is the disclosed information presented on the websites of the Egyptian listed companies?

SRQ1.5: Is the disclosed information presenting at the time when stakeholders need it?

SRQ1.6: Are the stakeholders obtaining their required information easily?

***RQ2*: What are the key determinants of the CIR by Egyptian listed companies?** This question has been classified into:

SRQ2.1: What is the relationship between firm characteristics variables and CIR total?

SRQ2.2: Is there any relationship between firm characteristics variables and CIR content, presentation, timeliness and usability?

SRQ2.3: What is the relationship between market related variables and CIR total?

SRQ2.4: Is there any relationship between market related variables and CIR content, presentation, timeliness and usability?

SRQ2.5: What is the relationship between ownership structure variables and CIR total?

SRQ2.6: Is there any relationship between ownership structure variables and CIR content, presentation, timeliness and usability?

SRQ2.7: What is the relationship between corporate governance variables and CIR total?

SRQ2.8: Is there any relationship between corporate governance variables and CIR content, presentation, timeliness and usability?

***RQ3*: Is there any influence for CIR by the Egyptian listed companies on firm value?** This question has been classified into:

SRQ3.1: What is the impact of CIR total on firm value?

SRQ3.2: Is there any influence for CIR content, presentation, timeliness and usability on firm value?

To achieve the objectives and answer the questions, research methodology has been organised. The summary of this methodology will be presented in the next section.

1.4 A summary of research methodology

The current study is considered to be an applied research which aims to investigate the key determinants of CIR by Egyptian listed companies and its consequence. The main philosophy of the current study is positivism, which depends on empirical evidence instead of individuals' opinions in fulfilling the research objectives and questions. This philosophy allows the application of a deductive approach which requires developing hypotheses based on the suitable theoretical framework that explains the association between CIR and its components, and firm characteristics, market-related, ownership structure and corporate governance variables. This association can be interpreted by using a quantitative paradigm which is based on collecting and analysing numeric secondary data.

Consequently, the purpose of the study is both descriptive – which answers the first research question – and explanatory – which fulfils the second and third research questions. The suitable strategy used to achieve the purpose of the study is the survey strategy which is based on examining the websites of all Egyptian listed companies in 2007. The study is a cross-sectional single country study. As such, it applies to one of the developing countries, namely Egypt and uses 343 of the Egyptian listed companies for investigating the research questions and objectives. 92 companies have been excluded due to the inability of obtaining their data.

In addition, the study measures the extent of CIR and its components based upon a self constructed checklist of CIR items and using an unweighted disclosure index. Univariate analysis is performed to present the statistical descriptive for both dependent and independent

variables. Further, both parametric and nonparametric tests are used as bivariate analyses to examine the relationship between CIR and its components, and each independent variable. Moreover, multivariate analysis is used to investigate the association between CIR and all the independent variables. Three main regression models are run to test these associations: un-transformation model, log transformation model and Tobit model. Regarding the consequence of CIR and its components on firm value, the OLS model has been used to address this issue.

By determining the research questions and objectives, some ambiguous issues were expected to be more obvious, which may demonstrate the importance of this study and its motivation. This will be revealed in the next point.

1.5 Research motivation and importance

Due to globalisation, dramatic changes have been happening in the stock markets of developing countries. Foreign investors are allowed to invest in the domestic stock market (Bekaert and Harvey, 2000). However, many reasons have hindered investors from investing in emerging markets, among them a lack of corporate governance and transparency (Banz and Clough, 2000; 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 Internet reporting. Moreover, the Sarbanes-Oxley Act (2002) requires companies to increase their level of financial information transparency and enhance their disclosure quality by a commitment to corporate governance rules. Consequently, corporate governance rules may affect the usage of CIR, which becomes an important request for investors in order to obtain timely financial information and improve disclosure transparency by the components of CIR (Kelton and Yang, 2008).

Although many studies examine the key determinants of CIR in developed countries, few studies do so in developing countries. Similarly, many studies investigate the relationship between voluntary disclosure and corporate governance and ownership structure characteristics. However, the impact of corporate governance and ownership structure on CIR still needs further investigation, especially on the empirical side.

Therefore, it is important for emerging markets (e.g. Egypt) to be more aware of the importance of corporate governance and timely disclosure provided by using the Internet to protect investors' 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 CIR, there will be a flexibility in the content of disclosed information on Egyptian companies' websites. Further, the usability tools provided by the companies' websites enable users to obtain their required information easily, and save time and effort. This makes CIR an important research area in the Egyptian context.

Examining the key determinants of CIR and its consequence is a fundamental research problem which may provide empirical evidence to many parties. **From a company's perspective,** disclosing timely information with various types and in many different formats and presentation tools, accompanied by tools that help in searching, obtaining and downloading required information, will certainly attract more investors to invest in these companies due to their transparency and high disclosure levels. This in turn may decrease the cost of a company's capital and increase its value, which helps in achieving its survival in the competitive market. In addition, the empirical findings of the current study may encourage companies to disclose information via their websites due to the expected advantages of using

the Internet as a disclosure medium and the anticipated consequence on firm value that the study will be investigating.

From the policy-makers' perspective, the importance of disclosing timely and accurate information to realise transparency becomes one of the great demands 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 and ownership structure characteristics influence CIR, regulatory changes may be required to improve transparency. In addition, the consequence of CIR may motivate the capital market authority (CMA) to encourage Egyptian listed companies to build websites for disclosing information. This may just be encouragement as the first step, followed by an obligatory step as a requirement for listing in the EGX.

From the academic perspective, the findings may explain CIR and its key determinants in one of the developing countries, namely Egypt. Moreover, the findings clarify the current practice of CIR 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 addition, the possibility of applying a comprehensive theoretical framework – tested before in the developed countries – in an emerging market, namely Egypt, may open the door for new researchers' thoughts or even extend the prior literature studied in the developed countries.

1.6 Thesis structure

The current study is organised as follows:

Chapter one sets out the objectives and motivations of the study. Based on the three main questions, the key determinants of CIR by the Egyptian listed companies and its consequence will be examined. A brief discussion about the applied methodology is presented and the chapter ends with the structure organised within the study.

Chapter two introduces a brief introduction for the nature of CIR, its advantages, the impact of information technology on business reporting and the accounting profession in Egypt. This introduction demonstrates the importance of studying CIR and the motivation of applying the Internet as a disclosure medium for Egyptian listed companies. Moreover, the chapter reveals the concept of corporate governance, its objectives and the importance of conducting such a system, summarises some of the prior studies that examine different aspects of corporate governance to derive its main variables and the corporate governance system in Egypt. By recognising both CIR and corporate governance notions, clear understanding for the expected impact of the corporate governance on CIR in the Egyptian context can be determined.

Chapter three outlines the theoretical framework of the current study. A comprehensive theoretical framework will be applied to explain the association between CIR and the explanatory variables. The chapter aims to demonstrate the prior theories used in the disclosure field of developed countries in order to examine their application in the emerging market. Many approaches are discussed: economic, political economic, socio-economic, cost/benefit and innovation adoption. All these approaches include various theories that are used to justify the hypotheses of the current study and explain the rational relationship between CIR and its determinants.

Chapter four reviews the prior studies of CIR either in developed or developing countries. The study classifies these studies into two main groups: descriptive and explanatory studies. Both groups will be discussed in detail to achieve the objectives of the study. With regard to empirical studies, the current study classifies them into two groups: studies that investigate the relationship between CIR and firm characteristics and market-related, and studies that examine the association between CIR and corporate governance and ownership structure variables. Finally, the chapter mentions the prior studies in the Egyptian context. The aim of this chapter is to demonstrate the previously studied areas in CIR to determine the gap which will be filled by the current study.

Chapter five discusses the methodology that will be driving the study by explaining the different and expected associations which arise from the research objectives and questions. It presents different research philosophies, paradigms and approaches to clarify the most suitable methodology for the current study. Moreover, this chapter outlines the research design to determine the purpose of the study. The chapter shows the most suitable method for measuring CIR in the current study and the proxies of all explanatory variables. Finally, the chapter demonstrates the data analyses techniques in the current study and the relevant statistical procedures that will be used for analysing and testing the research model. Therefore, this chapter aims to reveal the most suitable methodology that will be conducted in the current study to collect and analyse the required data and test the study's hypotheses statistically.

Chapter six illustrates the formulated hypotheses in the current study. Many hypotheses are derived from the theoretical framework to examine the relationship between CIR and its components, and the explanatory variables. The hypotheses are classified according to the group variables. The four main hypotheses are related to the association between CIR and

firm characteristics, market-related, ownership structure and corporate governance variables. Therefore, the aim of this chapter is to clarify the reasons behind investigating specific variables in relation to CIR.

Chapter seven presents the current situation of CIR by Egyptian listed companies. It describes the usage of the Internet by Egyptian listed companies in 2007. Reliability and validity of the disclosure index are mentioned to demonstrate the credibility and trustworthiness of the instrument used to measure CIR in the current study. The chapter introduces a clear picture for the extent of CIR and its main components in the Egyptian context. Therefore, this chapter aims to answer the first research question related to the extent of CIR in Egyptian listed companies.

Chapter eight examines the relationship between CIR and the explanatory variables. It starts with a descriptive analysis of the independent variables used in the current study. Then it performs a bivariate analysis between CIR as a dependent variable and each of the independent variables individually. Both parametric and nonparametric tests as bivariate analysis will be used to support this relationship. After that, multivariate analysis will be employed to support the results obtained from the bivariate analysis. Three main regression models will be run in the current study: un-transformation model, log transformation model and Tobit model. The study uses the Tobit model as robustness for the results obtained from the other two models. The chapter ends with a discussion of the findings of these models. This discussion will be based upon the theoretical framework, the hypotheses formulated and prior literature reviewed. Consequently, this chapter aims to answer the second research question which is related to demonstrating the key determinants of CIR.

Chapter nine provides clearer explanations for the key determinants of CIR components. The chapter follows the same steps that will be performed in chapter nine. Therefore, this chapter aims to demonstrate the various associations that may be found between CIR components and their key determinants. Such associations may assert the importance of one or more of the CIR components in addition to adding more depth to the findings of the current study.

Chapter ten reveals the expected consequence of CIR on firm value in the Egyptian context. The chapter begins with prior studies that discuss the economic consequences of CIR. Then it moves on to investigate the relationship between CIR and firm value, based on the explained theories. After that, the model that has been used to test this relationship is demonstrated. Based on both bivariate and multivariate analyses, the findings of the proposed model will be analysed and discussed. Consequently, this chapter aims to examine whether CIR has any economic consequence or not, in order to justify its usage by Egyptian listed companies. By doing this, the third research question will be answered.

Chapter eleven presents the main conclusions of the study. It summarises the findings of the study. Further, it presents the contribution of the current study to knowledge. A discussion of the limitations of the study will also be addressed. Finally, the chapter outlines the recommendations for future research.

CHAPTER 2 CORPORATE INTERNET REPORTING AND CORPORATE GOVERNANCE: A BRIEF DISCUSSION

2.1 Introduction

Disseminating information on companies' websites has been done widely in the last 10 years. Many companies seek to benefit from the advantages of disclosing information on their websites to different stakeholders. Meanwhile, various stakeholders need accurate information to be provided in a timely way in order to make rational decisions. This in turn puts pressure on companies to fulfil this need and provide useful information on their website to those stakeholders.

In addition, the collapses in advanced markets have increased the need for a control system that governs the relationship between the different parties of the companies. Corporate governance can perform this role within its ability to achieve the balance between the different powers inside and outside the companies.

One of the most important objectives of corporate governance is the transparency of disclosed information that given by the companies. To achieve this, companies may choose to disseminate their information on their website. Applying corporate governance rules may, therefore, have an impact on the adoption of CIR in the Egyptian context.

Consequently, this chapter will discuss in detail the nature of CIR in order to demonstrate the need for studying such a topic and its importance in the current period. In addition, the nature of corporate governance will be illustrated to show its importance to the study, and to justify the main corporate governance variables that are expected to have an impact on CIR. Section 2.2 introduces the concept of CIR, its main advantages, and the impact of technology on

business reporting. Accounting profession in Egypt will be presented in section 2.3. The corporate governance system is discussed in section 2.4, followed by the corporate governance system in Egypt in section 2.5. Section 2.6 provides a summary of the chapter.

2.2 Corporate Internet Reporting (CIR)[1]

Disclosure – in general – has received much attention in recent years. This may be attributed partially to the higher required levels of accountability resulting from the increase in incidences of fraud, changes in the general economic and financial conditions, and the immense complexity of corporate groups in existence today (Cook, 1989).

Disclosure can be viewed as a means of communication between those who need the economic information (stakeholders) and those who provide this information (companies). This communication has done in the past by traditional methods which may not be useful for some parties today. Consequently, many companies have begun to disseminate information on their websites to adapt to the new requirements of the modern business environment.

Corporate Internet Reporting (CIR) (or online disclosure) represents one of the voluntary disclosure types. Voluntary disclosure can be viewed as a practice adopted by companies without any obligation regarding the laws that organise the practice of these companies. Accordingly, CIR can be referred to in the current study as a disclosure tool that aims to disseminate, voluntarily, various types of information – financial and non-financial – on the company's website. The next point discusses the nature of CIR in more detail.

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[1] The study uses online disclosure synonymously with CIR.

2.2.1 The nature of corporate Internet reporting

CIR represents a type of voluntary disclosure that may or may not be done by companies as there are no commitments on them to disclose information on their websites. Basically, the internet can be used as a tool to offer new opportunities to present and communicate information for various stakeholders that makes the internet a unique disclosure tool (Geerlings et al., 2003). The internet can be characterised by many features. Deller et al. (1999) summarise the main features of Internet technology. They mention that the Internet has technology-specific presentation advantages which may be exploited by companies in disseminating their reports. Further, the Internet provides direct forms of communication such as mailing lists, feedback forms and online participation all of which enable stakeholders to communicate easily with companies. Moreover, there is no definitive content for the disclosed information on the company's website as using the Internet for the dissemination of information is a voluntary process.

In addition, Xiao et al. (2002) mention that the Internet has some unique features in the accessibility, dissemination, interaction and presentation that affect the communication aspects of financial reporting. Further, they indicate that integration with other technologies such as database, wireless communication and multimedia, represents one of the main features of the Internet.

According to these features, the use of the Internet as a means of disclosing information is widespread. The Internet increases the possibilities for managing business information, not only for internal purposes but also external, by facilitating the dissemination of the information on the company's website to different stakeholders. Therefore, the internet has

double positive effects for both companies and stakeholders. The next point demonstrates the expected advantages of using the Internet as a disclosure tool.

2.2.2 Advantages of using the internet in disclosing information

Many advantages can be gained from using the internet in disclosing information for both companies and stakeholders. For companies, it enables them to reach a large number of stakeholders which increases shares liquidity and lowers the cost of capital. On the other hand, the internet uses very advanced, sophisticated tools to present the information to the various stakeholders and thus eases the accessibility of this information, making it more reliable and useful for the various purposes of the stakeholders who are, therefore, more able to relate to the company.

Many advantages can be obtained from using the Internet in disseminating information via the websites (Ashbaugh et al., 1999; Williams and Pei, 1999; FASB, 2000; Smilan and Belevetz, 2000; Debreceny and Gray, 2001; Debreceny et al., 2002; Venter, 2002; Beattie and Pratt, 2003; Adams and Frost, 2004; Gallhofer et al., 2006; Hancock et al., 2006):

- Reducing the cost of companies' information dissemination.
- Communicating with previously unidentified users of information.
- Interacting with different stakeholders.
- Increasing the amount and type of disclosed information.
- Accessing to the required information at any time and at any place.
- Allowing dynamic forms of information presentation that are not available in the traditional hard copy form.
- Easing the search and downloading of required information.

Because of the above advantages, many academics discuss the impacts of the new technology on business reporting and the future of online reporting. This will be covered in the next point.

2.2.3 The impact of technology on business reporting

Many changes in the business environment have put pressure on companies to change their reporting. Examples of these changes are: the increase rate of complexity in business, the globalisation of the capital market and the rapid growth of knowledge-based industries (Xiao et al., 2002).

Many studies have shed light on the expected influence of the rapid growth of technology on the preparation of companies' reports. Elliott (1992, 1994) focuses on the effect of information technology on the way that business is done which has led to changes in external accounting. He calls for greater disclosure of non-financial information, more frequent reporting and less aggregated reporting.

Similarly, it was argued that there should be additional reporting of soft assets, more frequent reporting, and disaggregated reporting via online access to the sections of the company's management information system (Wallman, 1995; Beattie and Pratt, 2003). Moreover, Green and Spaul, (1997) and Xiao et al., (2005) reveal the need for additional non-financial information in their annual reports and real-time financial reporting, as well as on-line periodic financial reporting.

These impacts are useful in raising awareness of the potential of the Internet for corporate reporting which has led many critics to predict that the printed annual report will gradually disappear as corporate reports become internet-driven (e.g. Bury, 1999; Romain, 2000;

Beattie and Pratt, 2003). Bagshaw (2000) and Oyelere et al. (2003) anticipate that financial reporting in the near future will shift entirely from the current, primarily print-based, mode to use of the Internet as the primary information dissemination channel.

Moreover, (IASC, 1999) state that: "... in our view, it is likely that in the next few years, business reporting to stakeholders will move almost entirely from the current primarily print-based mode to using the web as the primary information dissemination channel, with the print-based mode as secondary channel."

In addition, the work of the American Institute of Public Certified Accountants (AICPA) and the Financial Accounting Standards Board (FASB) illustrates the seriousness with which the accounting profession examines the speculations related to improving business reporting (Jenkins report, 1994 and FASB, 2000). The Canadian Institute of Chartered Accountants (CICA) also released a report discussing the current and future prospects for online financial reporting. This report highlights the need for customisable reporting by recommending a move away from general purpose, traditional financial reports and 'GAAP', to focused reporting and regulation for different user groups (Xiao et al., 2005).

The issues of relevance and usefulness of information presented on corporate websites have become vital in today's corporate environment. In addition, regulatory bodies increase their awareness for these issues, especially due to scandals and failure of some major corporations (e.g., Enron). Therefore, the Sarbanes-Oxley Act (2002) (SOA) was passed to put pressure on companies to improve their reporting practices. Similarly, Regulation FD, issued by the SEC on October 2002, demonstrates the importance of real-time reporting and encourages the use of the Internet in disseminating information to stakeholders (SEC Release No. 33-7881). These demands make the corporate website one of the main sources of disseminating

information to stakeholders, and enhance the importance of using the Internet in disclosing information (Sriram and Laksmana, 2006).

Based on the above discussion, the characteristics of Internet reporting can adapt with the broader changes occurring in the business environment, in particular the shift towards consumer-driven business and the increasing importance of intangible assets such as intellectual capital (Beattie, 2000). These changes, as well as the increased demand for companies' transparency from stakeholders, have led to arguments about the efficiency of traditional financial reporting for satisfying stakeholders' needs (Lev, 2000).

Accordingly, there is an increase in the prospect of potentially fundamental changes in disclosing forward-looking, non-financial and qualitative information on the corporate website. Deller et al. (1999) mention that the Internet is increasingly used for fulfilling the activities of investor relations by presenting the required financial and non financial data. In addition, Marston and Polei (2004) indicate that the Internet changes the traditional ways of stakeholders' communication by providing new tools that improve this communication.

Regarding the Egyptian context, many changes have been made to improve the accounting profession and the disclosure function. The next section presents a brief discussion of the history of the accounting profession.

2.3 The accounting profession in Egypt

Egypt has made several attempts to close the compliance gap in both the accounting and auditing professions. One of these attempts is the need to link the requirements of corporate financial reporting with International Accounting Standard (IAS)[2] (World Bank 2002).

To achieve this goal, many improvements have been made in the accounting and disclosure requirements for publicly traded companies, a new accounting law has been drafted and modern legislative framework for the auditing profession has been issued (ibid).

Two professional bodies are responsible for organising the accounting profession in the Egyptian context: the Syndicate of Commercial Professions (SOCP) and the Egyptian Society of Accountants and Auditors (ESAA). The ESAA is an association of chartered accountants that develops educational and professional standards for its members. Many steps are undertaken by both SOCP and ESAA to improve the professions of accounting and auditing. As a result, ESAA became a member of IASC in 1980 and of IFAC in 1983. At present, the law governing the accounting and auditing profession is Accounting Law No.133/1951 which reflects the need for new accounting laws to serve the growing economy and deal with new directions in the accounting profession.

Many changes have been made for the accounting profession in Egypt due to the economic developments. During the 1960s, after the nationalisation decree of 1961, accounting information was required for central planning. Therefore, the Egyptian government holds about 80% of the economic activities in public sector companies (Farag, 2009). To dominate all the activities and operations of these companies and govern their financial reporting, the

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[2] This name is amended by International Financial Reporting Standard (IFRS).

Egyptian government issued a law for a Uniform Accounting System (UAS) in 1966 which includes all public sector companies except banks and insurance companies. In the meantime, the Central Auditing Organisation (CAO) represents the public authorised body for auditing the public sector companies.

During the 1970s, after the Egyptian government embraced an "open door" policy, many attempts have been made to attract foreign investors and increase foreign currency. The most important laws that followed open door policy were law 43 of 1974 and law 32 of 1979 which encouraged the private sectors – especially the foreign- investments (Farag, 2009). As a result, many accounting firms have been launched and large audit firms returned to work in Egypt (Abdel-Fattah, 2008).

In 1981, the Capital Market Authority (CMA) suggested a draft law which was achieved in the Companies Act No.159/1981. Under this law, all registered Egyptian companies must hold accounting records and disseminate annual audited financial reports.

In 1991, Egypt began its economic reform steps by launching a privatisation programme. Such a programme requires a more stable financial regulatory framework, availability of trustworthy corporate information and the adoption of internationally accepted accounting and auditing standards (World Bank, 2002). Consequently, the need for accounting principles, rules and standards for different forms of Egyptian companies increased. The Egyptian Institute of Accounting and Auditors[3] – after many discussions in many seminars – presented 20 Egyptian Accounting Standards (EASs) in 1992 (Abdel-Salam, 1999). However, these standards are similar to International Accounting Standards.

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[3] This institution was established under the supervision of the Ministry of Finance in 1987.

In May 1997, The Minister of Economy constituted The Permanent Committee for Standards of Accounting and Audit by the ministerial decree 478/1997 to prepare the Egyptian Accounting Standards. The International Accounting and Auditing Standards that were considered suitable for the Egyptian environment were translated into Arabic to obtain EASs.

The first EASs were introduced by Ministerial Decree 503/1997 (Abdel-Salam and Weetman, 2003). The major concern of these standards is related to financial statements which constitute financial reports. In the beginning, 19 EASs were issued and then three additional standards were promulgated in 1998. Recently, the Minister of Foreign Trade amended by Ministerial decree 345/2002 three EAS[4] and replaced them with another new standard corresponding to disclosure, the "Presentation of Financial Statements" which is related to IAS No. 1. In addition, another two standards were issued in 1998. The reason for issuing such standards is to improve the disclosure and transparency process (Abdel-Fattah, 2008). In 2006, EASs were replaced by a new version of EASs issued by Ministerial Decree 243/2006. The new EAS are also compatible with IASs.

By reviewing the EASs, it can be seen that these conform to the IASs with some minor exceptions (Abdel-Salam, 1999; Rawy, 2004; Hassan et al. 2006). Therefore, as stated in the preface of the EASs, for any accounting practices not covered in EASs, IASs should be applied. The Company Act 95/1992 mandated all Egyptian listed companies to conform to EASs and with IASs that have no corresponding standards within the EASs.

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[4] Standards No 1, 3 and 9.

Based on the above discussion, it can be stated that the Egyptian government has taken noticeable steps toward the improvement of the accounting profession generally and towards improving the quality of financial reporting and its transparency specifically. This is confirmed by the World Bank (2002) as it states that "Important improvements have been achieved in accounting and disclosure requirements for the publicly traded companies and financial institutions and in Egyptian Accounting Standards as benchmarked against IAS".

Due to these improvements, EGX has witnessed a massive increase in the market capitalisation which grew remarkably from £E5 billion in 1990 to £E602 billion by the end of June 2007 (UNCTAD, 2008). Further, the sound performance of the stock market during 2006/07 is reflected in the increase of the national savings which were directed to the EGX from 6.6% in 2002 to 33.5% in 2007 (Egyptian National Bank 2006). Consequently, new foreign institutions were penetrated the Egyptian market with a large influx of investments, whereby total foreigners (Arab and foreigners) ended year 2007 as net buyers, recording a net inflow of £E8 billion, compared to £E5.2 billion in 2006 (EGX, 2007).

To keep up with these disclosure and transparency requirements, there is a need for corporate governance systems that aim to protect the various interests of stakeholders by creating a balance between these interests and owners' and management interests. The notion of corporate governance will be discussed in the next section.

2.4 Corporate governance

The rapid growth in the business world has increased the role of management in running their companies. Management in turn try to find the best ways to maximise the wealth of the shareholders. As a result of the separation between the owners (shareholders) and the managers, management should sustain the confidence of their shareholders. But

unfortunately, this confidence has been influenced by many scandals which have led to the collapse of many businesses such as Maxwell, WorldCom, Enron and the Bank of Credit and Commerce (BCCI).

Because of these collapses, some urgent questions have been raised about the relationship between shareholders and management of companies and how to organise this relationship to achieve optimal results. Furthermore, the professional institutions and organisations have begun to think about devising a system which guarantees the non-repetition of these collapses. Consequently, the concept of corporate governance emerges as a solution to this problem.

2.4.1 Corporate governance concept

The concept of corporate governance can be viewed from two different points. ***Firstly, from the role of corporate governance:*** Some definitions focus on the role which corporate governance plays inside the companies. Cadbury Committee Report in the U.K. defines corporate governance as "The system by which companies are directed and controlled" (Cadbury, 2000). This definition has been embraced by some researchers (Werder and Grundei, 2001).

Secondly, the parties with whom the companies are concerned: Some of the definitions concentrate on only one part, namely shareholders, such as Ng and Koh, (1994) who define corporate governance as "the process and structure used to direct and manage the business and affairs of the corporation with the objective of enhancing long-term value for shareholders and financial viability of the business." Similarly, Parkinson (1994); Shleifer and Vishny (1997) and Monks and Minow (2004) follow the same direction when concentrating on the shareholders' side.

On the other hand, some definitions focus not only on one part, but they also concentrate on more parties such as shareholders, customers, employees, suppliers who collectively are called "stakeholders". Among these studies, Demb and Neubauer (1992) state that corporate governance is "the process by which corporations are made responsive to the rights and wishes of stakeholders". Similarly, Dahya et al. (1996) and Solomon (2007) concentrate on the stakeholders' part in their definitions.

According to the above points of view, it can be concluded that there is no generally accepted definition of corporate governance. Nevertheless, there is a basic line which should be maintained by all the definitions. This line is the structure of corporate governance which constitutes to direct, manage and control company affairs and strategies regardless of the party/parties to which the companies are accountable. This is consistent with the OECD definition which defines corporate governance as "...a set of relationships between a company's management, its board, its shareholders and other stakeholders. Corporate governance also provides the structures through which the objectives of the company are set, and the means of attaining those objectives and monitoring performance are determined". Many objectives can be achieved by implementing a corporate governance structure. These objectives will be discussed in the next point.

2.4.2 The objectives of corporate governance

As seen from the above, corporate governance seeks to maintain a balance between all the parties either inside the corporation i.e. the management, the board of directors and CEO, or outside the corporation i.e. the shareholders and other stakeholders. Therefore, in order to determine the objectives of corporate governance, it is worthwhile investigating the forces which corporate governance uses to balance all the parties.

Generally, there are four main powers which can be looked at in the context of corporate governance; the ownership power, company directors' power, managerial power and institutional shareholders' power (Tricker, 1984; Monks and Minow, 2004). All these powers should be balanced within the company. But unfortunately, there is a separation between who owns the money and who runs the business. This separation will transfer the power from shareholder to management who would then be able to run the business more effectively (Monks and Minow, 2004).

Accordingly, it can be inferred that the objectives of corporate governance are: alleviating the conflicts of interest between the shareholders, the management, the board of directors and the other stakeholders; monitoring and rewarding executive actions and performance; selecting the committee which protects the shareholders' interests by maximising their wealth and regulating managers' behaviour within the companies.

The Organisation for Economic Co-operation and Development (OECD) issued in 1999 the principles of corporate governance which gained worldwide recognition as the benchmark for best corporate governance practice. These principles have been reviewed to take account of recent developments and experiences in OECD member and non-member countries. The principles can be summarised as follows (OECD, 2004):

- Ensuring the bases for an effective corporate governance framework.
- The rights of shareholders and key ownership functions.
- The equitable treatment of shareholders.
- The role of stakeholders in corporate governance.
- Disclosure and transparency.
- The responsibilities of the boards of directors.

From the scandals which have happened in international companies, corporate governance has derived its importance and this will be discussed in the next point.

2.4.3 The importance of corporate governance

Although the notion of corporate governance is not new, its importance has increased in the last few years as a request for disposing of the collapses in business which have affected the confidence of investors in capital markets. Further, in the wake of the worldwide stock market crash of 1987 which resulted in a number of steps being taken in many jurisdictions to develop a system by which companies are controlled, represents a further need for concern about corporate governance (Rawy, 2004). In addition, the desire to enhance confidence in corporate reporting as a mean of disseminating information is another reason for increasing the importance of corporate governance.

Consequently, many factors demonstrate the need for corporate governance. These factors include: the absence of a clear framework for ensuring that directors are under the controls in their business, the looseness of accounting standards, the criticism of the financial reporting function which is perceived as not being able to fulfil all needs, the dramatic increase in unexpected business failures, the limited role of independent auditors and the geographic dispersion of shareholders (Macdonald and Beattie, 1993; Demirage and Solomon, 2003).

According to the importance of corporate governance and the need for dispersing its regulations, many empirical studies have emerged to examine the relationship between corporate governance and different aspects of the companies. This will be discussed in the next point.

2.4.4 The main variables of corporate governance

Several empirical studies have been conducted worldwide – especially in the developed countries – to highlight the role of corporate governance in improving different aspects of companies. However, the notion of corporate governance does not receive much attention in developing countries.

As the role of corporate governance has increased recently, many studies seek to investigate empirically the relationship between corporate governance and many different aspects which are related to companies in different countries. Many corporate governance variables can be derived from these studies which may help in examining the impacts of such variables on CIR. Mainly, there are two major parts related to corporate governance that have been discussed in the previous studies: ownership structure and board of directors.

Ownership structure represents the most important factor in the formation of a corporate governance system in any country. In particular, it determines the conflict which may exist between managers and shareholders, or between minority shareholders and other stakeholders (Al-Ajlan, 2005).

Ownership structure varies from country to country according to some factors that shape its construction. Moreover, ownership structure may be dispersed between many shareholders and this indicates that the structure is outside driven. On the other hand, the ownership structure may be concentrated in the hands of management who dominate a large part of the ownership, and hence, the ownership structure is called inside driven. Many categories can constitute the ownership structure in the company. These categories include the ownership of family, managerial, governmental, institutional and foreign structures.

The second part which constitutes the scope of corporate governance is the board of directors' membership. **The board of directors** represents one of the most critical parts of company structure. It represents the link between the people who provide the money (the shareholders) and those who use this money to create value (managers). Many types of director can be found in any company; among them are the "executive or inside director" and the "non-executive or outside director".

The main function of the board of directors is controlling and monitoring management on behalf of shareholders as a result of the dispersion of ownership and the difficulty of doing this job by the shareholders themselves (Prowse, 1998). Many factors can be related to the board of directors' part such as: board size, board composition, board duality, family members representative on the board, foreign members representative on the board and cross-holding of directorship. According to the current study, both parts – ownership and board of directors' structures – will be examined in relation to CIR.

The next section introduces a general view about corporate governance practices and their implications in the Egyptian context.

2.5 Corporate governance in Egypt

Good corporate governance practice will be crucial for supporting economic growth and effectively channelling savings to new investments (Abdel-Shahid, 2001). McKinsey Consulting confirms the importance of corporate governance by surveying more than 200 institutional investors in 2002. The survey shows that 80% of the participants are willing to pay a premium for well governed companies. Moreover, in the case of Egypt the premium amounted to 40% in 2002 instead of 0% in 2000. Consequently, improving corporate

governance in Egypt can lead to an increase in Egyptian firms' value, and enhance the foreign direct investments that are much needed by the Egyptian Economy (Dahawy, 2007).

As Egypt seeks to attract more foreign investments to its capital market, it is imperative that Egyptian companies apply the principles of corporate governance. Some studies argue that corporate governance has become an important issue in Egypt in recent years due to the 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 which 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 leads to greater transparency, the independency of managers and the monitoring of external factors.

With regard to the legal framework that impacts on the concepts of corporate governance in Egypt, two major groups can be identified (Dahawy, 2007): laws that govern the incorporation of companies in Egypt and laws that govern the listed companies in EGX. The first group of laws includes: companies' law No.59/1981 which regulates joint stock, limited liability and partnerships limited by shares companies, Public business sector law No.203/1991 that deals with public sector companies, and investment law No.8/1997 that organises investment in specific industrial locations. The second group of laws includes: Capital market law No.95/1992 which regulates the Egyptian financial market, and Central depository law No.93/2000 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 companies with international corporate governance principles such as the principles which are issued by the Organisation for Economic Co-operation and Development (OECD). Therefore, the World Bank, jointly with the Organization for Economic Cooperation and Development (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 found that 62% of the principles were applied by the Egyptian companies under study. The survey was last updated in March 2004 and found that 82% of the studied companies were applying OECD principles which reflect the improvement in applying corporate governance principles in Egypt (OECD, 2004). Appendix 2 presents the final conclusions attained by the report.

In 2003, the Egyptian Institute of Directors (EIoD) was established as the first institution focusing on corporate governance in the Arab region. It aims at spreading awareness and improving good corporate governance practices in Egypt, the Middle East, and North Africa (MENA) region (EIoD website)[5].

The EIoD published two major codes 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; and 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

[5] http://eiodqa.eiod.org/index.aspx.

which define rules and procedures that achieve the optimum protection and balance between the interests of directors, shareholders, and stakeholders (EIoD website)[6]

Recognising the importance of the role played by corporate governance, the EGX 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 in the disclosure procedures and act as blue chip companies for their peers. The Committee plays a communications and advisory role, and also sponsors events and publications (ICC, 2006).

Recently, the 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[7]. Moreover, the new listing rules stipulated by EGX add another restriction to Egyptian corporations for applying the principles of corporate governance.

The Capital Market Authority (CMA) Chairman issued Decree No. 62 in 2007 concerning the issuance of a manual of executive regulations of corporate governance to be implemented by non-listed brokerage firms. The CMA needs to ensure the understanding of the company's executives of their role in implementing corporate governance principles (EGX, 2008).

2.6 Summary

CIR is an accounting process that implies relying on the sharing of the human in deciding whether to disclose financial and non-financial information on the website of the companies

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[6] http://eiodqa.eiod.org/Subsection.aspx?SID=7&SectionID=2

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

or not. Most previous studies have concentrated only on the effect of company characteristics on CIR and neglected the core role which can be played by the directors of these companies. Those directors are the ones who may voluntarily decide to disseminate the information on their companies' websites. This decision may be consistent with the need for increasing the company's governance which in turn helps the directors to disclose more timely and accurate information to enhance the company's transparency aimed at being achieved by the principles of corporate governance.

Additionally, the principles of corporate governance issued by OCED recommend that the use of the Internet will improve information dissemination in addition to timely and cost-efficient access to relevant information by investors. This represents another importance for using the Internet as a disclosure medium (Spanos and Mylonakis, 2007).

Consequently, this chapter aims to introduce the nature of both CIR and corporate governance as a base to fulfil the main objective of the study. Recognising both concepts will be helped in investigating the expected influence of the application of corporate governance in the Egyptian environment on CIR by the Egyptian listed companies. In addition, presenting the developments of accounting profession and the current situation of corporate governance in Egypt reflects the reason behind choosing Egypt as a context for the current study.

Many corporate governance variables are derived from previous literature in order to use them to explain the expected relationship with CIR. This relationship will be discussed in detail in chapters four, six, eight and nine.

After discussing the nature of CIR and corporate governance, the next chapter will present the different theories that explain the need to study CIR in the Egyptian environment.

CHAPTER 3 THEORETICAL FRAMEWORK: A CLOSE VIEW FOR DISCLOSURE THEORIES

3.1 Introduction

A theory is "a set of statements or principles devised to explain a group of facts or phenomena, especially one that has been repeatedly tested or is widely accepted and can be used to make predictions about natural phenomena" (The Free Dictionary definition). Further, theories are comprehensive orderings of reality, giving meaning to facts within a paradigm, rather than arising out of them, and they should be testable to be a value and therefore, exposed to the possibility of being rejected on empirical grounds (Ziolkowski, 2005).

Although there are many accounting literatures which discuss the notion of disclosure, there is no comprehensive or unifying theory of disclosure (Verrecchia, 2001). Fields et al. (2001) highlight that although a comprehensive theory of accounting is presently not available, there is a need for it to provide guidance to researchers in structuring empirical experiments, in identifying appropriate variables, and in formulating alternative hypotheses. Many theories have been used to explain the practice of disclosure and complement each other. These theories are different in their explanations towards corporate disclosure due to their assumptions' diversity. Therefore, determining the best applicable theory depends upon the emphasis of the study. Many studies demonstrate the importance of theories in the academic research process (Fields et al., 2001; Verrecchia, 2001; Healy and Palepu, 2001).

Haniffa (1999) points out that the proposed disclosure theories seem fuzzy in the sense that all of them are logical and acceptable but none could be voted as the best theory of

disclosure. Rawy (2004) indicates that different theories which explain corporate disclosure could be considered as a normal development in the focus of corporate disclosure over time.

Therefore, before reviewing the previous studies of CIR, the researcher will discuss the theories which explain this field and use for testing the hypotheses of the current study. Many theories are used to explain the need for different corporate disclosure, some of them are competing and the others are complementary. According to the current study, theories which justify the nature of CIR can be classified into five basic approaches: economic approach, political-economic approach, socio-economic approach, cost-benefit approach and innovation adoption approach.

Consequently, the aim of this chapter is to present the main theories which will be used as a basis for explaining and testing the research hypotheses. This chapter is organised as follows: Section 3.2 outlines the economic approach that includes agency, stewardship, signalling and capital need theories. Political costs theory will be discussed in section 3.3. Section 3.4 summarises the socio-economic approach that contains stakeholder theory. In section 3.5, information costs theory is mentioned in the cost benefit approach. Section 3.6 documents the innovation adoption approach which includes both the Technology Accepted Model (TAM) and diffusion of innovation theory. Finally, section 3.7 summarises the chapter.

3.2 Economic approach

The economic approach focuses on the goal of profit maximisation and concentrates on the interests of two parties only, shareholders and managers. Four disclosure theories can be classified under this approach: agency theory, stewardship theory, signalling theory, and capital need theory.

3.2.1 Agency Theory

Agency theory was introduced first by Alchian and Demsetz (1972) who emphasised that activities of firms were governed by the role of contracts to facilitate the voluntary exchange (Arnold and de Lange, 2004). It is the dominant of all disclosure theories as it is used widely in many of the disclosure studies (Chow and Wong-Boren, 1987; Cooke, 1989; Ruland et al., 1990; McKinnon and Dalimunthe, 1993; Hossain et al., 1994; Marston and Leow, 1998). Agency theory uses management incentives to explain the need for voluntary disclosure. It is based on the separation between the principals (owners) and the agents (managers). Therefore, there is a relationship between those two parties. This relationship is managed by a contract under which the agent performs some services to the principals (Jensen and Meckling, 1976).

Due to the separation between the two parties, conflicts of interest are emerging. Two types of conflict will appear: the shareholder/management conflict which occurs when the managers seek to maximise their interests instead of maximising the wealth (the interests) of the shareholders and hence, increase the agency cost of equity. The second conflict is among bondholders/shareholders/management, which occurs when there is a debt in the firm's capital structure and this persuades the managers/shareholders to expropriate the value of the firm, and hence, increase the agency cost of debt (Abd-Elsalam, 1999; Rawy, 2004; Haddad, 2005). These conflicts are not free of costs and lead to many problems, called agency problems. Jensen and Meckling (1976) demonstrate three types of agency costs: (1) the bonding expenditures of the agent, (2) the monitoring expenditures of the principals, and (3) the residual loss which represents the differences in wealth between the agent and principals.

One of the most important agency problems is information asymmetry, which arises due to the willingness of each agency party to conceal information from the other party. In this situation, agency cost increases because management will seek to enhance their own interests instead of those of their shareholders. Arnold and de Lange (2004) mention that information asymmetry occurs where management (agents) has the competitive advantage of information within the company over that of the owners (principals).

In summary, the agency problem occurs due to the diversity between the objectives of both the principals and the agent. The principals need to encourage the agents to act in the principals' interests, while they do not have the proper information about the behaviour of those agents. On the other hand, the agents rarely do this. Instead, they do what satisfies their interests, even if it conflicts with the principals' interests.

One way to alleviate agency problems is by disclosing more information (Craswell and Taylor, 1992; Marston, 1996). Similarly, Demski (1974) recommends managers to disclose more information through the company annual report to differentiate themselves from more poorly run companies. However, the decision of disclosure by the agents may be problematic. The agents are willing only to disclose the information which maximises their interests and they ignore the information that might put them at a disadvantage.

Jensen and Meckling (1976) point out that widely held companies are characterised by high conflicts of interest between contracting parties and consequently the agency problems in these companies are high. Ghazali (2004) confirms that widely held companies disclose more information to signal that the agents are acting in the interests of the principals. Conversely, Suphakasem (2008) argues that the East Asian companies which are ownership concentrated

are characterised by more interests' incongruence and hence, need to disclose more information to alleviate this incongruence.

Each of the two parties tries to use the level of disclosure to diminish the information asymmetry and agency cost to the minimum level. Managers disclose more information to signal that they act on behalf of their owners' interests, and owners may encourage managers for disclosing more information by rewarding them. Therefore, it is argued that voluntary disclosures lower agency costs (Chow and Wong-Boren, 1987). Many studies that focus on the use of voluntary disclosure by management to reduce agency cost have used many variables to explain this situation; among these variables are: firm size, leverage, ownership structure and some attributes of board of directors (Jensen and Meckling, 1976; Chow and Wong-Boren, 1987; Ruland et al., 1990; Cooke, 1991, 1993; Lang and Lundholm, 1993; Hossain et al., 1994; Noe, 1999; Xiao et al., 2004; Marston and Polei, 2004; Kelton and Yang, 2008).

As online disclosure is one of the voluntary disclosure types, it can be concluded that disseminating more information on the company's websites alleviates the agency problems.

3.2.2 Stewardship theory

The basic notion behind agency theory is the conflicts of interests between management and shareholders. Many researchers argue for this case (Beaver, 1981, Lane et al., 1998, Daily et al., 2003). The stewardship theory is based upon the congruence – not the conflict – in the interests between management and their shareholders. In this regard, Manz (1986) mentions that stewardship theory has derived its basic assumptions from the notion that managers are directed by intrinsic rather than extrinsic motivations. Therefore, the stewardship theory represents the opposite side of agency theory.

Tricker (1984, P.126) shows accountability in stewardship theory as "The means by which those who manage and oversee the affairs of the company are held to account for their stewardship of corporate assets". In addition, Davis et al. (1997, P.21) have defined the stewardship theory as "The theory that defines situations in which managers are not motivated by individual goals".

According to this theory, management maximises its interests not by individual actions, but rather by actions that increase the interests of companies and their owners as a whole. Management has the authority to access superior information, which may put it in an advanced position from that of the company's shareholders. Therefore, based on this theory, management will provide the shareholder with the required information due to the congruence of interests between them. One way to achieve this is by disclosing more information via the company's website.

3.2.3 Signalling theory

Similar to agency theory, signalling theory deals with the separation of managers and ownership. Therefore, it seeks to allay the information asymmetry and the conflict between managers and owners. The theory shows how asymmetry can be reduced when the party with more information signals it to others (Morris, 1987). Although the signalling theory was developed in the labour market to deal with problems where buyers are imperfectly informed about the quality of products or services in the market, it is applicable to any market characterised by information asymmetry (Akeelof, 1970; Spence, 1973; Morris, 1987).

Management can reduce the effect of signalling costs – especially on the share price – by providing quality information through sending a signal to the interested parties. Consequently, managers with superior information on the demand for a company's product

seek to convince both the capital market and competitors by disclosing more information, which will have a significant impact on the company value (Verrecchia, 1983). Similarly, the company seeks to deceive its competitors that the demand is low, which leads competitors to reduce their output and accordingly increase the informed company's profit (Gigler, 1994).

Signalling theory is based upon higher quality companies having the motivation to distinguish themselves from those of lower quality to signal their good performance to the others interested parties (Morris, 1987). Voluntary disclosure may help managers to distinguish themselves from others on dimensions such as quality and performance (Xiao et al., 2004).

Similarly, companies with bad news may have the motivation to disclose more information to avoid the reputation costs which may arise from being late in disclosing information in the proper time (Skinner, 1994). In addition, companies with no information also have the propensity to signal no news to differentiate themselves from those with bad news (Ross, 1979). Therefore, companies with different types of news, either good or bad or even no news, should signal these types of news to their users to keep them updated with the companies' events which in turn increases the confidence in these companies. Many variables are discussed in the light of signalling theory; among them are profitability, liquidity and industry type (Marston and Leow, 1998; Craven and Marston, 1999; Oyelere et al., 2003; Xiao et al., 2004; Marston and Polei, 2004).

Regarding CIR, firms may adopt the Internet to disclose more information and provide their news in the proper time to different parties to distinguish themselves from the others. Using the Internet itself is a sign of the high quality and good performance of a firm and this may encourage other firms in the same industry, or even in other industries, to use the same

procedure and disclose information to their stakeholders. This is confirmed by Craven and Marston (1999, P.323) who state that "The very use of the Internet might itself be a signal of high quality. It implies that the firm is modern and up to date with the latest technology rather than old fashioned and conservative".

3.2.4 Capital need theory

Disclosure has been argued as being influenced by market pressures. Therefore, according to this theory, companies may disclose more information to raise capital at the lowest possible cost. Disclosing more information may reduce investor's uncertainty and raised new capital cheaply (Choi, 1973a; Cooke, 1993). Many studies indicate that the increase in the disclosure level reduces the company's security risk and the rate of return required by investors, which in turn reduces the company's cost of capital (Choi, 1973b; Dhaliwal, 1979; Copeland and Galai, 1983; Diamond and Verrecchia, 1991).

Capital need theory seeks to lessen the degree of information asymmetry. Investors need accurate and timely information about the companies in which they are willing to invest. These investment decisions are made under uncertainty and risk conditions. Therefore, the availability of information at the required time will help these investors to make rational decisions and invest more in these companies which leads to a reduction in the cost of capital for these companies. Alexander and Archer (1995) point out that the main role of financial reporting is to reduce information asymmetries in capital markets, which may improve market efficiency.

Many studies use capital need theory to explain the relationship between voluntary disclosure and various variables (Cooke, 1989; Meek and Gray, 1989). Mueller et al. (1987, P.86) indicate that: "Secrecy is self-defeating. Failure to make reasonable disclosure in response to

users' needs can severely limit the pool of funds available to a corporation. Potential providers of capital, when kept in the dark, will simply put their money elsewhere".

In addition, Adhikari and Tondkar (1992) indicate that providing information about capital markets to stakeholders is one of the roles of accounting. Therefore, providing the stakeholders with their required information puts pressure on companies to improve the quality and quantity of their disclosed information. Further, Abd-Elsalam (1999) uses capital need theory to support the expectation that public sector and heavily traded companies will disclose more than private sector and rarely traded companies.

Moreover, Healy and Palepu (2001) suggest that for companies going to perform capital market transactions, the managers may reduce the information asymmetry by voluntarily disclosing information.

Al-Htaybat (2005) mentions that there are three reasons for using capital need theory in explaining voluntary disclosure. The first is the desire of companies to raise their capital at a cheap rate. The second is the reduction of agency costs of companies due to the increase of the voluntary disclosure which makes companies raise their new capital in the best way. The last is the reduction of investor uncertainty due to the increase of financial information disclosed by the companies which reduces the rate of the investors' return.

Consequently, companies will disclose more timely information to satisfy the needs of their stakeholders and one of the tools that helps them in doing that is using the Internet in disclosing the companies' information because of its speed and ease in disseminating the required information.

3.2.5 Limitations of economic approach

The economic approach suffers from some limitations, which may restrict its ability for explaining the voluntary disclosure, especially in developing countries. Abd-Elsalam (1999) argues that this approach has been based on the assumption of an efficient capital market which may not be achieved in the developing countries. She indicates that while both agency and capital market theories may be applicable to some extent in the emerging countries' capital market, signalling theory is not due to data unavailability or less sophisticated investors. Similarly, Kean (1993) (as cited in Leventis, 2001) indicates that one of the strong assumptions is that this approach is based on the rationality of market participants, which may not hold for emerging capital markets. Additionally, Leventis (2001) argues that the relatively inefficient emerging capital markets may not enable strong signalling effects. However, Abdel-Fattah (2008) mentions that there is an accelerated direction in most of the developing countries towards market economy and globalisation, which may explain the use of economic approach theories by a number of disclosure studies in these countries.

Moreover, the main users of this approach are only the managers and shareholders. While in the modern economy there are more than these two types beginning to appear in society and they have different needs, such as government, employees, creditors, consumers, suppliers and taxation authorities. In addition, the economic approach concentrates mainly on the maximisation of profit goals and ignores other goals (ibid).

Accordingly, some studies have advocated the political economic approach to overcome the drawbacks of the economic approach. This will be discussed in the following section.

3.3 Political economic approach

The main trend of the political economic approach is that it recognises the interaction between economic activities and politics, society and institutions. Therefore, the emphasis is not only on the relationship between management and shareholders, but also other stakeholders.

Tinker and Niemark (1987, P.72) use the classical political economy approach in an examination of the use of annual reports. They mention that "corporate reports play a critical role in shaping the social ideology that legitimises the company's annual reports. The social ideology is used as an ideology weapon that influences the distribution of income and wealth to ensure the company's continued profitability and growth".

One of the main theories of the political economic approach is political costs theory which will be discussed in the next point.

3.3.1 Political costs theory

The idea beyond political costs theory derived from Watts and Zimmerman (1978, 1986, and 1990), is that the politicians (e.g. tax institutions and government bodies) have the power to impact on the wealth redistribution of the companies. Therefore, the political costs theory does not focus upon the aspect of self interest and wealth maximisation of the companies (Haddad, 2005).

To alleviate the pressure that the companies encounter from politicians, they select a number of devices, such as social responsibility campaigns in the media, government lobbying and selection of accounting procedures to minimise reported earnings (Watts and Zimmerman, 1978). Correspondingly, management can reduce the likelihood of adverse political actions

and, thereby, reduce its expected costs (including the legal costs the firm would incur opposing the political actions) by adopting accounting policies and lobby for accounting standards (Watts and Zimmerman, 1978; Rahman and Scapens, 1988).

Accordingly, political cost theory has been adopted to explain the reasons why management discloses information voluntarily (Milne, 2002). Many studies use political cost theory to explain this voluntary disclosure (Firth, 1980; Cooke, 1989; Lim and McKinnon, 1993; Al-Modahki, 1995; Owusu-Ansah, 1997; Curuk, 1999). However, there is no direct relation between political costs and the level of voluntary disclosure. While some studies reveal that this relation is positive (Firth, 1980; Cooke, 1989; Raffournier, 1995), others demonstrate that this relation is doubtful (Belkaoui and Karpik, 1989; Panchapakesan and McKinnon, 1992; Owusu-Ansah, 1997; Milne, 2002).

Companies may increase their voluntary disclosure to reduce the enforceable role of regulatory bodies and avoid any potential pressure from governmental interference, which may encounter the companies that are more vulnerable to political attacks (Leventis, 2001). Additionally, Watts and Zimmerman (1986) indicate that corporate disclosure mitigates government intervention.

Political costs theory is usually used to explain the company size hypothesis. Basically, the large companies are more in the public eye than small companies which motivates these large companies to disclose more voluntary information to reduce their political costs (e.g. tax) (Al-Hatybat, 2005). Zimmerman (1983) concludes that larger companies are subject to higher tax rates and therefore, higher political costs. Some studies suggest that political costs may not only depend on company size (Patten, (1991); Ness and Mirza, (1991); Blacconiere and Patten, (1994); Patten and Nance, (1998); Ghazali, (2004)). These studies reveal that industry

sensitivity may relate to political cost as well. They indicate that companies extend their voluntary disclosure in the oil and gas industry to mitigate their future regulatory costs (Ghazali, 2004).

Based on the above discussion, Egyptian listed companies may be in the public and government eye as they contribute to the Egyptian economy. These companies should basically provide more information to their users to avoid the additional political costs which may arise due to their critical events. Therefore, listed Egyptian companies may choose to increase their voluntary disclosure to avoid the restrictions which they may encounter from the government. One way to do that is by disclosing the information on their website to provide timely and accurate information.

Bedford (1973), as cited in (Haniffa, 1999), suggests that the structure of accounting should extend into the fields of psychology, sociology, and ecology in order to provide realistic bases for accounting disclosure. Consequently, social perspectives may add greater insights into the importance of financial accounting, namely information disclosure (Hopwood, 2000). Many studies use a socio-economic approach to explain voluntary disclosure. This will be discussed in detail in the next section.

3.4 Socio-Economic approach

The socio-economic approach is closely related to the political-economic approach. Many studies advocated the socio-economic approach (e.g. Cooper, 1980; Tinker, 1980; Mangos and Lewis, 1995). Some researchers advocate that the role of accounting in a society should cover the field of social science, including sociology, political science and economics (Estes, 1973) as cited in (Haniffa, 1999). Further, Beckert (2008) integrates elements of economic

and other social sciences into one system. In addition, Cooper and Keim (1983) propose broadening the economic perspective by including both social and political perspectives.

Moreover, Neu (1992) reports that the socio-economic approach provides a more complete understanding of factors that influence the behaviour of management. This would happen by "the embeddedness of managers in social science".

Those who prefer this approach suggest three reasons to support their stand (Bloom et al., 1987 and Haniffa, 1999). Firstly, they believe that society has certain rights to have required information, especially if the activities of the companies affect them directly or indirectly. Secondly, the companies should report their achievements as this is a good public relations vehicle and lastly, disclosure beyond the normal level will lessen the chance of intervention by government and societal restriction on the companies. One of the implications of this approach is the stakeholder theory which will be briefly reviewed in the following section.

3.4.1 Stakeholder theory

Stakeholders are defined as "any group or individual who can affect or is affected by the achievement of the firm's objectives" (Freeman, 1984, P.46). Sternberg (1997) mentions that there is a radical shift, from those who affect the company which could not survive if they withdrew, to those who are affected by it as they have a stake in the company. Consequently, under stakeholder theory, companies need support from all their stakeholders to be able to survive and continue in the long run (Smith et al., 2005).

The core point of the stakeholder theory is that it recognises the relationship between management and all parties who have a stake in the company such as shareholders, creditors, customers, employees etc. This is converse to the agency theory which concentrates only on

the relationship between management and the shareholders. Sternberg, (1997) demonstrates that management should create a balance between stakeholders' competing interests as the objective should be directed towards the benefit of stakeholders instead of the financial benefits of the owners. Additionally, Blair (1995) suggests that management should maximise the total wealth creation of the shareholders by aligning it with the interest of critical stakeholders.

Disclosure can be used by management to manage the perceptions of different stakeholders either to obtain their support or avoid their opposition (Gray et al., 1996). Deegan (2002) indicates that there is a variety of motivations for management to disclose voluntary information, and one of these motivations is to manage particular – maybe powerful – stakeholder groups. Similarly, Collier (2008) mentions that stakeholder theory is concerned with the management of powerful stakeholders who have competing interests which enforce companies to strike an appropriate balance between conflicts of interest when directing their activities, namely disclosure.

The proponents of this theory explain its importance according to its aim to extend the benefits gained by the companies from concentrating only on shareholders, to include other stakeholders (Freeman, 1984). Solomon (2007) states the basis for stakeholder theory. This basis is that companies are so large and their impact on society so pervasive that they should discharge accountability to many more sectors of society than solely their shareholders, to include various stakeholders in the company's operations and the general public.

Stakeholders need a greater level of transparency and the Internet, as a new disseminating information tool, supports ethical and sustainable conduct (Ahmed and Hardaker, 1999). Nowadays, there is a big threat for companies to satisfy the various needs of stakeholders

whose expectations are high with regard to communications with companies. Therefore, companies can gain competitive advantage through their communication with stakeholders, which can be achieved widely and easily by using the Internet (Bolivar and Garcia, 2004). Jonker and Foster (2002) mention that currently, analysing and dealing with the needs of stakeholders is a major concern of companies. To achieve this goal, new technology – namely the Internet – can help companies to satisfy these needs (Bolivar and Garcia, 2004). Furthermore, Ahmed and Hardaker (1999) argue that in order to move towards a more sustainable future, concerns should be directed to the links between society, reality, company activity, the environment and technology. They further mention that technological development of the Internet offers the possibility of obtaining these links.

The decision to disseminate information on the company's website – like any decision – is taken according to the benefits expected to be gained regarding the incurred costs. Therefore, a cost-benefit approach emerges to ensure the justification for taking such decisions. The next section discusses the cost – benefit approach in detail.

3.5 Cost-Benefit approach

The basic notion of this approach is based on the balance between the costs and benefits which are related to any taken decision. The researchers argue that for any decision has an impact on the companies, the costs and benefits related to this decision should be considered (Leventis, 2001). Next point reveals the basics of information cost theory that reflects the idea of the cost/benefit approach.

3.5.1 Information costs theory

Information costs theory provides conceptual and methodological tools to explain the disclosure process. Gray and Roberts (1989) mention that companies disclose voluntarily if the weighted benefits exceed the weighted costs. Bhushan and Lessard (1992, P.150) confirm this by arguing that "It is now generally recognized that a cost-benefit analysis is required, weighting the benefits of additional disclosure to investors against the costs, both direct and indirect, to issuers". Similarly, Cooke (1992) assumes that when companies have made a voluntary disclosure it means that the benefits of disclosure exceed these costs.

Two types of cost information can be classified (Mautz and May, 1978; Foster, 1986): direct and indirect costs. The direct costs include the cost of information gathering, management supervision, audit and legal fees and dissemination of the information (Cooke, 1992). Additionally, Watts and Zimmerman, (1990) outline that disclosure to the contracting parties either internal (e.g. employees and management) or external (e.g. suppliers, creditors and customers) burdens the companies with contracting costs, which include transaction costs (brokerage fees), agency costs (monitoring and bonding costs), information costs (the costs of becoming informed), renegotiation costs (the costs of rewriting existing contracts) and bankruptcy costs (the cost of a dysfunctional decision).

Regarding the indirect costs, two types of costs can be illustrated: litigation and competitive disadvantage costs. Elliott and Jacobson (1994) mention that litigation costs can arise from allegations of insufficient informative disclosure or from allegations of misleading disclosure. Competitive disadvantages refer to the additional information used by competitors due to the extension in disclosing information by companies (Radebaugh and Gray, 1997).

Many studies discuss the benefits of CIR (McCafferty, 1995; Louwers et al., 1996; Green and Spaul, 1997; Trites and Sheehy, 1997; Trites, 1999; Mohamed et al., 2009). One of the main benefits of disclosing information via the Internet is the savings made in costs of production and distribution that are associated with print-based annual reports (Oyelere et al. 2003). Accordingly, Elliot and Jacobson (1994) conclude that the costs of developing and presenting disclosed information have decreased rapidly due to the advancement of information technology – especially the Internet – and consequently, companies should extend their disclosure by providing more information to their stakeholders through their websites.

Additionally, Oyelere et al. (2003) demonstrate that Internet reporting improves the accessibility of information for stakeholders which meets their different needs and provides interactive tools – which are not available in a paper-based disclosure – such as hyperlink and search facilities to allow non-sequential access to the information.

In summary, classifying CIR into content, presentation, timeliness and usability components are attributed to the benefits which are derived from each component. Achieving these benefits will lead consequently, to reducing the costs related to disclosing information via the websites of companies. Lymer (1999) suggests that the cost savings and the wide availability of data made possible by using the Internet are likely to encourage more demand for its use to fulfil statutory reporting requirements. Information costs theory supports this notion.

Companies should recognise what their stakeholders want to know and then be able to provide the right information required by them at the right time, in the right format and by an easy method to obtain the value of this information (Bolivar and Garcia, 2004). To achieve this goal, companies should adopt the right tool to disclose and provide their information to their stakeholders. The innovation adoption approach may help companies to justify using the

Internet to disclose their information. This approach will be discussed in the following section.

3.6 Innovation adoption approach

Innovation can be defined as an idea, object or practice perceived as new by members of the social system, either individual or an entity (Mahajan and Peterson, 1985; Damanpour, 1991; Xiao et al., 2004). Consequently, it can be assumed that adopting Internet reporting represents an innovation for the companies which decided to disclose their information on their website.

Mehrtens et al. (2001) indicate that though using the Internet by SMEs is discussed in numerous studies, there is a lack in identifying the organisational rationale beyond Internet adoption. Further, Swanson (1994) demonstrates that information systems include three essential types that are related to business innovations: technical core, information systems core and administration core. These various types of innovation determine the pattern of the innovation's adoption. In addition, many studies indicate that the adoption of the business process reengineering innovation is affected by some organisational attributes such as technological knowledge resources and infrastructure (Grover et al., 1999; O'Donnell, 2003).

Jeyaraj et al. (2006) investigated the information technology adoption's studies between 1992 and 2003. They find that the Technology Acceptance Model (TAM) and Diffusion of Innovations (DoI) theory are used widely to explain the adoption of information technology themes. Both will be demonstrated in more detail in the following section.

3.6.1 Technology acceptance model

Over the last two decades, the Technology Acceptance Model (TAM) has grown to be one of the most used models for technology adoption (Jeyaraj et al., 2006; Hirschheim, 2007). It was developed to explain and predict computer usage behaviour (Davis, 1989). The model is an adaption of the theory of reasoned action (TRA) introduced by Ajzen and Fishbein (1980). TAM postulates that an individual's (management) intention to adopt an information system is determined by two dimensions: perceived usefulness and perceived ease of use (Venkatesh and Davis, 2000). Perceived usefulness is defined as "the extent to which a person believes that a particular information system would enhance his or her job performance". Further, perceived ease of use refers to "the extent to which a person believes that using a particular system is free of effort" (ibid, P, 187). "When all other things are equal, an application that is perceived to be easier to use than another is more likely to be accepted by users" (Lee et al., 2008, P.221).

Information Technology systems (ITs) are becoming increasingly complex and essential to organisational operations and managerial decision making (e.g. enterprise resource planning, supply chain management, customer relationship management systems) (Venkatesh and Bala, 2008). Accordingly, many studies in this area are emerging to discuss and explain the adoption of ITs (Adams et al., 1992; Agarwal and Prasad, 1999; Al-Gahtani, 2001; Amoako-Gyampah and Salam, 2004; Chan and Lu, 2004; Kim and Malhotra, 2005; Hsu and Lin, 2008; Lundmark et al., 2008).

Janvrin et al. (2007) explored the audit IT usage and its perceived importance that it directly impacts on audit judgment and consequently, audit effectiveness and efficiency. The results revealed that although there are varieties of important audit applications, auditors did not use

these tools extensively. Further, the study concluded that audit IT usage and perceived importance vary by firm size.

Recently, Pinsker (2008) points out that TAM can be used for explaining eXtensible Business Reporting Language (XBRL) adoption. He indicates that managers should consider an IT that is capable of complying with reporting requirements as well as its ability to provide potential investors with useful information about a company. In addition, Lee et al. (2008) use TAM to examine the various factors which affect the investor's utilisation of financial websites to obtain the required information. They conclude that (1) consistency and technical convenience influence perceived ease of use; (2) decision quality, investment information and information quality affect perceived usefulness; and (3) perceived usefulness to the individual investor is affected more by decision quality, while perceived ease of use is influenced equally by consistency and technical convenience.

3.6.2 Diffusion of innovation theory

Diffusion of Innovation (DoI) is a theory of how, why and at what rate new ideas and technology spread and are implemented successfully through cultures. Rogers (2003, P.12) defines innovation diffusion as "an idea, practice, or object that is perceived as new by an individual or other unit of adoption".

Rogers (2003) mentions that there are five characteristics of the rate of innovation adoption: (1) relative advantage, which refers to the degree an innovation is perceived to be better than the idea it supersedes, (2) compatibility, which refers to the degree to which an innovation is consistent with existing values, past experiences and needs of potential adopters, (3) complexity, which refers to the degree to which the innovation is difficult to understand and use, (4) trialability, which refers to the degree to which an innovation may be experimented

with on a limited basis, and (5) observability which refers to the degree to which the results of innovation are visible (Tung and Rieck, 2005).

Many studies used DoI theory to explain the adoption of IT in organisations (Brancheau and Wetherbe, 1990; Attewell, 1992; O'Callaghan et al., 1992; Premkumar et al., 1994; Kendall et al., 2001; Tung and Rieck, 2005; Huang et al., 2008). These studies demonstrate many perspectives provided by the diffusion of innovation theory. One of these perspectives is the individual perspective and the other is the organisational perspective to adopt or reject the innovation. Chircu and Kauffman (2000) indicate that there are a number of barriers which companies encounter when adopting IT. These barriers are: organisational barriers which refer to the valuation of the IT process, and user barriers, which refer to the conversion from the current situation to a new one.

In addition, DiMaggio and Powell (1983) as cited in (Xiao, 2004) argue that institutional change to adopt new technology can be identified by three perspectives: first, coercive (forced) perspective, which results from external pressures derived from political influence and government mandate; second, mimetic perspective, which results from following earlier organisations that adopted the technology due to the technology's uncertainty, ambiguity of organisation's goal and increase of organisation's legitimacy; and, finally, normative perspective, which results from the actions taken by professionals to manage the organisation's practices.

In the same venue, Abrahamson (1991) mentions that both fad and fashion perspectives assume that the diffusion of innovation is surrounded by uncertainty as a result of organisational imitation. He indicates that the fashion perspective occurs when organisations in a group imitate other organisations outside the group, while the fad perspective occurs

when organisations imitate other organisations in the same group. He further indicates that forced selection, which results from external pressure (such as from government and providers of capital) may have an influence on the company to adopt an innovation, whether this innovation is beneficial to the company or not.

O'Donnell (2003) introduces a theoretical framework based on diffusion of innovation theory to explain the adoption of continuous auditing. He mentions that in order to provide timely information by online financial reporting, continuous auditing should apply to ensure integrity of the reported information. The study provides further understanding of technological adoption in the area of auditing innovations.

Xiao et al. (2004) use diffusion of innovation theory to explain the CIR decisions made by Chinese companies. They further suggest that economic-based theories and diffusion of innovation theory can supplement each other to enrich the adoption of the Internet as a tool for information disclosure. In addition, their study uses diffusion of innovation theory to justify many variables such as: auditor type, foreign listing, industry type and foreign ownership.

3.7 Summary

This chapter reviewed the theories which explain the disclosure topic in the accounting literature review. Theories of disclosure support the formation of the hypotheses of the study which will be investigated to determine whether the results are consistent with what is expected by the theories or not. All these theories are substantial in explaining the disclosure practice. Therefore, all the theories deserve to have the same importance regardless of which of them is adopted and used to explain disclosure practice; this is due to the author's willingness to investigate many perspectives when explaining the topic of disclosure. Leventis (2001) states that "there is no single theory to provide an adequate explanation of voluntary disclosure since every theory, based on specific assumptions, explains voluntary disclosure through a particular perspective". This means that it is preferable to examine the CIR by using a holistic approach which consists of more than one theory because of the variety of the study's variables.

The variables in the study can be explained by more than one theory, recognising the different motivations of the disclosure that are assumed by each theory. This will enrich the study and add more depth to the analysis of its results. Figure 1 presents the theoretical framework of the study.

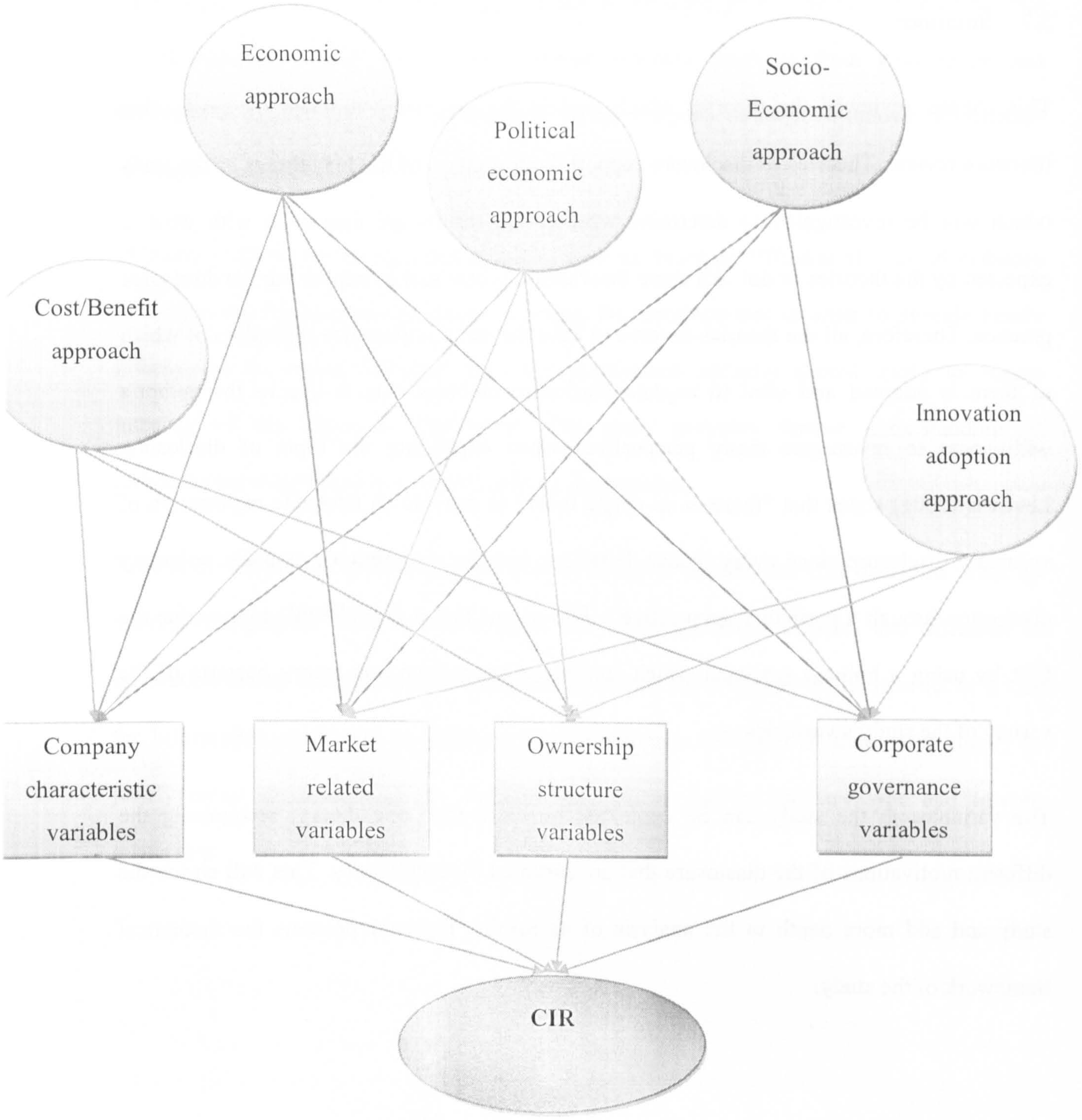

Figure 3-1: The **theoretical framework of online disclosure**

After discussing the theories that explain the disclosure field, the next chapter reviews the studies that explain the relationship between CIR and its determinants.

CHAPTER 4 LITERATURE REVIEW

4.1 Introduction

The Internet has a crucial impact on corporate reporting which makes companies widen their information dissemination on their websites to different stakeholders (Fisher et al., 2004). Consequent to the increased importance of the Internet and its apparent relevance to corporate reporting, it is not surprising to find that the issue of disseminating information via the Internet has attracted many researchers in order to discover the potential usefulness of Internet for business reporting (Lybaert, 2002).

Jensen and Sandlin (1997) have motivated accounting researchers to explore and examine the transformation of corporate reporting from printed reports to Internet-based. In addition, Healy and Palepu (2001) point out that technological innovation is one of the crucial changes in the economic environment that basically modify the nature of corporate reporting and disclosure and ultimately create new opportunities for research. Moreover, Debreceny and Gray (2001) recommend that researches should be conducted to understand the new-generation hypertext financial reports

In addition, Dull et al. (2003) indicate that it is essential for researchers to explore and recognise CIR more to alleviate the volatility of the electronic environment. Simultaneously, (Xiao et al., 2005) mention that recently, CIR has represented one of the most interesting research topics. At the same time, Gallhofer and Haslam (2006) suggest that CIR needs to be studied more in relation to accounting.

Accordingly, many studies have discussed the disclosure of information on the corporate website in many aspects, and in different countries. These studies can be classified into two

broad categories: descriptive and empirical. This chapter is, therefore, organised as follows: Section 4.2 reviews the descriptive studies. Empirical studies of CIR are discussed in section 4.3. Previous Egyptian studies that examine CIR are reviewed in section 4.4, and, section 4.5 summarises the chapter.

4.2 Descriptive studies

These studies aim to determine the current status of the CIR and provide a benchmark analysis for the development of online disclosure. Descriptive studies mainly examine the existence of the website of companies and the content, presentation and investor relations information that is disclosed on companies' websites. These studies can be classified into three categories:

The first category concentrates basically on discovering whether the companies have a website or not, and if they have, whether they disclose financial information or not. The studies are applied in either one country (Petravick and Gillet, 1996; Debreceny and Gray, 1997; Petravick and Gillet, 1998; Hussey and Sowinska, 1999; Petravick, 1999; Stainbank, 2000; Poon et al., 2003; Bogdan and Pop, 2008), or applied in more than one country (Lymer and Tallberg, 1997). Appendix 3 summarises these studies.

The second category seeks to enlarge the investigation of the disclosed information by using a checklist which contains various types of information either financial or non-financial. Further, the studies examine the format types of disclosed information. These studies have been applied in either one country (Louwers et al., 1996; Prentice et al., 1999; Hedlin, 1999; Fisher et al., 2000; FASB, 2000; Holm, 2000; Ettredge et al., 2001; McDonald and Lont, 2001; Gowthorpe, 2004; Davey and Homkajohn, 2004; Moses et al., 2007; Almilia and Budisusetyo, 2008; Mohamed et al, 2009), or in more than one country (Trites, 1999; IASC,

1999; Bonson et al., 2000; Smith and Pierce, 2005). Appendix 4 summarises the studies which are applied in one, and more than one, country.

The third category aims to investigate whether the companies have investor relations information on their website or not. These studies add another perspective to the descriptive studies of CIR regarding investor relations, which derived its importance in the competitive business world from the commitment of the company to provide good communications with its investors in order to be considered as a good investment.

Three main objectives can be derived from company's investor relations activities (Ryder and Regester (1989) as cited in Brennan and Kelly (2000)): first, keep shareholders updated with the company's share price; second, minimise the cost of loans and debt securities by increasing the company's confidence in the capital market; third, make a balance between what a company needs and the investment requirements of its investors. These studies were applied to only one country (Breenan and Kelly, 2000; Venter, 2002; Lybaert, 2002; Barac, 2004; Hamid, 2005; Khan et al., 2006; Spanos and Mylonakis, 2007; Dutta and Bose, 2007; Despina and Demetrios, 2009), or applied to more than one country (Flynn and Gowthorpe, 1997; Deller et al., 1999; Geerlings et al., 2003; Khadaroo, 2005). These studies are summarised in appendix 5.

Some important points can be seen from the descriptive studies. First, all the descriptive studies seek to discover only whether the companies disseminate their information on their website or not, and if so, they investigate the content of the website and how the information is presented, without determining the factors which affect the use of the Internet in disclosing information.

Second, some studies use a well structured checklist –either weighted or unweighted-to investigate all the disclosed information on a company's website and classify the disclosed items into various groups to ease the task of searching for them. However, few studies include the timeliness and user support groups in their checklists.

Third, most of the descriptive studies show that the key format tool is PDF which helps in downloading the disclosed information. Many studies demonstrate the importance of using a hyperlink in the company's website to guide the user in finding more information. Furthermore, some studies introduce new tools for presenting the information on the website such as; audio and video presentation, conference call, web cast and XBRL format.

Fourth, balance sheets and profit and loss accounts are the highest financial information provided in most studies, while the auditor report is the lowest. In terms of non-financial information, the highest items are company background and board of directors, whereas intellectual capital is the lowest. Further, few studies investigate the dissemination of corporate governance and social responsibility information via the websites.

The second type of study which investigates CIR is empirical which will be discussed in detail in the next point.

4.3 Empirical studies

Empirical studies aim to test the relationship between CIR and its key determinants to demonstrate the main factors which explain this relationship. In addition to the empirical test, these studies also examine the existence of a company's website, the dissemination of information on that website and the provision of investor relations information. Therefore, these studies include both descriptive and empirical views.

Empirical studies can be classified according to the research objective which aims to examine the main factors that affect CIR in either one or more than one country. The current study classifies the factors that determine CIR into four main groups: firm characteristics variables, market-based variables, ownership structure and corporate governance variables. Consequently, there are two main groups of empirical studies: studies that mainly concentrate on firm characteristics and market-related variables as main determinants for CIR, and studies that mainly concentrate upon corporate governance and ownership structure factors.

4.3.1 Studies that examine the relationship between CIR and firm characteristics and market-based variables

These studies use firm characteristics as determinants for CIR. This notion is based on the previous studies that basically used firm characteristics to explain voluntary disclosure. Many studies have examined the relationship between voluntary disclosure and firm characteristics factors.

Accordingly, researchers seek to investigate the relationship between firm characteristics and CIR as it represents one of the voluntary disclosure types. Marston and Leow (1998) examine whether the FTSE 100 companies had a website or not, and if so whether they disclosed financial information or not, and finally investigated whether that information was in summary or full form. The study tests the relationship between online disclosure and two firm characteristic variables, namely the size and industry type, by using univariate tests. It was found that larger companies are more likely to disclose their financial information on the Internet. In addition, their study concludes that there is no relationship between industry type and the existence of a website and some financial disclosure on the Internet. However, when

companies are classified according to whether they disclose summary or full information, there is a significant result. The same results were obtained by Craven and Marston (1999).

In the US, Ashbaugh et al. (1999) investigate companies' use of the Internet to enhance the relevance of their financial reporting. It was found that there is a considerable variation in the quality of companies' Internet Financial Reporting (IFR) practices related to the timeliness of providing financial disclosures via the Internet. Moreover, the study observes that the usefulness of companies' financial reporting on the Internet depends on the ease of accessing the data, the amount of data disclosed and the ability to download or analyse those data. The study concludes that companies engaging in IFR are larger and more profitable than companies not using the Internet in their financial reporting strategies.

In the case of Malaysia, Hassan et al. (1999) study the perceptions of listed companies on the usefulness of disseminating financial information on their websites in 1998. The study aims first to describe the current practices of the listed Malaysian companies, and then determines the factors that motivate companies to disclose financial information on their websites. The results demonstrate that only 39% of companies have a website, and that 46.1% of them disclose financial information on their websites. Based on univariate analyses, four firm characteristics variables are used to explore their influence on Malaysian companies to either have a website or disclose financial information on it. The findings reveal that larger companies with a high level of profitability are more sensitive to having a website and disclosing financial information on it than their counterparts. Industry type is significant only when companies are compared between having a website or not.

To compare between Austrian and German companies regarding the usage of CIR, Pirchegger and Wagenhofer (1999) use four groups to measure the disclosure of financial

information on a company's website at two points in time: the end of December in 1997 and 1998. These groups are classified into: content, timeliness, technology and user support. To develop a CIR index, individual weights are assigned to each group. Testing the study's hypotheses provides strong evidence that the quality of Austrian companies' websites increases with size and percentage of free float as a proxy of ownership structure, while German companies' websites are associated negatively with free float and not associated with size.

By using a content analysis, Brennan and Hourigan (2000) conduct a study to examine the extent of financial information disclosed on Irish companies' websites in 1998. By using a univariate analysis, four variables are tested to explore the firm characteristics that affect the Internet reporting of the Irish companies. It was found that larger companies are significantly more likely to engage in Internet reporting. The result of the demand for company information is contradictory. While annual report print runs – as a first proxy – show a positive relationship with Internet reporting, the numbers of shareholders – as a second proxy – do not show any significant association. Companies in the services and financial industries are more likely to have a website than other companies.

Based on the comparative analysis of information provided on the Internet by leading companies in different European countries, Bonson and Escobar (2002) seek to evaluate the level of disclosure on the companies' websites. To achieve this, an unweighted disclosure index which includes 23 financial and non-financial items has been created. The study empirically aims to identify the factors that affect the amount of disclosed information. Three main variables are statistically tested to achieve this aim: industry type, country of origin and company size. The results reveal that there is a significant relationship between these three variables and the extent of voluntary disclosure on the Internet. Basically, the study

concludes that European companies recognise the importance of using the Internet as a corporate reporting medium.

Using a sample of 660 large companies in 22 countries, Debreceny et al. (2002) examine the content and presentation of IFR. The study develops an ordinal score for both IFR-C (range from 0 to 3) and IFR-P (range from 0 to 2), and tests two groups of variables, namely firm and environmental characteristics, to examine their relationship with IFR. The results demonstrate that companies which have a large size and listing on the US stock exchange increase their usage of both IFR-C and IFR-P. On the other hand, growth prospects and intangibles are negatively associated with both IFR-C and IFR-P. Ultimately, the key determinants of IFR are associated more with presentation components than content ones.

In the US, Ettredge et al. (2002) study 259 listed companies for the Association for Investment Management and Research (AIMR) in 1997. The study investigates the relationship between the amount of financial information disclosed on the company's website which is classified into required disclosure and voluntary disclosure and five main variables, namely the company's need for new external equity capital, company's performance, company's size, information asymmetry and company's reporting quality. The results indicate that companies develop a web-based dissemination policy based on their size, its need to access the capital markets and its need to reduce information asymmetry. Required items are positively associated with size and negatively with information asymmetry. On the other hand, voluntary items are negatively associated with information asymmetry and positively with size, issuance of equity and higher disclosure quality score.

Using data from the Gulf Co-operation Council countries in the period between October 2001 and February 2002, Ismail (2002) explores the extent of financial information disclosed on

the Internet. Logistic regression is carried out to examine the relationship between firm characteristics and the disclosure of information on the companies' websites. Descriptive statistics show that, generally, fewer companies disclose financial information on their websites. The findings of logistic regression illustrate that the probability of disseminating financial information on the companies' websites should be explained by a combination of interaction effects among size, leverage, profitability, industry type, and country culture, not by separate individual characteristic levels.

Concentrating on the quantity and quality of disclosed financial information on the website, Larran and Giner (2002) investigate the factors that explain the different attitudes of Spanish companies towards using the Internet for investor relationships. The study uses a weighted checklist to measure the Internet financial disclosure index. Six variables are used to explain the quantity and quality of disclosed financial information on the website. The results indicate that size is the main factor that explains not only the quantity but also the quality of financial information. All the other factors, i.e. industry type, profitability, leverage, foreign listing and firm growth, are insignificant to the Internet financial disclosure.

By surveying the CIR practices of the largest companies in five countries around the world at the end of 2001 and in early 2002, Allam and Lymer (2003) conduct a study that aims to demonstrate the current situation of CIR during the study period, by examining the relationship between Internet financial reporting and companies' size and finally, investigating whether Internet financial reporting practices differ among countries. 36 weighted attributes which are categorised into two main groups: general and financial/annual report, are used to measure the level of Internet financial reporting. No significant relationship is revealed between companies' size in any of the five countries, except

Australia, and their level of Internet financial reporting. Furthermore, the study finds that Internet financial reporting significantly differs among companies across the countries.

In the case of Japan, Marston (2003) surveys the top companies to study the usage of the Internet and examine the determinants of the extent of financial disclosure via the Internet in 1998. The results demonstrate that only company size and industry type are significantly positively associated with the extent of companies' websites, while profitability and foreign listing are associated insignificantly. According to the disclosure of financial information via the Internet, company size, industry type, profitability and foreign listing show insignificant results.

To determine the key factors of CIR, Oyelere et al. (2003) examine the voluntary usage of the Internet as a medium for disseminating financial information by 229 New Zealand companies. The sampled companies are classified into two main groups: non-Internet financial reporting companies (N-IFR) and Internet financial reporting companies (IFR). A multivariate logistic regression analysis is used to test the relationship between the dependent variable which is classified as a binary choice between IFR and N-IFR and seven independent variables. The results show that firm size, liquidity, industrial sector and spread of shareholding are the key determinants of the voluntary adoption of Internet financial reporting. However, leverage, profitability and internationalisation do not explain the choice to use the Internet as a medium for corporate financial reporting.

In Portugal, Rodrigues and Menezes (2003) observe the presence of financial information on the websites of listed companies between 2000 and 2001. The study runs a univariate analysis to test if there is any significant relationship between company size, industry type and overseas listings and the extent of financial disclosure via the Internet. Positive correlation is

found between company size and both the existence of the website and disclosed financial information. On the other hand, no relevant relationship is found between activity sectors and disclosed financial information, while a significant relationship between the activity sector and the existence of the website is found only in the year 2000. Overseas listings show an insignificant relationship with both the existence of websites and financial information disclosed.

By concentrating upon 291 non-financial Brazilian listed companies in 2002, Silva and Christensen (2004) address the determinants of IFR disclosure. Two types of disclosed information constitute the unweighted disclosure index which measures the IFR: mandatory disclosure and voluntary disclosure. Empirically, two models are run to determine the factors that affect the IFR. The first is the ordinary least square which is employed for three dependent variables (total index, mandatory and voluntary). The findings reveal that company size, liquidity in the stock exchange and the corporate governance of the companies show a significant positive relationship with IFR. Inversely, firm performance is negatively associated with IFR. Leverage and profitability are insignificant to IFR. According to the second model, namely logistic regression which is used to verify the relationship between the probability of the disclosure of the annual report on the companies' websites and the factors used in the first model, only company size and performance are significant variables.

By looking at the use of the Internet as a disclosure tool for financial and investor-related information, Marston and Polei (2004) conduct a study on German listed companies at two points in time (2000 and 2003). A weighted checklist that contains 53 items in 2000 and 71 items in 2003 was constructed to measure the online disclosure. Three regression models were run to examine the relationship between five firm characteristics factors, and the content and presentation of information disclosed on the company's website. Company size is the

only significant explanatory variable for the content and presentation of information disclosed on the company's website that was stable over time. Whereas, ownership structure is significant for only the 2000 sample, the foreign listing status is significant for only the 2003 sample. Remarkably, the results conclude that the explanatory power of the model used in the study is better for the content dimension than the presentation one.

Regarding the Chinese context, Xiao, et al. (2004) carry out a survey for the adoption of the Internet-based financial reporting by the 300 largest Chinese companies in 2001. They develop a disclosure index of 82 items. The study classifies the dependent variable into five components: total score, content, format, China Securities Regulatory Commission required items (CSRC) and non-CSRC required items. Therefore, five models are used to examine the relationship between the extent of Internet corporate disclosure and ten explanatory variables. Company size is the only variable that associates positively with all the five dependent variables; however, profitability shows an insignificant relationship with them. All the reset variables associate to some extent with the dependent variables. Ultimately, the study concludes that the key determinants which explain the usage of the Internet for corporate reporting in the advanced market economy differ remarkably from those used in the Chinese environment.

In the case of Jordan, Al-Htaybat (2005) examines both practices of financial disclosure, printed paper-based and Internet-based, by 190 listed Jordanian companies in 2004. The level of Internet financial disclosure is measured by unweighted checklists that contain two groups: general information (10 items) and financial reporting information (18 items). Descriptive results indicate that there are small numbers of Jordanian companies which have a website, and of these companies a few disclose financial information on their website. The study finds that the level of overall disclosure (mandatory and voluntary) increases the level of Internet

financial information. In addition, the study concludes that the level of Internet financial reporting is associated with company size.

Garcia-Borbolla et al. (2005) seek to investigate the usage of the Internet in a new applied area by surveying the information published on Small and Medium-sized Enterprises' (SMEs) websites. A multivariate logistic analysis is run to determine the key determinants of the possession of a website. The findings indicate that there are positive relationships between possessing a website and firm size, industry type, the manager's education and training, and the quality of processes and products. On the other hand, no significant associations are found between the extent of the website and either the manager's capacity to adapt to change or environmental pressure.

In another study, Pervan (2006) carries out a comparative study between Croatian and Slovene listed companies to determine the current situation of IFR in 2005 and investigate the explanatory factors that affect the IFR of these companies in each country. The IFR is measured by using an unweighted index which contains 30 elements. The results find that Slovene companies have, on average, a higher level of IFR than Croatian companies. According to the Croatian sample, IFR is positively associated with size, profitability, ownership structure and market activity, while correlated negatively with two sectors, i.e. tourism and marine transport. Unlike the Croatian companies, the Slovene sample show that the size, profitability and ownership structure are insignificant variables, while market activity is positively associated with the IFR. Only one sector, namely transport, is negatively associated with Internet financial reporting.

Using a sample of 270 companies listed in six countries (Australia, Belgium, France, the Netherlands, South Africa and the UK), Bollen, et al. (2006) investigate the quality

determinants of company investor relations websites by constructing both weighted and unweighted index. Based on an ordinary least-squares-regression analysis, the extent of investor relations information on the Internet is positively related to company size, level of internationalisation, the proportion of shares available to individual investors and disclosure environment, whereas it relates negatively to the growth rate and level of technology. Leverage and company performance are insignificant variables to the extent of investor relation information on the Internet.

In the case of Turkey, Celik et al. (2006) survey the current practices of web-based business reporting of the 253 listed companies on the Istanbul Stock Exchange. The study constructs an unweighted disclosure index to measure the level of disclosed information. Two measures of dependent variables are used: total score and financial score. Nine firm characteristics variables are examined to test their impact on the dissemination of information on a company's website by running two regression models. Empirical findings reveal that industry type, internationalisation and company size explain the level of disclosed information via the website of the Turkish listed companies. Although total disclosure index increases with high technology, high risk and high profitability companies, the index of financial disclosure does not. Ownership structure, institutional investors and intangibles do not influence the web-based disclosure behaviour.

By using a disclosure index scoring sheet to measure the extent of the differences between traditional financial reporting (TFR) and corporate websites (CWS), Trabelsi and Labelle (2006) carry out a survey about the impact of the Internet on the financial reporting strategy of Canadian listed companies in 2000. The study aims to discover the factors that influence the use of a corporate website and the motivation of managers to widen the financial disclosure on their website. Only investors' demand and the risk of litigation are associated

significantly with both the probability of using the website to broaden access to financial information and the extent of additional information on the website. Additionally, the study provides evidence that the CWS is one of the overall disclosure patterns of the companies.

Momany and Al-Shorman (2006) present the results of a survey of Internet financial reporting based on the Jordanian listed companies in 2004. Their study develops a checklist that contains only the financial information disclosed on the company's website to measure IFR. Seven variables are used to explain the variation in the extent of IFR practices between companies. Only univariate analysis is performed on two groups of companies: non-financial and financial companies. It is indicated that, on average, companies which disclose financial information on their websites are larger, have more leverage, more concentrated ownership and more international investors, and are newer than non-financial companies, while both profitability and liquidity have no effect on the disclosure of financial information on the companies' websites.

Sriram and Laksmana (2006) investigate whether companies are following the "best disclosure practices" when presenting business reports on their websites or not, by using the recommendations made by the Jenkins Committee (1994). By using an unweighted disclosure index, the study examines the effect of five company characteristic attributes on the website disclosure. Multivariate analysis indicates that corporate website reporting is influenced positively by firm size, the issuance of shares and companies with high technology, and negatively with both investor profile and firm performance.

Using data from Cyprus, Andrikopoulos and Diakidis (2007) examine the Internet financial reporting for 140 listed companies. They aim to determine the current practices of Internet reporting by Cyprus listed companies and identify the key factors that impact upon these

practices. To measure the level of Internet reporting, an unweighted checklist that contains 39 items is constructed. Four firm characterises variables are tested by ordinary least square model to determine their impact on Internet reporting. Company size is the only significant variable that explains the usage of Internet financial reporting by the listed Cyprus companies. However, profitability, intangible assets and leverage show insignificant associations with Internet financial reporting.

In Kuwait, Al-Shammari (2007) conducts a research on 143 of listed companies in 2005 to explore the use of the Internet for disseminating financial reporting and determining the key factors that affecting that usage. By using a logit analysis, the study aims to investigate the relationship between nine firm characteristics variables and the usage of IFR. The findings of multivariate analysis show that the usage of IFR by listed companies in Kuwait could be explained by company size, liquidity, auditing firms and industry type. Moreover, the study fails to find empirical evidence that leverage, profitability, ownership diffusion, company age and internationality have an impact on IFR.

The summary of these studies is presented in appendix 6. All the previous studies examined only the influence of firm characteristic factors on CIR and ignored the influences that may happen due to ownership structure and corporate governance factors on the CIR practices. The next section discusses these studies in detail.

4.3.2 Studies that examine the relationship between CIR and both ownership structure and corporate governance variables.

Corporate governance represents a new trend in voluntary disclosure studies. Some recent studies have investigated the impact of corporate governance factors on CIR as part of voluntary disclosure. These studies were applied in developed countries, which have a well

structured corporate governance system. This section sheds light on these studies to identify the impact of corporate governance on CIR.

Focusing on the timeliness of CIR by UK listed companies on the London Stock Exchange in 2006, Abdel-Salam and Street (2007) introduce corporate governance and firm characteristics as key determinants factors. They measure CIR timeliness by 13 criteria, which constitute the unweighted disclosure index. By running an ordinary least square rank transformation model, 10 independent variables are used to examine their effects on CIR timeliness. The primary analysis indicates that board independence and board experience are significantly associated with CIR timeliness. However, role duality and ownership structure show no support for CIR timeliness. Regarding the control variables, only audit fees and number of analysts increase CIR timeliness. Further analysis is performed by logistic regression to determine the variables which influence the dimensions of CIR timeliness. Accordingly, some additional variables show a significant relationship with CIR timeliness, among which are: US listing companies, role duality, ownership structure and companies in the technology industry. Overall, the study points out that UK companies need to improve their CIR timeliness disclosure to enhance their responses to investors' demands.

Similarly, Abdel-Salam and El-Masry (2008) study the influence of corporate governance and ownership structure on the timeliness of CIR disclosure by 44 Irish-listed companies in 2006. Nine independent variables are tested using an ordinary least square regression model. After controlling company's size, audit fees and profitability, only board independence and CEO ownership, is positively associated with CIR timeliness. Further analysis is conducted to obtain some extended insights into the key determinants of CIR timeliness. When utilising disclosure of online quarterly reports as the dependent variable, only independent directors show a positive relationship. The results indicate that only large Irish companies disclose

their annual reports on their websites. Ultimately, Irish-listed companies need to improve their disclosure of CIR timeliness, especially the updating of disclosed information on their websites.

In another study, Abdel-Salam et al. (2007) examine the comprehensiveness of CIR disclosure by 110 London-listed companies in the middle of 2005. The study utilises a comprehensive index to measure CIR disclosure which is derived from 143 checklist items that include content and usability items. Consequently, after controlling company size, profitability, industry and high growth/intangibles, four ordinary least square regressions, using a rank transformation and normal score, are run 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. Many variables are found to be significant with the components of CIR such as: director independence, size, industry type, director holding, role duality and high growth. Finally, no evidence is found to support the relationship between CIR and ownership structure, profitability and domicile effect. The study concludes that London-listed companies need to improve their CIR disclosure, especially the creditability of disclosed information and site usability.

The importance of examining the effect of corporate governance on Internet financial reporting (IFR) is also evident in Kelton and Yang's (2008) study in which they surveyed 284 companies listed on the NASDAQ national market in 2004. To measure the IFR, an unweighted 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 engaged in IFR. The findings reveal that the association between IFR and corporate governance varies according to company size.

In Saudi Arabia, Al-Motrafi (2008) examines the IFR for 113 Saudi public companies by constructing a financial disclosure index which includes 167 items. The study classifies the index into two major components: content, which includes general content and creditability content items, and usability items. By using OLS, four models have been used to investigate the relationship between IFR and seven firm characteristic variables. The results reveal that IFR is associated positively with company size and listing in the Saudi stock market and negatively with the proportion of institutional ownership structure. None of the corporate governance variables, namely board size and role duality has been found to influence the four models of IFR.

Recently, Barako et al. (2008) conduct an analysis of 343 of the Indonesian listed companies to identify the determinants of web presence or absence. They use logistic regression to examine the probability of utilising CIR. The results indicate that only company size and age of companies are positively associated with CIR. Conversely, leverage, profitability, industry type, ownership concentration, percentage of independent directors and the level of independence of the audit committee do not explaining the utilisation of CIR. In addition, the study concludes that all companies can benefit from the huge and timely information disclosed via the Internet. Therefore, the management of Indonesian companies should be motivated to utilise the Internet as a communication tool with various stakeholders.

The summary of these studies is shown in appendix 7. Although there are many studies discussing the CIR in developed countries, few studies are conducted in the Egyptian context. The next section presents prior studies regarding CIR.

4.4 Previous studies in the Egyptian environment

The notion of CIR has fewer considerations in the Egyptian studies. Some researchers have attempted to study CIR in the Egyptian context. However, these attempts are neither enough nor comprehensive. Most of the studies conducted in the Egyptian context are descriptive and show only the current practices of Egyptian companies regarding CIR. Mohamed (2002) makes a comparative study in 2002 between three active stock exchanges in Arabic countries – Egypt, Saudi Arabia and Kuwait – to analyse the dissemination of information on companies' websites. The study reveals that Egyptian companies lag far behind their counterparts. Most of the sampled companies use the Internet as an advertising tool but not for disseminating financial information. The study concludes that using the Internet as a disseminating tool for financial information by Arabic countries is away from that of developed countries which have broadened their Internet financial reporting disclosure.

Metwaly (2003) surveys 140 Egyptian companies to provide empirical evidence for usage of the Internet in disclosing financial reporting. He finds that the companies which have websites and disclose financial information are slightly low. In addition, the study demonstrates that there is no significant influence on having a website for disclosing financial reporting.

El-Dyasty (2004) evaluates the current situation of financial information disclosure by the top 100 listed Egyptian companies, by comparing them with the top 100 listed US companies. To achieve this, the study postulates some hypotheses, which are tested by non-parametric tests.

The findings indicate that there are significant differences between the top Egyptian listed and US companies regarding the practices of Internet financial reporting. No significant difference is found between the two groups of companies regarding the format type of disclosed financial information.

Only three studies examine empirically the key determinants of CIR. Tawfik (2000) reviews the current practices of Internet financial reporting disclosure by 58 Egyptian banks in 2000. Based on the univariate analysis, the study finds that there are significant differences between banks that have websites and disseminate financial information, and those banks that have no such reporting practices. The study runs a multivariate logistic regression to test the significance of the explanatory factors that may influence Internet financial reporting disclosure. The findings indicate that Internet financial reporting disclosure increases by bank size and ownership structure, not by profitability.

In addition, Ezat and El-Masry (2008) examine the key determinants of CIR timeliness by the most active 50 listed Egyptian companies in 2006. They construct an unweighted checklist that contains 11 items to measure the timeliness of CIR. The study runs two models to investigate the relationship between corporate governance and firm characteristics factors and CIR timeliness. Primary results of the ordinary least square model demonstrate that large services companies with high liquidity levels, a high diffusion of ownership structure, a large percentage of independent directors and a large number of board members, increase the timeliness of CIR. Further analysis is run using a logistic regression model to explore specifically the relationship between the previous factors and each type of timeliness item. The results show that CIR timeliness associates positively with leverage and profitability, but associate negatively with the issue of shares and role duality.

Recently, Aly et al. (2010) investigate the extent of IFR for the top 100 Egyptian listed companies in 2005, by determining the explanatory factors that may have an impact on IFR. The study utilises an un-weighted checklist that contains 90 items to measure IFR. Seven firm characteristic variables are tested by multiple regression analysis to investigate their relationship with IFR. The study concludes that profitability, foreign listing and industrial sector (communications and financial services) are the main factors that affect the content and presentation of internet reporting in Egypt. Appendix 8 summarises these studies.

Based on the above discussion, it can be seen that most of the CIR studies are conducted in either developed or Asian countries. However, few studies have been undertaken in Middle East countries, specifically Egypt. Even the studies which address the extent of CIR in the Egyptian context are not complete studies. The majority of these studies describe only the current situation of CIR for Egyptian listed companies without examining empirically its major explanatory variables.

With regard to the empirical studies (Tawfik, 2000; Aly et al., 2010), only firm characteristic variables are examined as key determinants for CIR. Corporate governance and ownership structure variables are not investigated in these studies. Consequently, the current study aims to fill the gap in this area by investigating empirically the association between CIR and four main groups: firm characteristics group, market related group, ownership structure group and corporate governance group.

Additionally, only Aly et al. (2010) has classified the CIR into more than one component, namely content and presentation in the Egyptian context. Similarly, few studies in the developed countries classify CIR into more than one component (e.g. Xiao et al., 2004; Marston and Polei, 2004; Abdel-Salam et al. 2007; Kelton and Yang, 2008). In this regard,

the current study classifies the CIR into four main components: content, presentation, timeliness and usability which fills another gap in the prior studies.

Moreover, the checklist used to calculate the CIR index contains both financial and non-financial information (social responsibility and corporate governance) which is not examined widely in the prior studies. Most previous studies examine the extent of Internet financial reporting but without considering the disclosure of non-financial information.

To the best of the author's knowledge, no previous study in the Egyptian context examines the relationship between CIR and corporate governance, classifies the CIR into various components including timeliness and usability, and includes non-financial information in measuring the index of CIR. However, Ezat and El-Masry (2008) examine the relationship between CIR timeliness and its determinants. Consequently, the current study aims to contribute to the disclosure studies by examining the relationship between CIR and its main components and corporate governance variables. The study uses some variables that have not been examined in the area of CIR before, in addition to corporate governance variables. Table 4-1 illustrates the gap between the current study and previous studies regarding dependent and independent variables. This table reflects the area studied regarding the subject of CIR and highlights the potential areas that are expected to be covered in this study.

Table 4-1: The gap between what has been studied before and what is expected to be studied

Variables	Dependent				
Independent	**Total**	**Content**	**Presentation**	**Timeliness**	**Usability**
(1) Firm characteristics					
1.1 Size	√	√	√	√	√
1.2 Profitability	√	√	√	√	√
1.3 Leverage	√	√	√	√	
1.4 Legal Form					
1.5 Company Age	√				
1.6 Assets in Place	√	√	√		
(2) Market-related					
2.1 Activity Type	√	√	√	√	√
2.2 Foreign Listing	√	√	√		
2.3 Audit Type	√	√	√		√
2.4 Shares Volatility	√				
2.4 Shares Activity					
2.6 Shares Issue	√	√	√	√	
(3) Ownership structure					
3.1 Block holder ownership	√	√	√	√	√
3.2 Managerial ownership	√	√	√	√	√
3.3 Governmental ownership	√	√	√		√
3.4 Institutional ownership	√				√
(4) Corporate governance					
4.1 Board size				√	√
4.2 Non-Executive directors	√	√	√	√	√
4.3 Role Duality	√	√	√	√	√
4.4 Family members					
4.5 Foreign members					

Note: √= the item is previously examined, [illegible]ariables not studied before.

4.5 Summary

This chapter aims to discuss, in detail, the studies that have previously examined CIR either descriptively or empirically in different countries, to determine the current practices of CIR in these countries and identify the areas lacking in these studies, upon which the current study will focus. The descriptive studies help to demonstrate the extent of CIR in the Egyptian context by identifying the items that will be included in the checklist used to measure the CIR index. In addition, prior descriptive studies provide a benchmark for the current study about the current practices of CIR by Egyptian listed companies. Regarding the empirical studies, they help to reveal the gap that the current study aims to fill by presenting the prior explanatory variables examined with regard to CIR. Moreover, they introduce the methods used in measuring the disclosure index, and the various statistical models run to examine the relationship between CIR and its explanatory variables, and they outline the discussed theories used in explaining such a relationship.

Consequently, this chapter helps to answer the first and second research questions in the current study. Appendix 9 summarises the previous studies according to the objectives of the current research in order to demonstrate the main contribution to knowledge of this study.

It can be noticed that very few studies examine CIR in Middle East countries. Some of these studies are descriptive (Mohamed, 2002; Metwaly, 2003; El-Dyasty, 2004; Spanos and Mylonakis, 2007; Mohamed et al, 2009), while others are empirical (Tawfik, 2000; Ismail, 2002; Al-Htaybat, 2005; Celik et. al., 2006; Momany and Al-Shorman, 2006; Andrikopoulos and Diakidis, 2007; Al-Shammari, 2007; Al-Motrafi, 2008; Ezat and El-Masry, 2008 ; Aly et al., 2010). Most of the empirical studies which apply to the Middle East countries identify the impact of the firm characteristic factors on CIR and ignore the influence of corporate

governance factors. Additionally, none of these studies – except those of Al-Htaybat, (2005), Al-Shammari, 2007, Al-Motrafi, (2008) and Aly et al., (2010) – uses a theoretical framework to explain the relationship between CIR and its determinants. Moreover, only Al-Motrafi (2008) and Aly et al. (2010) classify CIR into more than one variable. All the other studies use CIR as a general index without classifying it.

Consequently, as the current study will be applied to one of the Middle East countries, it can be demonstrated that the main contribution of this study lies in both its theoretical framework and methodology. The study develops a complementary theoretical framework (see chapter three) which includes a variety of theories not discussed before as a whole – to the best of the author's knowledge – in the studies of the CIR subject within Middle East countries. Further, the study examines the impacts of corporate governance – as a new trend in the Egyptian environment – on CIR as well as firm characteristics, and market-related and ownership structure factors. CIR will be classified into four main components: content, presentation, timeliness and usability to give a clear picture for the relationship between CIR and its determinants. The methodology followed by the study to achieve these objectives will be discussed in the next chapter.

CHAPTER 5 RESEARCH METHODOLOGY

5.1 Introduction

Methodology can be defined as the study of research methods and the philosophical assumptions underlying the research process. This chapter introduces the various research philosophies discussed in the different research areas. Further, different types of paradigms and approaches are mentioned to justify clearly the best methodology for the current study.

In addition, the chapter outlines the design of the current study which highlights the best methods for collecting and analysing data according to the methodology chosen by the current study. Therefore, the main aim of this chapter is to determine the suitable methodology of the current study which will be followed to answer its questions and achieve the proposed objectives.

The chapter is organised as follows: Section 5.2 summarises the various philosophies that may adopted by different researches. In section 5.3, the research paradigm is presented. Section 5.4 demonstrates the different types of research approaches. The chosen methodology is presented in section 5.5. Research design is discussed in section 5.6 and finally section 5.7 provides a summary of the chapter.

5.2 Research Philosophy

Research philosophy relates to the development of knowledge and the nature of that knowledge (Saunders et al., 2009). It contains important assumptions that underpin the research strategy and the methods that would be a part of that strategy (ibid). Easterby-Smith et al., (2008, p.27) mention that there are three important reasons for understanding the research philosophy: first, because it can help to clarify research designs, second, determining

the philosophy can help the researcher to recognise which designs will work and which will not, and third, knowledge of philosophy can help the researcher identify designs that may be outside past experience.

Generally, there are two major ways of thinking about research philosophy: positivism and interpretivism. Each contains important differences which influence the ways of thinking about the research process. Each research philosophy will be discussed shortly as follows:

5.2.1 Positivism

Positivism philosophy stands at the same direction of natural science which deals with observable social reality and the end product of such research can be a law-like generalisation. Therefore, a positivist seeks to adopt a scientific detachment, free from the distorting potential of opinion and bias, in order to achieve the prediction and explanation of the behaviour of phenomena and the pursuit of objectivity (Parsa, 2001). In order to collect data, the researcher is likely to use existing theory to develop hypotheses which would be tested and confirmed or rejected and leads to the further development of theory which may be then tested by further research (Saunders et al., 2009).

The key idea of positivism is that the social world exists externally, and that its properties should be measured through objective methods, rather than being inferred subjectively through sensation, reflection and intuition (Easterby-Smith et al., 2008). In addition, this philosophy is related – in some extent – to quantitative paradigms which depend more on numbers and attempts to deduce inferences through the generalisation of a large numbers of cases.

5.2.2 Interpretivism

The opposite philosophy to positivism is the interpretivism philosophy. Interpretivism advocates the necessity for the researcher to understand differences between humans as social actors in the world (Saunders et al., 2009). In this philosophy, there is no attempt to separate out the effect that the researcher has upon observable actions, to account for the possibly illogical underpinning of decisions, and the possible structural inequalities in society/industry which can affect the decisions taken (Parsa, 2001). This emphasises the differences between conducting research among people rather than objects (Saunders et al., 2009). This philosophy is related to – in some extent – qualitative paradigms which depend more on thoughts, beliefs and ideas rather than numbers.

In order to choose the most suitable philosophy for the current study, it is preferable to relate the philosophies to suitable research paradigms. The various types of paradigm will be discussed in the next section.

5.3 Research paradigm

The term paradigm refers to "the progress of scientific practice based on people's philosophies and assumptions about the world and the nature of knowledge" (Collis and Hussey, 2003). The research paradigm constitutes the theories that explain the research, the methods that should apply and the ways of collecting data (ibid). Generally, there are two main paradigms: Quantitative and Qualitative. Each paradigm will be discussed as follows.

5.3.1 Quantitative paradigm

The quantitative paradigm is the systematic investigation that researchers follow by using positivism claims for discovering the knowledge that is related to the studied phenomena

(Creswell, 2003). This may be achieved by using mathematical models that link between cause and effect relationships and test the hypotheses of the chosen theories. Therefore, quantitative paradigms are concerned with attempts to quantify social phenomena and collect and analyse numerical data, and focus on the links between a smaller numbers of attributes across many cases. Liebscher (1998) states that quantitative research is appropriate "where quantifiable measures of variables of interest are possible, where hypotheses can be formulated and tested, and inferences drawn from samples of populations".

5.3.2 Qualitative paradigm

The qualitative paradigm is one in which the researcher relies on interpretivism claims to discover the required knowledge. It involves an in-depth understanding of human behaviour and individual experiences with the intent of developing theory (Creswell, 2003). Conversely to quantitative paradigm, which relies exclusively on the analysis of numerical or quantifiable data, data for qualitative research comes in many media – including text, sound, and ground theory studies. Therefore, qualitative researches are appropriate "when the phenomena under study are complex, social in nature and do not lend themselves to quantification" (Liebscher, 1998, p.669).

Another issue should be considered when determining the chosen methodology: the relevant research approach that may be adopted by researchers to conduct their research. Research approaches will be discussed in the next section.

5.4 Research Approaches

The research approach relates to the way of thinking about the research design and to the systematic steps which should be followed to achieve and explain the final results. There are

two main approaches: deduction and induction, and each approach will be discussed in brief in the next point.

5.4.1 Deduction approach

Deduction is "the process by which we arrive at a reasoned conclusion by logical generalization of a known fact" (Sekaran, 2003, p.27). Moreover, it "involves the development of a theory that is subjected to a rigorous test" (Saunders et al., 2009, p.124). As such, it is a process that tests the relationship between cause and effect, where through the research process, reasons (causes) will be examined to lead to justify conclusions (effects) (Parsa, 2001).

Therefore, this approach first develops a theory which explains the studied phenomenon and its variables, then attaches the suitable hypotheses which are expected to investigate the relationship between the variables of the phenomenon in operational terms, then tests the operational hypotheses, and finally explains the results in the light of the theory (Saunders et al., 2009).

5.4.2 Induction approach

Induction is a "process where we observe certain phenomena and on this basis arrive at conclusions "(Sekaran, 2003, p.27). Unlike the deduction approach, the induction approach is "moving from the plan of observation of the empirical world to the construction of explanations and theories about what has been observed" (Parsa, 2001, p.120). Therefore, in the induction approach, data are collected which are related to the phenomenon first and then a theory is built as a result of data analysis.

As the above sections illustrate, it appears that there is a close relationship between positivism as a philosophy, quantitative as paradigm, and deduction as an approach. Similarly, there is an association between interpretivism as a philosophy, the qualitative as a paradigm and induction as an approach. The importance of theory and empirical analysis links deduction and quantitative approaches, while the search for theory appears to link induction and qualitative approaches (Parsa, 2001).

To choose the most suitable methodology, there should be a link from each philosophy, paradigm and approach to the research questions and their objectives. The next section demonstrates the most suitable methodology for this research and presents the links between these concepts.

5.5 The chosen methodology

Verifying a suitable methodology should be consistent with both the research questions and objectives. Based on them both, there are important points related to the methodological issues of this research. These points are stated below:

- The current study is considered as an applied study as it is intended to raise awareness about the key determinants of using the Internet as a medium to disseminate information (either financial or non-financial) by Egyptian listed companies. Therefore, in this research, empirical evidence is used to find the answers to the specific determined questions and objectives.
- The most suitable philosophy for the current study is **positivism** as it relies on empirical evidence rather than the opinions of individuals or groups in society to explain why companies use the Internet as a tool for corporate reporting.

- The appropriate paradigm for the current study is **quantitative** as it seeks to collect and analyse numerical data to interpret and test the relationship between the dependent variable (CIR total and its components) and the independent variables (firm characteristics, market related factors, ownership structure and corporate governance).
- The current study implements a **deduction** approach where the research questions are developed based on the theoretical framework, discussed in chapter three, that explains the reliability of the studied variables. Then the research develops various hypotheses to investigate the relationship between CIR total and its components, and the independent variables. Finally it uses the appropriate statistical technique to test these hypotheses which leads to either accepting or rejecting the relationship between the CIR total and its components and its explanatory variables according to the chosen theories.

Determining the suitable philosophy, paradigm and approach will help in determining a suitable plan for the current study. The next section discusses in detail the research design for the current study.

5.6 Research design

Research design is "the science of planning procedures for conducting studies so as to get the most valid findings" (Vogt, 1993 as cited in Collis and Hussey, 2003). In addition, Saunders et al. (2009) state that research design is "the general plan of how you will go about answering your research questions". Consequently, research design deals with issues such as the purpose of the study, the research strategies, the unit of analysis, population and sample, the sources for collecting data, and the time horizon over which the research is undertaken. Each issue will be discussed briefly as follows:

5.6.1 The purpose of the research

Generally speaking, there are three types of any research based on its purpose. ***First*; exploratory research** which is designed to discover new insights, relationship, ideas and patterns (Hair et al., 2007). Exploratory research relies heavily upon qualitative techniques, although it may be used with quantitative techniques (ibid).

***Second;* descriptive research** which is designed to obtain data that describes or portrays the characteristics of particular phenomena, topics, events or situations (Hair et al., 2007, Saunders et al., 2009). Descriptive research relies on depicting the trend of a particular topic and seeks to count the frequencies of this trend which highlights the importance and development of this topic.

***Finally*; explanatory (causal) research** which is designed to investigate the relationship between variables related to a particular phenomenon or problem (Saunders et al., 2009). The causality refers to the dependency of one event or variable (the effect or dependent variables) on another event or variable (the cause or independent variables) (Hair et al., 2007).

Based on the research questions and the objectives of the current study, the purpose will be descriptive (to show the extent of CIR) and explanatory (to test the relationship between CIR total and its components and its key determinants.

5.6.2 The research strategies

Research strategies are used to specify the sources from which data have been collected and the constraints which may be encountered by the researcher in collecting data such as: access to the data, time, location and money (Saunders et al., 2009). Many strategies might be chosen by the researchers to answer his/her research questions and meet his/her research

objectives such as: experiment, case study, survey, action research, grounded theory, ethnography and archival research.

For the current study, all Egyptian listed companies in 2007 will be examined. Therefore, the research strategy will be the survey.

5.6.3 The unit of analysis and population

The unit of analysis is "the kind of case to which the variables or phenomena under study and the research problems refer, and about which data are collected and analysed" (Collis and Hussey, 2003).

Accordingly, the unit of analysis in the current study is all the Egyptian listed companies in the EGX (435) in December 2007. However, due to data unavailability for the annual reports of 92 companies which are not traded in most cases, only 343 of the Egyptian listed companies in 2007 will be used (which constitutes approximately 79% of the all listed companies in 2007). Appendix 10 summarises the classification of the listed Egyptian companies in 2007 according to their sectors.

5.6.4 Data collection

There are two common methods for collecting data; secondary and primary. Primary data are the data which are collected specifically about the topic of the study from its main sources. Primary data could be qualitative such as: interviews, focus groups, observations and case studies, or it could be quantitative such as: questionnaires and surveys. Of course this classification is just for knowing the nature of each technique, because quantitative techniques could be used in collecting qualitative data and vice versa.

Conversely, secondary data are not found for specific topics as they are available to any researcher to obtain from many sources. Secondary data include both raw data and published summaries (Saunders et al., 2009). This type of data could be qualitative or quantitative (depending on what is intended to be gathered) and is suitable for both descriptive and explanatory research (Saunders et al., 2009; Hair et al., 2007; Collis and Hussey, 2003).

The current study depends mainly on the secondary data method to collect the data. The sources of the data will be either internal, namely the annual report of the listed companies, or external such as market data from the Egyptian exchange (EGX), Capital Market Authority(CMA), Egypt For Information Dissemination (EGID), Misr for Clearing, Depository and Central Registry (MCDC), Egypt information stock trader company (MIST) website[8], disclosure year books issued by EGX in 2007 and 2008, Kompass Egypt financial year books issued in 2007 and 2008, some useful websites[9] and the websites of the listed companies. In addition, the study uses software for trading the shares in the Egyptian Stock Market called MUBASHER PRO.

5.6.5 Time horizons of the collected data

After determining the methods of collecting the data, there is another important aspect to be taken into account. This aspect relates to the time horizons of the collected data. Data are related to either cross-sectional studies or longitudinal studies. On the one hand, **cross-sectional studies** relate to the study of a particular phenomenon at a specific time which is called a "snapshot" taken at a particular time. On the other hand, **longitudinal studies** relate

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[8] (www.egyptianstocks.com)

[9] such as (www.mubasher.info/CASE/market/marketwatch.aspx)

to the study of a particular phenomenon over a given period (Hair et al., 2007 and Saunders et al., 2009). The current study is basically a cross-sectional single country study of a developing country with an emerging stock market.

Once the data are collected and the time horizon has been determined, the next step considers the variables of the study and their measurement.

5.6.6 Research instrument and measurement of variables

This section outlines both the dependent and independent variables of the current study. In addition, this section presents the research instrument and the disclosure index that is used in measuring the dependent variables.

5.6.6.1 Dependent variable

5.6.6.1.1 Measuring corporate Internet reporting – an overview

The notion of measuring voluntary disclosure is still contradictory. Healy and Palepu (2001, p.32), mention that "one of the limitations of the studies on voluntary disclosure is the difficulty in measuring the extent of voluntary disclosure". In addition, Gray and Haslam (1990, p.53) state that "there is no one single, agreed framework within which to conceptualise, articulate and collect empirical evidence about the external reporting activity of organisations".

Accordingly, Beattie et al. (2004) report that there are two main approaches to measure disclosure. The first is the subjective analysis which relies on the ratings of financial analysts in measuring the quality of disclosure. The second approach is researcher-constructed disclosure indices in which the content analysis is used to measure the disclosure quality by the amount of disclosure.

Many studies focus on content analysis to measure voluntary disclosure (Guthrie and Parker, 1990; Gray and Haslam, 1990; Marston and Shrives, 1991; Gray et al., 1995; Beattie et al., 2004; Guthrie et al., 2004). Guthrie et al. (2004, P.287) state that "Content analysis involves codifying quantitative and qualitative information into pre-defined categories in order to derive patterns in the presentation and reporting of information". Moreover, Riley et al. (2000) indicate that content analysis includes determining the frequency of certain keywords phrases and items which then enables the researcher to derive hypotheses according to the meaning behind them and provide quantitative data.

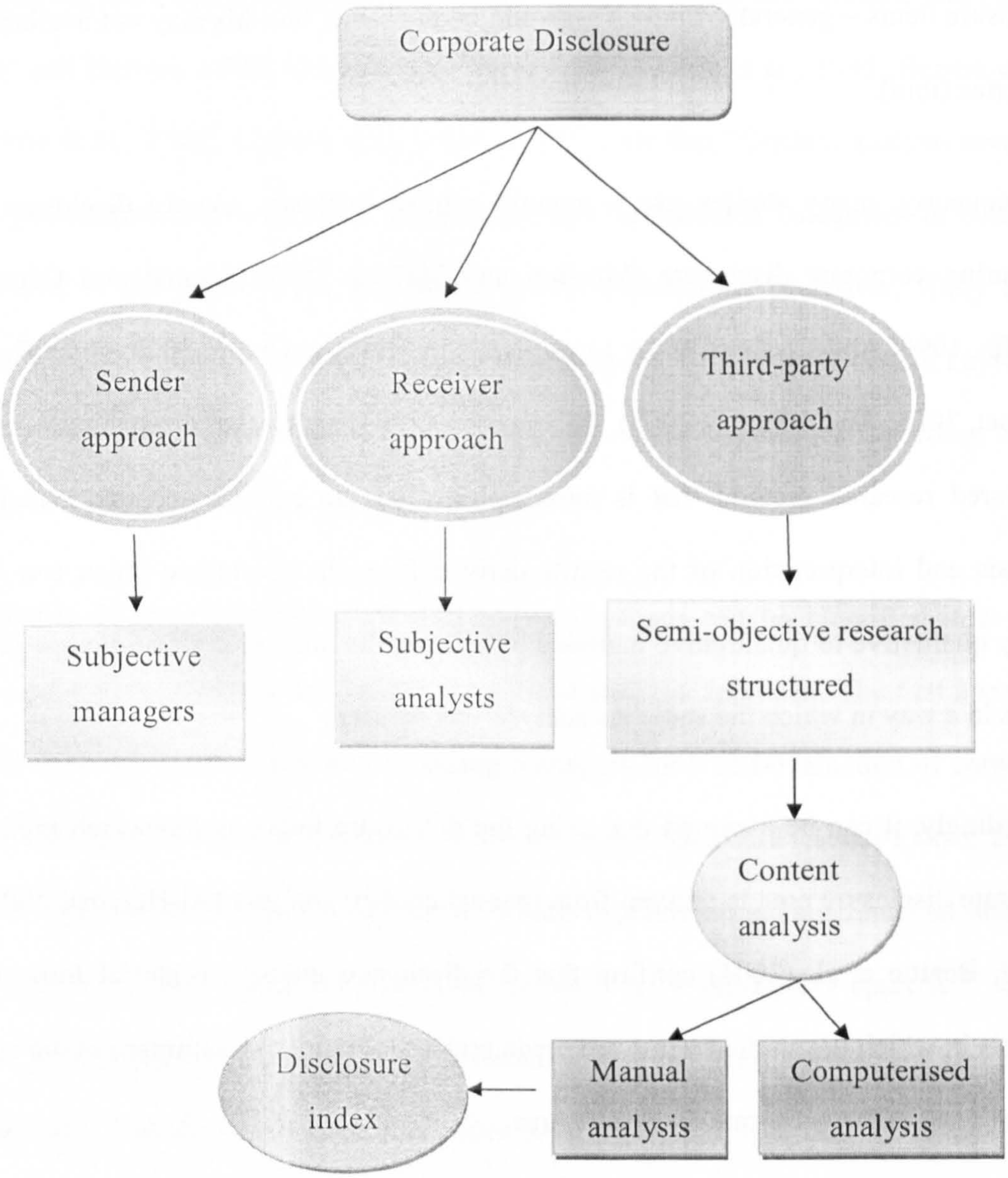
In this context, Gruning (2007) reports that content analysis can be classified into three approaches according to who is involved in the content analysis approach. The first approach is "a sender approach" which depends on asking managers for a self-evaluation of corporate disclosure. This approach may suit mandatory not voluntary disclosure (Abdel-Fattah, 2008). The second approach is "a receiver approach" which depends on asking financial analysts and other agents for that evaluation. The final approach is "a third-party approach" which depends on performing content analysis by someone who is neither addresser nor addressee. Most researchers depend on the disclosure index as a third-party approach in assessing the extent of corporate disclosure (Gruning, 2007).

Beattie et al. (2004) indicate that content analysis can be computer-aided or human coded. Gruning (2007) mentions that computerised content analysis may replace manual content analysis (disclosure index and ratings) in the future due to its greater reliability and validity. However, Abdel-Fattah (2008) states that subjectivity may be reduced to some extent in the computerised content analysis, but it still existence as the researcher is still preparing the items and their synonyms. In addition, this approach requires that the language of the

disclosure items – generally English – should be the same, but this may not available in most countries (ibid).

Consequently, many studies use a manual content analysis, namely disclosure index in measuring corporate disclosure (Marston and Shrives, 1991; Ahmed and Courtis, 1999; Haniffa, 1999; Abd-Elsalam, 1999; Leventis, 2001; Coy and Dixon, 2004; Ghazali, 2004; Al-Htaybat, 2005; Abdel-Fattah, 2008). Beattie et al. (2004) report that disclosure index is a well structured research method that is based mainly on the content analysis principles. The analysis and interpretation of the results derived from the disclosure index can vary from purely qualitative to quantitative methods by scoring the units of code and aggregating these scores in a way in which the statistics analysis can be used.

Accordingly, it can be assumed that using the disclosure index as a research method in the corporate disclosure area is derived from manual content analysis (Al-Htaybat, 2005). In this regard, Beattie et al. (2004) confirm that the disclosure index is a partial form of content analysis in which the studied items are predetermined. Figure 5-1 summarises the approaches that are used in the corporate disclosure area.



Adapted from Beattie et al. (2004, P.209) and Al-Htaybat, (2005, P.128).

Figure 5-1: Different Approaches of measuring disclosure

According to the current study, a self-structured disclosure index will be used as a research instrument for measuring CIR. The reasons behind this include the non-applicability of the receiver approach (analysts' ratings) in the Egyptian context. Further, the computerised analysis may not be suitable for the Arabic version of some companies' websites. In addition,

the sender approach may be more appropriate for mandatory disclosure than voluntary disclosure. Next point discusses in detail the disclosure index.

5.6.6.1.2 Disclosure index

The dependent variable – CIR – will be measured by using a checklist designed to score the items which are disclosed on the website of each of the studied companies and then will quantify the disclosed items because of the difficulty of measuring the disclosure level directly due to its abstract nature (Cooke, 1989). One approach to quantifying the disclosed items is by searching for the items which are predetermined in the scoring checklist on the company's websites and then count the proportion of the actual score to the overall score of each company. This method is called the "disclosure index method" which was first introduced into literature by "Cerf, 1961" (Mangena, 2004). Coy et al. (1993,P.122) define the disclosure index method as "A qualitative based instrument designed to measure a series of items which when aggregated gives a surrogate indicative of the level of disclosure in the specific context for which index was devised".

Many researchers support the usage of a disclosure index in the area of corporate disclosure (Marston and Shrives, 1991; Coy and Dixon, 2004). The procedures which are followed to measure the dependent variable not only rely on the same procedures which follow the measuring of voluntary disclosure in many previous studies (Suwaidan, 1997; Haniffa, 1999; Leventis, 2001; Mangena, 2004; Ghazali, 2004; Abdel-Fattah, 2008), but also take into account the distinct nature of the CIR. These procedures can bc summarised as follows:

5.6.6.1.3 Determining the disclosure items

The key step in constructing the disclosure index is determining the disclosed items. These items are the basis to measure CIR. No general theory explains the selection of the disclosure items (Wallace and Naser, 1995). Hence, Hussainey (2004) reports that selection of the disclosure items is based mainly on the literature review in the disclosure area. Therefore, to select the disclosure items which measure the extent of CIR, the current study needs to design a checklist based on previous literatures and EGX 30 companies' websites, as a sample of the listed Egyptian companies' websites. Following the previous literature not only measures the CIR of the Egyptian listed companies, but also improves the validity of the current disclosure (Al-Htaybat, 2005). Many steps are taken to construct the checklist. These steps are as follows:

- Design a preliminary checklist from the previous literature review in the Egyptian context. As mentioned before, there is a lack of information in the Egyptian literature review about the CIR theme. Only Aly et al., (2010) uses an un-weighted checklist which contains 90 items to measure IFR. Consequently, the preliminary checklist was based mainly on the previous literature reviews in the field of CIR as a whole.
- Visiting all Egyptian listed companies' websites to check the applicability of the items that are included in the preliminary checklist. This step helps in determining the current situation of CIR for the Egyptian companies in addition to improving the validity of the disclosure index.
- As the study is a cross-sectional study, a snapshot of the listed Egyptian companies' websites has been taken based on an offline browsing software called "Offline Explorer" version 7. The software takes a snapshot of the companies' websites for a

given point in time and downloads all the websites of the listed Egyptian companies for later offline viewing, checking and scanning. As such, the effect of the changes in the companies' websites after the period of the study which may impact on the study will be avoided.

- The checklist was then sent to five academics in the field of accounting to refine the checklist and obtain their feedback. This step was performed to achieve the validity of the disclosure index of the study.
- Finally, the items of the checklist were scanned through a pilot study of the 30 companies that constitute the main Egyptian index (EGX 30) to examine the applicability of these items and ensure that the disclosure of these items on the websites are valid in the Egyptian context.

Consistent with the need to explore the extent of disclosed information on the companies' websites and to identify the determinants of such a disclosure, the final checklist will be categorised into four groups with overall 100 items: the content items which represent what the companies disclose on their website contain 59 items, the presentation items which show how the information is presented on the companies' websites contain 14 items, timeliness items which deal with real-time and updating information contain 10 items, and finally the usability items which represent the websites' ease of use contain 17 items.[10] Appendix 11 presents the four categories of the checklist which has been designed to measure the disclosure index. After selecting the disclosed items, the next step is scoring these items.

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[10] Comparing with previous studies, it can be seen that the checklist items for the current study are acceptable (see chapter four).

5.6.6.1.4 The different approaches of scoring the disclosure items

There are two approaches to scoring the disclosure items; weighted and un-weighted. These two approaches are discussed briefly as follows:

5.6.6.1.4.1 Weighted disclosure items

According to the weighted approach, the disclosed items in the checklist will be examined by specific groups (financial analysts for instance) who will be asked to assign weights to these items according to their importance. Therefore, in this approach, the disclosed items on the companies' websites take an assigned weight or take 0 if not disclosed. This approach was used in many previous studies (Pirchegger and Wagenhofer, 1999; Debreceny et al., 2002; Larran and Giner, 2002; Marston and Polei, 2004).

The final weight attributed to each disclosure was calculated as the average of the individual judgements/weights (Haddad, 2005). There were some criticisms directed to the weighted approach (Suwaidan, 1997; Leventis, 2001). Firstly, the weighted approach focuses on only one group of users although the items may refer to more than one group. Secondly, the weighted approach may be misleading, since the level of importance differs according to entities, transaction, user, industry and country. Finally, when depending on more than one group to weight the disclosed items, each group may have their own value which may differ from the other groups and this leads to contradictory weights which in the end needs the interference of the researcher to settle these differences which, in turn, means another subjective view.

5.6.6.1.4.2 Un-Weighted disclosure items

Due to the criticisms of the weighted approach, many of the studies use the unweighted approach (Ashbaugh et al., 1999; Xiao et al., 2004; Sriram and Laksmana, 2006; Trabelsi and Labelle, 2006; Abd-Elsalam et al., 2007; Abd-ElSalam and Street, 2007; Kelton and Yang, 2008). According to this approach, all the items in the checklist take equal weights. Therefore, if the item is disclosed on the company's website it takes "1" otherwise it takes "0". Since, the un-weighted approach treats all the disclosed items equally according to their importance, it avoids the subjective judgement of assigning weights to the disclosed items (Haddad, 2005).

For the current study, the approach which will be followed is the un-weighted for the following reasons: **First**: to avoid the subjective view which may arise when depending on one group in assigning scores to the disclosed items and to avoid the inconsistencies of weighting the disclosed items between people within the one group. **Second**: many studies report that there are no significant differences between the two approaches (Robins and Austin, 1986; Chow and Wong-Boren, 1987). Therefore, there is no necessity to use the weighting approach which may be more time consuming and costly as well as having an expected bias in the results. **Third**: the study aims to discover the level of CIR, not the importance of the disclosed items. Therefore, there is no need to weight the disclosed items since all the items should be equivalent in their importance in the study. **Fourth** it can be assumed that the weighted approach may affect the reliability of the disclosure index (Marston and Shrives, 1991).

Consistent with the above arguments, in order to measure the extent of CIR, the websites of Egyptian listed companies in the EGX in December 2007 will be visited to determine firstly

the companies which have a website and then to search for the selected items in the checklist of the companies that have websites. The scoring method depends on an un-weighted dichotomous approach which scores the item 1 in the checklist (if disclosing in the company's website), or 0 (if not disclosing or not have website). This approach is applied by (Ettredge et al., 2002; Debreceny et al., 2002; Xiao et al., 2004; Bollen et al., 2006; Barako et al., 2007; Andrikopoulos and Diakidis, 2007).

In addition, some steps are taken in the current study to reduce the effects of inapplicable items. First, a pilot study of the EGX 30 companies is conducted to check the applicability of the all items. Second, all the companies' websites are examined to determine the items that are disclosed and those which are not. For the companies that do not disclose some items – mainly in the content component – the annual reports for these companies are scanned to decide whether these items are applicable to those companies or not. Finally, if the items are still not applicable to the companies, they will be dropped from the checklist. The last step is used by Al-Htaybat (2005) and Abdel-Salam et al. (2007). Therefore, the final checklist which includes 100 applicable items is constructed ensuring that Egyptian listed companies are not penalised for nondisclosure of the inapplicable items.

After determining the scoring approach, the disclosure index can be calculated. The equations which will be used in calculating the disclosure index will be discussed in the next step.

5.6.6.1.5 Measuring the extent of CIR

As mentioned before, the dependent variable will be measured by designing a checklist to obtain the CIR index. Before this, the score of each dependent variable (content, presentation, timeliness and usability) will be calculated by an equation as follows:

A. CIR score:

The equation which represents the CIR total and its components can be shown as follows:

CIRS (CIRCS, CIRPS, CIRTS, CIRUS) = $\sum_{i=1}^{n} di$

Where:

CIRS = CIR total score, CIRCS = CIR content score, CIRPS = CIR presentation score, CIRTS = CIR timeliness score, CIRUS = CIR usability score

di: = 1 (if the item is disclosed on the website), = 0 (otherwisc) for the *i* company

n ≤ number of CIR (CIRCS, CIRPS, CIRTS, CIRUS) items.

After calculating the scores of the dependent variables, the last step is the calculation of the disclosure index.

5.6.6.1.6 The disclosure index

Determining the disclosure index relies on the scoring of each group for each company which has a website. Therefore, there are five indices representing the total CIR and the sub groups of disclosure. Each index will be measured as a ratio of the actual scores (which were calculated in the previous step) to the maximum possible score for each company. These indices can be calculated as follows:

A. CIR total index:

CIRI = $\frac{CIRS}{MCIRS}$ Where:

CIRI = CIR total index.

CIRS = actual CIR total score.

MCIRS = maximum CIR total score possible for the company.

B. CIR content index:

CIRCI = $\frac{CIRCS}{MCIRCS}$ Where:

CIRCI = CIR content index.

CIRCS = Actual CIR content score.

MCIRCS = Maximum CIR content score possible for the company.

C. CIR presentation index:

CIRPI = $\frac{CIRPS}{MCIRPS}$ Where:

CIRPI = CIR Presentation index.

CIRPS = Actual CIR presentation score.

MCIRPS = Maximum CIR presentation score possible for the company.

D. CIR timeliness index:

CIRTI = $\frac{CIRTS}{MCIRTS}$ Where:

CIRTI = CIR timeliness index.

CIRTS = Actual CIR timeliness score.

MCIRTS = Maximum CIR timelines score possible for the company.

E. CIR usability index:

CIRUI = $\frac{CIRUS}{MCIRUS}$ Where:

CIRUI = CIR usability index.

CIRUS = Actual CIR usability score.

MCIRUS = Maximum CIR usability score possible for the company.

After measuring the disclosure indices, the next section discusses the reliability and validity of the constructed checklist.

5.6.6.1.7 Reliability and validity of the disclosure index

As seen from the previous section, the current study constructs a checklist to obtain a disclosure index which will be used as a proxy for CIR. Accordingly, it is critical to ensure that the disclosure index does indeed measure the CIR and that this measurement accurately assesses the "goodness of a measure" (Sekaran, 2003). One way to achieve the goodness of a measure is by performing reliability and validity tests for the disclosure index. Hair et al. (2007, p.240) mention that validity is associated with accuracy, while reliability is related to consistency. Reliability and validity will be discussed as follows:

5.6.6.1.7.1 Reliability assessment

Reliability is defined as "whether an instrument can be interpreted consistently across different situations" (Field, 2009). Further, Sekaran (2003) reports on the reliability of a measure as an indication of both the stability and consistency of measuring the concept by the research instrument. Stability refers to the ability of the measure to remain the same over time (ibid, p.203) and repeat the same results when used by another researcher (Marston and Shrives, 1991), while consistency indicates the homogeneity of the checklist items as one set in measuring a concept (Sekaran, 2003).

Reliability has many forms: test-retest reliability, parallel-form reliability, split-half method, inter-coder reliability and the internal consistency method (Collis and Hussey, 2003; Sekaran, 2003; Hair et al. 2007). The internal consistency method refers to the correlation between every item across the entire instrument. Litwin (1995, p.21) defines the internal consistency method as "an indicator of how well the different items measure the same issue. This is important because a group of items that purports to measure one variable should indeed be clearly focused on that variable".

One of the most popular tests for internal consistency reliability is Cronbach's coefficient alpha which is a measure of inter-item correlation (Sekaran, 2003; Saunders et al. 2007). Cronbach's alpha ranges from 0 to 1. The higher the alpha coefficient, the better the reliability of the disclosure index (ibid). As a rule of thumb, an alpha of 0.7 is considered acceptable to achieve the reliability of the instrument (Hair et al., 2007). The current study uses Cronbach's coefficient alpha as a measure for the internal consistency reliability of the disclosure index as will be shown in chapter seven.

Although it is important to test the reliability of the research instrument, it is not sufficient to simply achieve the goodness of a measure. Reliability should accompany validity which will be discussed in the next point.

5.6.6.1.7.2 Validity assessment

Validity is defined as "Whether an instrument actually measures what it sets out to measure" (Field, 2009, p.11). Therefore, the disclosure index is considered valid if it measures what the researcher intended (Marston and Shrives, 1991). To assess measurement validity, three common types are discussed: criterion-related validity, content validity and construct validity.

Content validity aims to "ensure that the measure includes an adequate and representative set of items that tap the concept" (Sekaran, 2003, P.206). In addition, Saunders et al. (2009) refer to content validity as sufficient items that are included in the measurement device. Content validity can be achieved by carful definition of the research through a literature review and using a panel of individuals to judge which items are to be included in the measurement (Vaus, 2002).

Construct validity ensures that the results obtained from a measure are consistent with the theories in which the test is designed (Sekaran, 2003). In this regard, Vaus (2002) and Hair et al. (2007) mention that understanding the theoretical rationale of the used measurement is the cornerstone of assessment construct validity. Consequently, assessing the construct validity needs to be consistent with the findings of the previous literature that is supported by the theoretical potentials.

In the context of disclosure studies, Omar (2007) states that construct validity reflects the association between the aggregate disclosure index and its components. In addition, Hail (2002) applies two procedures to assess the validity of the disclosure index. The first is examining the correlation between the overall disclosure index and its components. The second is investigating the association between the extent of the overall disclosure and the firm characteristics variables. In this regard, many studies have investigated the relationship between the disclosure score and its determinants to validate the disclosure index (Hussainey 2004; Haddad, 2005; Hassan, 2006; Omar, 2007; Abdel-Fattah, 2008). In the current study, both content validity and construct validity are used to assess the validity of CIR.

Next section presents the suitable statistical analysis which are used to analysis the collected data.

5.6.7 Statistical analysis

This section presents an overview of the statistics procedures that will be used to analyse the variables which have been measured in the previous section. Both descriptive statistics and testing hypotheses procedures are conducted to answer the research questions. These procedures can be illustrated as follows:

5.6.7.1 Descriptive statistics

Descriptive statistics enables the description and comparison of variables numerically (Saunders et al., 2009). Descriptive analysis is conducted to the total CIR index and its sub-indices for each item under each listed company. Accordingly, many descriptive statistics analyses can be performed such as: central tendency measures (e.g. the mean) and dispersion measures (the frequency distribution, minimum and maximum numbers and the standard deviation). The results of these analyses will be discussed in detail in chapters seven, eight and nine.

5.6.7.2 Testing hypotheses

Measures of descriptive analysis provide an overview about the research results without any investigation into the relationship between the dependent and independent variables. To test this relationship, some hypotheses need to be formulated[11]. Once this has happened, statistical techniques will be used to test these hypotheses and make comparisons between the expected results which are derived from the theoretical background of these hypotheses and their empirical results which have been obtained from the application of these statistical techniques.

The current study uses both bivariate analysis to examine the strength of the relationship between the CIR and each independent variable, and multivariate analysis to test the relationship between CIR total and its components and their key determinants.

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[11] See chapter sex.

Bivariate analysis can be performed by both parametric tests (which are used when the data are normally distributed and linear) and non-parametric, (which used when the data are not normally distributed and non linear). Both tests will be run in the current study where appropriate, firstly to cover any weakness that may appear in the analysis of the data and secondly to benefit from the different strengths of both tests.

On the other hand, Multivariate analysis can be performed by the multiple regression techniques. Theoretically, there is no finite approach to test the relationship between the extent of disclosure and its determinants (Wallace et al., 1994). However, most of the disclosure studies use various techniques[12], such as the bivariate analysis and multivariate analysis.

According to the current study, multiple regression analysis, namely Ordinary Least Square (OLS) will be used to test the causal relationship between CIR and its key determinants. As bivariate analysis explains only the strength of the relationship between two variables, i.e. the dependent variable (CIR) and each independent variable, without explaining the explanatory power of this relationship, multivariate analysis namely, multiple regression is used. Two major purposes of multiple regression are stated by (Howitt and Cramer, 2005, p.317): first, the possibility of determining the independent variables that can best explain the variation of the dependent variable. Second, recognising whether the independent variables are still significant while the other independent variables are controlled or held constant (Omar, 2007).

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[12] See chapter four of the literature review

5.7 Summary

This chapter aims to determine the best methodology that should be followed by the current study to fulfil its objectives and answer the three main research questions. As the current study aims to explore the extent of CIR in the Egyptian context and discover the key factors that influence it, the positivism philosophy is represented as most suitable to fulfil this goal because it depends on empirical evidence rather than individuals' opinions in explaining the reason behind using the Internet by some Egyptian listed companies as a disclosure medium. Further, the current study relies on the quantitative paradigm which is based on collecting and analysing numerical data that enables the researcher to examine the relationship between CIR and its key determinants empirically. Both positivism and quantitative methods are employed within the deduction approach which depends on the proposed theoretical framework and the hypotheses derived to explain the expected association between CIR and explanatory variables.

In addition, the current study represents a cross-sectional single country study that aims to investigate descriptively and empirically the extent of CIR and its key determinants for 343 of the Egyptian listed companies. Moreover, the study measures the extent of CIR based upon a self constructed checklist of items and uses an unweighted disclosure index. An unweighted disclosure index and dichotomous approach are used in addition to the reliability and validity tests, to try to minimise the subjective view of the current study.

Multi-analyses are used in the current study: univariate, bivariate and multivariate. The univariate analysis presents the descriptive statistics for each dependent and independent variable, while both bivariate and multivariate analyses examine the relationship between CIR and the explanatory variables either individually or simultaneously. In bivariate analysis,

both parametric and non-parametric tests are performed to benefit from the strengths of both tests. Regarding multivariate analysis, an OLS model will be used to examine the relationship between CIR and the explanatory variables.

To examine the relationship between CIR and its key determinants, hypotheses that explain this relationship should be formulated. The next chapter presents the main hypotheses of the current study based on the theoretical framework discussed in chapter three.

CHAPTER 6 HYPOTHESES FORMULATION

6.1 Introduction

This chapter relies basically on the theoretical framework which was discussed in chapter three. As mentioned before, CIR is a type of voluntary disclosure which is determined by many theories that explain the variables which affect it.

The current study uses five indices to measure the extent of CIR, namely: total, content, presentation, timeliness and usability. The reason for classifying the index of CIR into sub-indices is to achieve a more accurate understanding of the relationship between each dependent variable and its main determinants in the Egyptian context. This understanding will help in justifying the usage of the Internet as a tool for disseminating information and enhance the usefulness of CIR for different stakeholders. In this regard, Ashbaugh et al. (1999) state that "the usefulness of firms' financial reporting on the Internet depends on how easy it is to access that data, the amount of data disclosed and /or whether users can download or analyze the data".

In addition, independent variables should be identified and theorised in order to formulate testable hypotheses. In this study, the independent variables will be classified into four categories. The first is related to firm characteristics (6 variables), the second is related to market-related (6 variables), the third is related to ownership structure (4 variables) and the last one is related to corporate governance (5 variables). There are four main hypotheses related to the explanatory variables:

H1: there is a significant relationship between firm characteristics variables and corporate Internet reporting (total, content, presentation, timeliness and usability) by Egyptian listed companies.

H2: there is a significant relationship between market-related variables and corporate Internet reporting (total, content, presentation, timeliness and usability) by Egyptian listed companies.

H3: there is a significant relationship between ownership structure variables and corporate Internet reporting (total, content, presentation, timeliness and usability) by Egyptian listed companies.

H4: there is a significant relationship between corporate governance variables and corporate Internet reporting (total, content, presentation, timeliness and usability) by Egyptian listed companies.

Consequently, the main aim of this chapter is to examine the relationship between total, content, presentation, timeliness and usability of CIR and various independent variables based on testable hypotheses. This chapter is organised as follows: Section 6.2 discusses the hypotheses related to firm characteristics variables. The relationship between CIR and market-related variables can be examined through the hypotheses presented in section 6.3. The hypotheses of ownership structure variables are mentioned in section 6.4. Section 6.5 discusses the hypotheses of corporate governance variables. The model of the current study is presented in section 6.6. Finally, section 6.7 summarises the chapter.

6.2 Firm characteristics variables

This category contains six variables, the discussion of these variables and the related hypotheses will be demonstrated below.

6.2.1 Size

Size represents one of the most common variables in determining the extent of disclosure. Many reasons are given to justify the association between companies' size and CIR. These reasons can be explained in terms of different theories. According to capital need theory, the stock market pressure may be forcing the large companies – which are looking forward to increasing their outside capital to enhance their performance – to disclose more information on their websites to assist them in the marketability of securities and achieve their objectives. Therefore, large companies may be able to access financial markets better if they disclose more information online (Bonson and Escobar, 2002).

According to agency theory, there is a need for more information about the companies from the various stakeholders. This need causes an agency problem between management and the various stakeholders as a result of information asymmetry and increase of agency costs. One way to alleviate these problems is by disclosing more information on the websites of these companies.

In addition, large companies are more publicly visible and more politically sensitive than small companies. Therefore, based on political cost theory, large companies are more subjected to the interests of government bodies and regulations which may increase the political costs. One way to mitigate the undesired pressure and interventions from these government bodies and increase the images of these companies is by increasing CIR.

Moreover, due to the higher cost of accumulation and dissemination of information, small companies may not be able to disclose more information on their website as they do not have the required resources for collecting, presenting and disseminating information (Buzby, 1975; Haniffa, 1999; Abdel-Salam, 1999). Consequently, regarding the cost benefit theory, large

companies tend to disclose more information on their websites as they benefit from their large amount of products which reduces the cost per unit for disclosed information (Lang and Lundholm, 1993; Abdel-Salam, 1999).

Many of the empirical studies investigate the relationship between company size and CIR. It has been found that size has a positive association with CIR (Ashbaugh et al., 1999; Pirchegger and Wagenhofer, 1999; Brennan and Hourigan, 2000; Debreceny et al., 2002; Oyelere et al., 2003; Xiao et al., 2004; Marston and Polei, 2004; Bollen et al., 2006; Kelton and Yang, 2008). The current study uses market capitalisation as a proxy for the size of the Egyptian listed companies.

Therefore based on these arguments, it can be assumed that size may have the same influence on CIR in the Egyptian context. The first hypothesis is:

H1.1: there is a positive relationship between company size and corporate Internet reporting (total, content, presentation, timeliness and usability) by Egyptian listed companies.

6.2.2 Profitability

Many empirical studies denote profitability as an important factor that may affect the disclosure levels. There are many reasons for the importance of studying the relationship between profitability and CIR. With respect to agency theory, managers of highly profitable companies are motivated to disseminate more information on the website of the company to achieve personal advantage (Wallace et al., 1994; Abdel-Salam, 1999; Haniffa, 1999; Leventis, 2001).

In addition, managers of the higher profit companies are required, based on political theory, to justify this level of profit to the public (Inchausti, 1997). This will be done by disclosing more information on the website of these higher profit companies.

Further, only companies with "good news" and which have high profits, disclose more information on their websites to raise shareholders' confidence and reduce the risk of under-valuation of their shares by the market. Therefore, based on signalling theory, high profit companies disseminate more information on their websites to distinguish themselves from those with less profit. However, some studies imply that companies with low profits (bad news) will disclose more information to reduce the risk of legal liability, reduction of the share capital and loss of reputation (Skinner, 1994; Leventis, 2001).

There is contradiction and ambiguity between the arguments discussed above according to the various theories and the results of most of the empirical studies. Some studies on the one hand prove that profitability has a significant relationship with CIR either positive (e.g. Ashbaugh et al., 1999; Ismail, 2002; Pervan, 2006; Celik et al. 2006; Aly et al. 2010), or negative (Marston and Polei, 2004). While on the other hand, (Ashbaugh et al., 1999; Larran and Giner, 2002; Oyelere et al., 2003; Xiao et al., 2004; Silva and Christensen, 2004; Abdel-Salam et al., 2007; Andrikopoulos and Diakidis, 2007; Barako et al., 2008) find that profitability is insignificantly associated with CIR.

Consequently, based on the contradictory results of the relationship between profitability and CIR, the current study examines this relationship in the Egyptian context. Profitability will be measured by return on equity (ROE). The second hypothesis can be stated as follow:

H1.2: ***there is a significant relationship between profitability and corporate Internet reporting (total, content, presentation, timeliness and usability) by Egyptian listed companies.***

6.2.3 Leverage

Leverage (gearing) refers to the usage of financial resources such as debt and borrowed funds to increase ROE. It represents one of the financial risk's measurements. The importance of leverage can be illustrated in the study in the light of agency theory. It can be anticipated that there is a relationship between capital structure and agency costs. This may be due to the transfer of wealth from the debt-holders (creditors) to the shareholders and management. Therefore, the highly leveraged companies will be responsible for satisfying the debtors' needs by disseminating reliable information on the website to make these debtors more confident about the ability of the companies to pay their debts.

Jensen and Meckling (1976), Watts (1977), Watts and Zimmerman (1986) and Mangena (2004) propose that agency costs will be raised as the proportion of debt-holders in the company's capital structure increases. One way to reduce this cost is by increasing the CIR which reduces the conflict between bond-holder and management in one side and between bond-holder and shareholder in another side (Ismail, 2002; Larran and Giner, 2002; Oyelere et al., 2003; Xiao et al., 2004).

On the other hand, according to signalling theory, highly leveraged companies may decide not disclose more information on their website to avoid the risks accompanying this disclosure, which may be bad sign for these companies in the market. Similarly, it can be argued that the low-leveraged companies may disclose more information on their website to reveal their financial structure to the stakeholders which may be a good sign.

Empirical studies which have investigated the relationship between leverage and CIR are inconclusive. Xiao et al. (2004) find that companies with a high leverage level associate positively with CIR in China. The same results are found by (Celik et al., 2006; Momany and Al-Shorman, 2006; Prabowo and Angkoso, 2006). However, many studies report that leverage has no impact on CIR (Brennan and Hourigan, 2000; Debreceny et al., 2002; Larran and Giner, 2002; Oyelere et al., 2003; Abdel-Salam and Street, 2007; Aly et al., 2010).

Because of these contradictory results, it is important to test the leverage variable in the Egyptian context. The current study uses debt ratio (total debts/total assets) to measure the leverage of the Egyptian listed companies. Based on the above argument, the third hypothesis will be:

H1.3: there is a significant relationship between leverage and corporate Internet reporting (total, content, presentation, timeliness and usability) by Egyptian listed companies.

6.2.4 Legal form

Legal form refers to the type of companies which trade on the stock market. Generally, there are two forms: public (state owned companies) and private companies. According to capital need theory, companies seek to issue more securities in the future to raise their capital and when this has been done the companies begin to transform from the public form to the private form due to their need for privatisation. One way to encourage this trend is to increase information disclosure.

Private sector companies are less likely to issue securities in the near future unless they want to extend their activities or make capitalisation expansion, as public sector companies are more popular to investors. Therefore, public sector companies are intensively in the public

eye due to the continuous evaluation of the privatisation programme in addition to the anticipation of investors in issuing the securities of these companies (Abdel-Salam, 1999). This puts pressure on these companies to disclose more information on their websites according to political theory.

Few empirical studies examine the relationship between legal form and disclosure. Abdel-Salam, (1999) finds that legal form is positively associated with the level of Egyptian listed companies' disclosure. However, Hassan (2006) asserts that public sector Egyptian companies tend to disclose less information (both mandatory and voluntary) than those in the private sector.

According to the Egyptian environment, there are two forms of companies trade on the Egyptian Stock market – public and private companies. The current study differentiates between these two types of company according to the law to which each group belongs. Accordingly, a proxy of dummy variable is used to measure the legal form variable. Companies that belong to law no.203/1991 take 1 (public companies), while companies that belong to other laws (e.g. 120/1975, 159/1981 and 230/1989) take 0. To the best of the author's knowledge, there is no study which has investigated the relationship between the legal form of the companies and CIR. Therefore, the fourth hypothesis expected to be:

H1.4: there is a significant relationship between legal form and corporate Internet reporting (total, content, presentation, timeliness and usability) by Egyptian listed companies.

6.2.5 Company Age

Company age refers to the length of the period during which the company has been listed on the stock exchange. Based on capital need theory, recently listed companies may seek to raise their capital in the future at lowest cost comparing with old listed companies (Choi, 1973b; Haniffa, 1999). Disclosing more information on their website helps these companies to achieve this goal. Therefore, recently listed companies increase their disclosure level to support their capital need.

On the other hand, old listed companies may look for external finance to expand their activities based on the stability that these companies have achieved through their long listed period. One way to achieve this is by disclosing more information on their websites (Haniffa, 1999).

With regard to signalling theory, recently listed companies should differentiate themselves from other companies by disclosing more information on their website to introduce themselves to the market as they represent new companies in the market.

The findings of this variable are contradictory. Barako et al. (2008) provide evidence that CIR has a significant positive association with company age. While on the other hand, Al-Shammari, (2007) concludes that company age has no impact on IFR by listed companies in Kuwait. Many studies find an insignificant relationship between company age and the level of disclosure (Haniffa and Cooke, 2002; Alsaeed, 2006; Akhtaruddin, 2005; Omar, 2007).

According to the contradictory findings of this variable, it will be important to test the relationship between company age and its CIR in the Egyptian context, which is characterised by listing new companies regularly and at the same time de-listing some companies.

Therefore, it can be expected that there will be a significant relationship between company age and CIR in the Egyptian listed companies. The current study uses the number of listed years as a proxy for company age. The fifth hypothesis will bc:

H1.5: there is a significant relationship between company age and corporate Internet reporting (total, content, presentation, timeliness and usability) by Egyptian listed companies.

6.2.6 Asset in place

Asset in place refers to the amount (ratio) of fixed assets to the total assets owned by a company (Haniffa and Cook, 2002). According to agency theory, companies that own a high percentage of fixed assets have fewer opportunities to transfer wealth from debt-holders to shareholders due to the restrictions that may be incurred in the debt agreement that prohibit shareholders from using fixed assets in this agreement (Omar, 2007). In this regard, Myers (1977) mentions that a firm's value can be evaluated by the company's current investment, which is reflected in their proportion of fixed assets, and the companies' future investment, which is reflected by assets that are yet to be acquired. Consequently, the more the companies own fixed assets, the less the extent of disclosure will be.

In contrast, Haniffa, (1999, p. 260) states that " a decrease in fixed assets (low assets in place) may also cause companies to disclose less to avoid high financing costs due to highly perceived risk".

Moreover, based on signalling theory, it can be assumed that companies with high fixed assets may signal that to their stakeholders to reflect their stability and future growth. To achieve this, companies tend to disclose more information on their websites.

The association between assets in place and CIR has not been examined widely in previous empirical studies. Xiao et al. (2004) examine the relationship between fixed assets and the CIR of Chinese listed companies. They report mixed results. While positive association with one of the CIR components is indicated, insignificant relationships with the other components are dominant. In addition, Mitchell et al. (1995) and Haniffa and Cooke (2002) report a positive relationship between assets in place and the extent of voluntary disclosure. Whereas, Chow and Wong-Boren, (1987), Hossain et al. (1994, 1995), Ho and Wong, (2001) and Omar, (2007) find this relationship insignificant.

According to the inconsistency findings in the relationship between assets in place and disclosure in previous studies, there is a need to test this relationship in the Egyptian context. Book value of net assets divided by total assets ratio is used as a proxy of assets in place in the current study. Drawing from the above discussion, it can be hypothesised that:

H1.6: there is a significant relationship between assets in place and corporate Internet reporting (total, content, presentation, timeliness and usability) by Egyptian listed companies.

6.3 Market-related variables

This category contains six variables, the discussion of these variables and the related hypotheses are illustrated below.

6.3.1 Type of business activity

Types of business activity can be classified into: industry activity and non-industrial activity, and financial and non-financial activity. The differences between the types of activities lead

to differences between disclosure levels. The impact of the type of business activity on the disclosure level may relate to political cost theory and signalling theory.

With regard to political cost theory, Watts and Zimmerman (1986) suggest that industry membership may lead to political liability of companies. Therefore, companies that practice more vulnerable activities may use voluntary disclosure to minimise the political costs resulting from these activities (Oyelere et al., 2003). In addition, some companies will be under pressure to consider their social responsibility which may burden them with extra political costs such as pollution, deforestation, and potential human harmful from chemical excretion (Haniffa, 1999; Suwaidan, 1997). One way to alleviate theses costs is disclosing more information via the websites of these companies.

In addition, it can be stated, based on signalling theory, that if any company does not keep up with other companies either in the same sector or in others and adopt similar disclosure practices – including CIR – this will be interpreted as the company hiding valuable information and this will be a bad sign for the company (Oyelere et al., 2003; Craven and Marston, 1999). Therefore, companies in one sector will follow the same disclosure pattern of leading companies. Many studies support this theme (Cooke, 1989, 1991; Camfferman and Cooke, 2002).

Some studies argue that industry type may have a negative impact on the level of disclosure due to proprietary cost theory. Verrecchia (1983) argues that proprietary costs reduce how favourable a disclosure would otherwise be, thereby creating a threshold level of disclosure.

Many empirical studies have used the type of business activity to explain the relationship with CIR. The result is mixed; some studies show that there are significant relationships between CIR and financial companies (Marston and Leow, 1998; Craven and Marstone,

1999; Brennan and Hourigan, 2000; Marston, 2003; Rodrigues and Menezes, 2003; Celik et al., 2006; Momany and Al-Shorman, 2006; Aly et al., 2010). On the other hand, Larran and Giner, (2002), Trabelsi and Labelle (2006) and Barako et al. (2008) indicate that financial companies have no impact on CIR.

The current study will use the financial and non-financial type of activity as a classification for the Egyptian companies. Dummy variable is used as a proxy for these companies: "1" if the company is financial and "0" if not. Depending on the above debate, it can be seen that there is no expected direction for the relationship between the type of business activity and CIR in the Egyptian context. The hypothesis can be stated as follows:

H2.1: there is a significant relationship between type of business activity and corporate Internet reporting (total, content, presentation, timeliness and usability) by Egyptian listed companies.

6.3.2 Foreign listing status (cross listing)

Listing either domestically or internationally has an impact on disclosure levels. Listing in a foreign market requires more commitment with the disclosure pattern of the foreign countries. The importance of foreign listing can be identified by various types of theories.

In terms of capital need theory, companies with a foreign listing seek to raise their capital on the international capital market at the lowest possible cost to keep their competitive positions. Therefore by a foreign quotation, companies may obtain various benefits such as a reduction in their cost of capital, the widening of their capital base and an increase in the liquidity of their shares (Hope, 2003). As a result, companies become more aware of the need to make an additional effort with their international investors and be more active in their disclosure

policy by disseminating more information via their websites (Larran and Giner, 2002; Marston and Polei, 2004).

According to stakeholder theory, it can be seen that there are different stakeholder cultures which may be encountered by companies that are listed in developing and developed countries, so they should choose the right policy to deal with them (Choi, 1973a; Meek and Gray, 1989; Cooke, 1989; Depoers, 2000). Accordingly, in the stock exchange of developing countries, overseas listed companies may differentiate themselves from other domestic companies by disclosing more information to the different stakeholders (Abdel-Fattah, 2008).

Moreover, based on innovation diffusion theory, Xiao et al. (2004) argue that the forced-selection on innovation diffusion leads Chinese cross listing companies to disclose more information on their websites. The forced-selection will be represented by compliance with International Accounting Standards or the accounting standards of the foreign countries in which the domestic companies are listed.

The association between foreign listing and CIR is commonly examined by large number of empirical studies. While, Marston and Polei (2004), Celik et al. (2006), Trabelsi and Labelle (2006), Aly et al. (2010) find a positive association between foreign listing and CIR, Debreceny et al. (2002) state that this association is negatively. On the other hand, Oyeler et al. (2003) and Marston (2003) report insignificant association between foreign listing companies and IFR.

According to the Egyptian context, foreign listed companies are basically known as companies that have Global Depository Receipts (GDRs). Based on the above arguments, it can be assumed that GDR companies in the Egyptian exchange have a significant influence on the CIR of Egyptian listed companies. Consequently, foreign listed companies will be

measured by dummy variable "1" if the company is listed on other stock markets or "0" if the company is listed domestically. The hypothesis related to this variable is:

H2.2: there is a significant relationship between foreign listing and corporate Internet reporting (total, content, presentation, timeliness and usability) by Egyptian listed companies.

6.3.3 Audit type

The type of auditor refers to the company that audits the financial reports of various clients. Nowadays, audit firms are classified into two groups; Big4 audit companies and small (i.e. other than 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).

Moreover, political theory assumes that Big4 audit companies have a legal liability towards the stakeholders who depend on audited financial statements when making their decisions. This legal liability puts more pressure on the Big4 companies to ensure that their clients have disclosed the required level of information to their stakeholders (Owusu-Ansah, 1997).

Based on diffusion of innovation theory, Xiao et al. (2004) assert that Big4 companies support the adoption of websites by companies to disseminate their information. This support will be achieved through security against any uncertainty with the disclosed information via

the Internet that Big4 audit companies can provide and through the assistance that can be introduced by Big4 companies to their clients regarding CIR.

Many studies have examined the relationship between audit type and CIR. Xiao et al. (2004) conclude that Chinese companies audited by big audit firms have more CIR. The same results was obtained by (Trabelsi and Labbele, 2006; Al-Shammari, 2007; Kelton and Yang, 2008). Conversely, Hassan et al. (1999) indicate that audit type has an insignificant effect on the decision to either have a website or disclose financial information via the Internet.

The audit companies responsible for auditing Egyptian listed companies consist of two groups: public agency and private companies. Public agency is represented by the Central Auditing Agency (CAA), while private companies are either agents for international auditing companies or not. Therefore, The current study measures Big4 audit companies by dummy variable "1" if the company is audited by Big4 audit companies or "0" if not. Based on the theoretical arguments and previous studies, the following hypothesis will be tested:

H2.3: there is a significant relationship between audit type and corporate Internet reporting (total, content, presentation, timeliness and usability) by Egyptian listed companies.

6.3.4 Shares Volatility

Volatility refers to the fluctuations, or ups and downs, that happen to shares on the stock market. The relationship between volatility and disclosure is neither finite nor clear (Imhoff, 1978). According to agency theory, it is assumed that disclosure increases when there is an increase in the information asymmetry between management and their investors which resulted from adverse selection problems. This explains the relationship between disclosure

and volatility (Lang and Lundholm, 1993). However, Leventis theoretically (2001) points out that volatility may have a negative impact on voluntary disclosure.

Moreover, according to political theory, Lang and Lundholm (1993) deduce that there is a relationship between volatility and disclosure due to their impact on the company's vulnerability with regard to legal action. This is because high share volatility may cause fraud in the share prices which, in turn, may attract regulators and cause lawsuits. In addition, highly volatile companies may increase disclosure to avoid the occurrence of large instant stock price changes, which in turn protects companies from lawsuits that may be brought due to not disclosing the required information in timely manner (Lang and Lundholm, 1993). In this regard, the Internet will be a useful tool for disclosing the required information.

With regard to signalling theory, companies with high volatility may signal that to their investors to illustrate their high performance which has resulted from their high profits (Leventis, 2001).

The association between share volatility and CIR is rarely examined. Trabelsi and Labelle (2006) find that the probability of using the Internet for greater disclosure has significantly positive associations with stock volatility. In addition, Lang and Lundholm (1993), Bushee and Noe (2000), Botosan and Plumlee (2002) state that disclosure increases the volatility of share prices. However, Leventis (2001) finds that stock volatility has no impact on the level of disclosure.

Within the Egyptian context, share volatility may have an impact on the CIR by Egyptian listed companies due to the high fluctuations in the Egyptian companies' shares prices that may happen in a single day. Share volatility will be measured by the standard deviation of the logarithmic prices' daily change (Bushee and Noe, 2000).

Based on the above discussion, it can be hypothesised that:

H2.4: there is a significant relationship between shares volatility and corporate Internet reporting (total, content, presentation, timeliness and usability) by Egyptian listed companies.

6.3.5 Shares activity

Shares activity refers to the number of trading days in the stock exchange. Some companies tend to trade heavily, while others trade rarely or even not at all. According to capital need theory, companies that are seeking finance tend to attract more investors by disclosing more information on their websites. It is assumed that companies seeking to increase their finance are heavily traded in the stock exchange (Abdel-Salam, 1999). Therefore, it will be hypothesised that there is a relationship between companies' share activity on the stock market and disclosing information via the website.

In addition, heavily traded companies are always in the public eye due to their active trading on the stock market. Therefore, these companies have been required to disclose their news, essential events and important information that will help the investors to make their decisions. Consequently, political costs theory postulate that heavily traded companies disclose more information on their website accordingly.

Moreover, companies that trade heavily on the stock market may encounter a stock price undervaluation risk from the market. Therefore, these companies may tend to signal their activities and future projects by disclosing additional information on their website. By doing this, they encourage a fair revision of their stock prices (Hassan, 2006). Based on this

argument, a significant association between share activity and CIR, as explained by signalling theory, is expected to be found.

The relationship between stock activity and the level of disclosure has rarely been examined in previous empirical studies. In Egypt, Abdel-Salam and Weetman (2003) find that stock activity is positively related to two measures of mandatory disclosure. Similarly, Hassan (2006) reports the same results for mandatory disclosure. However she finds that heavily traded Egyptian companies are less likely to disclose information voluntarily

With regard to the Egyptian context, it can be seen that both heavily and rarely or not traded companies are listed in the EGX[13]. To the best of the author's knowledge, no previous study has examined the relationship between share activity and CIR. Consequently, the current study seeks to discover if there is any impact of the shares activity in the EGX on CIR or not. Following Hassan (2006), shares activity will be measured by the number of trading days during the six months prior to the financial year-end to total trading days during that period. The next hypothesis will be:

H2.5: there is a significant relationship between shares activity and corporate Internet reporting (total, content, presentation, timeliness and usability) by Egyptian listed companies.

6.3.6 Shares issuance

Most companies seek to increase their capital by more than one resource; one of these resources is issuing more shares. For companies intending to raise their capital, Sriram and

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[13] Non traded companies (about 48 companies) are included in the study as they may have a web site.

Laksman (2006) point out that providing greater access to information about corporate plans and activities online is beneficial and will increase the investors' interest in offering security which enhances the ability of the companies to raise more capital. Therefore, based on agency theory, issuance of shares reduces the information asymmetry which increases the investors' investments in the issuance companies (Leland and Pyle, 1977; Myers and Majluf, 1984).

On the other hand, companies that do not intend to raise their capital through issuing shares may wish to disclose more information to their investors to explain their strong financial position and avoid the undesirable effects that result from not disclosing information, which may in turn threaten their current position in the market. Consequently, signalling theory assumes that shares issuance decreases the extent of CIR.

The results of the previous studies that have examined the relationship between shares issuance and CIR are mixed. Ettredge et al. (2002) find a positive association between shares issuance and CIR. However, Xiao et al. (2004) and Sriram and Laksmana (2006) provide empirical evidence that shares issuance is negatively associated with CIR.

Based on the above discussion, the current study aims to examine the relationship between shares issuance and CIR in the Egyptian context. Following Ettredge et al. (2002), shares issuance will be measured by dummy variable "1" if the companies issued shares in 2006 or 2007, "0" if not. Consequently, it can be hypothesised that:

H2.6: there is a significant relationship between shares issuance and corporate Internet reporting (total, content, presentation, timeliness and usability) by Egyptian listed companies.

6.4 Ownership structure variables

Ownership structure refers to the proportion of holding equity in the companies and its concentration or dispersion among the various owners. Most of the previous studies examine the relationship between the level of disclosure and ownership structure as one variable, without classifying it into its main components. This may lead to improper findings due to the possible impact of different ownership structures (Jiang and Habib, 2009). The ownership structure of listed Egyptian companies is characterised by mixed ownership which is comprised of government, institutional, employees and individual investors. Accordingly, the ownership structures category in the current study will be classified into four main variables. The discussion of these variables and their related hypotheses is given below.

6.4.1 Block holder ownership

In term of equity scope, there are two clusters – either the concentration or the dispersion of the ownership. Concentration of ownership refers to the group which has the most influence among the equity owners, while dispersion (diffusion) of ownership looks only at the separation of ownership between managers and equity owners as a group (Haniffa, 1999).

Agency theory predicts that when the ownership structure of the companies tends to be concentrated, there are a large number of shareholders with stakes in the companies and they can obtain the information internally from the company without any need for other supporting sources. Therefore, the agency problem will be decreased in this situation which leads to disclose less information on the companies' websites. Further, the shareholders will hinder the expansion of access to more information to preserve their competitive advantages over others. Hence, their requirements for additional information are likely to be reduced.

The findings from the previous studies that have examined the relationship between ownership structure and CIR are mixed. Oyelere et al. (2003) and Kelton and Street (2008) conclude that block holder ownership is associated negatively with CIR, while (Trabelsi and Labelle, 2006; Abdel-Salam and Street, 2007; Barako et al., 2008) find this association insignificantly.

In the Egyptian context, Most of the listed companies are closely held (Fawzy, 2003; Sourial, 2004; Bremer and Elias, 2007). 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.

Based on the above arguments, the current study investigates the relationship between block holder ownership and CIR by Egyptian listed companies. Block holder ownership is measured by the percentage of shareholders who hold 5% or more. Accordingly, it will be assumed that:

H3.1: there is a significant relationship between block holder ownership and corporate Internet reporting (total, content, presentation, timeliness and usability) by Egyptian listed companies.

6.4.2 Managerial ownership:

Managerial ownership refers to the proportion of insider ownership. Increasing managerial ownership may increase the level of online disclosure as management seek to signal their good performance to their shareholders. Moreover, management may be motivated to disclose more if they intend to make a trade on their shares (Mangena and Pike, 2005). This may because extending the level of disclosure will increase the company's liquidity which

has a positive impact on the company's share price and this represents a good signal for the company's shareholders (Healy and Palepu, 2001). Consequently, signalling theory assumes that managerial ownership increases the level of CIR.

In addition, based on stewardship theory, management have incentives to monitor the shareholders' interests due to the convergence of interests between the two groups. Management are less likely to make decisions that may harm the interests of shareholders (Chen and Jian, 2007). In this regard, Shleifer and Vishny (1997) point out that managerial ownership can prevent the squandering of shareholders' wealth due to a consensus in interests between the management and shareholders. Consequently, increasing the managerial shareholding in the companies' ownership structure leads to enhance the level of CIR in these companies (Chen and Jain, 2007).

The relationship between managerial ownership and CIR is rarely examined. Kelton and Yang (2008) investigate this relationship for US companies. They fail to provide any evidence to support their hypothesis regarding the impact of managerial ownership on IFR. However, many studies reports mixed results for the relationship between managerial ownership and voluntary disclosure. Gelb (2000), Rahman (2002), Eng and Mak (2003) and Ghazali and Weetman (2006) find this relationship negatively, while (Warfield et al., 1995; Chau and Gray, 2002; Nasir and Abdullah, 2004; Karamanou and Vafeas, 2005; Chen and Jain, 2007; Jiang and Habib, 2009) find it positively. Conversely, Chen and Jaggi (2000), Nagar et al. (2003), Mangena and Pike (2005) and Donnelly and Mulcahy (2008) report an insignificant relationship between managerial ownership and voluntary disclosure.

In Egypt, some listed companies have managerial ownership in their structure. The current study seeks to investigate the expected influence of managerial ownership on the

disseminating of information via the website of the Egyptian listed companies. Managerial ownership can be measured by the percentage of shares held by management. Based on the theoretical discussion and empirical evidence, the hypothesis that relates to this variable is:

H3.2: there is a significant relationship between managerial ownership and corporate Internet reporting (total, content, presentation, timeliness and usability) by Egyptian listed companies.

6.4.3 Governmental ownership

Governmental ownership refers to the proportion of shares that is owned by government in companies. Capital need theory may assume that high governmental ownership companies may not need to raise their capital due to the availability of government funding and easier access to other financial sources without attracting the investors to raise their capital. Therefore, high government ownership companies are likely to disclose less information on their websites (e.g. Eng and Mak, 2003; Abdel-Fattah, 2008).

Xiao et al. (2004) state that governments may increase their intervening in the affairs of high governmental ownership companies which restricts management independence. Therefore, management pay greater attention to the government-owners' requirements. Moreover, government-owners may have easier access to the required information which will be available internally. According to cost benefit theory, there is no need for the burden of additional cost by disclosing more information on the company's website while the required information is available internally. Based on Xiao et al.'s (2004) arguments, it will be expected that government-ownership companies may disclose less information on their websites.

In addition, Ghazali and Weetman (2006) argue that in developing countries such as Malaysia, high government-ownership companies disclose less information voluntarily due to the political affiliation represented, in their need to protect the real or beneficial owners. Further, they mention that separated monitoring by government is another reason for disclosing less information by those companies. Therefore, it can be expected, due to political theory, that higher governmental ownership has a negative impact on CIR.

Government-ownership has mixed empirical results. Xiao et al. (2004) conclude that there is a negative association between government-ownership and CIR for the Chinese listed companies. However, Prabowo and Angkoso (2006) find that public ownership has no influence on the level of web-based disclosure of the Indonesian companies.

With regard to the Egyptian context, 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. Therefore, there a need for examining the influence of the mixed structure of the Egyptian listed companies on CIR. Based on the above arguments and the unique characterises of the Egyptian context, the current study examines the relationship between CIR of the Egyptian listed companies and government-ownership as measured by the percentage of shares held by government (public sectors Banks, public sector companies and holding companies). Consequently, the hypothesis will be:

H3.3: there is a significant relationship between governmental ownership and corporate Internet reporting (total, content, presentation, timeliness and usability) by Egyptian listed companies.

6.4.4 Institutional ownership:

Institutional ownership refers to the proportion of shares that is owned by institutions. With regard to 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 investment funds.

In addition, based on innovation theory, companies with a large proportion of shares held by institutional investors tend to adopt the Internet to disclose the required information. Ettredge et al. (2001) mention that the reason for using the website for disseminating information is the different information needs for the various users which companies should provide. They note that companies with a large number of sophisticated investors disclose more detailed information on their website than those companies with a large number of individual users. In this regard, Guan et al. (2007) assert that institutional investors are more sophisticated and own enough technical expertise to monitor the managers.

Studies that examine the relationship between institutional ownership and CIR are inconclusive. Sriram and Laksmana, (2006) and Al-Motrafi (2008) indicate that companies with more institutional investors disclose fewer items on their website. However, Celik et al. (2006) state that institutional ownership does not significantly influence web-based business reporting.

In Egypt, the percentage of institutional ownership has increased over the last few years due to the supervision of these institutions over most of the large privatisation deals (Abdel Shahid, 2003). Therefore, it can be expected that institutional investors will increase their

proportion in the Egyptian listed companies. Institutional ownership will be measured by the proportion of shares held by the outside institution (private Banks, insurance companies and other private institutions). Accordingly, the following hypothesis will be formulated:

H3.4: there is a significant relationship between institutional ownership and corporate Internet reporting (total, content, presentation, timeliness and usability) by Egyptian listed companies.

6.5 Corporate governance variables

As mentioned before, corporate governance searches for greater accuracy of disclosed information and organises the relationship between the shareholders, board of directors and management. Five main variables are examined in the corporate governance category. The following sections discuss these variables in detail.

6.5.1 The board size

"At the heart of every governance system is a board (or boards) of corporate directors, charged with directing and overseeing corporate affairs" (Hessel, 2006). Increasing board size may improve the disclosure process quantitatively and qualitatively. Increasing board size may increase the representation of non executive directors by which companies can enhance the quantity of disclosed information. In addition, increasing board size may increase the diversity in the sharing of knowledge between members of the board by which companies can enhance the quality of disclosed information (Abdel-Fattah, 2008).

Consequently, the board size is a contradictory issue. While some studies argue that a large board size may carry out more monitoring, provide companies with the diversity that helps them in providing critical resources and eliminating environmental uncertainties, alleviate the

dominance of the CEO and increase the pool of expertise that results from the diversity of the board (Lipton and Lorsch, 1992; Pearce and Zahra, 1992; Goodstein et al., 1994; Yermack, 1996; Mak and Roush, 2000; Singh et al., 2004), other studies illustrate that large boards could cause more conflict between the members of the board that may result in delays to or cancellation of critical decisions. In addition, large boards may cause poorer communication and processing of information (Jensen, 1993; Huther, 1997; John and Senbet, 1998).

Based on the above argument, the findings of the studies that examine the relationship between board size and the level of disclosure are mixed. While (Karamanou and Vafeas, 2005; Laksmana, 2008; Abdel-Fattah, 2008) assert that board size has a positive impact on the level of disclosure, other studies (Lakhal, 2003; Arcay and Vazquez, 2005; Cheng and Courtenay, 2006; Donnelly and Mulcahy, 2008; Al-Motrafi, 2008) conclude that there is no impact for the board size on the level of disclosure.

In Egypt, 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 current study seeks to investigate the relationship between board size and CIR in the Egyptian context. Some studies indicate that the optimal Board of directors' size ranges between seven and nine members (Lipton and Lorsch, 1992; Jensen 1993). The board size of the Egyptian listed companies can be measured by the number of board members.

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

H4.1: there is a significant relationship between the board size and corporate Internet reporting (total, content, presentation, timeliness and usability) by Egyptian listed companies.

6.5.2 Non-executive directors

Non-executive directors refer to any directors on the company's board other than managing and functional directors (Abdel-Fattah, 2008). Therefore, this variable determines the proportion of executive directors (inside the company) who generally work in the company and the non-executive directors (outside the company) who do not work in the company.

A high proportion of non-executives on the companies' board will be considered as a signal for higher good corporate governance (Crowther and Jatana, 2005) and motivate their level of transparency (Gul and Leung, 2004). However, non-executive directors are a contradictory issue. The proponents embrace the agency theory which premises that non-executive directors should be on the board in a large proportion to be able to monitor and control the action of executive directors and protect the interests of shareholders. Forker (1992) confirms that monitoring of management by non-executive directors makes the management more responsive to the shareholders' interests (e.g. maximise the profits) and more responsive to investors (e.g. provide more disclosed information), therefore the management will be more compliant to disclosure requirements.

On the other hand opponents of non-executives' majority on the board argue that non-executive directors do not have sufficient information about the activities of the company and may impose excessive control and lack of real independence (Baysinger and Butler, 1985; Demb and Neubauer, 1992; Goodstein et al., 1994).

Leftwich et al. (1981) indicate that the association between the proportion of non-executive and the extent of disclosure can be investigated through two points of view. The first is the positive relationship which refers to the complementary relationship. The second is the negative relationship which refers to the substitutive relationship (Ghazali, 2004).

Few studies have examined the relationship between CIR and the proportion of non-executive directors. Xiao et al. (2004) And Barako et al. (2008) find an insignificant relationship between CIR and the proportion of non-executive directors. While on the other hand Abdel-Salam et al. (2007) and Kelton and Yang (2008) find this relationship positively significant.

In Egypt, there are no rules that govern a board's 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 means that the majority of the board members are non-executive. 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).

According to the above arguments, the current study tests the relationship between the proportion of non-executive directors and CIR. The proportion of non executive directors will be measured by the ratio of non-executive directors to the total directors on the Egyptian listed companies' boards. Therefore, it can be assumed that:

H4.2: there is a significant relationship between non executive directors and corporate Internet reporting (total, content, presentation, timeliness and usability) by Egyptian listed companies.

6.5.3 Role duality

Role duality occurs between the CEO (chief executive officer) and the chairman when one of them holds both positions at the same time, in other words, when the CEO is the chairman of the board as well (Abdel-Fattah, 2008).

Role duality is another type of concentration of management and non-separation. 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). 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). Consequently, it will be expected that separation between the chairman and the CEO leads to greater disclosure. In this regard, Forker (1992) indicates that companies which combine the chairman and CEO roles are likely to disclose less information.

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 (Heracleous, 2001; Haniffa and Cooke, 2002).

Most of the studies that examine the relationship between role duality and CIR find this relationship insignificant (Abdel-Salam and Street, 2007; Abdel-Salam et al., 2007; Abdel-Salam and El-Masry, 2008; Kelton and Yang, 2008; Al-Motrafi, 2008).

In Egypt, the board chairman is often also the managing director. The Egyptian corporate governance code states that the board appoints a chairman who is preferably not the CEO 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) most of the board chairmen in Egyptian companies are also the CEOs. Role duality in the Egyptian listed companies is measured in the current study by the dummy variable which is "1" if the chairman is the same person as the CEO, "0" if not.

The contradictions of the role duality results support the need for examining its relationship with CIR in the Egyptian context. The study hypothesises that

H4.3: there is a significant relationship between role duality and corporate Internet reporting (total, content, presentation, timeliness and usability) by Egyptian listed companies.

6.5.4 Family members on the board

A family company is "a company where members of the founding family continue to hold positions in top management, are on the board, or are block-holders of the company "(Chen et al., 2008). To protect their interests, shareholders tend to nominate family members to influence the board's decisions. Consequently, family members usually hold important positions on both the management team and the board of directors (Wang, 2006).

According to information costs theory, there may be impeded costs that may lead to greater disclosure of information from family companies. These costs include: the avoidance of litigation costs by voluntarily disclosing bad news (Skinner, 1994; Field et al., 2005; Chen et al., 2008) and reputation costs that may be imposed on companies due to their withholding bad news since investors dislike negative earnings surprises (Skinner, 1994; Chen et al. 2008). Accordingly, family companies may voluntarily disclose more information on their websites to avoid these two types of costs.

Additionally, family companies may be forced by different stakeholder to disclose more voluntary information. Wang (2006) asserts that due to possible manipulation in the accounting earnings by family members, different users of companies' financial statements require higher quality accounting information in exchange for better contracting terms.

Consistent with the above argument, it can be inferred from stakeholder theory that companies with high numbers of family members on their board disclose more information on their websites.

The association between family members on the board and the level of disclosure is examined in many empirical studies. Ho and Wong (2001), Haniffa and Cook (2002), Ghazali and Weetman (2006), Chen and Jian (2007) and Chen et al. (2008) conclude that the percentage of family member does not significantly influence the level of disclosure. Alternatively, Wang (2006), Ali et al. (2007) and Abdel-Fattah (2008) provides empirical evidence that family companies are associated positively with the extent of voluntary disclosure.

According to the Egyptian context, many listed companies in the EGX include family members on their board. In his survey of the board practice of the Egyptian listed companies, Gamal El-Din (2008) indicates that 53.6% of the surveyed companies have at least one family member on their board. The author is not aware of any previous study that has examined the association between CIR and the existence of family members on a company's board. Consequently, the current study seeks to fill the gap in the prior disclosure literature by investigating the association between the existence of family members on the Egyptian listed companies' boards and CIR. Following Abdel-Fattah (2008), The existence of family members on the board will be measured by dummy variable "1" if the company has family members on its board, "0" if not. Therefore, the expected hypothesis will be:

H4.4: there is a significant relationship between family members on the board and corporate Internet reporting (total, content, presentation, timeliness and usability) by Egyptian listed companies.

6.5.5 Foreign members on the board

Foreign members usually sit on the company's board as a representative of their foreign investors. According to regulatory changes over the last few years in both developing and developed countries, foreign investors can participate in the domestic stock market (Bekaert and Harvey, 2000; Mangena and Tauringana, 2007). In this regard, Ramaswamy and Li (2001) assert that the participation of foreign investors in the domestic market has increased over the years due to the high spread of globalisation.

The existence of foreign members on the companies' board may improve the performance of these companies due to the different knowledge that those members own and skills that have been obtained from their countries. Therefore, based on signalling theory, these companies may tend to signal their good performance to their shareholders by disclosing more information on their websites.

In addition, with respect to diffusion of innovation theory, companies with high numbers of foreign board members will be likely to adopt the Internet for disclosing their information. One reason for that is the sharing of knowledge between foreign members and domestic members about the importance of Internet as a tool for disseminating companies' information. Most of the foreign companies have already websites as an efficient way to disclose their information. In this regard, Abdel-Fattah (2008) indicates that the existence of foreign members on companies' boards may be a reflection of their ability to engage with the international markets which require highly efficient levels of disclosure. Therefore, it will be expected to find a positive relationship between companies that have foreign members on their boards and CIR.

The author is not aware of any previous studies that have examined the relationship between the presence of foreign members on companies' boards and CIR. Only Abdel-Fattah (2008) considers this relationship for voluntary disclosure in the Egyptian context. He finds that most active Egyptian listed companies that have a high proportion of foreign members on their boards tend to disclose more voluntary information.

Regarding the Egyptian context, Egyptian listed companies nominate foreign members to their boards, seeking to attract foreign investments. As the Egyptian capital market is an emerging market, and still in its infancy, it requires more stability and organisation. One of the most problematic issues in this market is the weakness of the internal governance of listed companies due to a shortage of management resources (Youssef, 2003). Accordingly, the nomination of foreign members on the boards of the Egyptian listed companies can play a unique role in solving these weaknesses (Abdel-Fattah, 2008).

Consequently, the current study seeks to fill the gap in the disclosure study by examining the impact of the existence of foreign members on the Egyptian listed companies' boards on CIR. Dummy variable is used as a proxy for the existence of foreign members, "1" if there are foreign members on the company's board, "0" if not. The hypothesis that is related to this variable is:

H4.5: there is a significant relationship between foreign members on the board and corporate Internet reporting (total, content, presentation, timeliness and usability) by Egyptian listed companies.

To test these variables, the study will use multiple regression analysis. The research model will be discussed in the next section.

6.6 Research model

The research model deals with the variables (dependent and independent) which will be examined in the study. The statistical tool which will be used in this study is "multi-regression analysis". Based on the study's hypotheses, there are five main models which are used to test the relationship between the main components of CIR and their explanatory variables. These models are illustrated as follows:

$$CIRI(CIRCI, CIRPI, CIRTI, CIRUI)\ ic = \alpha+\beta_1X_1\ c+ \beta_2X_2\ c + \beta_3X_3\ c + \beta_4X_4\ c+ \beta_5X_5\ c + \beta_6X_6\ c + \beta_7X_7\ c+ \beta_8X_8\ c+ \beta_9X_9\ c+ \beta_{10}X_{10}\ c+ \beta_{11}X_{11}\ c+ \beta_{12}X_{12}\ c+ \beta_{13}X_{13}\ c+ \beta_{14}X_{14}\ c+ \beta_{15}X_{15}\ c + \beta_{16}X_{16}\ c + \beta_{17}X_{17}\ c +\beta_{18}X_{18}\ c+ \beta_{19}X_{19}\ c+ \beta_{20}X_{20}\ c+ \beta_{21}X_{21}\ c + \varepsilon\ ic.$$

Where:

CIRI = total corporate Internet reporting index.

CIRCI = content of corporate Internet reporting disclosure index.

CIRPI = presentation of corporate Internet reporting index.

CIRTI= timeliness of corporate Internet reporting index.

CIRUI = usability of corporate Internet reporting index.

i = number of indices of corporate Internet reporting, c = number of company, α = the intercept, $\beta_{1.....21}$ = the coefficients of the independent variables and ε = the error term

Two types of independent variables will be tested in the current study. The first is continuous variables which include:

X_1 = Company size, X_2 = Profitability, X_3 = Leverage, X_5 = Company age, X_6 = Asset in place, X_{10} = Shares volatility, X_{11} = Shares activity, X_{13} = Block holder ownership, X_{14} = Managerial ownership, X_{15} = Governmental ownership, X_{16} = Institutional ownership, X_{17} =

Board size and X_{18} = Non-executive directors. While, the second is for dummy variables and includes:

X_4 = Legal form, X_7 = Type of business activity, X_8 = Foreign listing, X_9 = Audit type, X_{12} = shares issuance, X_{19} = Role duality, X_{20} = Family members and X_{21} = Foreign members. Table 6-1 summarises the operationalisation of the independent variables that determine CIR.

Table 6-1: Measurement of independent variables

Independent variable	Acronym	Proxy	Sources
Company Size	Size	Market capitalisation	Bollen et al. 2006
Profitability	Prof	Return On Equity (ROE)	Marston and Polei 2004
Leverage	Lev	Debt ratio (total debt/total asset)	Xiao et al. 2004
Legal Form	L form	Dummy variable coded "1" if the company is public sector, "0" otherwise.	Abd-Eslam 1999
Company Age	C Age	The number of listed years	Al-Htaybat, 2005
Asset In Place	Ass Plc	Book value of net assets/total assets	Omar, 2007
Activity Type	Fin T	Dummy variable coded "1" if the company is financial, "0" otherwise	Trabelsi and Labelle 2006
Foreign listing	For list	Dummy variable coded "1" if company listed on a foreign stock exchange, "0" otherwise	Bollen et al. 2006
Audit Type	Audit	Dummy variable coded "1" if the company audited by big four company, "0" otherwise	Kelton and Yang 2008
Shares Volatility	Sh Vol	The standard deviation of the logarithmic prices' daily change	Bushee and Noe 1999, 2001
Shares Activity	Sh Act	Number of trading days during the last six months/total trading days during this period	Hassan 2006
Shares Issuance	Sh Iss	Dummy variable coded "1" if the company raises its capital in the study period, "0" otherwise.	Xiao et al. 2004
Block Holder Ownership	B Holder	The percentage of shareholders who hold 5% or more	Barako et al. 2008
Managerial ownership	Man Own	The percentage of shares owned by the top management of firms	Gazali 2004
Government ownership	Gov Own	The percentage of shares owned by government	Xiao et al. 2004
Institutional ownership	Ins Own	The percentage of total shares owned by institutional investors	Mangene 2004
Board Size	B Size	Number of members on the board	Haniffa and Hudaib 2006
Non-Executive directors	Non- Exec	Number of non-executive directors/total number of directors on the board	Abd-Elsalam and Street 2007
Role Duality	R Dual	Dummy variable coded "1" if the CEO is the chairman at the same time, "0" otherwise	Abd-Elsalam and Street 2007
Family Members	Fam	Dummy variable coded "1" if the company's board has family members, "0" otherwise	Chen and Jian 2007
Foreign Members	Fore	Dummy variable coded "1" if the company's board has foreign members, "0" otherwise	Abdel-Fattah 2008

The results of most of the variables used to explain the extent of disclosure tend to vary among different studies which may be due to the variance in measures operationalised (Ahmed and Courtis, 1999; Leventis, 2001). Consequently, determining the proxies of the independent variables and the criteria used to choose these variables becomes a critical issue.

The criteria behind choosing independent variables are: the theoretical background that supports the relationship between these variables and CIR, the previous literature review in the field of voluntary disclosure and the relevance of the variables to the Egyptian context.

6.7 Summary

The current chapter represents the link between the theoretical framework – presented in chapter three – and the empirical findings that will be presented in chapters eight and nine. As mentioned before, the current study is based on the deduction approach which assumes that there are main theories that explain the study. These theories represent the basis of the hypotheses which will be tested to prove whether there is any relationship between the dependent variable (CIR) and the independent variables (firm characteristics, market related, ownership structure and corporate governance) or not, and whether this relationship is consistent with the proposed theories or not. This combination should be determined carefully in order to obtain valid results.

Consequently, the hypotheses formulated in this chapter are based on the proposed theoretical framework discussed in chapter three, and prior literature reviewed in chapter four. Appendix 12 summarises the hypotheses discussed in this chapter, their explained theories and their previous empirical findings.

To test these hypotheses, different statistical analyses and methods can be used. The next chapter presents the descriptive statistics for CIR to determine the extent of such disclosure in the Egyptian context.

CHAPTER 7 THE DESCRIPTIVE ANALYSIS OF CORPORATE INTERNET REPORTING BY EGYPTIAN LISTED COMPANIES

7.1 Introduction

The current study uses a self constructed checklist as a research instrument to determine the extent of CIR in the Egyptian context. Both CIR total and its main components are measured by unweighted disclosure indices which rely on a dichotomous approach. To determine the current situation of using the Internet as a disclosure medium by the Egyptian listed companies, descriptive analysis should be performed. By describing the frequencies of CIR and its components for the Egyptian listed companies, a better understanding can be obtained for the disclosure level which may demonstrate the greatest number of disclosed items via the company's website and the fewer disclosed ones. Determining the level of disclosure helps Egyptian listed companies to understand the items which should be of more concern in satisfying the various needs of stakeholders.

Consequently, the main aim of this chapter is to provide a clear picture about the current practice of CIR total and its components in the Egyptian context. By doing this, the first research question will be answered: To what extent do the Egyptian listed companies disclose their information on their websites?

To achieve this aim, the chapter will be organised as follows: Section 7.2 assesses the reliability and validity of CIR total and its components' indices. This will be followed by determining the extent of CIR total in section 7.3. The extent of CIR components is presented in section 7.4. At the end, section 7.5 provides a summary of the chapter.

7.2 Reliability and validity of CIR total and its component indices

As mentioned before in section 5.6.6.1.7, it is very important to determine whether the disclosure index indeed measures all of the components of CIR accurately to fulfil the goodness of a measure. Reliability and validity tests are useful ways to achieve such a goodness of measure.

Many tests are performed to assess the reliability and validity of one measure. The current study relies on internal consistency tests to assess the reliability of the CIR indices and on both content and construct validity tests to assess its validity. Assessing both tests will be discussed in the next points.

7.2.1 Assessing the reliability of disclosure indices

As mentioned by Haire et al. (2007), reliability is related to consistency. One of the most common measures of reliability is the measure of internal consistency tests. Two tests are mainly used in the current study, namely correlation coefficients and Cronbach's alpha.

7.2.1.1 Correlation coefficients

Correlation coefficients are used to assess the internal consistency between items in each CIR component and the total index of each group in addition to the consistency between the CIR components themselves. Two correlation methods are run to achieve this goal; Pearson's product moment correlation and Spearman's rank order correlation coefficients. Both coefficients indicate that all the items of each component are correlated significantly with the total index of each group.

7.2.1.2 Cronbach's alpha

Cronbach's alpha is one of the most common tests of inter-item correlation. Many authors support the use of Cronbach's alpha as a perfectly adequate proxy for assessing the reliability of a measurement instrument (Carmines and Zeller, 1991; Sekaran, 2003). The current study tests the internal consistency for each of the components of CIR by calculating Cronbach's alpha for each component. Table 7-1 summarises the results of these calculations.

Table 7-1: Cronbach's alpha for CIR components'

CIR components	Number of items	Cronbach's alpha
CIR total	100	.977
CIR content	59	.970
CIR presentation	14	.822
CIR timeliness	10	.897
CIR usability	17	.782

As indicated from Table 7-1, all CIR components have a high Cronbach's alpha. It is assumed that the higher the Cronbach's alpha, the better the reliability of the instrument (Sekaran, 2003; Saunders et. al. 2007). As a rule of thumb, an alpha of 0.7 is considered acceptable to achieve the reliability of the disclosure index (Hair et al. 2007).

Based on the above results, it can be confirmed that there is a high consistency either between the items of each component and the total index of this component or between the all items and total CIR index. Therefore, it can be stated that the indices of the CIR components are reliable in the current study. As mentioned before, assessing reliability alone is not enough to confirm the goodness of a measure. Validity tests should be accompanied by reliability tests to achieve this goal. The next point discusses the validity of disclosure indices.

7.2.2 Assessing the validity of disclosure indices

Disclosure indices are considered valid when they measure what should be measured. Two main methods have been performed to assess the validity of disclosure indices; content and construct validity.

7.2.2.1 Content validity

Content validity aims to ensure that the included items in the indices are sufficient and cover effectively the studied subject. Two steps were performed to assess the content of the disclosure indices. The first is visiting all the websites of Egyptian listed companies to check the applicability of the items that are derived from previous literature and ensure their relevance to the Egyptian context. The second is sending the checklist of disclosure items to five academic persons in the field of accounting to judge the included items and decide whether these items are suitable to the research questions and objectives of the current study or not.

7.2.2.2 Construct validity

Construct validity aims to ensure that the results obtained from the disclosure indices are consistent with the theories in which the test is designed (Sekaran, 2003). In other words, assessing the construct validity requires consistency with the results of the previous studies that apply the same theories for the same methods of measuring the indices. Consequently, the current study tests the validation of indices by examining the correlation between the CIR total and the total index of each component in addition to the correlation between CIR components' indices and the major company's characteristic variables examined in the most

previous studies. Table 7-2 presents first the correlations between the total index of each component and CIR total, and between each component as well.

Table 7-2: The correlations between CIR components

CIR components'	CIR total	CIR content	CIR presentation	CIR timeliness
CIR content				
Pearson	.989**			
Spearman	.937**			
CIR presentation				
Pearson	.912**	.884**		
Spearman	.816**	.709**		
CIR timeliness				
Pearson	.918**	.889**	.813**	
Spearman	.760**	.661**	.661**	
CIR usability				
Pearson	.795**	.722**	.667**	.702**
Spearman	.801**	.63**	.597**	.632**

Note: ** = Significant level 5%

As seen from Table 7-2, there is a highly significant correlation between the CIR total and each component in both parametric and non parametric correlation methods which indicates that each component interprets the CIR total effectively and efficiently. Further, this high correlation demonstrates the similarity of the disclosure strategies for the Egyptian listed companies over the different components of CIR (Botosan, 1997; Cheng and Courtenay, 2006; Abdel-Fattah, 2008). Moreover, each CIR component correlates significantly with the other CIR components which reflects the interrelationship between these components in the Egyptian context.

To confirm the previous results, another correlation analysis was run between the indices of CIR components and the major company characteristics examined before in the previous studies. Ahmed and Courtis (1999) performed a meta-analysis to investigate the association between company characteristics and disclosure levels by examining 29 previous studies. They find that company size, foreign listing and leverage are positively associated with disclosure levels. Consequently, the current study chooses these variables to test the validity

of the disclosure index. Table 7-3 summarises the results of correlation analysis between the indices of CIR components and these three variables.

Table 7-3: The correlation between the indices of CIR components and company characteristics

CIR components/variables	Size		Foreign Listing		Leverage	
	P	NP	P	NP	P	NP
CIR total	.599**	.453**	.528**	.327**	.219**	.231**
CIR content	.598**	.441**	.545**	.332**	.201**	.200**
CIR presentation	.549**	.380**	.436**	.319**	.249**	.181**
CIR timeliness	.552**	.448**	.459**	.298**	.166*	.232**
CIR usability	.445**	.336**	.383**	.282**	.220**	.167*

Note: P= Parametric test (Pearson), NP= Non-parametric test (Spearman), ** = Significant level 5%, * = Significant level 10%

As indicated from Table 7-3, all the components of CIR are correlated significantly with the major three company characteristics in both parametric and non parametric correlation methods. This result is consistent with the major previous studies that constructed a disclosure index to measure its relationship with different explanatory variables.

Based on the above results of both content and construct validity, it can be concluded that the indices of the CIR components are already measuring what the current study assumed to measure regarding its research questions and objectives. Additionally, the indices of the CIR components are consistently capturing CIR practices in the Egyptian context.

Assessing the reliability and validity of the indices of CIR components in the current study shows that these indices are indeed measures of CIR with high levels of accuracy and consistency. This in turn adds more confidence to the power of constructing the CIR measurement indices and more credibility for the results that are derived from these indices.

After assessing the reliability and validity of the indices of CIR components, the next section discusses the extent of CIR total in the Egyptian context.

7.3 The extent of CIR total

The extent of CIR total is explored for 343 Egyptian listed companies. Of these, 180 (52.48%) companies have website. Determining the percentage of the Egyptian listed companies that have websites answers the first sub question SRQ1.1. Unweighted checklists that contain 100 items are constructed to measure the extent of CIR total. Table 7-4 summarises the descriptive analyses of CIR total.

Table 7-4: Descriptive analysis for CIR total

	Mean	Minimum	Maximum	S.D.	Skewness	Kurtosis
CIR	.2077	.02	.91	.1985	1.843	2.803

It can be seen from Table 7-4 that Egyptian listed companies show a low overall extent of CIR (20.77%) in 2007 which may have resulted from the voluntary nature of CIR. In addition, the table demonstrates a wide range (0.89) in the extent of CIR. While the minimum score of the CIR index is .02, the maximum is .92. Furthermore, the positive skewness value indicates that the score is piled up on the left of the distribution, while the positive kurtosis value indicates a heavy-tailed or a peaked distribution (Fields, 2009). To add more depth to the results of the CIR total extent in the Egyptian context, Table 7-5 summarises the frequencies of CIR total scores.

Table 7-5: Frequencies of CIR total scores

CIR total scores %	No. of companies	%
1-9.9	64	35.6
10-19.9	54	30
20-29.9	27	15
30-39.9	9	5
40-49.9	7	3.9
50-59.9	4	2.2
60-69.9	6	3.3
70-79.9	4	2.2
80-89.9	4	2.2
90-99.9	1	.6
TOTAL	180	100

As presented in Table 7-5, 161 companies (89.5%) score below 50% which have been reflected in the positive value of the skewness, while 64 (35.6%) companies' indices are in the range 1-9.9% which reflects the positive kurtosis. In addition, only 19 companies (10.5%) disclosed 50% or more of the checklist items which indicates a lack of Internet usage as a disseminating tool in the Egyptian context.

Interestingly, only one company, namely the Egyptian Company for Mobile Services (Mobinil) discloses more than 90% of the items included in the index. This company has been awarded the best website in Egypt for two consecutive years, i.e. 2006 and 2007, through a competition held by the Egyptian Institute of Directors (EIoD) and the International Finance Corporation (IFC).

In addition, most of the Egyptian listed companies (65.6%) score up to 20% of the disclosed items which again reveals the need to demonstrate the importance of the Internet as a tool for disclosing information to these companies. From this conjecture, the current study derived its major importance as a step to shed light on the current situation of CIR in the Egyptian context and motivate the Egyptian listed companies to use the Internet as a disclosure tool.

Although the percentage of companies that have websites in the Egyptian context is slightly low (52.48%), this percentage is still comparable either in the international context or in the Egyptian context. According to the international context, many previous studies demonstrate the low percentage of companies having a website. In Ireland, Brennan and Hourigan (2000) find that only 37% of the sampled companies have a website, in Gulf Co-operation Council countries the percentage was 39% (Ismail, 2002), in New Zealand 54% (Oyelere et al., 2003), in Spain 32% (Borbolla, et al., 2005), in Jordan 45% (Momany and Al-Shorman, 2006), in Malaysia 47% (Hamid, 2005), in Bangladesh Khan (2006) and Dutta and Bose (2007) find that percentages are 40% and 39% respectively.

Regarding the Egyptian context, Mohamed (2002) concludes that 48% of the Egyptian companies have websites. Moreover, Metwaly (2003) finds that only 32.8% of the sampled companies have websites. In addition, El-Dyasty (2004) states that 55% of the sampled companies have websites. However, Aly et al., (2010) demonstrate that 69 % of the top 100 Egyptian listed companies have websites.

Based on the above Egyptian results, it can be indicated that there has been an increase in companies who have a website in the Egyptian context over the last five years, compared with the results of the current study. This may reflect the increased interest of CIR by the Egyptian listed companies over the last periods. However, the current results indicate that Egyptian listed companies are still in the infancy phase of CIR, compared with the developed countries context[14]. To shed more light on the extent of CIR, it is preferable to demonstrate the extent of CIR components. The next section discusses this point in detail.

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[14] For more details see chapter four.

7.4 The extent of corporate Internet reporting components

Four main components are investigated for CIR in the current study. It might be worthwhile analysing the extent of content, presentation, timeliness and usability of CIR. Table 7-6 summarises the scores of these components' indices.

Table 7-6: Descriptive analyses for CIR components indices

	Content		Presentation		Timeliness		Usability	
Mean	.2111		.1701		.1456		.2629	
Minimum	.02		0		0		0	
Maximum	.95		.79		1		1	
	Frequencies of CIR components indices							
Score of CIR index %	N.	%	N.	%	N.	%	N.	%
0-9.9	66	36.6	102	56.7	100	55.6	15	8.3
10-19.9	54	30	15	8.3	34	18.8	69	38.3
20-29.9	22	12.1	25	13.9	11	6.1	43	23.9
30-39.9	11	6.1	11	6.1	7	3.9	19	10.6
40-49.9	8	4	8	4.4	7	3.9	15	8.3
50-59.9	2	1	10	5.6	4	2.2	12	6.6
60-69.9	5	3	4	2.2	4	2.2	2	1.1
70-79.9	5	3	5	2.8	3	1.7	3	1.7
80-89.9	3	2	0	0	1	.6	1	.6
90-99.9	4	2.2	0	0	6	3.3	0	0
100	0	0	0	0	3	1.7	1	.6
Total	180	100	180	100	180	100	180	100

As shown from Table 7-6, there is variability in the level of information disclosed via the Internet. While the range of both CIR timeliness and usability scores is 100%, CIR content ranges from .02 to .95 and CIR presentation ranges between 0 and .79. The highest mean disclosure score was usability (26.29%) which indicates the importance of using the usability tools for CIR by Egyptian listed companies, while the lowest score was timeliness (14.56%) which reveals the lack of disclosed timely information on the Egyptian listed companies' websites. However there are three companies which show 100% timely disclosed information on their websites (1.7%).

In addition, it can be seen that most of the Egyptian listed companies disclose on average up to 20% of the content (66.6%), presentation (65%), timeliness (74.4) and usability (46.6%) information on their websites. While approximately 11% of the Egyptian listed companies disclose on average 50% or more of the CIR components' items. This, again, indicates that the online disclosure strategy for the Egyptian listed companies still needs more understanding and recognition of its importance for the companies' stakeholders.

This variability in the extent of CIR components requires more analysis for each component to understand the disclosure policy by which the Egyptian listed companies prefer to disseminate information on their website. The next points present the analyses of CIR components.

7.4.1 Content

59 content items were included in the checklist to measure the CIR content of the Egyptian listed companies. These items are classified into four groups, namely accounting and financial information, corporate governance information, corporate social responsibility information and contact detail information. The disclosure of each group is presented in Table 7-7.

Table 7-7: The disclosure of the main types of information on the websites of Egyptian listed companies

Types of disclosed information	No. of companies	%
Accounting and Financial	91	50.6
Corporate governance	131	72.8
Corporate social responsibility	180	100

Table 7-7 indicates that there is at least one item of corporate social responsibility disclosed on the website of all the Egyptian listed companies which represents the willingness of

Egyptian companies to disseminate such non financial information to their stakeholders. In addition, 131 of the sampled companies (72.8%) disclose at least one item of corporate governance on their websites. This percentage is represented as acceptable, especially in the Egyptian context that applied their code of governance recently. However, the percentage of disclosing financial information via the website of the Egyptian listed companies is represented slightly low (only 91 companies with 50.6%). About the half of the Egyptian listed companies are keen to disclose financial information via the Internet.

Although the percentage of disclosing financial information via the website by the Egyptian listed companies is slightly low, previous Egyptian studies indicate lower percentages of disclosing financial information than the current study (Mohamed, 2002, 18%; Metwaly, 2003, 25.9%; El-Dyasty, 2004, 4%; Aly et al., 2010, 56%).

Based on the above arguments, it can be concluded that Egyptian listed companies have increased their level of disclosing financial information in the last few years, in addition to the importance of disclosing non financial information as well, namely social and corporate governance information. By demonstrating the most disclosed information types on the Egyptian listed companies' websites, the second sub-question is answered SRQ1.2 and OBJ1 is achieved. The results of each group items' disclosure are shown in Appendices 13, 14 and 15.

Regarding accounting and financial information, it can be stated that all the items are below half of the Egyptian listed companies' websites. The most common items were past press releases and past financial highlights (both at 30.6%). This finding indicates that Egyptian listed companies can use the Internet to outsource the provision of specific information via press releases. Many previous studies show that disclosing press releases via the Internet is

the most common disclosed item (e.g. Deller et al., 1999; Brennan and Kelly, 2000; Ettredge et al. 2001; Geerlings et al., 2003; Lybaert 2002; Larren and Giner 2002); however, the percentage of the current study is slightly low.

Moreover, it was found that Egyptian listed companies disclosed an overview of their financial performance on their website (30.6%) and a summary of key financial ratios (19.4%) which reflects the desire of these companies to attract more investors. This percentage is close to that of Lybaert (2002) who finds that 30% of the Dutch listed companies provide key financial ratios on their website. In addition, Sriram and Laksmana (2006) find that only 37.9% of the US sampled companies disclose a summary and history of financial data on their website.

Only 16 Egyptian listed companies (8.9%) disclose full or excerpts of current annual reports on their websites, while 10.6% disclose full or excerpts of past ones. More specifically, the majority of the Egyptian listed companies disclose one or more of the financial statements on their website without restriction, with the full form of the annual report. Balance sheet (full or excerpt) is the most disclosed financial statements via the Internet (27.2%) by the sampled companies.

Neither annual reports nor any of the financial statements on the website of the Egyptian listed companies is comparable to the recent international studies (Larran and Giner, 2002; Spanos and Mylonakis, 2007; Kelton and Yang, 2008). However, annual report excerpts are comparable to some prior studies (Ettredge, et al., 2002; Xiao et al., 2004; Davey and Homkajohn, 2004; Hamid, 2005). This finding reflects the need to disclose more annual reports, either full or excerpt, on the Egyptian listed companies to help the various

stakeholders in obtaining the required financial information that is essential for their decisions.

With respect to audit reports, only 32 companies (17.8%) disseminate this report on their websites. The audit report adds more credibility to and confidence in the disclosed information. All the audit reports that are provided on the website are signed by the auditor. This percentage represents low comparable with the previous study (FASB, 2000; Allam and Lymer, 2003; Marston, 2003).

Among the other types of financial reports that disclosed on the websites of the Egyptian listed companies are segmental reports (15.6%) and management reports (14.4%). The results of an IASC survey in 1999 which covered 660 companies in 22 countries find that few companies disclose their segmental reports (22.7%) and management report (33.3%) on their websites. Further, the FASB survey's results in 2000 find that US companies tend to disclose both segmental reports (28%) and management reports (61%).

With regard to quarterly reports, only 27 of the surveyed companies (15%) provide such a report on their websites. Many previous studies find their sampled companies do disclose this report. Larran and Giner (2002) report that 15.09% of the Spanish listed companies provide quarterly reports via their website. In China, Xiao et al. (2004) mention that 2% of the companies provide past years' quarterly reports.

Moreover, it was found that 12 companies (6.7%) provide a link to their financial analyst on their website; providing such a link increases credibility of the companies' disclosed information as stakeholders can ensure from other places the accuracy of the companies' information. Ettredge et al. (2001) find that 15% of the total US companies provide this link, while only 10% of AIMR companies provide it.

Regarding the information about the stock market, only 18 Egyptian listed companies (10%) disclose share prices history via their website, while 8.9% disclose the performance of these prices in relation to the stock market index and 5% disclose past dividends information. These percentages are not enough to attract any investors to those companies especially in the case of using online trading which has been applied on large scale in recent years. More interestingly, disclosing the links to EGX by Egyptian listed companies was the lowest percentage in the accounting and financial information disclosure (2.2%). Only five companies provide their investors with a direct link to EGX. This may be attributed to the large spread of financial information provider service companies in the Egyptian market which leads the various investors obtaining the required information about shares from them instead of accessing the websites of the Egyptian listed companies. This may in turn decrease the motivation of Egyptian listed companies to update their websites with such information or even disclose it.

Financial statements according to IFRS are disclosed by only 11 (6.1%) companies. Most of these companies are foreign listing companies which should adhere to the disclosure regulations of the countries in which they are listed[15]. However, there are other Egyptian listed companies which are not foreign listed and demonstrate commitment to the IFRS disclosure[16].

The conducted survey in the current study finds some indication for disclosing other items such as: market share of key products (18.9%), performance analysis (15%), industry

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[15] These companies are: Orascom Telecom Holding, Telecom Egypt, El Ezz Steel Rebars, Lecico Egypt, Orascom Construction Industries.

[16] These companies are: Credit Agricole Egypt, Egyptian Financial & Industrial, Sidi Kerir Petrochemicals, Al Arafa Investment And Consulting, Egyptian Financial Holding Group (Hermes), Egyptian Kuwaiti Holding.

statistics or data (15%), earnings or sales forecasts (10%) and earnings release (5%). The second group that is related to CIR content is the corporate governance group. Appendix 14 summarises the results of this group.

It can be shown that there is a variety in the percentages of disclosing corporate governance information; however, all the items are disclosed by not more than the half of the Egyptian listed companies. The highest disclosed item is related to information about the board of directors. The study reports that 76 of the Egyptian listed companies (42.2%) disclose names and photos of their boards of directors via the Internet, while 13.9% disclose their C.V., profiles and whether they are executives or not. The results are found in Spanos and Mylonakis (2007) who find that the highest disclosed corporate governance items for the Greek companies was the information about the board of directors (54.5%).

On the other hand, the lowest three disclosed items are related to the board of directors' information as well. Only one company (0.6%), namely Egyptian transport (EGYTRANS) discloses the remunerations of its board of directors' members. In addition, four companies (2.2%) disseminate the speeches of the management board during the AGM on their website to different stakeholders, while 4.4% provide a notice of the annual shareholders' meeting. This may be one of the many advantages of using the Internet in disclosing information. However, the number of companies that disclose this type of information is still very low. This finding is consistent with Spanos and Mylonakis (2007) who find that only two Greek listed companies (1.7%) disclose the remuneration of board members on their websites which presents the lowest disclosed items by those companies.

In addition, while the Egyptian listed companies disseminate general information about the role of their audit committees, they did not disclose sufficient information about their

composition. Only 12 companies (6.7%) provide the charter of their audit committee, while the charter of the other committees is given by nine companies (5%). Spanos and Mylonakis (2007) shows that 12.4% of the Greek listed companies disclose the members of their audit committee on their website. However, Kelton and Yang (2008) find that 76.1% of the US listed companies disclose this information and 77.1% disclose the charters of other committees.

Information about ownership structure represents one of the important pieces of information by which stakeholders can determine the free float percentage in order to take decisions about whether they invest in these companies or not. Further, recognising the various owners of the companies can help stakeholders in determining the type of these companies (public or private) which may influence the future plans for these companies. 68 Egyptian listed companies (37.8%) are providing such information on their websites to various stakeholders. This percentage is comparable to Lybaert (2002) who finds that only 22% of Dutch listed companies disclose ownership structure on their websites. However, Marston and Polei (2004) state that 70% of the German listed companies disclosed this item in 2003.

Moreover, 53 of the sampled companies (29.4%) disclose their organisational structure via the Internet. This information is accompanied by the disclosing of management teams which is disseminated on 45 Egyptian companies' websites (25%). This finding is confirmed by Larren and Giner (2002) who report that 30.55% of the Spanish listed companies disclose their organisational structure on their websites. Moreover, Geerlings et al. (2003) mention that organisational structure is disclosed by 42%, 42% and 26% by the France, Belgium and Dutch listed companies respectively. This can help stakeholders to know whether there is separation between the role of chairman and CEO or not. Role duality is an indication of a poor corporate governance system and vice versa.

One of the most common pieces of corporate governance information is a letter from chairman to the company's shareholders. 61 of the Egyptian listed companies (33.9%) are disseminating their message to shareholders via the Internet. In its international study, IASC (1999) concludes that 52% of the sampled companies disseminate the chair's message to their shareholders. However, FASB (2000) and Allam and Lymer (2003) find this percentage to be 80% and 98% respectively.

While most of the corporate governance items are disclosed in the Egyptian listed companies in a low percentage compared with the international studies, various types of this information are found in at least one company indicating that Egyptian listed companies have begun to recognise the importance of disclosing these items especially after issuing the Egyptian companies' code of ethics in 2005.

The third group of CIR content is corporate social responsibility information. Appendix 15 summarises the results of this group.

It can be noticed that both company profile and links to companies' product information are disclosed by the majority of Egyptian listed companies. Only 10 companies (5.6%) do not provide information about their profile. Many studies have examined the disclosure of company profiles via the Internet. For example, FASB (2000) finds that 69 of the US sampled companies disclose this item. In Thailand, Davey and Homkajohn (2004) report that 49% of Thai companies disclose this item in PDF format and 94.5% disclose it in HTML format. Further, FASB (2000) indicates that 74% of the US companies disseminate links to their products.

In addition, many Egyptian listed companies are keen to disclose their history to their stakeholders to demonstrate the growth and performance that has happened to them during

their business life. 141 of the sampled companies (78.3%) disseminate this information via the Internet. Sriram and Laksmana (2006) state that 78% of the US listed companies provide their history via the Internet.

As a commitment to the community and users of their products, Egyptian listed companies disclose the information that relates to safety and general health on their website. 94 of the sampled companies (52.2%) discuss the quality and safety of their products, while 40 companies (22.25) disseminate their safety health report on their website. These results are consistent with Sriram and Laksmana (2006) and Spanos and Mylonakis (2007). In addition, 61 Egyptian listed companies (33.9%) present their quality assurance (ISO) on their website to add more confidence in their products and manufacturing process.

Furthermore, Egyptian listed companies recognise the importance of a corporate social responsibility report by disclosing this report via the Internet to their stakeholders. However, few numbers of companies disseminate this type of report (only 17 companies or 9.4%) compared with the international studies: (In Germany, Marston and Polei, 2004 (20%); In Thailand, Davey and Homkajohn, 2004 (51%); In European countries, Bollen et al., 2006 (44%) and In Canada, Trabelsi and Labelle, 2006 (20%)). The finding is still comparable with Spanos and Mylonakis (2007) who find that only 6.7% of the Greek listed companies disclose corporate social responsibility reports on their websites.

The mission and vision statement is one of the most common pieces of social information. 70 of the sampled companies (38.9%) provide this information via their website. Such a finding is consistent with FASB (2000) which indicates that 38% of the US sampled companies disseminate this item via the Internet.

As mentioned before, corporate social responsibility information is the highest type of disclosed information on the Egyptian listed companies' website. This may reflect the eagerness of these companies to commitment within their community which will guarantee the continuity of these companies.

The final group of CIR content is regarding contact details information. The results of this group are presented in Appendix 16.

Few Egyptian listed companies are disclosing the contact details of their investor relations department which is responsible for providing the required financial information. Some companies make a separate section for investor relations (24 companies with 13.3%) to ease the obtaining of the required information from the companies' website. FASB (2000) finds that 67% of the US sampled companies disclose direct links to their investor relations department via their websites.

There are no remarkable differences between the means of investor relations contact. Providing the e-mail address of investor relations persons is the highest disclosing contact tool in the Egyptian listed companies (17.8%). 22 companies (12.2%) provide the names of investor relations officers and both their phone number (13.3%) and postal address (8.9%) so they are easily contacted. These percentages are comparable to Xiao et al. (2004) who indicate that 15.3%, 16.3% and 14.8% of the Chinese listed companies disseminate e-mail addresses, phone numbers and postal addresses of investor relations via their websites respectively.

Disclosing a section for investor relations in the Egyptian listed companies represents an advanced step in CIR. Most of the companies in the developed countries are disclosing separate sections for investor relations to isolate the critical information from other general

information. This isolation enables various stakeholders to obtain their required information efficiently and effectively.

Based on the above findings, it can be stated that there are a few Egyptian listed companies that are close to their counterparts in the developed countries. Similar to the listed companies in the developed countries, many content items are disclosed on the website of the Egyptian listed companies. However, approximately half of these companies are far from the required level of disclosing content information. Determining the level of content information that is disclosed on the Egyptian listed companies answers the third sub-question SRQ1.3 and achieves the second objective OBJ2.

Disclosing various types of information may not reveal the major advantages of using the Internet as a disseminating tool, while presenting this information using different presentation tools may clarify these major advantages. The next point discusses the extent of CIR presentation in the Egyptian context.

7.4.2 Presentation

The current study includes 14 items in the checklist to measure the CIR presentation index. The results of the extent of CIR presentation are shown in appendix 17.

Each presentation item is disclosed by at least one Egyptian listed company. The highest item was disclosing information in a multilinguistic way. 66 of the listed Egyptian companies (36.7%) use different languages other than Arabic to present their disclosed information via the Internet. Most of the information is disclosed in English, while some companies use additional languages besides English to disclose information. Many studies report the using of multilanguages on their sampled companies' websites (e.g. in France, Belgium and

Netherlands (44%, 54% and 78% respectively), Greenlings et al., (2002), in Netherlands (38%), Lybaert, (2002), in China (47.3%), Xiao et al., (2004), in Thailand (91%), Davey and Homkajohn, (2004), in European countries (40%), Bollen et al., (2006) and in Greece (86.8%), Spanos and Mylonakis, (2007)).

In addition, 33 of the sampled companies (18.3%) use graphic images on their website, 22 companies (12.2%) using video files, 20 companies (11.1%) use PowerPoint slides as investor presentations, 18 companies (10%) present sound files and one company (0.6%) uses webcasting to present information to various stakeholders. Using these advanced technologies attracts more stakeholders to access the companies' website to get the required information. Davey and Homkajohn (2004) report that 19% and 8% of the Thai listed companies use presentation slides and multimedia technology respectively. Moreover, Spanos and Mylonakis (2007) indicate that 12.4% of the Greek listed companies present audio and video files via their website.

Only one company, namely Orascom Telecom Holding use webcasting events as an advanced tool to allow many stakeholders access to live events such as conference calls and Annual General Meetings regardless of their location whenever they have Internet connection. Webcasts may be introduced in audio, audio/video and PowerPoint slides with audio. This result is consistent with Allam and Lymer's (2003) findings that 60% of their sampled companies using webcast.

Regarding the type of format by which information is disclosed on the Egyptian listed companies, two types are found: PDF and HTML. PDF format is the dominant type of presenting information as it used by 33 of the sampled companies (18.3%) for disclosing any financial statements and by 23 companies (12.8%) for presenting annual reports. On the other

hand, 16 companies (8.9%) use HTML as a presentation tool for any financial statements and only two use it for presenting annual reports. 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.

Some Egyptian listed companies are keen to allow their stakeholders to benefit from the unique features of the Internet. 45 of these companies (25%) provide stakeholders with the ability to download any information from their websites. Moreover, 43 companies (23.9%) allow those stakeholders to print the required information. Many studies discuss the presenting of these features. For example, in the Netherlands, Lybaert (2002) finds that 79 of the Dutch listed companies provide the opportunity to download any information. Further, Marston and Polei (2004) report that 39% of the Germany companies enable their users to print information.

Based on the above findings, it can be assumed that some Egyptian listed companies use advanced presentation tools to disclose their information on their websites to benefit from the unique features of the Internet in their disclosure process. The other companies appear unaware of these features and prefer the traditional tools of disclosure. Such findings answer the fourth sub-question SRQ1.4 and fulfil the third objective OBJ3.

One of the most important features of the Internet is its ability to disseminate timely information. The extent of CIR timeliness will be discussed in the next point.

7.4.3 Timeliness

CIR timeliness index is measured by ten items. The findings of these items' disclosure are presented in appendix 18. The most frequent item on the Egyptian listed companies' websites

is current press releases, being disclosed by 31.7 % of the sampled companies. Some Egyptian companies provide these items on their websites to let their stakeholders be up to date with their events and news. This result is consistent with Davey and Homkajohn (2004) who find that press releases are the most disclosed items on Thai listed companies' websites.

With respect to financial information, 35 of the sampled companies (19.4%) disclose the most recent quarterly report on their websites. Abdel-Salam and Street (2007) mention that 99% of the UK listed companies provide their most recent quarterly reports on their websites. In the US, Kelton and Yang (2008) find that 60% of the surveyed companies disseminate recent quarterly reports on their websites.

One of the most common items that indicates whether the disclosed items are presented in a timely way or not is the updating of website pages. 29 of the Egyptian companies (16.1%) update their website pages regularly and put the date of the last update on their websites to indicate the updating of all the disclosed information. Abdel-Salam and Street (2007) find that only four UK companies (0.03%) provide this item on their websites.

Both putting hints for finding information and registering an e-mail alert are equally disclosed by the Egyptian companies (13.9%). Lybaert (2002) finds that 42% of the Dutch listed companies put hints for finding disclosed information vie their websites. Further, if the stakeholders need to be updated with companies' events and news, they can register on the e-mail alert system to receive recent company news. Abdel-Salam and Street (2007) show that 81% of the UK companies provide e-mail alerts on their websites.

Only 16 companies (8.9%) present the current price of their shares via the Internet. In addition, the current dividends item is disclosed by only 10 companies (5.6%). Both items are among the lowest disclosed timely items on the websites of the Egyptian listed companies.

One reason for that is the availability of both items by financial services companies that specialise in providing all the financial information about the Egyptian listed companies (such as MUBASHER and MIST). However, most international studies find that the latest share price is among the highest disclosed item on companies' websites (e.g. Davey and Homkajohn, 2004; Abdel-Salam and Street, 2007; Kelton and Yang 2008).

Consistent with other studies (Ashbaugh et al., 1999; Pirchegger and Wagenhofer, 1999; Lybaert, 2002; Davey and Homkajohn, 2004; Abdel-Salam and Street, 2007), considerable variation was found between the Egyptian listed companies regarding CIR timeliness. Some companies disseminate timely information, while others disclose outdated information. The above findings indicate that a considerable number of the Egyptian listed companies need to concentrate more on disclosing timely information on their website to increase their response to the investors' needs of CIR timeliness. These findings clearly answer the fifth sub-question SRQ1.5 and achieve the fourth objective OBJ4.

To ease the searching, finding and obtaining of stakeholders' information, many companies tend to provide usability tools. Providing usability tools on the Egyptian listed companies' websites will be discussed in the next point.

7.4.4 Usability

17 items are used to measure CIR usability. The dissemination of usability items are shown in appendix 19. It can be demonstrated that there are many tools that help the accessibility to the websites of the Egyptian listed companies. Some of these tools are general and not for specific information, while the others are specific for financial information.

Regarding the general tools that are used to ease the use of the website for obtaining any type of information, many Egyptian listed companies are keen to provide such tools on their website. The highest disclosed items are the mailing list (90%), table of contents (79.4%), navigation buttons (37.8%), pull-down menu (37.2%), site map (28.9%), internal search box (26.1%), external links (18.9%), bookmark the page (5%) and help site (3.9%). All the previous tools facilitate the obtaining of the required information and help the stakeholder to use the website easily. Many studies check for the disclosure of such tools (e.g. Pirchegger and Wagenhofer, 1999; Lybaert, 2002; Allam and Lymer, 2003; Xiao et al., 2004; Marston and Polei, 2004; Spanos and Mylonakis, 2007; Abdel-Salam et al., 2007).

According to the tools that ease the use of financial information, 38 companies (21.1%) enable stakeholders to enter the investor relations section by only one click from the companies' home page. In addition, 17 companies (9.4%) provide direct links from their home page to the annual report. Lybaert (2002) finds that 48% of the Dutch listed companies provide links to investor relation sections and their annual report.

Moreover, if the stakeholders fail to reach to their required information, some Egyptian companies (11.1%) provide a section for FAQs about the most asked financial questions to help stakeholders who may have difficulty in obtaining information. Davey and Homkajohn (2004), report that 51% of the Thai listed companies provide such an item.

Additionally, 4.4% of the sampled companies enable their stakeholders to order any financial information online which keeps these companies close to their stakeholders. Deller et al. (1999) find that 46% of the Germany companies offer these services, while only 22% of the UK companies and 16% of the US companies introduce these services. Further, few companies (3.9%) introduce a financial glossary in their online library to help new investors

to understand any financial terms or expressions that may increase their investment awareness and culture.

Based on the above findings, it can be concluded that there is a variety in the usability tools provided by Egyptian listed companies on their websites. While some tools are provided on a large scale, others are not. Revealing the usability tools that disclose on the companies' websites answers the sixth sub-question SRQ1.6 and fulfils the fifth objective OBJ5.

7.5 Summary

This chapter aims to answer the first research question and its sub questions by determining the current practice of CIR total and its components for the Egyptian listed companies. Reliability and validity tests are performed to ensure the goodness of a measure for CIR total and its components' indices. The results reveal that the research instrument used in the current study is reliable and valid for measuring CIR total and its main components' indices in the Egyptian context.

In addition, it is concluded that the extent of CIR total and its components in the Egyptian listed companies' websites is slightly low compared with the developed countries. However, this level has increased since the previous Egyptian studies. To shed more light on the practice of CIR in the Egyptian context, the study examines the extent of CIR components. The findings indicate that there is variability in the level of information disclosed via the Internet. On average, usability is the highest disclosure level, while timeliness is the smallest one. Due to this variability in the disclosure level, the study examines each component separately.

Regarding the content component, there is at least one social responsibility information item which is disclosed by each Egyptian listed company; on the other hand, financial information is the least disclosed item. The most disclosed financial item is past press releases. Moreover, the most disclosed corporate governance item is details of the board of directors (names and photo only). Company profile is the most disclosed social responsibility items.

With respect to presentation, it is interesting to find one company discloses webcasting events on its website. The highest disclosed item is multilanguage. Moreover, some Egyptian listed companies disclose all the timeliness information via their websites. The most disclosed timeliness item is current press releases. As with timeliness, some Egyptian listed companies disseminate all the usability items via their websites. Mailing lists, tables of content and navigations buttons are the highest disclosed items.

By examining the extent of CIR total and its main components in the Egyptian context, the first research question will be answered. To answer the second research question, empirical analyses will be performed. The next chapter presents the discussion of empirical findings.

CHAPTER 8 EMPIRICAL FINDINGS: CORPORATE INTERNET REPORTING TOTAL

8.1 Introduction

This chapter shows the statistical tests that will be used to investigate the relationship between CIR total and the explanatory variables. Its main aim is to answer the second research question: What are the key determinants of CIR by Egyptian listed companies?

Multi-analyses are used to achieve this aim. First in section 8.2 univariate analysis describes the continuous and dummy independent variables. Univariate analysis is related to describing only one variable.

Then in section 8.3, bivariate analysis is performed to examine the relationship between CIR total and each independent variable individually. The bivariate analysis is mainly exploring the relationship between two variables. Both parametric and non-parametric tests are used to demonstrate this relationship.

To investigate the relationship between CIR total and all the independent variables simultaneously, multivariate analysis is conducted in section 8.4. Multivariate analysis is performed to test the relationship between one variable and two or more variables. The study runs three regression models: un-transformation model, log transformation model and the Tobit model as robustness for the obtained results.

All the results of the three models are presented in section 8.5, followed by discussions in section 8.6. The chapter ends with brief summary in section 8.7.

8.2 Univariate descriptive statistics

As mentioned before, 52.5% of the sampled companies have websites, while 47.5% have not. Table 8-1 summarises the descriptive statistics of the continuous variables for both types of company.

Table 8-1: Descriptive statistics of continuous variables

Variables	Min.	Max.	Mean	S.D.	Skewness	Kurtosis
Size						
Web			3095.13			
No-Web			427.18			
Total	2	115582	1827.27	8779.280	10.175	118.036
Prof						
Web			.1937			
No-Web			.1794			
Total	-.77	1.14	.1869	.19800	.947	6.036
Lev						
Web			1.9545			
No-Web			1.2752			
Total	.00	13.13	1.6317	2.34377	2.999	9.579
C Age						
Web			9.81			
No-Web			9.58			
Total	1	27	9.70	4.858	.454	1.255
Ass Plc						
Web			.2521			
No-Web			.2674			
Total	.00	.93	.2594	.22540	.766	-.183
Sh Volatility						
Web			.0115			
No-Web			.0072			
Total	.00	.15	.0095	.01790	4.200	24.023
Sh Activity						
Web			.4249			
No-Web			.2922			
Total	.00	1.00	.3618	.44993	.566	-1.601
B Holder						
Web			.7534			
No-Web			.7969			
Total	.00	1.00	.7741	.24897	-1.229	.891
Man Own						
Web			.1849			
No-Web			.2020			
Total	.00	1.00	.1930	.29606	1.433	.780
Gov Own						
Web			.2359			
No-Web			.1856			
Total	.00	1.00	.2120	.33703	1.383	.417
Ins Own						

Web			.3504			
No-Web			.3938			
Total	.00	1.00	.3710	.36878	.499	-1.293
B Size						
Web			7.70			
No-Web			6.93			
Total	3	17	7.33	2.828	.870	.433
Non-Exec						
Web			.7188			
No-Web			.7063			
Total	.3	.93	.7129	.16451	-1.362	2.443

Note: Size = Company size, Prof = Profitability, Lev = Leverage, C Age = Company age, Ass Plc = Assets in place, Sh Volatility = Shares volatility, Sh Activity = Shares activity, B Holder = Block holder ownership, Man Own = Managerial ownership, Gov Own = Governmental ownership, Ins Own = Institutional Ownership, B Size = Board size, Non-Exec = Non-executive directors.

From the above table, it can be seen that most of the Egyptian listed companies which have websites are larger than those with no website. In addition, the profitability of the web-based companies is 19.37% which represents a slightly higher percentage than non web-based companies (17.9%). Moreover, the volatility of web-based companies' shares tends to be smaller than non web-based companies. In addition, most of the web-based companies are heavy trading (.42) comparing with non web-based companies (.29). Further, the ownership structure of the Egyptian listed companies is highly concentrated in both web and non web companies. The largest structure is the institutional (37%), while the smallest is the managerial (19%). The mean board size of the Egyptian listed companies is seven members with a minimum of three and a maximum of 17 with equality – to some extent – in the both web and non web based companies. Finally, the average proportion of non executive directors for the Egyptian listed companies is 71.29% which indicates the important role of those directors in the Egyptian context.

All the continuous variables are highly skewed – as can be seen in Table 8-1 – which indicates that all these variables are not normally distributed. In addition, the variation between the minimum and maximum values of most of the independent variables reveals that these variables have some outliers. Investigating the outliers of the variables will be discussed

in detail in section 8-4. Additionally, Table 8-2 summarises the descriptive statistics of the dummy variables.

Table 8-2: Descriptive statistics for dummy variables

Variables	Web	%	No Web	%	Total	%
L Form						
Yes	28	58	20	42	48	14
No	152	51.5	143	48.5	295	86
Fin T						
Financial	30	71	12	29	42	12
Non Financial	150	50	151	50	301	88
F Listing						
Yes	8	89	1	11	9	3
No	172	51.5	162	48.5	334	97
Audit						
Big 4	74	64	41	36	115	33.5
Not Big 4	106	46.5	122	53.5	228	66.5
Sh Iss						
Yes	58	61	37	39	95	28
No	122	49	126	51	248	72
R Duality						
Yes	103	49	107	51	210	61
No	77	58	56	42	133	39
Fam						
Yes	86	52	80	48	166	48
No	94	53	83	47	177	52
Fore						
Yes	66	54	56	46	122	36
No	114	52	107	48	221	64

Note: L Form = Legal form, Fin T = Type of activity, F Listing = Foreign listing, Audit = Audit type, Sh Iss = Shares issuance, R Duality = Role duality, Fam = Family members on the board, Fore = Foreign members on the board.

It can be seen from Table 8-2 that 14% of the sampled companies have legal form and of these 58% have websites and 42% have not. This may reflect that most of the Egyptian listed companies are totally or partially privatised and not subjected to public laws which may explain the small proportion of the governmental ownership of these companies (21%) (see Table 8-1). The most common type of the sampled companies is non-financial (88%), half of which have websites. Moreover, 33.5 % of the sampled companies are audited by the Big4 companies and 64% of these companies have websites.

Further, 27.6% of the sampled companies issued shares in the period of the study. Only nine companies have GDR and are listed on the international stock market. The majority of these companies have websites (89%). In addition, the proportion of family members' domination in the sampled companies' board (48.39%) is larger than the proportion of foreign members on these companies' boards (35.5%). Web-based companies' boards of directors have larger numbers of family and foreign members than non web-based companies. Regarding the duality role of the chairman, most of the sampled companies' chairmen are also the CEOs (61%). This duality is more likely to appear in the non web-based companies.

To move a step further in the analysis, the next section discusses the relationship between CIR total and each independent variable.

8.3 Bivariate analysis

To measure the association between the dependent variable and each independent variable, parametric and non parametric tests will be performed. The Pearson correlation as a parametric test and Spearman's rank correlation as a non parametric test will be used for continuous independent variables, while the T-test as a parametric test and Mann Whitney as a non parametric will be run for dummy variables. Table 8-3 summarises the association between each dependent variable and the continuous independent variables.

Table 8-3: Bivariate analysis between corporate Internet reporting and continuous variables

Variables	Pearson	Spearman
Size	.547***	.397***
Profitability	.116**	.055
Leverage	.232***	.202***
Company Age	-.014	.027
Asset In Place	-.062	-.061
Shares Volatility	.202***	.126***
Shares Activity	.349***	.229***
Block Holder	-.217***	-.167***
Managerial Ownership	-.049	-.089
Governmental Ownership	-.009	-.193***
Institutional Ownership	-.052	-.034
Board Size	.254***	.214***
Non Executive directors	.164***	.114**

Note: *** significant at 1% and ** significant at 5%.

According to the Pearson product moment correlation coefficients (r), two continuous firm characteristics variables are correlated significantly at level 1% with CIR total. It can be shown that larger and high leverage companies tend to increase their level of CIR total, while high profitable companies are correlated positively and significantly with CIR total at level 5%. With regard to the Spearman's rank order correlation coefficients, it can be seen that only size and leverage are correlated significantly with CIR total at level 1%.

According to market related variables, both Pearson and Spearman coefficients indicate that the entire market related continuous variables are correlated significantly with CIR total at 1% significant level. It can be stated that the most active and volatile companies in the EGX tend to disclose more information on their websites.

With respect to ownership structure variables, only block holder ownership is significantly correlated with CIR total at 1% significant level for both Pearson and Spearman coefficients. It can be stated that the less ownership is concentrated, the more disclosed information is on the website. In the same vein, governmental ownership demonstrates significant correlation

with CIR total at level 1% but only for Spearman coefficients. It reveals that higher governmental ownership companies disclose less information on their websites.

According to corporate governance variables, it can be found that both board size and non-executive directors are significantly correlated with CIR total at level 1% for Pearson coefficients. Companies with a large board size and a high proportion of non-executive directors are more interested in using the Internet to disseminate the required information. Spearman coefficients indicate the same results for board size at the same level of significance. However, they show the same results for non-executive directors but at level 5% not 1%.

To determine whether each of the dummy variables of the current study has an influence on CIR total, two tests are run: T-test as the parametric test and Mann Whitney test as the non parametric test.

As indicated from Table 8-4, the findings of the T test reveal that the extent of CIR total is insignificantly different with the legal form of Egyptian listed companies. However, Mann Whitney test shows that legal Egyptian companies disclose more information on their websites than non-legal companies, at level 10%.

Regarding the market related variables, all variables – except shares issuance – indicate significant correlation with CIR total in both T and Mann Whitney tests at level 1% of significance. This implies that the extent of CIR total in the financial companies, which are listed internationally and audited by Big4 companies, is significantly greater than that of the non-financial companies, which are listed domestically and not audited by Big4 companies. In addition, companies that are issuing shares tend to disseminate information on their

websites more than companies which are not issuing shares. Both T and Mann Whitney tests indicate the same results at significant level of 5%.

According to corporate governance variables, only companies with family members correlate insignificantly with CIR total in both T and Mann Whitney tests. Both T and Mann Whitney tests findings indicate that companies with foreign members are likely to use the Internet as an information dissemination tool more than companies without foreign members at 1% and 5% significant levels respectively. Furthermore, the findings of both tests indicate that companies which separate the role of chairman and CEOs disclose more information in their websites than those which have dual role at significant level of 5%.

Table 8-4: T- and Mann Whitney tests for nominal variables

Variables	T-Test		Mann Whitney test	
	Mean	T. value	Mean Rank	Z value
Legal Form		-0.439		-1.20*
Yes No	.10 .11		187.03 169.55	
Type		3.73***		-4.22***
F. N.F.	.22 .09		229.11 164.03	
Foreign Listing		5.16***		-4.30***
Yes No	.62 .10		304.33 168.43	
Audit Type		5.37***		-4.81***
B 4 N B 4	.19 .07		206.27 154.71	
S. Issue		1.83**		-2.07**
Yes No	.14 .10		188.94 165.51	
Role Duality		-2.16**		-1.98**
Yes No	.09 .14		164.04 184.58	
Family Mem.		0.371		-.587
Yes No	.11 .10		168.93 174.88	
Foreign Mem.		3.04***		-1.70**

Yes	.15		183.55	
No	.08		165.63	

Note: *** significant at 1%, ** significant at 5%, * significant at 10%.

Based on the above discussion, it can be seen that, to a large extent, both parametric and non parametric tests for continuous and categorical variables indicate the same results which demonstrates more strength in these results and adds more confidence in the collected data.

As indicated in chapter four, some studies use only univariate and bivariate analyses to explain the relationship between CIR and each of its determinants. However, these studies ignore testing this relationship simultaneously by multivariate analysis, which considers the examination of the entire explanatory variables at same time with CIR total. Accordingly, the next step in the statistical analysis running in this study is the multivariate analysis which will be discussed in the next section.

8.4 Multivariate analysis

As indicated from the previous section, bivariate analysis indicates that CIR total is correlated with each explanatory variable. This should be supported by further analysis from the simultaneous conducting of tests for all the explanatory variables. Multivariate analysis is an increasingly common technique that extends univariate and bivariate analyses, and deals with complicated sets of data (Tabachnick and Fidell, 2001). It is used when there are many independent variables and/or many dependent variables. One of the most common types of multivariate analysis is multiple regression analysis which is used widely in the statistics area generally and in the disclosure area specifically (Cooke, 1998).

Multiple regression analysis seeks to find the linear combination between the independent variables that are significantly associated with dependent variables (Field, 2009). Therefore, multiple regression represents an extension of bivariate analysis in which several independent

variables (either continuous or dummy) – instead of only one – are considered to provide the best prediction when testing the relationship with dependent variables (Tabachnick and Fidell, 2001). One of the most powerful and common methods of multiple regression is ordinary least square method (OLS) (Gujarati, 2003). As stated by Hutcheson and Sofroniou (1999), OLS represents the most suitable technique for the model which contains continuous and dummy variables. Accordingly, the current study uses OLS as one of the multiple regression methods to examine the association between the entire components of CIR and their explanatory continuous and dummy variables.

Many assumptions have been made for the OLS method. These assumptions will be illustrated in the next section.

8.4.1 OLS assumptions

Four major assumptions are related to the current study and will be checked before running the five models. These assumptions are: linearity, normality, homoscedasticity and multicollinearity (Field, 2009). If any of the latter assumptions is violated, the results of the OLS model may be misleading and inefficient to the study so they need to be treated appropriately.

8.4.1.1 Linearity

Linearity refers to "the degree to which the change in the dependent variable is related to the change in the independent variables" (Saunders, et al. 2009, P.462). Checking linearity can be done by plotting the residuals against the independent variables. It can be said that linearity is violated when a funnel pattern is observed. In addition, linearity can be checked by plotting each independent variable against the dependent variable and depicting the regression line

that explains the relationship between the two variables. Most of the independent variables indicate a non linearity pattern with the dependent variables. This result of non linearity is common in the majority of prior disclosure studies (Cooke, 1998).

8.4.1.2 Normality of residuals

Normality assumption can be checked by normality plots such as: P-P plots and histograms for both the residual and dependent variable. It can say that normality is met when the points in the plots fall more or less in a straight line. Appendix 20 shows that the residual of dependent variables is normally distributed.

8.4.1.3 Homoscedasticity of residuals

Homoscedasticity refers to the equality of variance values for dependent and independent variables (Saunders et al. 2009; Field, 2009). Homoscedasticity can be checked by the scatter-plot of the standardised residuals against standardised predicted variables of the dependent variable (Field, 2009). It can be said that the homoscedasticity of residual assumption is met when observing that the residuals are randomly scattered around a horizontal line through 0 (Norusis, 1995). Appendix 20 indicates the current data may not suffer from heteroscedasticity and therefore a homoscedasticity assumption is met.

8.4.1.4 Multicollinearity

Multicollinearity refers to the strong linear relationship among the independent variables which may affect the precision of the variables' coefficient in the regression model (Gajarati, 2003). To check multicollinearity, two common ways are used. The first is the correlation matrix which indicates whether there is any correlation between the independent variables or not. The second way is using variance inflation factors (VIFs) with tolerance values which

are performed when running the OLS model. Table 8-5 presents Pearson correlations between the continuous independent variables.

Table 8-5: Correlation matrix for independent variables

	B	C	D	E	F	G	H	I	J	K	L	M
A	.133*	.183**	-.017	-.011	.327**	.611**	-.094	-.248**	.047	.196**	.336**	.200**
B		.036	-.086	-.013	-.068	-.017	.091	.034	-.041	.086	.088	-.047
C			.117*	-.301**	.124*	.142**	.018	-.093	-.017	.160**	.035	070
D				-.096	.111*	.239**	-.215**	-.135*	-.004	.014	.080	.199**
E					-.052	-.027	-.015	.021	.073	-.069	.083	.055
F						.477**	-.245**	-.129*	-.071	.068	.170**	.162**
G							-.403**	-.274**	.011	.020	.343**	.249**
H								.160**	.195**	.173**	-.265**	-.178**
I									-.337**	-.419**	-.254**	-.379**
J										-.412**	.008	.149**
K											.103	.147**
L												.523**

Note: A= size, B= Profitability, C= Leverage, D= Company Age, E= Assets in Place, F= Shares Volatility, G= Shares Activity, H= Block Holder, I= Managerial Ownership, J= Governmental Ownership, K= Institutional Ownership, L= Board size, M= Non Executive

As indicated by Field (2009), high collineanrity between independent variables leads to ineffective results due to the increased possibility of finding non-significant explanatory variables when running the multiple regression models. No agreement for the cut-off correlation point was reached between the researchers (Alsaeed, 2006; Abdel-Fattah, 2008). Gujarati (2003) indicates that multicollinearity will be a serious problem if it exceeds 0.80. However, Wallace et al. (1994), Wallace and Naser (1995), Suwaidan (1997), Tabachnick and Fidell (2001) and Omar (1997) all state that there is some degree of multicollinearity when the correlation coefficients exceed 0.70. Consequently, it can be inferred that there is no multicollinearity between the continuous independent variables in the current study as the largest correlation coefficient is 0.61.

In addition, the Variance Inflation Factor (VIF) and tolerance value are calculated when running the OLS model. Table 8-6 summarises these calculations for all the explanatory variables.

Table 8-6: VIF and Tolerance multicollinearity tests

Variables	VIF	Tolerance
Size	2.6	.4
Profitability	1.1	.9
Leverage	1.4	.7
Legal Form	2.7	.4
Company Age	1.2	.8
Asset In Place	1.3	.8
Activity Type	1.5	.7
Foreign listing	1.3	.8
Audit Type	1.6	.6
Shares Volatility	1.4	.7
Shares Activity	2.5	.4
Shares Issuance	1.2	.8
Block Holder	2.1	.5
Managerial ownership	3.4	.3
Government ownership	4.7	.2
Institutional ownership	3.8	.3
Board Size	1.9	.5
Non-Executive directors	1.9	.5
Role Duality	1.3	.8
Family Members	1.9	.5
Foreign Members	1.5	.7

Note: VIF = Variance Inflation Factor

Field (2009) and Saunders et al. (2009), point out that a value of VIF higher than 10 or 5 and value of tolerance lower than 0.1 or 0.2 represents a serious multicollinearity. From the above table, it can be seen that the largest VIF value is 4.7 and the lowest tolerance value is .2 which means that there is no multicollinearity between the explanatory variables in the current study. Based on the results in Tables 8-5 and 8-6, it can be stated that multicollinearity assumptions have not been violated in the current study.

After checking the assumptions of the OLS model, two important issues should be considered before running the model: the sample size and outliers. According to the sample size, questions may be raised about the sample of the study and whether it is enough to run just the OLS model or not. Field (2009) mentions that collecting enough data is very important in order to obtain a reliable regression model and reap meaningful results. He adds that the bigger the sample size, the better the output results.

The sample size depends on the desired power, alpha level, number of explanatory variables and expected effects size (Tabachnick and Fidell, 2001). Many rules of thumb are found to determine the sample size. Tabachnick and Fidell (2001) and Field (2009) refer to Green (1991) who introduced concrete guidelines for determining the sample size. He provides two rules of thumbs for determining the sample size. Both ways have different reasons for application. The first rule of thumb is: $N \geq 50 + 8m$ (where N is the number of cases and m is the number of explanatory variables. This rule is applied when there is a need to test the overall fit of the regression model (R^2). The second rule of thumb is $N \geq 104 + m$ which is applied when testing the individual explanatory variables in the model (b values).

The current study aims to test both the regression model fit and the individual explanatory variables. In this regard, Green (1991) states that the larger number of cases in both rules should be chosen. Accordingly, the current study aims to test the relationship between CIR total and 21 explanatory variables for 343 Egyptian listed companies. The sample size is bigger than the large number of cases calculated by the Green's two rules of thumb[17]. Consequently, it can be stated that the sample size of the current study can help in obtaining a reliable regression model and in testing the individual explanatory variables.

The second issue which should be considered before running the regression model is detecting the outliers. The main problem of outliers is their influence on the results of regression analysis, especially when the sample size is small (Gujarati, 2003). Further, Vaus (2002) indicates that outliers distort both univariate and multivariate analyses results.

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[17] The first rule is [50 + 8(21)] = 218, the second rule is [104+ (21) = 125.

The simplest way to detect the univariate outlier is by using a scatter-plot for each variable and finding the extreme value that lies far from the other values. In addition, Tabachnick and Fidell (2001) propose Z scores for detecting outliers. If the Z score of any case exceeds 3.29, then it will be presented as an outlier. However, Z scores may be influenced by the sample size. The greater the sample size, the fewer the Z scores that exceed 3.29.

With regard to multivariate outliers, many statistical methods can be applied to find them. Among these methods are, Mahalanobis distances, Leverage statistics and Cook's distance (Tabachnick and Fidell, 2001; Vaus, 2002; Field, 2009). Mahalanobis measures the distance of cases from the means of the explanatory variables (Field, 2009). The highest Mahalanobis value may indicate that this value is an outlier. However there is no cut-off point for detecting the outliers' values.

The second method for detecting outliers is the Leverage value which measures the observed value of the dependent variable over the independent variables (ibid). A rule of thumb is that cases with Leverage value over 0.5 should be a problem and dropped from the analysis (Vaus, 2002).

The last method for detecting outliers is Cook's distance which represents a measure for investigating the overall influence of a case on the model (Field, 2009). He indicates that Cook's values greater than 1 may cause a serious problem.

For detecting outliers' cases, researchers have identified many options to reduce their impact on the model (Tabachnick and Fidell, 2001; Vaus, 2002; Field, 2009):

- Check the original data to ensure that all cases are entered correctly.
- Transformation of the case.

- Change the score of the case.
- Remove the case.

The first option should be done firstly to make sure that all the detected outliers have been entered correctly and if so, one of the other three options may be chosen. However, both changing the score of the case and removing the case are not preferable from the author's point of view. Change in the score represents a change in the original data which may represent unethical issues unless there is no other way. Field (2009) mentions that changing the score may be regarded as cheating, however it may be the only available option.

According to the option of removing the case from the analysis, this should be done only for good reason, especially if the case is part of the population from which the sample is derived and represents a very important part of the analysis. In this regard, Draper and Smith (1998) as cited in (Gujarati, 2003, p.541) state that "Automatic rejection of outliers is not always a wise procedure, sometimes the outlier is providing information that other data points cannot, due to the fact that it arises from an unusual combination of circumstances which may be of vital interest and require further investigation rather than rejection". In addition, Vaus (2002) mentions that outliers can be safely left in the analysis especially in the larger sample sizes.

Consequently, the current study chooses to perform the transformation option when detecting an outlier – either univariate or multivariate. Transformation will be discussed in section 8.4.3. SPSS V.17 has an option which enables the calculation of all the three previous outliers' methods. The current study performs a scatter plot for each independent variable to check the univariate outliers in addition to calculating the three statistical methods of detecting multivariate outliers when running the OLS model by SPSS. The study finds that there are some cases that represent outliers, however they have not been considered as a

serious problem due to the rules of thumb of the statistics methods of detecting outliers. However, transformation will be applied to reduce the impact of detecting outliers. Appendix 21 presents these methods.

Based on the above discussion, it can be seen that one of the OLS assumptions is violated (linearity) in addition to finding some outliers cases. To overcome these problems, transformation will be applied to the data. This will be discussed in the next section.

8.4.2 Data Transformation

One of the most common ways to overcome violation of the multiple regression assumptions is to transform the data. Cooke (1998) recommends transformation of the data when the assumptions of the regression analysis are violated. Moreover, Field (2009) mentions that transforming the data will not change the relationship between different variables, rather it will change the unit of measurement (a scale on which the variable is measured). In this regard Norusis (1995) states that transformation changes only the variable's measurement scale. Several transformation methods can be used statistically, such as: log transformation, square root transformation, reciprocal transformation and reverse score transformation (Field, 2009). However it is preferable to apply the same transformation method to all variables (ibid).

Regarding the financial disclosure context, many transformation methods are used to explain the relationship between financial disclosure and its determinants. These methods are rank regression, percentile rank, normal score and log odds ratio (Cook, 1998; Haniffa, 1999; Abd-Elsalam, 1999; Leventis, 2001; Marston and Polei 2004; Al-Htaybat, 2005; Ghazali and Weetman 2006; Abdel-Salam et. al. 2007; Abdel-Fattah, 2008).

In rank regression, the observations are ranked from the smallest to the highest value. Many advantages are discussed by researchers regarding rank regression (Cheng et al., 1992; Lang and Lundholm, 1993; Cooke, 1998). It is useful when the relationship between the dependent and independent variables is not linear as it does not require a normality test, it is insensitive to the outliers and it may improve the R^2. However, in rank transformation it is difficult to interpret the beta coefficient (B), using F and T tests of significance and to observe normal distribution for the error (Cooke, 1998).

As a result of the disadvantages of rank transformation, some researchers prefer to use the normal score method (e.g. Cooke, 1998) which is based on Van der Waerden's approach. According to Cooke (1998), the transformation in the normal score method is achieved by dividing the normal distribution into the number of observations plus one region, on the basis that each region has equal probability. From this conjecture, replacing rank regression with the normal score method can provide many advantages such as: determining significant levels, applying F and T tests, interpretation of B coefficient as it depends on normal distribution, and the possibility of transformation of the non-normal dependent variable into a normal one (ibid).

In addition, the log odds ratio [ln [disclosure index/ (1-disclosure index)] is another transformation method proposed by Cooke (1998). Under this method the ranges will be from $-\infty$ to $+\infty$ which present normal distribution. In addition, the distribution of the errors will also be normal.[18]

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[18] The study performs the different types of transformation (rank, normal score for dependent variable only and for both dependent and independent variables and log odds ratio) in addition to log transformation for only the independent variables. The best results either in R^2 or in significant variables have been found in the log transformation for independent variables only.

Based on the above discussion, it can be seen that all the transformation methods rely on transforming the dependent variable which may destroy the original relationship with the explanatory variables. In this regard, Cooke (1998, p.211) deduces that "it is preferable to transform the independent variables rather than the dependent variable, because the latter disturbs the relationship between the dependent variables and the other regresses and because the error distribution is changed".

Many researchers indicate the possibility of transforming the independent variables only (Fox, 1984, 2002; Ruppert et al., 2003). Therefore, for the regression model, transformation can be performed to dependent variables, independent variables or both (Ruppert et al., 2003). Transformation of the independent variables in regression can be estimated by maximum-likelihood which was suggested by Box and Tidwell (1962) (Fox, 2002).

Consequently, the current study applies the transformation to independent variables only to maintain the relationship between the dependent variable and independent variables and to keep the original distribution as well. In addition, as indicated before, only the linearity assumption is violated and to some extent the homoscedasticity assumption is met which means that there is no need to transform the dependent variable. Transformation of independent variables is necessary to overcome the non linearity between the dependent variable and independent variables and to reduce the impact of outliers as well. Basically, a log transformation is commonly used in previous disclosure studies and is generally

appropriate (Vaus, 2002). However, other transformation may be useful in other situations. The current study uses a log transformation for only continuous independent variables[19].

Based on Draper (1988) (as cited in Cooke, 1998), there are many approaches that can be applied to deal with the violation of the assumptions of classic linear regression. Among them is the 'do nothing' approach (un-transformation) which may yield ineffective and unreliable results. The second is the data-analytic approach which investigates the influential observations (e.g. outliers) and transformation. Finally is the robust approach which proposes performing non-classical techniques to present the insignificance of deviation from the classical assumptions.

The current studies follow the above approaches. Transformation, as mentioned before, has overcome the non-linearity problem, while using a robust approach which provides more confidence and depth in the results which helps in testing the research hypotheses accurately and determining the most significant variables. In this regard, Cooke (1998, p.210) indicates that "in practise, several approaches can be undertaken to try to ensure that the results are not method-driven but are robust across methods". Consequently, the current study uses Tobit regression as the non classical technique to add more robustness to the results. The two applied approaches in the current study will be discussed in the next section.

8.5 Regression results

As mentioned before, the current study runs three regression models: the un-transformation OLS, the log transformation OLS and Tobit. Each model examines the relationship between

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[19] The study performs the other types of transformation (e.g. square root, power and reciprocal) to the independent variables in addition to the log transformation which indicates the best results. Therefore, the study chooses log transformation.

CIR total and the four groups of explanatory variables; firm characteristics, market-related, ownership structure and corporate governance variables. These models are presented as follows:

8.5.1 The first model: un-transformation OLS

The OLS analysis runs by using the forced entry method in SPSS V.17 which indicates that all the variables have been entered simultaneously. Table 8-7 summarises the results of the un-transformation OLS model.

Table 8-7: Un-transformation OLS model

Variables	Coefficient / t -Value
Companies' characteristics	
Size	.406 (6.366)***
Profitability	.047 (1.125)
Leverage	.116 (2.491)**
Legal Form	.112 (1.720)*
Company Age	-.053 (-1.224)
Asset In Place	.000 (.004)
Market related	
Activity Type	.137 (2.775)***
Foreign listing	.275 (6.147)***
Audit Type	.073 (1.473)
Shares Volatility	.032 (.679)
Shares Activity	-.053 (-.837)
Shares Issuance	-.041 (-.935)
Ownership structure	
Blockholder Ownership	-.087 (-1.515)
Managerial ownership	-.003 (-.035)
Governmental ownership	-.122 (-1.403)
Institutional ownership	-.213 (-2.724)***
Corporate governance	
Board Size	.053 (.983)
Non-Executive directors	.092 (1.690)*
Role Duality	-.045 (-.993)
Family Members	.047 (.850)
Foreign Members	.000 (-.006)
Constant	-.325 (-4.348)***
F	14.719***
Adjusted R^2	.457

Note: *** significant at 1%, ** significant at 5%, * significant at 10%. T value in parenthesis

From the above table, the F- significance demonstrates that the proposed firm characteristics, market related, ownership structure and corporate governance variables explain a significant part of CIR total. In addition, The standardised B coefficients determine the degree by which each independent variable affects the dependent variable in the case of keeping all the other independent variables' effects constant (Field, 2009). The highest standardised B coefficient is for company size (.406) which implies that a change in one unit of company size leads to a change in (.406) in CIR total. The adjusted R^2 is 45.7% which means that the proposed model in the current study accounts for 45.7% of the variation in the CIR total.

Each group of the explanatory variables indicates some evidence for its impact on CIR total. In the case of the firm characteristics group, three variables are associated significantly with CIR total at different significance levels. Size is the only firm characteristics variable that positively associates with CIR total at a confidence level of 99%. Further, leverage is associated positively with CIR total at level 5% of significance. Moreover, it finds that legal form associates positively with CIR total at significant level 10%. However, the findings reveal that profitability, company age and asset in place have insignificant influences on CIR total.

According to the market related variables, only two, namely activity type and foreign listing are associated positively with CIR total at significant level 1%. None of the audit type, Shares volatility, activity and issuance is associated with CIR total.

Regarding ownership structure variables, institutional ownership is the only variable that is associated negatively with CIR total at significant level 1%. Block holder ownership, managerial and governmental ownership are associated insignificantly with CIR total.

In respect of corporate governance variables, the proportion of non executive directors is the only significant variable. It indicates that CIR total increases with the increase of the proportion of non executive directors at significant level 10%. No evidence is demonstrated by the findings to support the significant relationship between board size, role duality, family member and foreign member variables and CIR total.

According to the violation of linearity assumption of the OLS model, it was decided to transform the independent variables by using the log method. The next point presents the results of the transformation log model.

8.5.2 The second model: OLS with log transformation

Using log as a transformation method for independent variables introduces interesting results. These results are illustrated in Table 8-8.

Table 8-8: Log transformation OLS model

Variables	Coefficient / t -Value
Companies' characteristics	
Size	.339 (5.808)***
Profitability	-.038 (-.969)
Leverage	.138 (3.256)***
Legal Form	.089 (1.931)*
Company Age	-.041 (-.983)
Asset In Place	.097 (2.133)**
Market related	
Activity Type	.151 (3.297)***
Foreign listing	.282 (6.465)***
Audit Type	.079 (1.677)*
Shares Volatility	.117 (1.995)**
Shares Activity	.061 (1.376)
Shares Issuance	-.076 (-1.856)*
Ownership structure	
Block holder Ownership	-.081 (-1.840)*
Managerial ownership	.101 (2.3546**
Government ownership	-.227 (-5.113)***
Institutional ownership	-.159 (-3.646)***
Corporate governance	

Board Size	.079 (1.649)*
Non-Executive directors	.002 (.050)
Role Duality	-.023 (-.546)
Family Members	.095 (2.177)**
Foreign Members	.002 (.050)
Constant	-.325 (-4.094)***
F	18.399***
Adjusted R^2	.518

Note: *** significant at 1%, ** significant at 5%, * significant at 10%. T value in parenthesis

As indicated in Table 8-8, the adjusted R^2 of the log model has improved from the un-transformation model which increases the possibility of explaining the variation of CIR total by the log transformation model. In addition more significant variables were found in the log transformation model which adds more depth to the study and its findings. Consequently, as the log transformation model improves the adjusted R^2, it overcomes the violations of the OLS assumptions and increases the variables that explain the CIR total significantly, and it can therefore be chosen as the main model for the current study.

The adjusted R^2 of the current study is comparable with the previous studies. Table 8-9 shows the adjusted R^2 of the previous studies. As table 8-9 shows, the adjusted R^2 of the model of the current study is acceptable based on the prior studies that used multiple regression analysis in their empirical investigation.

Table 8-9: The comparison between the adjusted R^2 of the current study and the previous studies

Study	Adjusted R^2
The current study	**51.8%**
Pirchegger and Wagenhofer, 1999	48.5%
Ettredge et al., 2002	17.5%
Laren and Giner, 2002	33.2%
Xiao et al., 2004	8%
Marston and Polei, 2004	41% (in 2000 sample) and 66.1% (in 2003 sample)
Silva and Christensen, 2004	37.3%
Sriram and Laksmana, 2006	12.08
Pervan, 2006	60.9%
Bollen et al., 2006	20.9% (unweighted index) and 19.8% (weighted index)

Celik et al., 2006	33.4%
Abdel-Salam and Street, 2007	48%
Abdel-Salam et al., 2007	35.8%
Andrikopoulos and Diakidis, 2007	9%
Abdel-Salam and El-Masry, 2008	52%
Cormier et al., 2009	17.8%
Aly et al., 2010	65.3% (rank regression), 61.4% (normal score)

As demonstrated in Table 8-8, many variables have been found to explain significantly the variability in CIR total in each variable group. According to the firm characteristics category, four out of six variables were found to be significant regarding their relationship with CIR total. Company size and leverage are associated positively at the same significant level 1% with CIR total. Further, it was found that legal Egyptian companies[20] are using the Internet to disseminate required information more than non legal Egyptian companies at significant level 10%. Moreover, it can be seen that all the results are consistent with the un-transformation model but at different significant levels. The only difference is related to the asset in place variable which has a positive association with CIR total at level 5% in only the log transformation model.

Concerning the market related category, the findings provide evidence for the influence of the variables of this category on CIR total. Only shares activity is associated insignificantly with CIR total. As with the un-transformation model, the log transformation model indicates that activity type and foreign listings have an impact on CIR total at significant level 1%. Contrary to the un-transformation model, three variables have been found to have a significant association with CIR total. Companies that are audited by Big4 companies and are not engaged in shares issuance are more likely to disseminate their information on the website than those companies which are audited by none Big4 companies and are engaged in

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[20] No collinearity has been found between legal from and government ownership structure in the Egyptian context.

shares issuance at significant level 10%. Another dissimilarity with un-transformation is related to shares volatility which associates positively with CIR total at significant level 5%.

With regard to the ownership structure category, all the related variables have an impact on CIR total. Unlike the un-transformation model, block holder, governmental and managerial ownership indicate a significant relationship with CIR total at level 10%, 1% and 5% respectively. Similar to the un-transformation model, the log transformation model demonstrates that companies with a low proportion of institutional ownership disclose more information on the companies' websites than those with a high proportion at level 1%.

Only two corporate governance variables are associated with CIR total. Contrary to the un-transformation model, board size shows a positive relationship with CIR total at significant level 10%. In addition, it finds that companies with family members on their board are associated with CIR total at significant level 5% more than non family companies. Interestingly, the non-executive directors variable shows different results from the un-transformation model. It associates insignificantly with CIR total. Both log transformation and un-transformation models are similar in their results regarding role duality and foreign members which has no impact on CIR total.

To add more robustness to the results, the next point demonstrates the results of using the Tobit model as a sensitivity analysis for the current study.

8.5.3 The third model: Tobit regression

The Tobit regression model was first introduced by James Tobin in 1958. The Tobit model is a regression model where the observations of the dependent variable are unobserved (or censored) if the dependent variable (Y) is smaller than zero (Maddala, 1991). Therefore, the

Tobit model is also known as the "censored regression model" (Gujarati, 2003). This model can be illustrated by the following equation (ibid, p.616):

$$Y_i = \beta_0 + \beta_1 X_{i1} + \ldots\ldots + \beta_n X_{in} + \mu_i \qquad \text{if RHS} > 0$$

$$= 0 \qquad \text{otherwise}$$

Where:

Y = the dependent variable

$\beta_0 \ldots\ldots \beta_n$ = the coefficients of the unit constant and the independent variables

$X \ldots\ldots X_n$ = the independent variables

μ = the error

i = company indentifier

RHS = right-hand side.

According to the current study, the CIR index represents a non negative variable. It may be positive when the company discloses any item on their website, or may be zero when there is no disclosure on a company's website. Most of the previous studies discuss only the notion of CIR in terms of the companies that have websites and ignore the companies that do not have a website. The current study includes both types of companies which means that it may have zero for the disclosure index. The Tobit model will be suitable for the current study as it runs only for the dependent variable which is bigger than or equal to zero. This is indeed applicable for the CIR index which takes only positive or zero values.

Consequently, the current study performs a Tobit regression as a sensitivity analysis to retest the findings of the previous models. SPSS does not include an option for running Tobit regression. Therefore, the study applies another programme, namely STATA V.9 to run the Tobit regression model. The findings of this model are illustrated in Table 8-10.

Table 8-10: Tobit regression model

Variables	Coefficient / t -Value
	Total
Companies' characteristics	
Size	.120 (6.13)***
Profitability	-.013 -1.06
Leverage	.0374 (3.39)***
Legal Form	.077 (1.99)**
Company Age	-.004 -0.25
Asset In Place	.025 (2.79)***
Market related	
Activity Type	.114 (2.83)***
Foreign listing	.286 (3.91)***
Audit Type	.046 (1.58)
Shares Volatility	.026 (3.03)***
Shares Activity	.012 (1.77)*
Shares Issuance	-.026 (-0.97)
Ownership structure	
Block holder Ownership	-.048 (-1.69)*
Managerial ownership	.009 (2.13)**
Government ownership	-.025 (-4.29)***
Institutional ownership	-.025 (-2.57)**
Corporate governance	
Board Size	.068 (1.82)*
Non-Executive directors	-.025 (-0.46)
Role Duality	-.015 -0.60
Family Members	.043 (1.65)*
Foreign Members	-.012 (-0.42)
Number of obs.	343
Constant	-.720 -(5.25)***
LR chi^2 (22)	195.31
Log likelihood	-44.627569
Prob. > chi^2	0.0000
Pseudo R^2	0.6863

Note: *** significant at 1%, ** significant at 5%, * significant at 10%. T value in parenthesis

It can be indicated from Table 8-10 that the results of the Tobit model are similar – to some extent – to the results of the log transformation model. According to the firm characteristics category, the variables which are significantly associated with CIR total under the log transformation model are the same in the Tobit model. The only difference is the level of significance. At level 1%, company size, leverage and assets in place are associated positively with CIR total. While, at level 5% companies with legal form are more likely to use the Internet for disseminating their information than companies with non legal form.

Regarding the market related category, four out six variables have been found to have a significant association with CIR total. At significant level 1%, the extent of CIR total associates more with financial companies that are listed internationally and their shares are more volatile. The same results have been obtained from the log transformation model except that the level of significance for more volatile companies is 5% not 1%. The other three variables show dissimilarity with log transformation model. Both audit type and shares issuance indicate insignificant relationships with CIR total in the Tobit regression model. In addition, shares activity associates significantly with CIR total only in the Tobit regression model at level 10%.

As for ownership structure category, the results of the Tobit model are identical to the results of the log transformation model in terms of block holder, managerial and governmental ownership. The extent of CIR total is associated more with companies that have low block holder and governmental ownership and high managerial ownership proportions at significant levels of 10%, 1% and 5% respectively. Institutional ownership reveals the same results as the log transformation model but at different significant level 5%.

Another similarity is shown between the log transformation model and the Tobit model concerning corporate governance category. All corporate governance variables indicate the same results as the log transformation model except for one small difference regarding the significant level of the family member variable. Companies with more family members are more likely using the Internet as a dissemination tool than those companies with no family members at level 10%. In addition, companies with a large board size associate more with CIR total than those with small ones at level 10%. All the rest of the variables, namely role duality, non-executive directors and foreign members indicate an insignificant association with CIR total, as with the log transformation model.

Consequently, it can be stated that the results of the Tobit model are consistent with the results of the log transformation model which indicates that the Tobit model confirms these results. This is adding to the robustness of this study's findings. Discussion of these findings will be illustrated in the next section.

8.6 Discussion of the regression results

As indicated from the previous section, log transformation and Tobit models are – to a large extent – similar in their findings. Furthermore, they have additional findings regarding the significant variables that influence CIR total. This section discusses the findings of the all models according to the different groups of explanatory variables.

8.6.1 Firm characteristics variables

Six firm characteristics variables have been introduced in the current study to examine their impact on CIR total. A summary of the findings of these variables will be presented in Table 8-11.

Table 8-11: The findings of firm characteristics variables

Variables	Bivariate analysis		Un-transformation model	Log transformation model	Tobit model
	P	NP			
Size	***	***	***	***	***
Profitability	**				
Leverage	***	***	**	***	***
Legal Form		*	*	*	**
Company Age					
Asset In Place				**	***

Note: *** significant at 1%, ** significant at 5%, * significant at 10%. P= parametric, N= non parametric.

As indicated in Table 8-11, five variables have been found to have a relationship with CIR total. Only two variables, namely size and leverage, show identical results between bivariate

and multivariate analyses. The other three variables – profitability, legal form and asset in place – demonstrate different results between bivariate and multivariate analyses. The reason for finding potential significant association between any independent and dependent variable in the multivariate analysis not appearing in the bivariate analysis is due to the possible impact of the combination of other variables in the multivariate analysis (OLS and Tobit models) on the significance of this variable. On the other hand, when the significant association appears in the bivariate analysis and not in the multivariate analysis, this may be due to the multicollinearity (even if minor) between the independent variables, which explains the lack of significance of this variable (Hossain et al., 1994).

Many prior studies indicate dissimilarity between the findings of bivariate and multivariate analyses regarding some variables (e.g. Hossain et al., 1994; Raffournier, 1995; Haniffa, 1999; Ghazali, 2004; Belal Fayez, 2007; Abdel-Fattah, 2008). However, priority will be given to the multivariate analysis as the current study aims to determine the key factors of CIR in the Egyptian context by examining groups of variables simultaneously.

According to company size, both bivariate and multivariate analyses indicate the positive impact of company's size on CIR total at level 99% of confidence. The findings reveal that large Egyptian listed companies disclose more information on their websites than do smaller ones. This finding can be explained due to information costs theory. Large companies – unlike small ones – have the required resources for collecting, presenting and disseminating information on their websites. These resources are costly and therefore only large companies are able to afford them due to the possibility of assigning these costs to their large number of products. The positive relationship between company size and CIR total in the current study is consistent with many prior studies, for example, Ashbaugh et al., 1999; Brennan and Hourigan, 2000; Ettredge et al., 2002; Oyelere et al., 2003; Marston, 2003; Garcia-Borbolla

et al., 2005; Sriram and Laksmana, 2006; Celik et al., 2006; Prabowo and Angkoso, 2006; Andrikopoulos and Diakidis, 2007; Barako et al., 2008. Consequently, the proposed positive association between the size of Egyptian listed companies and CIR total which is represented by H1.1 can be accepted in the current study.

Regarding the company's leverage, once again there is similarity in the findings between bivariate and multivariate analyses. Empirical findings reveal that – at a confidence level of 99% – Egyptian listed companies with a higher rate of leverage disclose more information on their websites. The positive association between highly leveraged companies and CIR total may be attributed to agency theory which assumes that these companies may disclose more information as a requirement from both debt-holders and shareholders to alleviate the conflict between them. This finding shows consistency with some of the previous studies (Hossain et al., 1995; Celik et al., 2006; Momany and Al-Shorman, 2006; Prabowo and Angkoso, 2006). Therefore, it can be stated that H1.3 for CIR total is accepted in the current study.

Similarly, legal form companies have a significant impact on CIR total in both bivariate and multivariate analyses. At levels 10% and 5%, both log transformation and the Tobit model respectively indicate that Egyptian listed companies that have legal form associate positively with CIR total. This finding is related political costs theory in the Egyptian context. Egyptian companies are more in the public eye due to the continuous evaluation of the privatisation programme which puts additional pressure on these companies to disclose more information on their websites to satisfy public requirements. This finding is consistent with Abdel-Salam and Weetman (2003). Accordingly, H 1.4 of the significant association between legal form and CIR total will be accepted.

Two variables show contradictory results between the bivariate and multivariate analyses, namely: asset in place and profitability. With respect to asset in place, only multivariate analysis shows a positive relationship with CIR total at significant level 5% in the log transformation model and at 1% in the Tobit model. The results report that the higher the percentage of fixed assets in the Egyptian listed companies, the higher the level of CIR total. This can be explained due to capital need and signalling theories. Egyptian companies with a high proportion of fixed costs that are looking to increase their capital at lower cost may disclose more information on their websites to avoid higher finance costs. In addition, according to signalling theory, they may want to reflect their stability and future growth to their stakeholders. This significant positive association has been documented in Xiao et al. (2004). Based on the empirical evidence of the current study regarding the significant positive association between asset in place and CIR total, H1.6 will be accepted.

In terms of profitability, only bivariate analysis shows its positive relationship with CIR total at level 5%. No multivariate analyses have supported the influence of profitability on CIR total by Egyptian listed companies. This finding is consistent with many previous studies (Ashbaugh et al. 1999; Larran and Giner, 2002; Oyelere et al. 2003; Silva and Christensen, 2004; Andrikopoulos and Diakidis, 2007). One reason for the insignificant relationship between profitable Egyptian listed companies and CIR total may be due to signalling theory which demonstrates that companies with low profit or with loss (bad news event) may not wish to signal their poor performance to their stakeholders. Therefore, it may reduce their level of disclosure or they may not even disclose. On the other hand, companies with a high rate of profitability may choose not to disclose more information on their websites if this will affect their competitive position, especially in emerging markets such as the Egyptian one. Consequently, high or low profitability may accompany no online disclosure. Based on these

arguments and the multivariate analyses findings of the current study, the hypothesis that assumes a significant relationship between profitability and CIR total of the Egyptian listed companies H1.2 will be rejected.

No empirical evidence, based on both bivariate and multivariate analyses in the current study, has been found to support the relationship between the Egyptian listed company's age in the stock market and CIR total. The results reveal that the listing age of Egyptian companies in the EGX has no impact on CIR total. Many prior studies confirm the findings of the current study regarding company's age, (e.g. Haniffa and Cook, 2002; Managena, 2004; Alsaeed, 2006; Akhtaruddin, 2005; Omar, 2007; Al-Shammari, 2007). One reason for representing the Egyptian company's age as not being an explanatory factor for CIR total is the de-listing rules that are applied by the Egyptian Capital Market Authority (ECMA) regularly for the companies that not commitment with the listing rules. This can be shown from the decrease in the number of listed companies during the last few years (see appendix 1). This may lead some of the Egyptian companies' – either recently or historically listed – to not disclose any information on their websites according to political theory, to avoid any legal action which may happen due to this disclosure. Therefore, these companies prefer to be away from the public eye by choosing to disclose no information on their websites. The empirical findings of the current study fail to support the relationship between a company's age and CIR total. Hence, H1.5 will be rejected.

Based on the above discussion, it can be seen that the firm characteristics category has contradictory results regarding its association with CIR total. While some variables show significant association in both bivariate and multivariate analyses (size, leverage and legal form), the others show this association in only one analysis (in multivariate, asset in place and in bivariate, profitability). However, one variable, namely company age, shows an

insignificant association with CIR total. Consequently, this study provides evidence that the characteristics of the Egyptian listed companies have a significant influence on CIR total. Hence, H1 for CIR total can be accepted and the first sub-question SRQ2.1 is answered.

8.6.2 Market- related variables

Six market related variables were investigated in the current study. Table 8-12 summarises the results of these variables.

Table 8-12: The findings of market-related variables

Variables	Bivariate analysis		Un-transformation model	Log transformation model	Tobit model
	P	NP			
Activity Type	***	***	***	***	***
Foreign Listing	***	***	***	***	***
Audit Type	***	***		*	
Shares Volatility	***	***		**	***
Shares Activity	***	***			*
Shares Issuance	**	**		(-) *	

Note: *** significant at 1%, ** significant at 5%, * significant at 10%. P= parametric, N= non parametric.

It can be seen from Table 8-12 that all the variables have a significant impact on CIR total in both bivariate and multivariate analyses. Regarding activity type, it was found that financial companies tend to disclose more information on their websites than non-financial companies. Multivariate analysis confirms the bivariate analysis at level 99% of confidence which implies that activity type represents one of the vital explanatory variables for CIR total. The positive relationship between Egyptian companies that belong to the financial sector and CIR total can be explained due to political theory. Financial companies perform vulnerable activities which may lead to burden these companies with political costs such as the costs of regulations, break-up and litigation fees. This pushes these companies to disclose more information on their websites to reduce the impact of these political costs. This finding is consistent with those of Marston and Leow, (1998), Craven and Marstone, (1999), Brennan

and Hourigan, (2000), Marston (2003), Momany and Al-Shorman, (2006) and Celik et al. (2006). Based on the empirical findings of the current study for CIR total, H2.1 will be approved.

Another variable that has been found to have an explanatory power over CIR total is foreign listing. Both bivariate and multivariate analyses results indicate the same relationship and direction between foreign listing companies and CIR total at the same confidence level of 99%. The study finds that Egyptian foreign listing companies disclose voluntarily more information on their websites than those companies which are listed locally. Trabelsi and Labelle (2006) and Celik et al. (2006) prove a significant positive association between foreign listing companies and CIR. Such a positive association can be attributed to stakeholder theory. Companies that list internationally have a wide range of stakeholders who required more information about these companies, and the Internet will be a useful tool to disclose this information to those stakeholders. As a result of the empirical findings of the current study, H2.2 of the positive association between foreign listing companies and CIR total can be accepted.

Concerning the shares volatility variable, both bivariate and multivariate analyses indicate that Egyptian listed companies with high shares volatility disclose more information on their websites than those with low levels of volatility at a confident level of 99%. However, log transformation model states this relationship at a confident level of 95%. This result can be explained by political costs theory. High shares volatility may be considered as a case of fraud and cheating by the Egyptian listed companies to achieve specific interests. This in turn may subject these companies to legal accountability from the Egyptian Capital Market Authority (ECMA) which leads these companies to disclose more information about these volatilities on their websites to a public audience. This finding is supported by Lang and

Lundholm, (1993), Bushee and Noe, (1999), Botosan and Plumee, (2000), and Trabelsi and Labelle 2006. Consequently, the significant association between shares volatility of the Egyptian listed companies and CIR total which is postulated in H2.4 will be accepted in the current study.

With respect to the audit type variable, the statistical analyses indicate the same results but at different levels of significance. Bivariate analysis reports a positive association between the Egyptian listed companies that are audited by Big4 companies and CIR total at level 1% of significance. Log transformation as multivariate analyses finds this association at level 10%. However, Tobit regression model finds this relationship insiginificant. This result implies that Egyptian listed companies that are audited by Big4 companies voluntarily disclose more information on their websites than those which are not audited by Big4 companies. Innovation diffusion theory supports the statistical findings of the current study. Big4 companies may encourage their clients to adopt the Internet as an information dissemination tool by providing more security for the uncertainty of information disclosed on the website. The positive association between Big4 audited companies and CIR total as a voluntary disclosure tool has been documented by (Trabelsi and Labelle, 2006; Al-Shammari, 2007). Based on the statistical results of the current study, H2.3 of the association between audit companies and CIR total will be accepted.

Interestingly, shares activity shows a positive significant relationship with CIR total in both bivariate and multivariate analyses. Bivariate analysis finds that relationship at significant 1% level, while Tobit regression model as a multivariate analysis finds it at level 10%. The statistical results imply that most active Egyptian listed companies in the EGX disclose more information on their websites. This significant positive association may be due to capital need theory. Heavily traded companies represent seeking finance companies which tend to attract

more investors by disclosing information on their websites. The statistical findings of the current study are consistent with those of Abdel-Salam and Weetman, (2003) and Hassan, (2006). Based on the empirical results, it can be stated that shares activity has a positive influence on CIR total in the Egyptian context and hence, the current study accepts H2.5.

Surprisingly, the bivariate and multivariate analyses report contradictory results for the shares issuance variable. While bivariate analysis indicates that at significant level of 5%, Egyptian listed companies which issued shares in the period of the study disclose more information on their websites than those companies which were not issuing any shares. Multivariate analysis – namely the log transformation model – states the opposite at level 10%. The significant relationship can be attributed to signalling theory. Companies which are not issuing shares may not wish to increase their capital due to their strong financial position and no necessity for making such an issuance. Therefore, these companies may tend to disclose more information on their websites to signal this position to their various stakeholders. Such a negative impact of the share issuance on CIR total is confirmed by Xiao et al., (2004), Sriram and Laksmana, (2006), and Kelton and Yang, (2008). As a result of this statistical results, H2.6 of the significant association between shares issuance and CIR total will be approved.

Based on the above discussion, it can be illustrated that all the variables of the market related group have a significant association with CIR total in the Egyptian context in both bivariate and multivariate analyses. Therefore, the statistical results support the significant influence of the market related category on CIR total in the Egyptian context. Hence, H2 will be accepted in the current study. By demonstrating such findings, the third sub-question SRQ2.3 is also answered.

8.6.3 Ownership structure variables

Four different structures of ownership, namely block holder, managerial, governmental and institutional, are examined in the current study to investigate their impact on CIR total in the Egyptian context. The findings of these variables are presented in Table 8-13.

Table 8-13: The findings of ownership structure variables

Variables	Bivariate analysis		Un-transformation model	Log transformation model	Tobit model
	P	NP			
Blockholder Ownership	(-) ***	(-) ***		(-) *	(-) *
Managerial Ownership				**	**
Governmental Ownership		(-) ***		(-) ***	(-) ***
Institutional Ownership			(-) ***	(-) ***	(-) **

Note: *** significant at 1%, ** significant at 5%, * significant at 10%. P= parametric, N= non parametric.

As indicated from Table 8-13; multivariate analysis reports that all the examined ownership structure variables have a significant influence on the Egyptian listed companies' CIR total. While on the other hand, bivariate analysis indicates this association for only two variables.

Governmental ownership is the only ownership structure variable that has identical results from both bivariate and multivariate analyses. The statistical results reveal that there is a negative relationship between the governmental ownership of the Egyptian listed companies and CIR total at confidence level of 99%. This means that Egyptian listed companies with a low proportion of governmental ownership increase their level of online disclosure. The negative association result can be explained by both information costs and political theories. In high proportion governmental ownership companies, government owners have the authority to have access to the required information without the burden of additional cost for disclosure. Therefore, Egyptian listed companies with a high proportion of governmental

ownership choose to disclose less information on their websites as the required information is available internally and vice versa. In addition, according to political theory, Egyptian companies with high governmental ownership may tend to disclose less information on their website to protect the affairs of their beneficial government owners. The empirical findings of the current study are consistent with Ghazali, (2004) and Jiang and Habib, (2009). Based on these results, H3.3 regarding the association between governmental ownership and CIR total of the Egyptian listed companies is accepted in the current study.

Pertaining to block holder ownership, both bivariate and multivariate analyses show a negative association between block holder ownership and CIR total in the Egyptian context but at different levels of significance. Bivariate analysis finds this association at level 1%, while log transformation and Tobit models find it at level 10%. This statistical result suggests that the percentage of shareholders who own 5% or more is negatively associated with CIR total of the Egyptian listed companies. This finding can be attributable to agency theory which demonstrates that companies with a large number of shareholders can obtain the required information without any need for disclosure means, such as that of the Internet. Therefore, there will be no conflict between shareholders and management which leads to a reduction in the agency problem in this case and hence reduces the level of disclosure on the company's website. Such a result implies that the effect of block holders on CIR total is substitutive. This finding is supported by many prior studies (e.g. McKinnon and Dalimunthe, 1993; Mitchell et al., 1995; Schadewitz and Blevins, 1998; Oyelere et al. 2003; Bauwhede and Willekens, 2008). Consequently, the postulated significant association between block holder ownership and CIR total in the Egyptian context which is presented in H3.1 will be approved.

Both bivariate and multivariate analyses show disagreement in the results of managerial ownership. Only the multivariate analysis reports a positive relationship between managerial ownership and CIR total of the Egyptian listed companies at significant level of 5%. The findings demonstrate that Egyptian listed companies with a high proportion of managerial ownership disclose more information via the Internet. This result is confirmed by Warfield et al (1995), Chau and Gray, (2002), Nasir and Abdulah, (2004), Karamanou and Vafeas, (2005), Chen and Jain, (2007), and Jiang and Habib, (2009). These empirical findings may attribute to both signalling and stewardship theories. High proportions of managerial ownership Egyptian companies' may disclose more information on their websites to signal their good performance which leads to the increased liquidity of these companies and is reflected in the companies' share prices. This may happen if the management intend to make a trade on their shares or attract more investors to raise their capital. According to stewardship theory, high managerial ownership can prevent the misuse of shareholders' wealth, due to the convergence in interests between them, by disclosing more information on their website. Consequently, H3.2 about the significant association between managerial ownership and CIR total of the Egyptian listed companies will be approved in the current study.

Another conflict in the findings between bivariate and multivariate analyses was related to institutional ownership. Only multivariate analysis demonstrates a negative association between institutional ownership and CIR total at significant level 1% in the log transformation model and 5% in the Tobit model. This implies that Egyptian listed companies with a high proportion of institutional ownership decrease their level of CIR total. The finding is consistent with those of Schadewitz and Blevins, (1998), Ajinka et al., (2005), Karamanou and Vafeas, (2005), Sriram and Laksmana, (2006) and Al-Motrafi, (2008). In

addition, the information costs theory provides an explanation for the negative association between institutional ownership and CIR total. Egyptian companies with a high proportion of institutional ownership may tend to disclose less information on their website due to the accessibility of the information that will be available to the representatives of institutional investors on the companies' board of directors (Abdel-Fattah, 2008). Therefore, there is no need to burden the companies with additional costs through online disclosure. Further, in the opposite way, when companies have a low percentage of institutional ownership it may increase their level of online disclosure to benefit from the investor relations and encourage these institutions to increase their proportion on these companies' boards. Based on the statistical findings, the current study accepts hypothesis H3.4 regarding the significant association between institutional ownership and CIR total of the Egyptian listed companies.

As revealed above, all the variables of ownership structure category have a significant relationship with CIR total in the Egyptian context. This leads to approve hypotheses H3 and answers the fifth sub-question SRQ2.5.

8.6.4 Corporate governance variables

Mixed results have been found in the statistical analyses of both bivariate and multivariate techniques for corporate governance category. These results are presented in Table 8-14.

Table 8-14: The findings of corporate governance variables

Variables	Bivariate analysis		Un-transformation model	Log transformation model	Tobit model
	P	NP			
Board Size	***	***		*	*
Non-executive directors	***	**	*		
Role Duality	(-) **	(-) **			
Family Members				**	*
Foreign Members	***	**			

Note: *** significant at 1%, ** significant at 5%, * significant at 10%. P= parametric, N= non parametric.

As seen from Table 8-14, biviariate analysis shows a significant association for all the corporate governance variables except the existence of family members, while multivariate analysis indicates this result for only board size and the existence of family members.

With regard to board size, while bivariate analysis indicates a positive significant association between board size and CIR total at level 1%, the multivariate analysis indicates this result at level 10%. The finding reveals that the larger the size of the Egyptian listed companies' boards of directors, the higher the level of CIR total. Agency theory can explain the suggested result. Increasing board size will enable the existence of experience diversity on the board. This diversity is useful for sharing knowledge between members which increases the quality of disclosure. Therefore, companies with a larger size of director's board may tend to increase their level of CIR total to legitimise themselves to their stakeholders (Abdel-Fattah, 2008). The same positive association between board size and CIR total in the current study has been found in prior studies (e.g. Beasley, 1996; Beasley and Salterio, 2001; Klein, 2002; Karamanou and Vafeas, 2005; Laksmana, 2008; Abdel-Fattah, 2008). Accordingly, H4.1 of the significant association between the board size and CIR total by Egyptian listed companies will be accepted in the current study.

Family members on the company's board of directors have been found to have a positive significant relationship with CIR total in only the multivariate analysis. The log transformation model found this relationship at significant level 5%, while this relationship is at level 10% in the Tobit model. This implies that the existence of family members on the Egyptian listed companies' boards of directors increases the level of CIR total. Different theories can explain such a positive relationship, e.g. cost-benefit, political costs and stakeholder theories. Family companies may use the Internet to disclose more information to avoid both litigation and reputation costs resulting from hidden valuable information. Further,

these companies are in the public eye, therefore they should enhance their communication with various stakeholders and legitimise themselves by disclosing more information on their websites. Finally, family companies may be enforced by different stakeholders to disclose additional information on their websites to mitigate the bad effects created for those stakeholders about potential manipulation in the accounting earning of these companies. The finding of the current study is constant with Wang, (2006), Ali et al., (2007) and Abdel-Fattah, (2008). Consequent upon the statistical findings regarding the significant association of the existence of family members on the Egyptian listed companies' board of directors, H4.4 for CIR total will be approved.

Interestingly, both bivariate analysis and the un-transformation model in the multivariate analysis state a positive association between the proportion of non-executive directors and CIR total at different levels of significance. Both the log transformation and Tobit models found this relationship to be insignificant. The reason for the contradictory results may due to the different roles that the non-executives may play in different countries (Abdel-Fattah, 2008). Non-executives may lose their independence due to their loyalty to the CEOs or the board chairmen as their appointment in the companies comes from those persons. In this case the non-executive directors may not perform their monitoring role effectively and hence they may not have any influence on disseminating information via the website of the companies. In addition, non-executive directors may not have sufficient information about the company which again may lead to loss of their monitoring role and independence. Once the non-executive directors lose their monitoring role and their independence, their effect on increasing or decreasing the level of online disclosure will be questionable. The insignificant association between the non-executive directors and CIR total in the Egyptian context can be supported by many of the prior studies (e.g. Ho and Wong, 2001; Haniffa and Cooke, 2002;

Lakhal, 2003; Mangena and Pike, 2005; Ghazali and Weetman, 2006). Based on the statistical results of both the log transformation and Tobit models, the current study fails to provide evidence for the significant relationship between non-executive directors and CIR total by Egyptian listed companies, and hence rejects H4.2.

Regarding the existence of foreign members on the company's board of directors, only bivariate analysis introduces a positive association with CIR total at level 1% and 5%. Multivariate analysis finds this relationship insignificant. This reveals that the existence of foreign members on the Egyptian listed companies' board of directors has no influence on the level of CIR total. This finding is illustrated in Table 8-2 which shows that the number of companies with foreign members on their board is relatively less than the number of companies that do not have such members. The percentage of foreign members is 36% which indicates the meaningless role of those members on the Egyptian listed companies. However, this role should be increased through appointing more foreign members to the Egyptian listed companies' boards of directors to benefit from sharing the knowledge of those members. If the number of foreign members is increased it will be assumed to find an influence for the existence of those members on CIR by Egyptian listed companies. As foreign members on a company's board are representatives of the foreign shareholders, the findings of the current study are supported by those of Ghazali, (2004), Pervan, (2006), and Bogdan et al., (2009). Consequently, this study fails to find a significant association between the existence of foreign members and CIR total in the Egyptian context. Based on this empirical finding, the current study rejects H4.5.

Similarly, role duality between the chairman and CEO has been found to have a significant association in only the bivariate analysis at level 5%. Again multivariate analysis fails to provide empirical evidence for the significant influence of role duality on CIR total in the

Egyptian context. This means that the separation between the chairman and CEO roles in the Egyptian listed companies has no impact on the level of CIR total. The combination between the chairman and CEO roles may weaken the board's independence due to the concentration of power in one person. This lack of independency represents a bad sign for poor governance system which may lead companies not to disclose any information on their website to avoid the bad effects of this on their stakeholders. This finding is consistent with many previous studies (e.g. Haniffa and Cooke, 2002; Arcay and Vazquez, 2005; Cheng and Courtenay, 2006; Ghazali and Weetman, 2006; Abdel-Fattah, 2008). Based on the statistical findings of the multivariate analysis, the current study fails to find any evidence for the influence of role duality on CIR total in the Egyptian context. Consequently, H4.3 will be rejected in the current study.

According to the above findings, it can be seen that the corporate governance category shows a significant association with CIR total by Egyptian listed companies in some variables. This leads to the acceptance of H4 in the current study and answers the seventh sub-question SRQ2.7.

8.7 Summary

The findings of the current study extend the previous studies that were applied in different developed markets, and gives additional evidence for the possibility of applying the same variables in an emerging market, namely Egypt. In addition, the findings support the theoretical framework from which the hypotheses are derived, which indicates the possibility of applying the same theories that have been examined in different, and developed, countries in another contexts, namely Egypt.

This chapter aims to answer the second research question and its sub-questions. Based on both bivariate and multivariate analyses, it is seen that each group of explanatory variables has at least one significant variable in association with CIR total. Both parametric and non parametric tests are performed in the bivariate analysis to examine the relationship between CIR total and each explanatory variable. For continuous variables, Pearson's correlation as a parametric test and Spearman's rank correlation as a non parametric test will be used, while for dummy variables, T test as a parametric test and Mann Whitney test as a non parametric test are employed.

In multivariate analysis, the study runs three regression models. The first is the un-transformation OLS model. After checking the assumptions of this model, the study discovers that one of its assumptions is violated. Therefore, it is decided to transform the model by using the log method. The log transformation OLS model is the second model which runs in the current study. The final model is the Tobit regression model which was used in the current study as a robustness check for the results obtained from the other two models.

The findings of the previous three models, their explained theories in the current study and supported prior studies are summarised in appendix 22.

In order to demonstrate more understanding for the key determinants of CIR, the next chapter discusses the findings that explain the association between the components of CIR and its key determinants. Such findings provide more support for the hypotheses formulated in chapter six and the proposed theories discussed in chapter three.

CHAPTER 9 EMPIRICAL FINDINGS: CORPORATE INTERNET REPORTING COMPONENTS

9.1 Introduction

To identify the determinants of CIR more precisely, this chapter examines the association between the components of CIR, namely content, presentation, timeliness and usability and the explanatory variables. Classifying CIR into its main components adds more depth to the analysing of the findings and provides new directions for explaining the relationships between CIR components and their determinants.

This chapter also helps to answer the second question. It starts with the bivariate analysis which includes both parametric and non-parametric tests for the components of CIR in section 9.2. Multivariate analysis is performed in section 9.3. Both log transformation OLS and Tobit models are run to test the relationship between the components of CIR and the explanatory variables. Further, the findings of both regression models are discussed also in section 9.3 for all CIR components. Section 9.4 covers the chapter summary.

9.2 Bivariate analysis

Both Pearson's product moment correlation as a parametric test and Spearman's rank order correlation as a non parametric test have been run to measure the relationship between all the components of CIR and continuous variables. Appendix 23 summarises the results of both tests.

Both Pearson's correlation and Spearman's rank correlation coefficients for all CIR components are significantly correlated with all variables except company age, institutional ownership and managerial ownership. According to Pearson coefficient, three continuous

firm characteristics variables are correlated significantly with the components of CIR. It can be stated that larger and high leveraged companies tend to disclose more content, presentation, timely and usability information on their websites at significant level 1%, while highly profitable companies correlate significantly with content and timeliness of CIR at level 5% and with usability at level 1%. Considering the Spearman coefficient, size and leverage are correlated significantly with the entire CIR components at level 1%, while assets in place are correlated with presentation at level 5%.

Considering market related variables, the Pearson coefficient indicates that all the market related continuous variables are correlated significantly with all CIR components but at different levels. Stock activity is the only variable that correlates significantly at level 1% with all CIR components. Further, at the same level, stock volatility correlates with all CIR components except usability which correlates at level 5%. Regarding the Spearman coefficient, it indicates the same results of Pearson coefficient for stock activity and share volatility variables at the same significant levels.

Only block holder ownership is significantly correlated with all CIR components at level 1% of significance for both Pearson and Spearman coefficients. Similarly, governmental ownership demonstrates significant correlation with the entire components of CIR at the same significance but only for the Spearman coefficient. Moreover, it noticed that both institutional and managerial ownerships are correlated insignificantly with all CIR in both correlation tests.

Regarding corporate governance variables, both board size and non-executive directors are significantly correlated with the entire components of CIR but at different significant levels in both the Pearson and Spearman tests. At Pearson coefficients, companies with large

numbers and a high proportion of non executive directors are more interested in disclosing variety types of information on their website at level 1%. Similarly, Spearman coefficient indicates the same results for board size. However, it shows different significant levels for non-executive directors. At significant level 1% the non-executive directors variable is correlated with CIR presentation and timeliness. While at level 5%, it correlates significantly with CIR content and usability.

Two parametric and non parametric tests will be performed to investigate whether the dummy explanatory variables are correlated with the components of CIR or not. Appendices 24 and 25 summarise the results of both the T-test as a parametric test and the Mann Whitney test as a non parametric test.

The findings of both the T and Mann Whitney tests show that the mean of the entire components of companies' CIR is insignificantly different from the legal form of Egyptian listed companies.

In relation to the market related variables, all the dummy variables indicate a significant correlation with the entire components of CIR in both the T and Mann Whitney tests. The mean (in the T test) and mean rank (in the Mann Whitney test) for financial type is greater than the non financial type which indicates that financial Egyptian listed companies disclose more content, presentation, timeliness and usability information in their websites. The significant level for the correlation between activity type and CIR is 1% in both tests.

In addition, companies that are listed internationally and are audited by Big4 companies correlate significantly at level 1% with the entire CIR components in both the T and Mann Whitney tests. In addition, shares issuance is correlated significantly at 1% with CIR usability in both T and Mann Whitney tests. Similarly in both tests, shares issuance correlate with CIR

presentation at level 10%. CIR content and timeliness show the same results with shares issuance in both tests but at different levels of significance. In the T test, shares issuance is correlated with CIR content and timeliness at significant level 10% and 5% respectively, while in the Mann Whitney test the level is 5% and 1% for both CIR content and timeliness respectively.

Regarding corporate governance variables, only companies with family members are correlated insignificantly with all of the CIR components in both the T and Mann Whitney tests. In the T test, the findings demonstrate that companies with foreign members on the board disclose more content, presentation, timeliness and usability information on their websites than companies with non foreign members at level 1% of significance. Moreover, the Mann Whitney test confirms the same results but at different level of significance. It reveals these results at level 1% for CIR presentation, at level 5% for both timeliness and usability, and at level 10% for content. In addition, the findings indicate that companies which separate the roles of chairmen and CEOs disclose more variety of CIR information on their websites than those which have a dual role. In the T test, role duality is correlated significantly at level 5% with CIR content, presentation and usability and at level 10% with timeliness. Similarly, the Mann Whitney test confirms the latter results for all the components of CIR except timeliness which shows insignificant correlation with role duality.

Based on the bivariate analysis results, it can be stated that there is a significant relationship between each of the explanatory variables and each component of CIR at different significant levels. To examine these relationships simultaneously, multivariate analysis for each CIR component will be performed. The next section presents the results of the multivariate analysis.

9.3 Multivariate analysis for CIR components and their discussion

As indicated in section 8.4, multivariate analysis is a common technique that extends the univariate and bivariate analyses by running more complicated sets of dependent and independent data. Two multivariate analyses will be used for examining the association between the extent of CIR components and their explanatory variables. These analyses are: log transformation analysis and its robustness; Tobit analysis. Tables 9-1 and 9-2 summarise the results of these two models.

Table 9-1: Log transformation model for CIR components'

Variables	Coefficient / T -Value			
	Content	Presentation	Timeliness	usability
Companies' characteristics				
Size	.33 (5.8)***	.29 (4.65)***	.28 (4.5)***	.35 (5.1)***
Profitability	-.03 (-.8)	-.05 (-1.1)	-.06 (-1.5)	-.03 (-.6)
Leverage	.130 (3.1)***	.14 (3.0)***	.10 (2.2)**	.15 (3.1)***
Legal Form	.09 (2.1)**	.09 (1.8)*	.08 (1.5)	.05 (1.0)
Company Age	-.05 (-1.1)	-.04 (-.9)	-.07 (-1.6)	.00 (.1)
Asset In Place	.09 (2.2)**	.11 (2.2)**	.01 (.3)	.11 (2.2)**
Market related				
Activity Type	.14 (3.1)***	.17 (3.5)***	.09 (2.0)**	.16 (3.0)***
Foreign listing	.30 (7.0)***	.23 (4.8)***	.28 (5.9)***	.19 (3.7)***
Audit Type	.08 (1.8)*	.09 (1.7)*	.04 (.7)	.06 (1.1)
Shares Volatility	.12 (2.0)**	.06 (.9)	.07 (1.1)	.17 (2.4)**
Shares Activity	.06 (1.3)	.09 (1.9)*	.07 (1.6)	.03 (.5)
Shares Issuance	-.09 (-2.2)**	-.08 (-1.8)*	-.04 (-1.0)	-.03 (-.6)
Ownership structure				
Block holder Ownership	-1.0 (-2.2)**	-.07 (-1.4)	-.01 (-.2)	-.06 (-1.2)
Managerial ownership	.10 (2.4)**	.07 (1.5)	.05 (1.1)	.13 (2.6)***
Government ownership	-.23 (-5.2)***	-.21 (-4.4)***	-.21 (-4.3)***	-.19 (-3.6)***
Institutional ownership	-.17 (-4.1)***	-.11 (-2.3)**	-.20 (-4.3)***	-.07 (-1.4)
Corporate governance				
Board Size	.07 (1.5)	.04 (.8)	.05 (.9)	.14 (2.4)**
Non-Executive directors	-.01 (-.2)	.03 (.6)	.05 (1.0)	.00 (.0)
Role Duality	-.03 (-.7)	-.02 (-.4)	.00 (.0)	-.02 (-.4)
Family Members	.09 (2.1)**	.08 (1.7)*	.14 (3.0)***	.07 (1.4)
Foreign Members	.01 (.1)	.03 (.6)	.01 (.2)	-.03 (-.6)
Constant	-.34 (-4.1)***	-.24 (-2.9)***	-.32 (-3.4)***	-.34 (-3.7)***
F	19.53***	13.31***	13.635***	9.30***
Adjusted R^2	.534	.432	.438	.339

Note: *** significant at 1%, ** significant at 5%, * significant at 10%. T value in parenthesis

Table 9-2: Tobit regression model

Variables	Coefficient / T -Value			
	Content	Presentation	Timeliness	Usability
Companies' characteristics				
Size	.13 (6.2)***	.13 (4.7)***	.21 (4.5)***	.13 (5.2)***
Profitability	-.01 (-0. 9)	-.03 (-1.5)	-.04 (-1.3)	-.01 (-0.8)
Leverage	.04 (3.3)***	.05 (3.1)***	.08 (2.8)***	.04 (3.0)***
Legal Form	.09 (2.2)**	.12 (2.2)**	.24 (2.6)***	.06 (1.2)
Company Age	-.01 (-0.3)	-.00 (-0.1)	-.05 (-1.4)	-.01 (-0.6)
Asset In Place	.03 (2.9)***	.03 (2.4)**	.01 (0.6)	.03 (2.5)**
Market related				
Activity Type	.12 (2.7)***	.14 (2.4)**	.17 (2.0)**	.13 (2.6)**
Foreign listing	.32 (4.3)***	.20 (2.0)**	.32 (2.2)**	.19 (2.1)**
Audit Type	.05 (1.7)*	.05 (1.3)	.08 (1.2)	.04 (1.1)
Shares Volatility	.03 (3.1)***	.03 (2.5)**	.03 (1.3)	.03 (3.1)***
Shares Activity	.01 (1.8)*	.02 (2.4)**	.02 (1.0)	.01 (1.0)
Shares Issuance	-.03 (-1.2)	-.04 (-1.1)	-.04 (-0.7)	-.00 (-0.1)
Ownership structure				
Block holder Ownership	-.06 -(2.0)**	-.06 (-1.4)	-.03 (-0.4)	-.04 (-1.1)
Managerial ownership	.01 (2.2)**	.01 (1. 0)	.01 (0.6)	.01 (2.3)**
Government ownership	-.03 -(4.4)***	-.03 (-3.6)***	-.03 (-2.1)***	-.02 -(3.1)***
Institutional ownership	-.03 (-2.9)***	-.02 (-1.6)	-.06 (-2.7)***	-.01 (-1.0)
Corporate governance				
Board Size	.07 (1.7)*	.06 (1.1)	.09 (1.0)	.12 (2.3)**
Non-Executive directors	-.04 (-0.7)	.01 (0.2)	.15 (1.0)	-.03 (-0.5)
Role Duality	-.02 (-0.7)	-.03 (-0.7)	-.02 (-0.3)	-.02 (-0.5)
Family Members	.04 (1.6)	.04 (1.1)	.14 (2.1)**	.03 (1.0)
Foreign Members	-.01 (-0.4)	-.03 (-0.7)	-.02 (-0.4)	-.03 (-0.9)
Number of obs.	343	343	343	343
Constant	-.76 (-5.3)***	-.87 (-4.3)***	-1.62 (-4.7)***	-.83 (-4.8)***
LR chi^2 (22)	203.93	141.53	140.45	126.16
Log likelihood	-50.261862	-98.33802	-105.3132	-97.856136
Prob. > chi^2	0.0000	0.0000	0.0000	0.0000
Pseudo R^2	0.6698	0.4185	0.4001	0.3920

Note: *** significant at 1%, ** significant at 5%, * significant at 10%. T value in parenthesis

It can be indicated from Table 9-1 that the highest adjusted R^2 is 53.4% for content model which means that 53.4% of the variation in the CIR content is explained by the explanatory variables of this model. The rest of the adjusted R^2 of the other CIR components (presentation, timeliness and usability) are: 43.2%, 43.8% and 33.9% respectively. All these adjusted R^2 are still comparable and in the range of the previous studies (see Table 8-9 in section 8.5).

Each group of variables will be examined regarding each of the CIR components to determine the influence of the explanatory variables on the CIR components when choosing

one of those components individually as a dependent variable. The next point presents the first explanatory variables group.

9.3.1 Firm characteristics variables

Six firm characteristics variables are used to investigate their relationship with the components of CIR. The findings of these relationships for both bivariate and multivariate analyses are summarised in Table 9-3.

Table 9-3: The results of the association between firm characteristics variables and CIR components

Variables	Content				Presentation				Timeliness				Usability			
	B		M		B		M		B		M		B		M	
	P	N	L	T	P	N	L	T	P	N	L	T	P	N	L	T
Size	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***
Profitability	**								**							
Leverage	***	***	***	***	***	***	***	***	***	***	**	***	***	***	***	***
Legal Form			**	**			*	**				***				
Company Age																
Asset In Place			**	***		**	**	**							**	**

Note: *** significant at 1%, ** significant at 5%, * significant at 10%. B= bivariate, M= multivariate, P= parametric, N= non parametric, L= log transformation model, T= Tobit model.

As seen from Table 9-3, all the firm characteristics variables have an impact on the components of CIR except company age, either in bivariate or multivariate analyses. These variables will be discussed in relation to each of the CIR components as follows:

9.3.1.1 Content

Consistent with the results of bivariate analysis, the results of multivariate analysis reveal that both company size and leverage are associated significantly with CIR content at level 1%. This suggests that large Egyptian listed companies with high leverage ratios increase the

content of disclosed information on their websites. Further, two variables are significant only in multivariate analysis, namely legal form and asset in place. Egyptian companies with legal form tend to enlarge the content of information dissemination on the website more than Egyptian companies with non legal form at significant level 5%. In addition, Egyptian listed companies with a high proportion of fixed assets disclose more content information via their websites than those with a low proportion at significant level 5% and 1% in the log transformation and Tobit models respectively.

The findings of CIR content can be explained by many theories depending on the examined explanatory variables. According to company size and legal form, political theory explains the positive association with CIR content. Large companies with legal form are always in the public eye which may increase the political costs of these companies. To mitigate these costs, large Egyptian listed companies tend to increase the content of their disclosed information on their websites. The significant positive association between large Egyptian listed companies and CIR content results is consistent with Xiao et al. (2004), Marston and Poli (2004), Abdel-Salam et al. (2007), Abdel-Salam and Street (2007), and Kelton and Yang (2008), while Xiao et al. (2004) support the results of legal form variables. Consequently, H1.1 and H 1.4 for CIR content will be accepted.

Agency theory can clarify the significant association between leverage and CIR content. Egyptian companies with a high leverage ratio may be more likely to increase the online disclosure of information contents to satisfy the creditors' needs for this information. This in turn leads to increasing the confidence of those creditors about the ability of Egyptian companies to pay their liabilities. This finding is supported by Ismail (2002) and Xiao et al. (2004). Therefore, H1.3 for CIR content will be approved.

Regarding the asset in place variable, signalling theory can support the significant association with CIR content. Egyptian companies with a high percentage of fixed assets may want to signal their stability and sustainability to their stakeholders by disclosing a variety of types of information on their website. This finding is similar to that of Xaio, et al. (2004). Based on the above result, H1.6 for CIR content will be accepted.

Multivariate analysis indicates that profitability is associated insignificantly to CIR content. This result is consistent with Ettredge et al. (2002), Laren and Giner (2004), Xiao et al. (2004), Marston and Poli (2004), Abdel-Salam et al. (2007), and Kelton and Yang (2008). Similarly, the empirical finding fails to provide evidence for the influence of company age on CIR content. This is supported by Akhtaruddin (2005) and Omar (2007). Consequently, H1.2 and H1.5 for CIR will be rejected in the current study.

9.3.1.2 Presentation

The same results for CIR content have been found for CIR presentation. Large Egyptian companies are using more presentation tools to disclose the required information via the Internet than smaller ones at confidence level 99%. This can be attributed to information costs theory which states that large companies have the facilities and resources that are used on a large scale to achieve the maximum benefits for these companies. Therefore, large companies use the tools that enable them to present the required information to their stakeholders accurately. One of these presentation tools is the Internet. This result is consistent with Debreceny et al. (2002), Xiao et al. (2004), Marston and Poli (2004), and Kelton and Yang (2008). Therefore, H1.1 for CIR presentation will be accepted.

According to leverage, the findings demonstrate that there is a positive association with CIR presentation at level 1% in both log transformation and Tobit models. As with CIR content,

agency theory supports this result. Egyptian companies with a high leverage ratio tend to use the Internet as a tool to present all the financial ratios of the companies to different stakeholders to give them more confidence about the ability of the companies to pay their debts; this can be supported by Xiao et al. (2004). Therefore, H1.3 for CIR presentation will be approved.

Legal form companies show a positive association with CIR presentation at significant level 10% and 5% in the log transformation and Tobit models respectively. Capital need theory introduces evidence for this result. It is assumed that companies that seek to transform to privatisation need to attract more investors to raise their capital. By its unique features of presentation, the Internet provides the possibility of disclosing the required information by the Egyptian listed companies to attract investors, and hence increase their capital. Abdel-Salam and Weetman (2003) provide evidence of the impact of Egyptian legal companies on disclosure. Based on this result, H1.4 for CIR presentation will be approved.

With respect to asset in place, the multivariate findings indicate that Egyptian listed companies with a high proportion of fixed assets impacts positively on CIR presentation at level 5% of significance. Signalling theory explains this positive association by revealing that Egyptian companies with a high proportion of fixed assets want to present their stability to wide range of stakeholders. This can be done by disseminating information on the companies' websites using different presentation tools. Therefore, using the Internet as a disclosing tool helps companies to signal their stability to different stakeholders. Haniffa and Cooke (2002) present this result for voluntary disclosure of the Malaysian companies. Hence, H1.6 for CIR presentation will be accepted.

Again, the findings fail to provide evidence for the influence of both profitability and company age on CIR presentation. Xiao et al. (2004), and Kelton and Yang (2008) find the same results for profitability, while Haniffa and Cooke (2002) prove the insignificant relationship between company age and voluntary disclosure. Consequently, H1.2 and H1.5 for CIR presentation will be rejected in the current study.

9.3.1.3 Timeliness

Only two firm characteristics variables, namely company size and leverage are significant with CIR timeliness in both bivariate and multivariate analyses. However, legal form is only significant in the Tobit model. Regarding company size, the same positive association of both CIR content and timeliness have been found for CIR timeliness at level 1%. Diffusion of innovation theory provides an explanation for this result. As investors always require timely information, Egyptian listed companies seek to provide this type of information by using the Internet due to its ability of reaching large number of users in a minimum amount of time. Only large Egyptian companies with their facilities and resources can adopt the Internet as a tool for disseminating the required information in a timely manner. This result is consistent with Abdel-Salam et al. (2007), Abdel-Salam and El-Masry (2008), and Ezat and El-Masry (2008). Therefore, H1.1 for CIR timeliness will be accepted.

Similarly, leverage has a positive effect on CIR timeliness in both bivariate and multivariate analyses. Again, diffusion of innovation theory provides evidence for the positive association between leverage and CIR timeliness. Egyptian companies with a high leverage ratio want to fulfil the different needs of creditors to present their high financial reliability. This can be done by spreading the required information to a large number of creditors in a timely manner. Therefore, Egyptian listed companies may adopt the Internet as a tool to disclose timely

information by which compatibility with Egyptian listed companies' needs will be achieved. Roger (2003) mentions compatibility as one of five characteristics of the rate of innovation adoption. This result is similar to that of Brennan and Hourigan (2000), Larran and Giner (2002) and Xiao et al. (2004). Hence, H1.3 for CIR timeliness will be accepted.

According to legal form, only the Tobit model shows a positive relationship with CIR timeliness at level 1%. As with company size and leverage, the current study succeeds in finding justification from the diffusion of innovation theory to support the positive association between the legal form of Egyptian listed companies and CIR timeliness. DiMaggio and Powell (1983) as cited in Xiao et al. (2004) argue that "coercive perspective" is one of the three perspectives that lead any company to adopt new technology. Coercive perspective results from the external pressures on the companies derived from political and government authorisation. In this regard, Abrahamson (1991) states that adoption of an innovation by companies may be due to the forced selection that results from the pressure of the government bodies. As mentioned before, Egyptian companies with legal form are in the public eye which may put pressure on them to adopt the Internet as a tool for disseminating timely information voluntary or adopting by forced selection. Consequently, H1.4 for CIR timeliness will be accepted.

Profitability has been found to have significant association on CIR timeliness at level 5% in only bivariate analysis. However, this relationship is insignificant in multivariate analysis. Both Abdel-Salam et al. (2007), and Abdel-Salam and El-Masry (2008) present an insignificant association between profitability and CIR timeliness in UK and Ireland. In addition, none of the company age or asset in place variables has been found to have a significant association with CIR timeliness in both the bivariate and multivariate analyses. Therefore, H1.2, H1.5 and H1.6 for CIR timeliness will be rejected in the current study.

9.3.1.4 Usability

Three firm characteristics variables are related to CIR usability. Company size and leverage are associated positively with CIR usability in both bivariate and multivariate analyses at significant level 1%, while asset in place is associated only in multivariate analysis at level 5%.

Large Egyptian companies are more associated with CIR usability than smaller ones. This finding can be illustrated by the Technology Accepted Model (TAM) which depends on two perspectives: the perceived usefulness and the perceived ease of use. Large Egyptian companies seek to benefit from their huge capabilities in reducing the cost of dissemination and distribution of their information. In addition, they want to ensure that the disclosed information reaches a large number of the stakeholders. Therefore, these companies use their capabilities and resources to design useful websites which contain the tools that guarantee the ease of their use for different stakeholders. Consequently, due to the huge resources that are available for large Egyptian companies, adopting the Internet as a dissemination tool will be achieved because of its ease of use for these companies. This result is consistent with Pirchegger and Wagenhofer (1999), and Bollen et al. (2006). Therefore, H1.1 for CIR usability will be accepted.

Similarly, leverage has been found to have a positive impact on CIR usability in both bivariate and multivariate analyses at significant level 1%. Again, TAM can explain the leverage's findings. As mentioned before, Egyptian listed companies aim to signal their strong financial capabilities to their creditors to make them more confident about the ability of the companies to pay their liabilities. To achieve this, Egyptian listed companies may choose the Internet to disseminate these data, due to its usability unique features which

enable those creditors access to the required information easily. In this case, adopting the Internet will increase the perceived usefulness of the Egyptian listed companies which results from the satisfaction of different debtors. This represents a good sign for these companies in the competitive market. Consequently, H1.3 for CIR usability will be approved.

Asset in place also introduces a positive association with CIR usability in only multivariate analysis at level 5% of significance. As with company size and leverage, TAM proposes a justification for this positive association. As Egyptian listed companies with a high proportion of fixed assets are more likely to signal their stability and sustainability in the market, the Internet will be a useful tool to show this by its usability tools, which ease access for required information, and that information can be obtained more quickly. This will lead to an increase in the perceived usefulness of the Egyptian listed companies which has resulted from their ability to sustain and compete in the market. Therefore, it can be stated that H1.6 for CIR usability is accepted in the current study.

The rest of the company characteristics variables; profitability, legal form and company age have associated insignificantly with CIR usability in both bivariate and multivariate analyses. Al-Motrafi (2008) finds that profitability has no impact on the usability of CIR in Saudi Arabia. Hence, H1.2, H1.4 and H1.5 for CIR usability will be rejected.

Based on the above discussion, it can be seen that the current study provide evidence for the impact of firm characteristics variables on each of the CIR components which helps in answering the second sub-question SRQ2.2. Therefore, it can be concluded that H1 for CIR components can be accepted in the current study. The second variables category, which will be discussed in the next section, is the market related category.

9.3.2 Market related variables

Six market related variables are examined to investigate their association with CIR components'. The results of these variables are presented in Table 9-4.

Table 9-4: The results of association between market-related variables and CIR components

Variables	Content				Presentation				Timeliness				Usability			
	B		M		B		M		B		M		B		M	
	P	N	L	T	P	N	L	T	P	N	L	T	P	N	L	T
Activity Type	***	***	***	***	***	***	***	**	***	***	**	**	***	***	***	**
Foreign listing	***	***	***	***	***	***	***	**	***	***	***	**	***	***	***	**
Audit Type	***	***	*	*	***	***	*		***	***			***	***		
Shares Volatility	***	**	**	***	***	***		**	***	***			**	**	**	***
Shares Activity	***	***		*	***	***	*	**	***	***			***	***		
Shares Issuance	*	**	(**)		*	*	(*)		**	***			***	***		

Note: *** significant at 1%, ** significant at 5%, * significant at 10%. B= bivariate, M= multivariate, P= parametric, N= non parametric, L= log transformation model, T= Tobit model.

Many variables are associated significantly with the components of CIR in both bivariate and multivariate analyses. The next points discuss in detail these associations.

9.3.2.1 Content

All the six variables associate with CIR content in both bivariate and multivariate analyses but at different significance levels. Both activity type and foreign listing are associated positively with CIR content at confidence level 99% in both bivariate and multivariate analyses. Multivariate analysis indicates that financial Egyptian listed companies which list internationally tend to increase the level of information content disclosed on their websites. Signalling theory can explain the significant association between financial Egyptian companies and CIR content. Egyptian companies in the financial sector should follow the same disclosure pattern as the other companies in the same sector to avoid any bad effects

that result from not doing so. This means that financial Egyptian companies should disclose a variety of types of information on their website to distinguish themselves in the Egyptian market. Brennan and Hourigan (2000), Celik et al. (2006) and Aly et al. (2010) support this finding. Accordingly, H2.1 for CIR content will be accepted.

According to foreign listing, agency theory clarifies the significant association with CIR content. Due to the desperation of shareholders resulting from the multi-listing statutes of some Egyptian listed companies, agency costs increase as a result of increasing monitoring costs. Therefore, Egyptian companies that list internationally may choose the Internet to increase their level of content information disclosed to various stakeholders. This finding is consistent with Marston and Poli (2004) who find that foreign listing German companies are associated more with CIR content. Moreover, In Egypt, Aly et al (2010) report that foreign listing companies have a positive impact on the content of IFR. Based on this finding, H2.2 for CIR content will accepted.

In addition, multivariate analysis shows that Egyptian listed companies audited by Big4 companies disclose more content information via the Internet than those not audited by Big4 companies at significant level 10%. This result may be attributed to the legal liability shown by political theory towards the users of companies' financial statements. This legal liability puts more pressure on the Big4 companies to ensure that Egyptian listed companies disclose the required information on their websites. Kelton and Yang (2008) prove the same positive association of the current study between audit type and CIR content. Consequently, H2.3 for CIR content will be approved.

With regard to shares volatility, multivariate analysis presents a positive association with the content of CIR at significant level 5% and 1% in the log transformation and Tobit models

respectively. Such a result can be explained by political theory. Egyptian companies with high shares volatility may attract regulators because of their highly volatility which may be explained as a manipulation in stock prices. This may make Egyptian listed companies more vulnerable to legal actions and lawsuits. To avoid this, Egyptian listed companies choose to disclose more content information on their websites to explain the reasons for this volatility. This result is consistent with Trabelsi and Labelle (2006). Therefore, H2.4 for CIR content will be accepted.

Multivariate analysis, namely the Tobit model, suggests that most active Egyptian listed companies are associated positively with CIR content at level 10%. Capital need theory provides evidence to support this result. Egyptian listed companies seeking to increase their capital are more likely to attract investors. Most of these companies are heavily traded and therefore may use the Internet to attract those investors by disclosing different types of the required information on their websites. Hence, H2.5 for CIR content will be accepted.

Interestingly, the log transformation model finds that Egyptian listed companies issuing shares are less likely to disclose more content information on their websites than those not issuing shares. This result can be attributed to signalling theory which shows that Egyptian listed companies not intending to issue shares are more likely to disclose more information to explain the reasons behind not issuing shares. Therefore, disclosing more content information on the companies' website may alleviate the bad effects resulting from not issuing shares. Kelton and Yang (2008) find the same direction in the US companies; however the association with CIR content was insignificant. Accordingly, H2.6 for CIR content will be approved.

9.3.2.2 Presentation

The same results of CIR content have been found for CIR presentation. Financial Egyptian listed companies are likely present more information on their websites than non financial ones in both bivariate and multivariate analyses at significant level 1% and 5% respectively. Such a positive association can be explained by political cost theory. Financial Egyptian listed companies may practice vulnerable activities, increasing their political costs. One way to reduce these costs is by using the Internet to disclose more information on the website by different presentation tools. This result is consistent with Aly et al (2010) who find that the presentation of IFR increased by financial services Egyptian companies. Consequently, H2.1 for CIR presentation will be accepted.

Similarly, both bivariate and multivariate analyses indicate that foreign Egyptian listed companies are associated more with CIR presentation than domestic Egyptian listed companies. Capital need theory introduces a justification for this finding. Foreign Egyptian listed companies seek to raise their capital at the lowest possible cost which is fulfilled by foreign quotation. This puts pressure on these companies which is represented by an increase in their disclosure levels to reach the various international stakeholders. Therefore, foreign Egyptian listed companies may benefit from the widespread and speedy usage of the Internet in addition to its unique presentation tools which enable the Egyptian companies to disclose their information effectively. This result is consistent with Marston and Poli (2004) and Aly et al (2010). Based on this result, H2.2 for CIR presentation will be accepted.

Moreover, most active Egyptian listed companies show a positive association with CIR presentation in both bivariate and multivariate analysis but at different significant levels. They associate at level 1% in bivariate analyses. While in multivariate analyses, they

associate at levels 5% and 10% in both Tobit and log transformation models respectively. Heavily traded Egyptian listed companies are always in the public eye which drives these companies, according to political costs theory, to disclose more information about their essential events to legitimate themselves from non traded companies. The Internet introduces a 'magic' solution to let these companies distinguish themselves from other non traded companies by presenting their information in different ways. Therefore, heavily traded Egyptian listed companies encourage the use of the Internet as a presentation tool for their disclosed information. Accordingly, H2.5 for CIR presentation will be approved.

Regarding audit type, both bivariate and multivariate analyses present the same results but at different significant levels. Egyptian listed companies audited by Big4 companies are more associated with CIR presentation than those not audited by Big4 companies at significant level 1% in bivariate analysis and 10% in the log transformation model. However, the Tobit model did not confirm this result. This association may be due to signalling theory which states that selection of a Big4 auditing company represents a signal to the market for the effectiveness of the auditing process and adds more confidence about the disclosed information. Therefore, Egyptian listed companies audited by Big4 companies may use the unique presentation features of the Internet to signal this auditing type. Hence, H2.3 for CIR presentation will be accepted.

With respect to shares volatility, both bivariate analyses and Tobit model reveal a positive association with CIR presentation at significant levels 1% and 5% respectively. The log transformation model fails to find such a result. This finding implies that Egyptian listed companies with high shares volatility are more like to present information via the Internet than those with low volatility. Again, signalling theory can shed light on this relationship. Egyptian listed companies with high shares volatility may explain this volatility to their

investors as an indication of high performance resulting from high profit gained during this period. Therefore, Egyptian companies may use the different presentation tools of the Internet to disclose the required information that signals this high performance. Based on this finding, H2.4 for CIR presentation will be accepted.

As with the CIR content results, Egyptian listed companies that are not issuing shares are more likely to use the presentation tools for disclosing information on their websites. Bivariate analysis and only the log transformation model prove such a result at level 10% of significance. As mentioned before, this result can be explained by signalling theory. Egyptian listed companies that are issuing shares may want to disclose less information on their website to avoid any bad effects of competition in the Egyptian market. Disclosing information may threaten the current position of these companies in the market by which companies lose their stakeholders. Therefore, Egyptian listed companies which are issuing their shares prefer to reduce their usage of the Internet as a presentation tool. Consequently, H2.6 for CIR Presentation will be accepted.

9.3.2.3 Timeliness

Only two variables are related to CIR timeliness in both bivariate and multivariate analyses, namely, foreign listing and activity type. The study finds that financial Egyptian listed companies are more associated with CIR timeliness in both bivariate and multivariate analyses at significant level 1% and 5% respectively. The Diffusion of Innovation theory provides evidence for such a result. Most of the companies in the financial sector are securities companies which compete with each other in providing timely information to their stakeholders. In the same vein, the Internet is more likely to disseminate timely information than traditional disclosure means. Therefore, financial Egyptian listed companies are

motivated to adopt the Internet as a means to disclose timely information to their various stakeholders. This is consistent with relative advantage characteristics stated by Rogers (2003) as an indication of innovation adoption rates. In addition, adopting the Internet for timely disclosed information by financial listed companies may result from their following other companies in the same or different sectors. This is confirmed by DiMaggio and Powell (1983) as cited in Xiao et al. (2004) who mention that "mimetic perspective" is one of three perspectives affecting the adoption of new technology by companies. Mimetic perspective results from following the earlier companies that adopt the Internet as timely disclosed information. This result is consistent with Ezat and Elmasry (2008). Therefore, H2.1 for CIR timeliness will be accepted.

With respect to foreign listing variable, multivariate analysis confirms the results found in the bivariate analysis at significant level 1% in log transformation model and at level 5% in Tobit model. This indicates that Egyptian listing companies disclose more timely information on their websites than domestic listing companies. Again, diffusion of innovation theory can be used to explain this finding. Egyptian companies listing in the international market should comply with International Accounting Standards or with the accounting standards of the foreign countries in which they are listed. Such a listing puts more pressure on the Egyptian companies resulting from the forced selection of adopting the Internet for providing timely disclosed information. Therefore, foreign Egyptian listed companies adopt the Internet to disclose timely information to comply with the other companies in the international market and to respond to the pressure from various international stakeholders. Consequently, H2.2 for CIR timeliness will be accepted.

Bivariate analysis reveals that audit type, shares activity, shares volatility and shares issuance are associated with CIR timeliness, while multivariate analysis shows this association insignificantly. Hence, H2.3, H2.4, H2.5 and H2.6 for CIR timeliness will be rejected.

9.3.2.4 Usability

As indicated in table 9-4, only activity type, foreign listing and shares volatility are associated significantly with CIR usability in both bivariate and multivariate analyses. Financial Egyptian companies are more associated with CIR usability at significant level 1% and 5% for both bivariate and multivariate analyses respectively. TAM can be used as an explanation for this relationship. As mentioned before, most of the companies in the financial sector are securities companies which seek to provide their stakeholders with the required information which helps them to make rational investment decisions. Traditional tools of disclosure do not help in fulfilling this aim. As the Internet has unique usability features represented in easing accessibility to the required data and searching for the desired information, financial Egyptian listed companies may benefit from these features by disclosing more information to various stakeholders. Therefore, adopting the Internet as a disclosure tool fulfils the perceived usefulness to the disclosed companies by satisfying their stakeholders' needs, and at the same time does not require additional effort – like a traditional disclosure tool would – which fulfils the perceived ease of use. Consequently, H2.1 for CIR usability will be approved.

Moreover, bivariate analysis reports a significant relationship between foreign listing and CIR usability at level 1%. Multivariate analysis confirms this relationship at level 1% in the log transformation model and at 5% in the Tobit model. This implies that Egyptian companies with cross listings disclose more usability information on their websites. This finding can be attributed to TAM. Egyptian companies which list internationally should

respond to the various needs of international stakeholders otherwise they will lose their competitive position in the international market. One of these needs is the ability to obtain the companies' information. Due to the widespread desperation of international stakeholders, traditional disclosure tools do not support the conveyance of this information to international stakeholders. Therefore, Egyptian companies may use the Internet as a complementary disclosure tool to satisfy the various needs of international stakeholders. By doing this, Egyptian companies can introduce themselves to the international market which increases the perceived usefulness of these companies. This result is consistent with Bollen et al. (2006) who find a significant association between foreign listing and CIR over six countries. Accordingly, H2.2 will be accepted.

Shares volatility has been found to have a significant association with CIR usability in both bivariate analysis and the log transformation model at level 5% and with the Tobit model at level 1%. This reveals that Egyptian listed companies with high shares volatility disclose more usability information on their website. Signalling theory can support such a result. Egyptian listed companies with high shares volatility may want to signal the reasons for this volatility to avoid the bad impact of hiding valuable information. This may make these companies use the Internet to benefit from its usability features in providing the required information to their users. Therefore, Egyptian listed companies with high shares volatility may be more interested than other companies with low shares volatility in the usability tools of the Internet to ensure that their stakeholders can access the right information easily. Based on such a finding, H2.4 for CIR usability will be approved.

None of audit type, shares activity and shares issuance is associated with CIR usability in multivariate analysis. However, bivariate analysis finds a significant association at level 1%

for shares activity, shares issuance and audit type. Therefore, H2.3, H2.5 and H2.6 for CIR usability will be rejected in the current study.

Based on the above results, the study provides evidence for the association between the market related category and the components of CIR which leads to accept H2 for CIR components and answers the fourth sub-question SRQ2.4.

9.3.3 Ownership structure variables

This section tests the relationship between ownership structure variables in the study and the components of CIR. The findings of these relationships are summarised in Table 9-5.

Table 9-5: The results of association between ownership structure variables and CIR components

Variables	Content				Presentation				Timeliness				Usability			
	B		M		B		M		B		M		B		M	
	P	N	L	T	P	N	L	T	P	N	L	T	P	N	L	T
Block holder Ownership	(***)	(***)	(**)	(**)	***	***			***	***			***	***		
Managerial Ownership			**	**											***	**
Governmental Ownership		***	(***)	(***)		***	(***)	(***)		***	(***)	(***)		***	(***)	(***)
Institutional Ownership			(***)	(***)			(**)				(***)	(***)				

Note: *** significant at 1%, ** significant at 5%, * significant at 10%. B= bivariate, M= multivariate, P= parametric, N= non parametric, L= log transformation model, T= Tobit model.

As seen from Table 9-5, only one variable, namely governmental ownership, has a significant association with all the components of CIR in both bivariate and multivariate analyses, while the other variables are associated with some of the CIR components. The associations with each of the CIR components will be discussed in detail as follows:

9.3.3.1 Content

Bivariate analysis indicates that both block holder ownership and governmental ownership are associated significantly at level 1% with CIR content. Multivariate analysis confirms these results at the same significant level for governmental ownership, and at level 5% for block holder ownership. Concerning block holder ownership, the results reveal that Egyptian listed companies with low block holder ownership disclose more content information via the Internet. This finding is in line with the agency theory which assumes that a greater concentration of companies disclose less information due to the increased number of shareholders who have stakes in the companies in order to perform a monitoring role on the management actions. Therefore, those shareholders can obtain the required information internally without the need for using any disclosure tools. Based on this explanation, Egyptian listed companies that have a large percentage of shareholders who own 5% of the companies' shares or more disclose less content information on their website. This result is consistent with Kelton and Yang (2008) who finds that CIR content is associated negatively with US companies' block holders. Therefore, H3.1 for CIR content will be accepted.

Regarding governmental ownership, both bivariate and multivariate analyses present the same associated relationship with CIR content at the same significant level 1%. The findings demonstrate that Egyptian listed companies with a large proportion of governmental ownership disclose less content information on their websites. Political costs theory provides evidence for supporting the obtained result. It is assumed that in developing countries such as Egypt, listed companies with a large proportion of governmental ownership may disclose less content information on their website due to the affiliation represented in their need to protect the government owners. This negative association between governmental ownership and CIR content is confirmed by Xaio et al., (2004). Hence, H3.3 for CIR content will be approved.

Multivariate analysis indicates that managerial ownership associates significantly with CIR content at level 5%. Such a finding implies that Egyptian listed companies with a high proportion of managerial ownership increase their disclosure of information content on the website. According to stewardship theory, management of the Egyptian listed companies with a large managerial ownership structure monitor the interests of the shareholders due to the convergence of interests between them. This drives management to increase the level of information content disclosed on the companies' websites. Consequently, H3.2 will be approved.

Regarding institutional ownership, again multivariate analysis only reveals a significant association with CIR content at level 1%. Egyptian listed companies with a low percentage of institutional ownership disclose more content information on their websites. This negative association can be attributed to information costs theory. A low proportion of institutional investor ownership may be represented by a small number of members on the companies' board of directors. Those small number of institutional investor representatives may have limited opportunities to access their required information. Therefore, Egyptian listed companies with a low percentage of institutional investor ownership may tend to increase their level of information content disclosed via the Internet to increase their benefit from enhancing their investor relationships. This result is consistent with Sriram and Laksmena (2006). Such a result leads to accept H3.4 for CIR content.

9.3.3.2 Presentation

Similar to content, governmental ownership is associated negatively with CIR presentation in both bivariate and multivariate analyses at significant level 1%. Egyptian listed companies with large governmental ownership are less likely to use the Internet as a presentation tool.

This finding can be attributed to information costs theory. The required information may be available internally to a large number of government shareholders. Therefore, there is no need to incur additional cost by using the presentation tools of the Internet to disclose information already available to those shareholders. Based on this argument, Egyptian listed companies with a large percentage of governmental ownership are disclosing less presentation information via the Internet. Although Xaio et al. (2004) report the same direction of the current study's result for the Chinese companies, they find this relationship to be insignificant. Therefore, H3.3 for CIR presentation will be accepted.

In addition, only multivariate analysis –namely log transformation model- has been found to demonstrate a significant association between institutional ownership and CIR presentation at significant level 5%. This indicates that Egyptian listed companies with a high proportion of institutional ownership are less likely to use the Internet as a presentation tool to disclose the required information. Again, information costs theory can provide justification for such a result. Representatives of the large institutional ownership structure on the board of directors of the Egyptian listed companies already have the ability to obtain their required information. Therefore, the required information will be available without any need to incur additional costs resulting from using the presentation tools of the Internet to disclose this information on the companies' website. Accordingly, H3.4 for CIR presentation will be approved.

Managerial ownership has an insignificant association with the presentation of CIR in both bivariate and multivariate analyses. This result is consistent with Kelton and Yang (2008) who find that managerial ownership of the US companies has no impact on CIR presentation. In addition, block holder ownership also has a similar insignificant influence on CIR presentation in only multivariate analysis. However, bivariate analysis shows a significant

negative association with CIR presentation at level 1%. Therefore, H3.1 and H3.2 for CIR presentation will be rejected in the current study.

9.3.3.3 Timeliness

Governmental ownership is associated with CIR timeliness in both bivariate and multivariate analyses at significant level 1%. The findings show that Egyptian listed companies with a high proportion of governmental ownership are less associated with CIR timeliness. This result can be explained due to diffusion of innovation theory. As mentioned before, companies may adopt any innovation based on some characteristics. One of these characteristics is the relative advantages from adopting this innovation. As the Egyptian listed companies with a high percentage of governmental ownership already have the required information internally, disclosing timely information on their websites may not add any advantage to them. Therefore, these companies choose to disclose less timely information on their websites. Another explanation for the negative association can be derived from the opposite view of forced selection. Governments that own large stakes in these companies may force their management not to disclose timely information on their websites to avoid the conflict that may happen from this disclosure with their interests. Consequently, it can be stated that H3.3 for CIR timeliness will be accepted.

With respect to institutional ownership, multivariate analysis provides evidence for the significant association with CIR timeliness at level 1%. Based on this finding, it can be stated that Egyptian listed companies with a high percentage of institutional ownership are less likely to disclose timely information on their website. Diffusion of Innovation theory may provide an explanation for this finding. If the Egyptian listed companies have a high proportion of institutional ownership, this will lead to an increase in the number of their

representatives on the board of directors and vice versa. Those representatives have the authority to access the companies' information and obtain whatever they want without any restrictions. Therefore, they may have an influence on the decision of disclosing timely information on the companies' websites as they prefer to obtain this information internally. In this case, the relative advantages of Egyptian listed companies will be decreased. Hence, H3.4 for CIR timeliness will be approved.

According to managerial ownership, the current study fails to find a significant association with CIR timeliness in both bivariate and multivariate analyses. This finding is supported by Abdel-Salam et al. (2007), and Abdel-Salam and El-Masrey (2008) who find that managerial ownership has no effect on CIR timeliness in both UK and Ireland respectively. Further, the current study reveals that block holder ownership has associated insignificantly with CIR timeliness in only the multivariate analysis. This result is similar to that of Abdel-Salam et al. (2007), and Abdel-Salam and Street (2007). Therefore, H3.1 and H3.2 for CIR timeliness will be rejected in the current study.

9.3.3.4 Usability

As with all the previous components of CIR, governmental ownership is associated with CIR usability at significant level 1%. This demonstrates that Egyptian listed companies with large governmental ownership structure are less likely to be associated with CIR usability. This result can be explained by TAM. As information is already available to a large number of governmental shareholders, there is no need to use the usability tools of the Internet to access this information. Therefore, the perceived usefulness for these companies will decrease when disclosing more usability information on their websites. Based on this argument, it can be stated that when Egyptian companies have a large governmental ownership structure, the

perceived usefulness of these companies from using the usability tools of the Internet to disclose more accessible information will decrease. Hence, H3.3 for CIR usability will be approved.

Concerning managerial ownership, multivariate analysis shows a significant relationship with CIR usability at level 1% in the log transformation model and at level 5% in the Tobit model. Accordingly, Egyptian listed companies with a high proportion of managerial ownership are more associated with CIR usability. Management in the Egyptian listed companies may need to make a trade on their shares. As such, they may use the Internet to benefit from its usability tools in disclosing the required information that attract investors and increases the liquidity of these companies which in turn is reflected in the shares prices and lets the management make a trade at high price levels. The management use the Internet due to its ease of use and its ability to spread the required information instantly. In addition, the perceived usefulness for the companies increases by disclosing such information on the companies' websites by using usability tools, as the management can trade at high share prices and hence increase the companies' profit and performance. Consequently, based on TAM, Egyptian listed companies with a high managerial ownership structure may have the motivation to use the usability tools of the Internet to disclose their required information to various stakeholders. Accordingly, H3.2 for CIR usability will be accepted.

With respect to block holder ownership, the study demonstrates an insignificant association with CIR usability in only the multivariate analysis. This can be confirmed by Bollen et al. (2006) and Abdel-Salam et al. (2007). Similarly, the current study fails to introduce evidence for any significant association between institutional ownership and CIR usability in both bivariate and multivariate analyses; this result is consistent with Al-Motrafi (2008). Therefore, H3.1 and H3.4 for CIR usability will be rejected in the current study.

As seen from the above discussion, ownership structure variables have an impact on the components of CIR which leads to accept H3 for CIR components and answers the sixth sub-question SRQ2.6.

9.3.4 Corporate governance variables

Five variables are used to examine the relationship between corporate governance and the components of CIR. Table 9-6 summarises the findings of these variables.

Table 9-6: The results of the association between corporate governance variables and CIR components

Variables	Content				Presentation				Timeliness				Usability			
	B		M		B		M		B		M		B		M	
	P	N	L	T	P	N	L	T	P	N	L	T	P	N	L	T
Board Size	***	***		*	***	***			***	***			***	***	**	**
Non-executive directors	***	**			***	***			***	***			***	**		
Role Duality	**	**			**	**			*				**	**		
Family Members			**				*				***	**				
Foreign Members	***	*			***	***			***	**			***	**		

Note: *** significant at 1%, ** significant at 5%, * significant at 10%. B= bivariate, M= multivariate, P= parametric, N= non parametric, L= log transformation model, T= Tobit model.

As indicated from Table 9-6, only board size and the existence of family member variables are associated significantly with the components of CIR in multivariate analysis. The findings of the associations between corporate governance variables and CIR components are discussed in detail as follows:

9.3.4.1 Content

Mixed results have been found between bivariate and multivariate analyses. Regarding board size variable, both bivariate analysis and the Tobit model indicate a significant association

with CIR content at level 1% and 10% respectively. This implies that Egyptian listed companies with large number of board of directors' members disclose more content information on their websites. This finding may attribute to agency theory which assumes that increasing the level of disclosure mitigates the conflict occurring between management and shareholders. Therefore, Egyptian listed companies with a large number of board of directors members may tend to disclose more content information via the Internet to reduce the agency costs that arise from the information asymmetry between management and shareholders. Based on this finding, H4.1 for CIR content will be accepted.

Regarding the family members, only the log transformation model demonstrates a significant association with CIR content at confidence level 95%. This implies that Egyptian listed companies with family members on their board are more likely to disclose content information on their website than those with no family members. This result can be explained by stakeholder theory. Stakeholders of the Egyptian listed companies that have family members may be suspicious of the accounting earnings of these companies due to the possible manipulation within them. Consequently, Egyptian listed companies may disclose various types of information content via the Internet to their stakeholders to mitigate the bad effects of their incorrect view. Accordingly, H4.3 for CIR content will be accepted.

Although bivariate analysis finds a significant association between CIR content and non-executive directors, role duality and foreign members' variables, multivariate analysis has not. Some previous studies support these findings. Xiao et al. (2004) report that non-executive directors of Chinese companies have no impact on CIR content. Further, Abdel-Salam et al. (2007), Kelton and Yang (2008), and Al-Motrafi (2008) show an insignificant association between role duality and CIR content. Such a result implies that H4.2, H4.3 and H4.5 will be rejected in the current study.

9.3.4.2 Presentation

Only the existence of family members is associated significantly with CIR presentation in the multivariate analysis at level 10%. According to the log transformation model, Egyptian listed companies with family members tend to use the Internet as a presentation tool to disclose their information. The Tobit model did not confirm this result. This finding can be explained by political cost theory. Egyptian listed companies with family members are in the public eye due to the fraud that could be happen in these companies. Therefore, these companies should enhance their communication with society and legitimise themselves by using the presentation tools of the Internet in disclosing more information to their various stakeholders. Hence, H4.4 for CIR presentation will be accepted.

In addition, bivariate analysis indicates that CIR presentation associates significantly at level 1% with board size, nonexecutive directors and foreign members and at level 5% with role duality. Multivariate analysis shows these associations insignificantly. Kelton and Yang (2008) find an insignificant relationship between role duality and CIR presentation of US companies. Therefore, H4.1, H4.2, H4.3 and H4.5 for CIR presentation will be rejected.

9.3.4.3 Timeliness

Again, multivariate analysis indicates that the family members on the company's board of directors associate significantly with CIR timeliness at level 1% and 5% in the log transformation and Tobit models respectively. This reveals that Egyptian listed companies with family members increase their level of timely information via the Internet more than those companies with no family members. Such a result can be justified by diffusion of innovation theory. Egyptian listed companies with family members may be overloaded by impeded costs such as litigation costs resulting from possible lawyers' fees and reputation

costs resulted from holding bad news, which will affect negatively on companies. As investors dislike to be surprised by these negative events, Egyptian listed companies tend to adopt the Internet for disclosing timely information on their website to increase their relative advantages resulting from the mitigation of these bad effects. Consequently, H4.4 for CIR timeliness will be approved.

On the other hand, bivariate analysis reports a significant association between CIR timeliness and board size, non executive directors, role duality and foreign members at different significant levels. None of these variables has an effect on CIR timeliness in a multivariate analysis. Abdel-Salam et al. (2007) provide empirical evidence that non-executive directors are associated insignificantly with CIR timeliness. Moreover, Abdel-Salam and Street (2007), and Abdel-Salam and El-Masry (2008) prove that role duality in the Irish companies has no influence on CIR timeliness. Such a result leads to reject H4.1, H4.2, H4.3 and H4.5 for CIR timeliness.

9.3.4.4 Usability

According to board size, bivariate analysis shows a positive association with CIR usability at significant level 1%. Multivariate analysis confirms this result at significant level 5%. Such a result reveals that Egyptian listed companies with large a number of members on their board of directors are associated more with CIR usability. TAM provides evidence for supporting this result. A large number of board of directors' members in Egyptian listed companies increases the diversity in experience between members which influences the critical decisions of the companies and the rational usage of their resources. One of the major critical decisions that may be encountered by the companies is the disclosure of various types of information via the Internet to different stakeholders. Internet by its unique features can ease the

accessibility to this information for those stakeholders. Therefore, using the Internet as a dissemination tool with its usability features represents one of the easiest disclosure tools for companies' boards of directors. At the same time, disclosing more information via the website of the companies enables boards of directors to reduce the conflict between management and their shareholders which, in turn, increases the perceived usefulness of these companies. In this regard, Pinsker (2008) mentions that managers should adopt information technology (e.g. the Internet) to provide compliance with reporting requirements as well as using its ability to fulfil investors' needs for information. Accordingly, H4.1 for CIR usability will be approved.

While bivariate analysis reveals that CIR usability associates significantly at different levels with non-executive directors, role duality and foreign members, multivariate analysis reveals insignificant associations. Abdel-Salam et al. (2007) provide evidence for supporting non-executive directors and role duality variables. They find these variables associate insignificantly with CIR usability in the UK. Both bivariate and multivariate analyses for the current study fail to find any significant association between the existence of family members on the board and CIR usability. Therefore, H4.2, H4.3, H4.4 and H4.5 for CIR usability will be rejected in the current study.

Based on the above findings, it can be seen that some variables of the corporate governance category are associated with some of the CIR components either in bivariate, multivariate or in both analyses which clearly leads to accept H4 for CIR components and answers the eighth sub-question SRQ2.8.

9.4 Summary

This chapter indicates that the current study provides empirical evidence testing either previous empirical, theoretical or both fields on the association between each component of the CIR and firm characteristics, market related, ownership structure and corporate governance variables in the Egyptian context. These findings add more confidence to the association between CIR and its determinants and also justify the reasons for choosing such a topic.

Therefore, the classification of CIR into its main components can support proving or disproving the hypotheses formulated in chapter six. Further, it can help in answering the second research question and its sub questions of the current study.

The results demonstrate that the determinants of CIR vary among its components. Each of the CIR components has been examined against various groups of variables to clarify the association between them. The findings show that there is a significant association between CIR components and their explanatory variables either in bivariate only, multivariate only or in both analyses at different level of significance. Such findings demonstrate the need to analyse CIR based on its main components. Appendix 26 summarises the findings of multivariate analysis for the relationship between CIR components and their determinants in addition to the theories that are consistent with these results in the current study.

To examine the value of the current conducted research, the economic consequence of CIR that might possibly happen in the Egyptian context should be determined. The next chapter discusses the expected impact of CIR and its components on one of the less examined consequences, namely company value.

CHAPTER 10 THE CONSEQUENCE OF CORPORATE INTERNET REPORTING ON THE EGYPTIAN LISTED FIRM'S VALUE

10.1 Introduction

The Internet with its unique features enables companies to disclose more information to a wide range of stakeholders. Many advantages can be obtained from CIR. However, these advantages should be compared with the costs incurred due to CIR. According to FASB (2000) information is represented as useful when it becomes relevant to the decision to be made and to achieve this relevance it should be provided in a timely way. Consequently, CIR represents one of the disclosure media that aims to provide useful information to various stakeholders by dissemination timely information. Disclosing such information may attract more investors to hold the shares of these companies which may increase the liquidity of these shares and hence their performance and value.

In addition, disclosing more information via the website of the companies can mitigate the bad effects of information asymmetry which are derived from the separation of management and shareholders. By disclosing more information via the Internet, investors can re-evaluate the value of companies' shares and can make rational decisions about their future investment. Therefore, all investors can access the website of the companies and obtain the required information instantaneously which reduces information asymmetry and increases the value of the companies.

On the other hand, different types of costs result from disclosing information via the companies' websites. Among these costs are: web design costs, infrastructure costs, maintenance costs and the hidden competitive advantages costs. Companies should carefully weigh the advantages and benefits of CIR and its costs. When CIR benefits exceed their costs

and fulfil their expected usefulness, this will be justification for companies to adopt the Internet as a disclosure medium.

Many previous studies have discussed the need for increasing companies' disclosure to obtain more benefits through the cost benefit approach. One of the most investigated issues is the effect of disclosure on companies' cost of capital. It has been assumed that disclosure has a negative impact on companies' cost of capital. Disclosing more information can decrease the adverse selection problem which in turn lowers the cost of companies' capital (Diamond and Verrechia, 1991).

Moreover, disclosing more information can help the investors to gain valuable information about the invested companies which has not been available before. This information may increase their investment in these companies which in turn leads to an increase in companies' stock liquidity. Increasing stock liquidity reduces the cost of capital by lowering transaction costs and increases the demand of companies' shares (Glosten and Milgrom, 1985; Amihud and Mendelson, 1986; Diamond and Verrecchia, 1991).

Based on the above arguments, it can be assumed that companies benefit from either decreasing their cost of capital or increasing the cash flow accruing to their shareholders. Both sides lead to an increase in the firm's value.

As seen before, the current study concludes that there are key factors affecting the CIR by Egyptian listed companies and its components. These factors explain why some Egyptian companies tend to disclose information via their websites, while others do not. However, this is not enough to justify the using of CIR in the Egyptian context as one can debate the usefulness of applying CIR in the Egyptian context. Or in other words, wonder if the Egyptian listed companies will benefit from disclosing information via their websites which

may put them in better competitive position than those companies which are not using the Internet as a disclosure medium.

Consequently, this chapter aims to examine whether CIR has any economic consequence, or not, to justify its usage by the Egyptian listed companies. This economic consequence can be achieved by investigating the impact of CIR total and its components on firm's value. By doing this, the third research question will be answered.

To achieve this aim, the chapter will be organised as follows: section 10.2 reviews the prior studies that examine the economic consequence of CIR. Then, section 10.3 outlines the theories that explain the relationship between CIR and company value in addition to the hypothesis that justifies such a relationship. The model that is employed to propose the relationship between CIR and firm value is presented in section 10.4. Sections 10.5 and 10.6 indicate both bivariate and multivariate analyses that are used to test the relationship between CIR and firm value empirically. The chapter ends with the summary in section 10.7.

10.2 Prior studies

Many previous studies have investigated the economic consequences of corporate disclosure. These studies are different in their economic consequences proxies and types of disclosure.

Among the economic consequences proxies that are used in previous studies are: market beta (Garsombke, 1979; Firth, 1984; Clarkson and Thompson, 1990; Clarkson and Satterly, 1997; Lam and Du, 2004; Hassan, 2006), stock returns (Healy et al., 1999; Bloomfield and Wilks, 2000; Lundholm and Myers, 2002; Lo, 2003; Bushee and Leuz, 2005), the number of analysts (Lang and Lundholm, 1996; Francis et al., 1997; Bushee and Noe, 2000), cost of equity capital (Botosan, 1997; Richardson and Welker, 2001; Botosan and Plumlee, 2002;

Hail, 2002), cost of dept capital (Sengupta, 1998; Wang et al., 2008) and firm value (Baek et al., 2004; Hassan, 2006).

However, few studies have examined the consequence of CIR. Lai et al. (2007) examine whether the information extended by IFR has a significant effect on the stock prices of the Taiwan listed companies. After collecting data for 206 companies, the study demonstrates that the disclosure of financial information on the Internet by companies is more likely to increase their stock prices than those companies without IFR. Further, the study uses multivariate regression analysis to test the expected impact of IFR on the abnormal return of the stocks. The findings reveal that IFR has a significant positive influence on the abnormal return of stock prices.

By conducting a survey on five different countries for different companies from 1991 to 1997, Hunter and Smith (2007) examine the consequence of using CIR. By using bivariate analysis, the findings reveal that the market performance of securities listed on emerging market stock exchanges is higher in the post-event period following the commercialisation of the Internet, in terms of India, Indonesia and South Africa. In addition, the study provides evidence for the positive response of the market (through the positive abnormal returns) to the companies in the emerging market that tend to announce the launching of a website.

A careful review of the empirical studies that investigate the consequences of the disclosure indicates that there is a lack in examining the consequence of CIR. Most of the previous studies examine the consequences of either mandatory or voluntary disclosure, while the consequence of CIR is still needs further investigation. Therefore, the current study seeks to fill the gap in the consequence of CIR by testing the impact of CIR and its components on the

Egyptian listed firms' value. Next section discusses theoretically the relationship between CIR and firm value and the hypothesis by which this relationship can be tested.

10.3 CIR and firm value - theoretical based and hypothesis formulation

The relationship between firm value and disclosure can be explained basically by finance theory. It was assumed under this theory that disclosing more information can increase the value of disclosed companies either by decreasing the cost of capital, or increasing the cash flow that accrues for shareholders or both (Hassan, 2006).

According to agency theory, it was assumed that there is a major conflict between management and shareholders. Many problems occur as a result of this conflict such as information asymmetry and agency costs. One way to mitigate the bad effects of these problems is by disclosing more information. Disclosing more information via the Internet can reduce the uncertainty surrounding future firms' performance and their value (Hassan, 2006; Hunter and Smith, 2007).

Regarding signalling theory, companies that operate in a highly volatile market – such as the emerging market – may distinguish themselves by investing in Internet technology (Hunter and Smith, 2007). Brown and Warner (1980) demonstrate that positive abnormal returns represent a signal for a response to the good news of the economic event which affects the firm's value. Poon et al. (2003) mention that IFR is a method for marketing companies to their stakeholders. Therefore, it can be expected that disclosing more information on the Egyptian listed companies via their websites will attract more investors, and hence increase their cash flow which increases, in turn, the firms' value.

Concerning the diffusion of innovation theory, companies adopt the Internet due to its unique characteristics. These characteristics, summarised into diversity, interactivity, timely, unlimited access and ease of use, have made the Internet an effective reporting medium by which the companies' performance information can reach all the companies' stakeholders (Verity, 1994; Lia et al., 2007). Adopting the Internet as a disclosure medium can fulfil relative advantages for companies by attracting more stakeholders and increasing their accrued cash flow from one side and reduce their cost of capital from the other side which in turn increases the firms' value. Therefore, adopting the Internet as a disclosure tool is consistent with the companies' needs and fulfils the compatibility characteristic of adoption of an innovation.

As mentioned before, the empirical results of the economic consequences of disclosure are inconclusive. Some prior studies report a positive association between disclosure and firm value (Baek et al., 2004). However, Hassan et al. (2006) find mixed results. They mention that mandatory disclosure has a negative significant impact on firm value, while on the other hand voluntary disclosure has a positive insignificant association. When both types of disclosure are considered together in the model, both of them have a negative significant impact on firm value. Similarly, Botosan and Plumlee (2002) indicate that cost of capital is influenced by the type of disclosure. They find positive, negative and insignificant associations between the cost of capital and various types of disclosure.

Based on the above arguments, one question can be raised. Is there any impact of CIR and its components on the Egyptian listed firms' value? Consequently, it can be seen that the relationship between CIR and firm value neither has any considerable attention from prior studies nor has a definite result. Therefore, the current study aims to test the consequence of CIR on firm value in the Egyptian context. To the best of the author knowledge no previous

study examines the consequence of CIR and its components on firm value. According to the theoretical framework that explains the relationship between CIR and firm value, it can be hypothesised that:

H5: CIR and its components (total, content, presentation, timeliness and usability) of Egyptian listed companies associates positively with firm value.

To test these hypotheses, a suitable model will be constructed. The next section discusses the model that used in examining the relationship between firm value and CIR.

10.4 The models examining the relationship between firm value and CIR total

The association between firm value and CIR total will be investigated by both bivariate and multivariate analyses. Two models are run considering two measures of firm value.

Firm value can be measured by Tobin's Q ratio or by market-to-book equity ratio. The reason for used two measures is due to the non-agreement between the researchers about the proxy of measuring firm value, as each proxy has its unique advantages and drawbacks (Cochran and Wood, 1984), in addition to checking the robustness of the results as well (Haniffa and Hudaib, 2006).

The first proxy of firm value is Tobin's Q ratio. Tobin's Q ratio is defined by Lewellen and Badrinath (1997, pp.77-78) as "the ratio of the market value of the outstanding financial claims on the firm to the current replacement cost of the firm's assets". This ratio demonstrates the potential of added value to the shareholders. If the ratio exceeds "1" it indicates that the value of the company exceeds its assets' replacement costs and hence, the perceived value by shareholders will increase due to the effective usage of company's resources and vice a versa.

For calculating Tobin's Q ratio in the current study, the following equation will be used:

$$Q = \frac{MVE + DEBT}{BVT}$$

Where:

Q: Tobin's Q ratio.

MVE: the market value of the equity (the number of outstanding shares at the end of 2007 times the shares' closing price for the same period).

DEBT: the book value of total debt (book value of total assets less the book value of equity).

BVT: the book value of total assets.

This equation should carefully consider a calculation for Tobin's Q ratio for two reasons: first, in the numerator, the preference shares are dropped from the equation as they are rarely issued by Egyptian listed companies. Second, in the denominator, the current study follows many prior studies that use the book value of the total assets rather than the replacement cost of these assets due to the unavailability of assets' replacement costs data in the Egyptian context and also that its calculation may include measurements biases (Chung and Pruitt, 1994; Lang et al., 2003; Lins, 2003; Haniffa and Hudaib, 2006; Hassan, 2006).

As a robustness check for the results, firm value will be measured by another proxy namely, market to book equity values ratio (Hassan et al., 2006). The descriptive statistics for both measures are presented in Table 10-1.

Table 10-1: Descriptive statistics for firm value measures

Measures	Minimum	Maximum	Mean	S.D.
Tobin's Q	.19	9.08	1.4212	1.11347
M/B ratio	.07	40.83	1.8870	2.89353

Note: M/B ratio = Market to Book equity values

As seen from Table 10-1, the mean of both company values proxies exceed 1 which implies that on average the resources of the Egyptian listed companies are used effectively. In addition, Table 10-2 presents the comparison between companies that have websites and those that do not for both models using T and Mann-Whitney tests.

Table 10-2: The Variance test of models with and without CIR

Companies	Model 1				Model 2			
	T-test		Mann-Whitney		T-Test		Mann-Whitney	
	Mean	T Value	Mean Rank	Z Value	Mean	T Value	Mean Rank	Z Value
Having CIR	1.427	1.218	178.68	-1.31*	2.171	1.98**	180.64	-1.66**
Without CIR	1.291		164.63		1.573		162.66	

Note: Model 1= company value measured by Tobin's Q ratio, Model 2= company value measured by market to book equity value

As shown in Table 10-2, on average, Egyptian listed companies that have CIR have increased value than companies without CIR. Both mean and mean rank in the T and Mann-Whitney tests for companies with CIR are greater than those which have not. While this difference is significant at level 5% in both parametric and nonparametric tests for model 2, only the non parametric test in model 1 shows this significance. Such a result implies that, by using univiaraite analysis, Egyptian listed companies that disclosed information on their websites are on average in a better position due to their increased value than those companies without CIR.

A number of control variables examined in the previous empirical studies will be used to explain firm value. These variables are: company size, profitability for company characteristics group, foreign listing for market-related group, block holder ownership for ownership structure group, board of directors' size and role duality for the corporate

governance group. All these variables are measured by the same proxies that used in chapter six.

Consequently, two models are used to test the relationship between firm value and CIR total:

$$\mathbf{Q}\ c = \alpha + \beta_1\ \text{CIR}\ c + \beta_2 \text{Size}\ c + \beta_3 \text{ROE}\ c + \beta_4 \text{F List}\ c + \beta_5 \text{B Holder}\ c + \beta_6 \text{B Size}\ c + \beta_7 \text{R Dual}\ c + \varepsilon\ c. \quad (1)$$

$$\mathbf{M/B}\ c = \alpha + \beta_1\ \text{CIR}\ c + \beta_2 \text{Size}\ c + \beta_3 \text{ROE}\ c + \beta_4 \text{F List}\ c + \beta_5 \text{B Holder}\ c + \beta_6 \text{B Size}\ c + \beta_7 \text{R Dual}\ c + \varepsilon\ c. \quad (2)$$

Where:

α: Intercept.

c: company identifier.

Q: Tobin's Q ratio.

M/B: Market to Book equity values.

CIR: Total index of corporate Internet reporting

Size: Company size.

ROE: Profitability

F List: Foreign listing.

B Holder: Block holder ownership.

B Size: Board size.

R dual: Role duality.

The operationalisation of both the dependent and independent variables are summarised in appendix 27.

To test the impact of CIR total on firm value, both bivariate and multivariate analyses are used. The next section discusses both analyses.

10.5 Bivariate analysis

The relationship between firm value and each independent variable can be tested by both parametric and non parametric tests. Table 10-3 summarises the relationship between firm value measured by both Tobin's Q ratio and market-to-book equity value and the continuous independent variables.

Table 10-3: Bivariate analysis between firm value and continuous variables

Variables	Pearson		Spearman	
	Model 1	Model 2	Model 1	Model 2
CIR	.153***	.194***	.144***	.161***
Size	.472***	.414***	.602***	.623***
Profitability	.157***	.180***	.142***	.106**
Block Holder	-.114**	-.093**	-.228***	-.244***
Board Size	.096**	.079*	.114**	.144***

Note: *** significant at 1%, ** significant at 5%, * significant at 10%. Model 1= company value measured by Tobin's Q ratio, Model 2= company value measured by market to book equity value.

As indicated from Table 10-3, both parametric and non parametric tests show similar results to a large extent in both models. CIR total is correlated positively with firm value either measured by Tobin's Q or by market-to-book ratios at confidence level 99% in both the Pearson and Spearman tests. All the control variables show the same positive correlation in both models but at different significant levels; however, block holder ownership is correlated negatively with company value.

To determine the relationship between firm value and the dummy variables, two tests are run: T-test as the parametric test and Mann-Whitney as the non parametric test. Table 10-4 summarises the results of both tests for both firm values models.

Table 10-4: Bivariate analysis between firm value and dummy variables

Variables	T-Test				Mann-Whitney Test			
	Model 1		Model 2		Model 1		Model 2	
	Mean	T. value	Mean	T. value	M. Rank	Z value	M. Rank	Z value
Foreign Listing								
Yes No	1.653 1.355	2.146*	2.618 1.867	1.659*	255.89 169.74	-2.572***	257.11 169.71	-2.609***
Role Duality								
Yes No	1.309 1.446	-1.246	1.804 2.018	-.711	163.75 185.02	-1.936*	163.84 184.89	-1.916**

Note: *** significant at 1%, ** significant at 5%, * significant at 10%. Model 1= firm value measured by Tobin's Q ratio, Model 2= firm value measured by market to book equity value. M. Rank= Mean Rank

As Table 10-4 shows, foreign listing is correlated positively with the firm value in both parametric and non parametric tests at significant level 10% and 1% respectively. On the other hand, role duality shows a negative correlation with firm value in non parametric tests only at significant level 10% in model 1 and 5% in model 2.

Following the same procedures as in chapter eight, multivariate analyses will be performed to demonstrate the influence of CIR total on firm value. The next section presents this point.

10.6 Multivariate analysis

As shown by bivariate analyses, CIR total has a positive impact on both measurements of firm value. To provide a more broad and accurate analysis for the impact of CIR total on firm value, multivariate analysis was performed to examine this impact within the usage of some control variables that might influence firm value. Two OLS models have been used to examine the relationship between CIR total and firm value. Assumptions for the two models

are met, except the linearity for some variables which will be transformed using the logs method[21]. Table 10-5 summarises the findings for both models.

Table 10-5: The results of the multivariate analysis for both models

Variables	Model 1			Model 2		
	Co. / T-V.	VIF	Toler.	Co. / T-V.	VIF	Toler.
CIR	.015 (1.710)*	1.019	.981	.031 (1.930)*	1.019	.981
Size	.169 (13.398)***	1.309	.764	.321 (14.231)***	1.309	.764
Profitability	.038 (3.718)***	1.027	.974	.027 (1.496)	1.027	.974
Foreign Listing	.238 (3.458)***	1.216	.822	.403 (3.271)***	1.216	.822
Block Holder ownership	-.141 (-3.290)***	1.139	.878	-.223 (-2.903)***	1.139	.878
Board Size	-.106 (-3.608)***	1.236	.809	-.137 (-2.616)***	1.236	.809
Role Duality	-.036 (-1.746)*	1.026	.974	-.061 (-1.635)	1.026	.974
Constant	-.319 (-4.251)***			-1.044 (-6.356)***		
F	31.946***			33.818***		
Adjusted R2	.388			.402		

Note: *** significant at 1%, ** significant at 5%, * significant at 10%. Model 1= company value measured by Tobin's Q ratio, Model 2= company value measured by market to book equity value.

As indicated in Table 10-5, there is no multicollinearity between all the independent variables as the values of VIF are lower than 5 and the values of tolerance are greater than 0.2[22]. Both models of company value show identical results to a large extent. The F significance demonstrates that the proposed independent variables explain a significant part of the firm value. The adjusted R^2 for both models are 38.8% and 40.2% respectively, which means that each proposed model accounts for 38.8% and 40.2% of the variation in firm value.

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[21] Appendices 28 and 29 show the normality and homoscedasticity assumptions for both models.

[22] The linearity assumption is checked as well for all variables and indicates that some variables such as profitability and board size are not linear, and hence they are transformed by using the log method.

Both models indicate that CIR total is associated positively with firm value at level 10%. Moreover, company size and foreign listing are positively related to firm value in both models at the same significant level 1%. In addition, both block holder ownership and board size show negative association with firm value at level 1% in both models. However, only model 1 shows significant association between profitability and role duality and firm value at level 1% and 10% respectively. Table 10-6 summarises the comparisons between bivariate and multivariate analyses for both models.

Table 10-6: The findings of the consequence of CIR models

Variables	Bivariate analysis				Multivariate analysis	
	Parametric tests		Non-Parametric tests		Model 1	Model 2
	Model 1	Model 2	Model 1	Model 2		
CIR	***	***	***	***	*	*
Size	***	***	***	***	***	***
Profitability	***	***	***	***	***	
Foreign listing	*	*	***	***	***	***
Block holder	**	**	***	***	(-)***	(-)***
Board size	**	*	**	***	(-)***	(-)***
Role duality			(-)*	(-)**	(-)*	

Note: *** significant at 1%, ** significant at 5%, * significant at 10%. Model 1= company value measured by Tobin's Q ratio, Model 2= company value measured by market to book equity value.

From Table 10-6, it can be seen that CIR total has a significant association with firm value in both bivariate and multivariate analyses for both models. CIR total has a positive impact on the firm value at significant level 1% in bivariate analysis and at 10% in multivariate analysis for both models. Such a result implies that Egyptian listed companies with high levels of CIR increase the value of these companies. This result can be attributed to diffusion of innovation and agency theories. Regarding diffusion of innovation theory, Egyptian listed companies may adopt the Internet as a disclosure medium to increase their value due to the relative advantages gained from such a usage and the compatibility achieved by using CIR. Egyptian listed companies can attract more investors by disseminating more information on their websites which increases the cash flow accrued to those investors, in addition to reducing the

companies' cost of capital. Increasing the accrued cash flow and decreasing the cost of capital leads directly to an increase in firm value.

According to agency theory, disclosing more information via the website of Egyptian listed companies may reduce information asymmetry resulting from the conflicts between management and shareholders, and consequently reduces the levels of uncertainty surrounding their value. This result is inconsistent with Hassan et al. (2006) who conclude that Egyptian listed companies with low levels of voluntary disclosure increase their value.

Based on the above results, H.5 for the significant association between CIR total and firm value will be accepted. This leads to drawing the conclusion about the importance of using the Internet as a disclosure medium by the Egyptian listed companies as it increases their value. Such a result should encourage companies that have not use CIR to follow their counterparts in the Egyptian market in order to not lose their competitive advantages in the market resulting from their failure to attract more investors and increase their value. Consequently, SRQ3.1 will be answered.

According to control variables, Size has a positive significant influence on firm value in bivariate and multivariate analyses for both models at the same significant level 1%. This is confirmed by Al-Khouri (2006) and Hassan et al. (2006). Further, models 1 and 2 have identical results in both bivariate and multivariate analyses for both foreign listing and block holder ownership variables. Haniffa and Hudaib (2006) show that ownership concentration as measured by the top five major shareholders is associated negatively with firm performance, as measured by Tobin's Q ratio.

The other variables show various results in bivariate and multivariate analyses for both models. Profitability is positively associated with firm value at level 1% in both bivariate and

multivariate analyses in model 1, while it associates positively in bivariate analysis only for model 2 at level 1%. This result is confirmed by Hassan et al. (2006). With respect to board size, bivariate analysis shows a positive relationship to firm value with different significant results. However, multivariate analysis presents a negative relationship for both models at level 1%. This result is consistent with Haniffa and Hudaib (2006). Finally, role duality indicates a negative association with firm value in non parametric tests only at level 10% and 5% for both models respectively, while it presents the same results for model 1 only at level 10% in the multivariate analysis. Rhoades et al. (2001) find that role duality has a negative impact on accounting returns.

In order to add more depth to the impact of CIR on firm value, the next section reveals the impact of CIR components on company value.

10.7 The consequence of CIR components on firm value

Examining the consequence of CIR components on firm value helps in determining the greatest component value to the Egyptian listed companies. Table 10-7 summarises the findings of the associations between the components of CIR and firm value either measured by Tobin's Q ratio or by M/B equity values in both bivariate and multivariate analyses.

Table 10-7: The consequence of CIR components

CIR Components	Model 1					Model 2				
	F	Adj. R^2	Bivariate		Multivariate (Cof./T. V.)	F	Adj. R^2	Bivariate		Multivariate (Cof./T. V.)
			P	N				P	N	
Content	31.9***	.388	.2***	.1***	.015 (1.77)*	33.9***	.402	.2***	.2***	.03 (2.02)**
Presentation	31.5***	.385	.2***	.1***	.01 (1.08)	34.2***	.404	.2***	.2***	.04 (2.29)**
Timeliness	31.6***	.385	.2***	.2***	.02 (1.21)	33.2***	.397	.2***	.2***	.03 (1.03)
Usability	31.9***	.388	.1**	.1**	.02 (1.76)*	34.4***	.406	.1***	.1**	.05 (2.48)**

Note: *** significant at 1%, ** significant at 5%, * significant at 10%. Model 1= company value measured by Tobin's Q ratio, Model 2= company value measured by market to book equity value.

As Table 10-7 shows, CIR content and usability are the only CIR components that are associated significantly with firm value either measured by Tobin's Q or M/B equity values in both bivariate and multivariate analyses. In addition, while CIR presentation is significantly related to firm value in bivariate analysis for both models, only model 2 shows this relationship in multivariate analysis. Regarding timeliness, it is associated significantly with both models of firm value in only bivariate analysis. However, it is associated insignificantly in multivariate analysis.

The multivariate results indicate that high levels of information content, disclosed via the Internet of the Egyptian listed companies, has a positive impact on firm value at significant level 10% in model 1 and 5% in model 2. This result is supported by agency theory that assumes that disclosing various types of information can decrease the cost of companies' capital due to the reduction in information asymmetry between management and shareholders. Therefore, disseminating different types of information via the companies' websites can attract more investors who are searching for more types of information to help them in making their decisions which, in turn, increases their cash flow and firm value.

Moreover, it can be noticed from multivariate analysis that Egyptian listed companies which disclose more usability tools on their website increase firm value with a confident level 90% in model 1 and 95% in model 2. This result can be explained by TAM. Companies that disclose useful tools on their websites that help investors in searching, locating and obtaining what information they need, eases the accessibility for those investors to their website. By doing this, many investors can be attracted to enter a company's website as a result of the perceived ease of use that those investors obtain from disclosing such usability tools on the company's websites. Consequently, cash flow will increase which leads directly to increased firm value. Similarly, increasing the value of the Egyptian listed companies by disclosing

more useful usability tools via their website may be represented as perceived usefulness for these companies which encourages the introduction of more usability tools to help their investors in obtaining the required information to increase their value more.

Regarding presentation, multivariate analysis for model 2 only shows the significant positive impact of CIR presentation on firm value at level 5%. Diffusion of innovation theory provides an explanation for such a result. Egyptian companies may adopt the Internet as a presentation tool to disclose their information in various presentation tools that have not been available in the traditional disclosure media. Disseminating information by such presentation tools can provide investors with information which becomes available and easy to obtain at any time and at any place. This will increase the relative advantages for both the companies – by increasing their value – and for the investors – by making rational decision – which would justify the adoption of using the Internet in presenting information due to its relative advantages. Consequently, H 5 for CIR content, presentation and usability will be accepted in the current study. Based on such findings, SRQ3.2 will be answered.

Based on the above findings, it can be stated that CIR total and its main components have a significant positive impact on firm value which answers RQ3 and achieves the seventh objective OBJ7.

10.8 Summary

This chapter aims to answer the third research question and its sub question: Is there any influence for CIR total and its components by Egyptian listed companies on firm value? Based on previous studies and the proposed theories, the hypothesis that explains the expected impact of CIR on firm value is formulated. The study uses both bivariate and multivariate analyses to test the association between CIR and its components and firm value. Both parametric and non-parametric tests are performed to explore if firm value is influenced, by having a website, by the Egyptian listed companies or not. The results indicate that on average, Egyptian listed companies that perform CIR have more increased value than companies without CIR.

Two multivariate models are employed; one for measuring firm value by Tobin's Q ratio and the other for measuring firm value by market-to-book equity ratio. After controlling a number of variables, both models reveal that CIR total has a significant positive impact on firm value. In addition, the findings provide evidence for the influence of both content and usability of CIR on firm value in both models for the Egyptian listed companies. Further, CIR presentation shows a significant positive influence on firm value when measured by market-to-book equity values only.

Such findings indicate the importance of using the Internet as a disclosure medium in the Egyptian context. Egyptian listed companies with high levels of CIR have higher values than those companies which have low levels. Certainly, this finding will motivate the Egyptian listed companies to disclose more information on their website to increase their value which will enable them to compete in the market.

CHAPTER 11 CONCLUSIONS, LIMITATIONS AND RECOMMENDATIONS

11.1 Introduction

The developments over the last few years in the Egyptian Capital Market (ECM) are considerable and significant. Many steps have been taken to encourage the ECM to flourish. Among these steps are economic reforms and the privatisation programme which was undertaken in 1991. Such steps required strong financial regulatory framework and the availability of trustworthy corporate information. Therefore, the Egyptian government aims to improve financial reporting, transparency and disclosure requirements. One of the most noticeable steps in recent years has been the issuance of the corporate governance code in 2005.

At the same time, the Egyptian environment has witnessed major improvements in technology usage, namely the Internet. Consequently, Egyptian listed companies are required, through various types of timely and accurate information, to provide their investors with their different needs. Hence, many Egyptian listed companies have begun to use the Internet as a disclosure medium due to its major advantages which fulfil the companies' objectives.

From this conjecture, the current study aims to evaluate the current situation of Internet usage by Egyptian listed companies and examines the key determinants of such usage, especially after the application of corporate governance code. Identifying these determinants demonstrates the reason for choosing the Internet as a dissemination tool which may motivate other companies which are not using CIR to follow their counterparts in using such a disclosure medium. In addition, persuading companies to use such a disclosure tool may have

a significant impact on their future in the competitive markets. Therefore, the study seeks to shed light on the economic consequence of CIR.

Based on the above discussion, this chapter summarises the main results of the current study which reveal its importance and the motivation required to conduct it. Therefore, this chapter starts with section 11.2 which summarises the findings of the study. The main contribution to the knowledge is introduced in section 11.3. Section 11.4 presents the limitation of the study. Finally, suggestions for future research are highlighted in section 11.5.

11.2 Research findings

Based on a sample of 343 Egyptian listed companies and a checklist of 100 CIR items, the study finds that 180 companies (52.48%) have a website. The extent of CIR for the Egyptian listed companies – on average – is noticeably low (20.77%) which is reflected by the large number of companies (89.5%) that score below 50%. Only one company, namely the Egyptian Company for Mobile Services (Mobinil) discloses more than 90% of the items included in the index.

In addition, it was noticed that all the Egyptian listed companies that have a website disclose at least one item of corporate social responsibility, while only 50.6% of these companies disclose financial information. Corporate governance information is disclosed by 72.8% of the sampled companies. By doing this, OBJ1 is met and both SRQ1.1 and SRQ1.2 are answered.

Regarding the components of CIR, the findings demonstrate that there is variability in the level of information disclosed via the Internet. The highest disclosure score was usability (26.29%) which indicates the importance of using the usability tools for CIR in the Egyptian

context, while the lowest score was timeliness (14.56%). Approximately 11% of the Egyptian listed companies disclose on average 50% or more of the CIR components' items. Such findings achieve OBJ2, OBJ3, OBJ4 and OBJ5. In addition, they answer SRQ1.3, SRQ1.4, SRQ1.5 and SRQ1.6.

According to the statistical results, it can be stated that economic theories, political costs theory, stakeholder theory, information costs theory, TAM and diffusion of innovation theory are all applicable in the Egyptian context. The applicability of such theories in the Egyptian context explains the association between CIR total and its components and explanatory variables. Table 11-1 summarises the findings that support the applicability of such theories in the Egyptian context.

Table 11-1: The main findings of the current study

Variables	Hypotheses	Explained theories	Expected sign	Current empirical findings
Size	H1.1	Agency, capital market, signalling, political, information costs, diffusion of innovation and Technology Accepted Model	(+)	Supported (+)
Profitability	H1.2	Political, stakeholder and signalling	(+/-)	Not supported
Leverage	H1.3	Agency, signalling, diffusion of innovation and Technology Accepted Model	(+/-)	Supported (+)
Legal form	H1.4	Capital need, political and diffusion of innovation	(+)	Supported (+)
Company age	H1.5	Capital need and signalling	(+/-)	Not supported
Assets in place	H1.6	Capital need, signalling and Technology Accepted Model	(+/-)	Supported (+)
Type of business	H2.1	Political cost, signalling, diffusion of innovation and Technology Accepted Model	(+/-)	Supported (+)
Foreign listing	H2.2	Agency, capital need, stakeholder, diffusion of innovation and Technology Accepted Model	(+)	Supported (+)
Audit type	H2.3	Agency, signalling, political and diffusion of innovation	(+/-)	Supported (+)
Share volatility	H2.4	Agency, signalling and political	(+/-)	Supported (+)
Share activity	H2.5	Signalling, capital need, political, diffusion of innovation	(+)	Supported (+)
Share issue	H2.6	Agency, signalling, capital need and diffusion of innovation	(+/-)	Supported (-)

Block holder ownership	H3.1	Agency	(+/-)	Supported (-)
Managerial ownership	H3.2	Agency, signalling, stewardship and Technology Accepted Model	(+/-)	Supported (+)
Governmental ownership	H3.3	Agency, capital need, information costs, political, diffusion of innovation and Technology Accepted Model	(+/-)	Supported (-)
Institutional ownership	H3.4	Agency, capital need, information costs and diffusion of innovation	(+/-)	Supported (-)
Board size	H4.1	Agency and Technology Accepted Model	(+/-)	Supported (+)
Non-exec. directors	H4.2	Agency and signalling	(+/-)	Not supported
Role duality	H4.3	Agency and stewardship	(+/-)	Not supported
Family members	H4.4	Agency, signalling, capital need, stakeholder, information costs and diffusion of innovation	(+/-)	Supported (+)
Foreign members	H4.5	Signalling, capital need, stakeholder and diffusion of innovation	(+/-)	Not supported

As seen from Table 11-1, firm characteristic variables have a significant impact on CIR total and four variables, namely, size, leverage, legal form and assets in place are associated positively with CIR total in the Egyptian context. However, the results show that both profitability and company age have an insignificant influence on CIR total. In addition, the findings provide evidence for the association between firm characteristic variables and the components of CIR. Size and leverage are associated positively with all the CIR components. Further, legal form is related positively to CIR content, presentation and timeliness, while assets in place shows the same result for content and presentation in addition to their positive impact on CIR usability. Such findings answer SRQ2.1 and SRQ2.2.

With respect to market related variables, only type of business and foreign listing are associated positively with CIR total and all of its components. Additionally, the other four variables: audit type, share volatility, share issue and share activity have a significant influence on CIR total and two of its components, namely content and presentation. While share issue has a negative impact, the other three variables show a positive impact. Moreover, the findings indicate that share volatility associates positively with CIR usability. By revealing this, both SRQ2.3 and SRQ2.4 are answered.

All the ownership structure variables are associated significantly with either CIR total or with its components. Governmental ownership is the only variable that is associated negatively with CIR total and its entire components. Moreover, the other three variables: block holder ownership, managerial ownership and institutional ownership have a significant influence on CIR content. While managerial ownership has a positive influence, both block holder ownership and institutional ownership have negative ones. Further, the results reveal that institutional ownership is associated negatively with both presentation and timeliness of CIR. However, managerial ownership is related positively to CIR usability. Such findings indicate that SRQ2.5 and SRQ2.6 are answered.

According to corporate governance variables, the study finds empirical evidence for the association between either CIR total or its components and some of these variables. Only two variables are associated positively with CIR total and content, namely board size and the existence of family members on companies' boards. In addition, the existence of family members on companies' boards has a positive impact on both CIR presentation and timeliness, while board size has the same impact on CIR usability only. Demonstrating these findings helps to answer SRQ2.7 and SRQ2.8

Therefore, it can be stated that each group of the variables groups includes at least one variable that has a significant impact on CIR total or its components which means that OBJ6 has been met.

In addition, the findings illustrate that CIR total has a significant positive impact on firm value either measured by Tobin's Q ratio or market-to-book equity values which answers clearly SRQ3.1. Moreover, the findings indicate that both CIR content and usability have a significant positive impact on both measures of firm value which answers SRQ2.3. By

answering RQ3, the economic consequence of CIR is demonstrated and hence OBJ7 is met. Table 11-2 summarises the achieved research objectives and the answered research questions.

Table 11-2: The achieved research objectives and the answered research questions in the current study

Research Objectives	Research Questions	References
OBJ1	SRQ1.1	7.3
	SRQ1.2	7.4.1
OBJ2	SRQ1.3	7.4.1
OBJ3	SRQ1.4	7.4.2
OBJ4	SRQ1.5	7.4.3
OBJ5	SRQ1.6	7.4.4
OBJ6	SRQ2.1	8.6.1
	SRQ2.2	9.3.1
	SRQ2.3	8.6.2
	SRQ2.4	9.3.2
	SRQ2.5	8.6.3
	SRQ2.6	9.3.3
	SRQ2.7	8.6.4
	SRQ2.8	9.3.4
OBJ7	SRQ3.1	10.6
	SRQ3.2	10.7

Consequently, the current study provides empirical evidence that supports the applicability of the proposed theories which are used in explaining the association between CIR total and its components and the explanatory variables in the Egyptian context. These findings demonstrate clearly the main contribution of the current study either theoretically or empirically. The main contribution of the current study will be shown in the next section.

11.3 Contribution to knowledge

The main contribution of the current study is **twofold:**

The **first** main contribution can be considered in the **theoretical framework.** The study uses a comprehensive theoretical framework to explain the association between CIR total and its determinants in an emerging market. Some of these theories are used widely in the *developed*

countries context. However, few studies discuss the ability to apply such theories in the *developing* countries context. Consequently, there is a need to examine these theories in one of these emerging markets, namely 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.

Therefore, the current study fills the gap in this area by examining the possibility of applying a combination of theoretical frameworks in one of these developing countries, namely Egypt. There is now an 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 (Abd-Elsalam, 1999; Leventis, 2001). In addition, the comperhansive theoretical framework will be used in justifaying and explaining the relation between the components of CIR and their key determinants which not examined wiedly in the previous studies.

Furthermore, to the best of the author's knowledge, the Technology Accepted Model (TAM) has not been used before in the literature that examines the key determinants of CIR, either in the developed or developing countries context. The study provides empirical evidence that TAM can explain many associations in the Egyptian context. In addition, the study seeks to investigate the usage of the diffusion of innovation theory in the developing countries context. The findings of the results indicate that innovation diffusion theory can justify the relationship between CIR and some of its key determinants. Consequently, it can be stated that the innovation adoption approach has a clear influence on the usage of the Internet as a dissemination tool by the Egyptian listed companies.

The **second** main contribution is related to the **empirical** side. The current study contributes to the disclosure literature as follows:

First, CIR is measured by four main components; content, presentation, timeliness and usability. Few studies consider the components of CIR. Some of these studies use one or only two of these components as a dependent variable in their model. The current study considers all the components of CIR simultaneously which adds more depth to the explanation of the study's findings. In addition, both timeliness and usability components are not investigated widely in the developing countries context. The current study contributes to the literature by examining the key factors of CIR timeliness and usability in one of the developing countries, namely Egypt.

Second, the study provides empirical evidence that explanatory variables vary according to the components of CIR. Some explanatory variables are associated significantly with all CIR components, while the others are not. Moreover, some new variables are introduced to examine their impact on CIR components (see Table 3-1).

Third, some new variables that have not been examined before in CIR literature are used to explain the usage of CIR by Egyptian listed companies. These variables are: legal form, share activity, the family members on the company's board and the foreign members on the company's board. The findings provide empirical evidence for the influence of three of these variables on CIR by the Egyptian listed companies.

Fourth, the consequence of CIR and its components represent one of the important empirical contributions in this study. To the best of the author's knowledge, no prior studies discuss the impact of CIR components on firm value. The findings reveal that CIR total and some of its components have significant influence on the value of Egyptian listed companies. Therefore, the current study extends the previous disclosure studies by examining the impact of CIR,

including both financial and non-financial information, and its components, on firm value to justify the usage of CIR by the Egyptian listed companies.

Fifth, with regard to the Egyptian context, the author is not aware of any previous studies examining the relationship between CIR and corporate governance variables, or between CIR and detailed ownership structure variables. Therefore, one of the most important contributions of this study is to determine empirically, whether the corporate governance practices, which have been improved in the last few years in the Egyptian environment and the detailed ownership structure, have a significant influence on CIR total and its components or not.

Finally, the study provides empirical evidence for the justification of using an innovation adoption approach in explaining some new variables not examined before in CIR studies (e.g. legal form and the family members on the board). The findings reveal that these new variables have a considerable impact on CIR in the Egyptian context.

As with all the previous studies, no work is totally complete. Therefore, some limitations are derived from the current study. These limitations are presented in the next section.

11.4 Research limitations

A few limitations should be considered when assessing the findings of this study. These limitations are illustrated as follows:

First, the study uses a self constructed checklist to measure the extent of CIR total and its components by Egyptian listed companies in 2007. Although steps were undertaken to alleviate the subjectivity in determining the items of the checklist, it cannot be argued that the study is free of subjectivity. However, the determining of checklist items is dependent upon

previous literature and compatibility with the Egyptian environment. Moreover, the study follows the majority of prior studies in using an unweighted index which indicates equality in the importance of the disclosed items. A weighted index may provide varying results in the Egyptian context. However, many prior studies demonstrate that there are no differences in applying weighted or unweighted indices. In addition, an unweighted index is more suitable for the current study.

Second, the time horizon of the study is cross-sectional which implies that the findings are related to a specific year, namely 2007. Some prior studies considered a longitudinal time horizon as they cover more than one period. However, if there are not enough reasons to apply the research over many periods, it is preferable to conduct the research in one year. In addition, the study relies on secondary data as a main source for collecting its data. Primary data may be a useful tool if it is accompanied by secondary data. Many attempts have been made to use a questionnaire as a supported method for collecting the data from the Egyptian listed companies. However, the response rate is very low. Therefore, the author decides to depend on secondary data only in collecting data for this study.

Third, this study used mainly quantitative methods in collecting and analysing its data. The main objective of the current study is to examine the extent of CIR and discover its key determinants. Quantitative methods are more useful in achieving this objective. However, qualitative methods can add more depth of understanding for the issue of CIR. The author sought to arrange interviews with some financial managers in the Egyptian listed companies, but unfortunately failed to organise enough interviews. Therefore, the author decided to use quantitative methods only.

Fourth, the study constructs a checklist that contains four types of disclosed information. One of these types is usability tools that help investors in obtaining their information in an easy way. Designing the websites and evaluating their quality are out of the scope of the current study's objectives and range. Only the usability tools that help investors to access the website and search for required information are therefore presented.

Finally, regarding the variables of the study, one of the common firm characteristics variables is excluded from the current study, namely liquidity. The reason for excluding such a variable is the variety in its calculation methods in both financial and non financial companies. As the current study applies to all Egyptian listed companies, both financial and non-financial, it has been decided to exclude the liquidity variable. In addition, the availability of the data for the Egyptian listed companies leads to the exclusion of some corporate governance variables such as cross directorship and audit committee. Further, the measurement of firm value by Tobin's Q ratio has some drawbacks due to the use of the book value of total assets instead of the replacement cost of these assets. The reason for using the book value is the unavailability of replacement costs data. Therefore, the current study uses a market-to-book equity ratio as a second proxy for firm value to provide robustness for the findings.

Based on the previous limitations, it may be useful to provide some recommendations for future research. The next section addresses this point in detail.

11.5 Recommendations for future research

Many research opportunities in the disclosure studies could be derived from the findings of the current study. These opportunities are as follows:

First, the current study focuses only on one disclosure medium. Future research can make a comparison between both Internet and paper-based mediums to demonstrate the differences between the two mediums. In this regard, type of disclosure (mandatory or voluntary) in the annual report should be determined. The significant association between various mediums of disclosure and their determinants may vary which would enrich the discussion about the useful of using the Internet as a disclosure tool.

Second, the current study is applied to only one country. A comparison between two countries or more can be performed to reveal the justification of using CIR by the Egyptian listed companies compared with either developed, developing, or both, countries. This type of study can add more variables such as culture value variables that undoubtedly may enhance the importance of using the Internet as a disclosure tool.

Third, future research could consider the using of XBRL (eXtensible Business Reporting Language) as a standard type for corporate reporting. Recently, many studies indicate that standardisation becomes one of the essential requests for companies that are disseminating their information via their websites. Standardisation can overcome the problem of disclosing various types of information on the Internet which may cause overloaded and fuzzy disclosure problems. One of the solutions that has been proposed to overcome these problems is using XBRL as a standard-based way to communicate business and corporate reporting. It is interesting in this regard to discover whether Egyptian companies use XBRL or not and to determine the key factors of using such a language.

Fourth, regarding corporate governance in the Egyptian context, there is a need for more research in this area. Future research could examine the effect of applying a corporate governance code on disclosure practices in the Egyptian context. Egyptian listed companies

can be examined regarding their best practice of corporate governance to discover their strengths and weaknesses, which may enhance the disclosure levels of these companies.

Fifth, the current study focuses on the information provider's perspective. Future research can investigate the other side, that of the information users' perspective. In this regard, both quantitative and qualitative paradigms can be used to collect and analyse the responses of the information users about the usefulness of disseminating information via the website of the Egyptian listed companies.

Sixth, future research in the Egyptian environment may consider some new variables not include in the current study such as: cross directorship and audit committee. In addition, some variables may be measured by other proxies. For examples, audit type can be measured by using audit firm size and shares issuance can be measured by the year of shares issuance and the year after.

Finally, as an alternative, future research can examine the dissemination of intellectual capital information either on the websites or in the annual reports of the Egyptian listed companies. Intangible assets have increased in the last few years compared with tangible assets. Many studies demonstrate the importance of intellectual capital disclosure and measurement. Using the Internet may increase the level of intellectual capital disclosure in the Egyptian context. In this regard, determining the key factors of such disclosure may represent usefulness for Egyptian listed companies.

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Appendix 1: The development of most important indicators of Egyptian Stock Market

Main Market Indicators For the Period 1998-2007										
Indicators	98	99	2000	01	02	03	04	05	06	07
Total volume in (billions)	0.6	1.1	1.1	1.3	.9	1.4	2.4	5.3	9.1	15.1
Volume of listed securities	0.5	0.9	1	1.1	0.7	1.2	1.8	4.2	7.8	11.3
Volume of unlisted securities	0.1	0.2	.08	0.2	0.2	0.2	0.6	1.1	1.3	3.7
Total value traded (LE billions)	23	39	54	32	34	28	42	160.6	287	363
Value traded (listed securities)	19	33	46	25	26	25	36	150.9	271.1	322
Value traded (unlisted securities)	5	6	8	7	8	3	6	9.7	15.9	42
Total number of transactions (millions)	0.69	0.91	1.29	1.15	0.83	1.23	1.74	4.2	6.8	9
Number of transactions (Listed securities)	0.67	0.89	1.28	1.14	0.74	1.21	1.68	4.0	6.6	8.7
Number of transactions (unlisted securities)	0.01	0.01	0.01	0.01	0.09	0.02	0.07	0.2	0.2	.304
Number of listed companies	870	1,033	1,076	1,110	1,151	978	795	744	595	435
Number of listed traded companies	551	663	659	643	671	540	503	441	407	337
Number of Traded Companies as a % of Number of Listed Companies	63	64	61	58	58	55	63	59	68	77
Market capitalisation end of year (LE billion)	82	112	121	112	122	172	234	456	534	768
Market capitalisation as % of GDP	29%	36%	36%	31%	32%	41%	53%	74%	73%	105%
Foreign Participation as a % of Total Value Traded	39	42	25	16	17.3	12.7	20.5	16.4	16.6	19.2
Turnover Ratio (%)	23%	29%	38%	22%	21%	13%	15%	31%	49%	39%

Appendix 2: Final conclusion of the World Bank and (OECD) report

principle	[23]O	[24]LO	[25]PO	[26]MO	[27]NO	comment
1. The rights of shareholders						
1.1Basic shareholder rights						**Basic rights observed. Some compliance gaps ii clearing and settlement**
1.2 Rights to participate in fundamental decisions						**Shareholders participate in most fundamental decisions with 66/75 percent supermajority.**
1.3 Shareholders AGM rights						**No major reported problems. Notice period 15 days.**
1.4 Disproportionate control disclosure						**Companies disclose at 5 percent level. Most ownership reportedly formally and informally well understood.**
1.5 Control arrangements should be allowed to function.						**Very limited takeover rules. CMA informally enforcing mandatory bid rule.**
1.6 Cost/benefit to voting						**At present, uncommon for institutional investors to have voting policies and some don' vote.**
2. Equitable treatment of shareholders						
2.1 All shareholders should be treated equally						**Share voting info may be difficult to obtain. Slow court system. CMA is powerful redress mechanism.**
2.2 Prohibit insider trading						**Insider trading not specifically addressed in law, but is administratively enforced**
2.3 Board/Mgrs. disclose interests						**Accounting standards follow IAS 24. New listing rules add to RPT disclosure requirements**
3. Role of stakeholders in corporate governance						
3.1 Stakeholder rights respected						**Stakeholders have a number of legal protections. Employee board representation relatively rare.**
3.2 Redress for violation of rights						**Stakeholders have access to legal process to obtain redress.**
3.3 Performance enhancement						**Company law grants employees automatic rights to 10 percent profit sharing. Employee share ownership in some privatized companies.**
3.4 Access to information						**Employees, bondholders, others have rights to information by law.**

[23] **Observed (O)** means that all essential criteria are met without significant deficiencies.

[24] **Largely observed (LO)** means only minor shortcomings are observed, which do not raise questions about the authorities' ability and intent to achieve full observance in the short term.

25 **Partially observed (PO)** means that while the legal and regulatory framework complies with the Principle, practices, and enforcement diverge.

26 **Materially not observed (KO)** means that, despite progress, shortcomings are sufficient to raise doubts about the authorities' ability to achieve observance.

27 **Not observed (NO)** means no substantive progress toward observance has been achieved.

4. DISCLOSURE AND TRANSPARENCY						
4.1 Disclosure standards						**Annual and quarterly reports. Some missing non-financial disclosure (forward-looking MD&A, risk factors, governance).**
4.2 Standards of accounting & audit						**Standards generally close to IAS; compliance uncertain**
4.3 Independent audit annually						**No audit oversight board (but included in draft accounting law). New listing rules require audit committee, but slow adoption.**
4.4 Fair & timely dissemination						**Many channels of information**
5. RESPONSIBILITIES OF THE BOARD						
5.1 Acts with due diligence, care						**Single tier boards. Frequently, Chairman and CEO are same person. Two members can be appointed "experts."**
5.2 Treat all shareholders fairly						**Limited legislative guidance on duty of care & duty of loyalty, but some jurisprudence.**
5.3 Ensure compliance w/ law						**Company law requires board to take interests of employees into account.**
5.4 The board should fulfil certain key functions						**In practice, boards of most companies do not play central / strategic role, and are not clearly different from management.**
5.5 The board should be able to exercise objective judgment						**No rules that govern independence. Few companies appoint independent directors.**
5.6 Access to information						**Most directors are insiders and have access to information. Can be more difficult for non-executives sometimes, because information is not available.**

Appendix 3: Studies that explore the usage of web site and disclosed financial information on company's website in one country

Year	Author	Country Sample	Data Collection Date	%corporate web site	% financial data on site
1996	Petravick and Gillett	USA Fortune150	May 96	69	83
1997	Gray and Debreceny	USA Fortune50	Late 96	98	34
1997	Lymer & Tallberg	UK top 50 companies on the UK Stock Exchange Finland the 72 companies listed on the Helsinki Stock Exchange	December 96	92 (for UK companies) 90 for (Finish companies)	52 (for UK companies 89 for (Finish companies)
1998	Petravick and Gillett	USA 125 major companies that released their quarter-end or year-end earnings	Jan 1998 – Feb 1998	96	79
1999	Hussey and Sowinska	UK FT-SE 100 companies	June 97 –Jan.98	91	63
1999	Petravick	USA 150 Fortune500	Jan 98 March 98	95	93
2000	Stainbank	South Africa Top 100 South African com.	June 1999	43	33
2003	Poon et al	Hong Kong 100 listed com.	April 2002	94	87
2008	Bogdan and Pop	Romania 60 listed comp.	May 2007-may 2008	76.66	48.33

Appendix 4: Studies that enlarge the searching for disclosed information on company's website

Year	Author	Country Sample	Data collection date	% corporate website	% type of presentation	% highest non financial information	% highest disclosed item	% highest financi information
996	Louwers et al	USA Fortune150	March 96	65		Product information 69	Product information 69	Quarter earning releases 46
999	Prentice, Richardson and Scholz	USA 490 U.S. companies	February to may 1998	82		----------	financial news 80	financial news 80
999	Hedlin	Sweden 60 listed Swedish com.	September 98	98	Hyperlink 10 Multilane. 80 Graphics 27	---------	83	83
999	IASC	22 different countries in Europe, Asia, North and South America 660 companies	November 1999	86	HTML 80	Corporate information 63	Profit and loss account 59.5	Profit and loss account 59.5
999	Trites	USA Canada 370 listed companies	December 1998 March 1990	69	----------	---------	Full financial statement 74	Full financial statement 74
000	Bonson, Rodrigues and Barrios	France, Germany, Nether. Spain, Italy Belgium, Finland 50 listed companies	October 1999	100	----------	Board of directors 82	Annual report 100	Annual report 100
000	FASB	USA Fortune 100 U.S. companies	January 1999	99	HTML 77 PDF 61 Word processor 12	----------	Graphic images 100	Chairman's message to shareholders 80
000	Fisher, laswad and Oyelere	New Zeal. 220 listed companies	January 2000	56	PDF 41 HTML 34 Both 20	Company background 94	Product or services information 99	Annual report and financial highlights 44
000	Holm	Denmark 231 listed com.	June-August 99	77	PDF 49 HTML 30 Other format 5	----------	Main accounting and financial ratio 91.5	Main accounting and financial ratio 91.5
001	Ettredge , Richardson and Scholz	USA 490 U.S. companies	February to may 1998	82		----------	financial news 80	financial news 80
001	McDonald and Lont	New Zealand 212 listed	2001	71	PDF 76 HTML 9 Both 17 Microsoft Word 2	Non-financial performance measures 76.5	Press releases 81	Press releases 81
004	Davey and Homkajohn	Thailand 40 listed companies	2002	92.5	Variant format according to the content category	Company information 87.5	Press releases 89	Financial statements 81

:004	Gowthorpe	UK 314 smaller listed com.	May2000 October 2001	74 (may) 83 (Oct.)		Directors' biographies 42	e-mail link from web site 95	Financial press releases 81
:005	Smith and Pierce	Europe 100 European companies listed in London SE	March 2001	97	PDF 100	-------	Press and news release 93	Press and news release 93
:007	Moses et. al.	Top 40 New Zealand listed companies	2007	100	PDF 85 HTML 5 Both 7.5 Other 2.5		Full annual report 100	Full annual report 100
:008	Amilia and budisusetyo	Indonesia 23 listed banks LQ 45 listed companies	2007	83 (banks) 79(LQ companies)			Link to home page 100	Press releases 89(banks) Press releases 91(LQ)
:009	Mohamed et al	Oman 142 Listed companies	2006	49.3	PDF 58 HTML 19.4 MS Word 6.04	Company History 91.04	Product and services 95.7	Annaul report 77

Appendix 5: Studies that investigate the investor relationship information on the company's website

ear	Author	Country Sample	Data Collection Date	% corporate web site	% type of presentation	% highest non financial information	% highest financial information	% highest disclosed information	% investor relations informatic
997	Flynn and Gowthorpe	USA, UK, the Netherlands, Japan, Germany, France, Switzerland, South Korea and Italy Top 100 com. Fortune Global 500	1996	85		Product information 72	Annual financial information 72	Annual financial information 72	
999	Deller et. al.	USA, UK, Germany Top 100 listed com.	1998	95(USA) 85(UK) 76(GR)			Interim reports 97 (USA) 82 (UK) 73 (GR)	Interim reports 97 (USA) Press releases 90 (UK) 86 (GR)	91(USA) 72(UK) 71(GR)
000	Breenan, Kelly	Ireland 99 listed com.	July 1999	67		company background 96	Full annual report 72	company background 96	84
002	Venter	South Africa top100 com. listed	January 2002	85	PDF 35 HTML 20 Both 43	board of directors 82	Annual report 86	Annual report 86	66
002	Lybaert	Nether. 188 listed comp.	June 2000	86	PDF 53 HTML 37 Both 62	----------	Annual report of former years 45	Press releases 95	Classified more one items
003	Geerlings, et. al.	Belgium, France and the Netherlands Top 50 com.	August 2001	100(NTH) 98 (FR) 96 (BL)	PDF 94 (NTH) 94(FR) 88 (BL)	Social report 24(NTH) 22 (FR) 12 (BL)	Interim reports 98 (NTH) 96 (FR) 92(BL)	Interim reports 98 (NTH) 96 (FR) 92(BL)	94 (FR) 92 (NTH 70 (BL)
004	Barac	South Africa top100 listed	January and February 2003	87	PDF 78 HTML 16 Both 46 XBRL 0	Corporate governance 84	Annual report 86	Press releases 94	75
005	Khadaroo	Malaysia (top 100) Singapore (top45)	2003	87 (Sing) 75(Malay)		Names and composition of board 80 (Sing) Management	Company profile 87 (Sing) 84 (Malay)	Consolidated financial statements 80 (Sing) Balance	Table of contents/ s map 82 (Sing) 79 (Mala)

						discussion and analysis 69 (Malay)		sheet 63 (Malay)	
)05	Hamid	Malaysian 100 listed com.	2005	74		Company background 93	Full current annual report 47	Company background 93	95
)06	Khan	Bangladesh Top 60 com	July 2004-June 205	40		Company profile 72		Company profile 72	10
)06	Spanos and Mylonakis	Greece 144 listed com.	July – August 2005	97	PDF 94	Organization charts 74	Press releases 97.5	Press releases 97.5	73
)07	Dutta and Bose	Bangladesh 268 Listed com.	August 2007-November 2007	39	PDF 29	Director's information 62.5	Press releases 44	English version of web site 100	English version o web site 1(
)09	Despina and Demetrios	Greece 302 Listed Com.	April 2008	100	PDF 99	Management Board 86.42	Balance heet 99.3	Balance heet 99.3	E-mail 94.04

Appendix 6: Studies that explore both the existence and financial information disclosed on company's website besides the empirical test.

Year	Author	Country Sample	Data collection Date	% corporate web site	% financial data	% non financial data	The factors	Proxies
1998	Marston and Leow	UK FT-SE 100 comp.	November 96	63	45	----------	-Size - type of sector	-Turnover -No. Of Employees - Total assets -Market Value -categorical variables
1999	Ashbaugh et al.	USA 290 comp.	Nov. 96 to Janu.97	87	70	----------	-Size -Profitability - Ownership structure - type of sector	-Total Assets -ROA -% of shares held by individual investors -RRATING
1999	Craven and Marston	UK Largest 206 comp.	July 98	74	53	---------	-Size - type of sector	-Turnover -No. Of Employees - Total assets -Market Value -categorical variables
1999	Pirchegger and Wagenhofer	Austrian 32comp. German 30com.	Dece. 97 Dece. 98	(1) 72 (2) 87.5 (3) 100[28]	(1) 66 (2) 84 (3) 97[29]	----------	-size -ownership structure	-Log of sales - % Free float
2000	Brennan and Hourigan	Ireland 93 Irish listed comp.	July 1998	46	- Profit and loss accounts - balance sheet 75	Company background 82	- size - leverage - type of sector - Demand for corporate information	-M.C. -Turnover -Profitability -No. Of employee -Debt Ratio -Categorical variables -size of print run of the most recent annual report -No. Of shareholders
2002	Bonsón and Escobar	European Union country the biggest 20 Comp.	July and August 2001	100	100 (Generally)	Information on corporate strategy 73	-size -industry type - countries' culture	-M.C -Categorical variables -Categorical variables

[28] (1) Austrian companies in 97,(2) Austrian companies in 97,(3) German companies in 98.

[29] (1) Austrian companies in 97,(2) Austrian companies in 97,(3) German companies in 98.

2002	Debreceny, Gray and Rahman	660 com. Of 22 countries	Nov. 98 and Feb.99	62	51 (Generally)	----------	- Size -Foreign listing -USA listing -tech.com. - Growth - systematic risk - Leverage Environ characterise	-Log M.C. -Dummy Variables - Dummy Variables -categorical variables -Mv/Bv -Beta -Debt/equity ratio -Internet penetration -national disclosure
2002	Ettredge, Richardson and Scholz	USA 232 AIMR companies	End of 97 to begging of 98	83	Financial news 81	----------	- size - firm performance -information asymmetry - capital market access -Quality of company's reporting practices.	-Log M.C. - Stock return -The correlation between annual earnings and returns. -Dummy variable. -Score index.
2002	Ismail	GCC countries Bahrain Saudi Arabia Qatar 128 listed comp.	Oct. 2001 and Feb. 2002	39	(1) 47 (Bah) (2) 41(SA) (3) 21 (QR)	----------	- size -Profitability - leverage - industry type -countries' culture	-Turnover -Total assets -ROA -ROE -Debt/equity - Categorical variables - Dummy variables
2002	Larrán and Giner	Spain 144 com. on Madrid Stock Exchange	October and November 2000	74	Time series of financial data 65	Corporate information 90	-size - leverage -Profitability - Foreign listing - type of sector - firm growth	- Log M.C. -Debt/equity ratio - ROE - Dummy Variable - Dummy Variable - Book /Market ratio
2003	Allam and Lymer	USA,UK, Canada, Australia, and Hong Kong	end of 2001 and beginning of 2002	All countries 100 Hong Kong 98	News summary 99	-board of directors 97	-size -countries' culture	-M.C. - Categorical variables
2003	Marston	Japan Top 99 comp.	1998	92	69	10	-Size	-Turnover -Capital employed

							- type of sector -Profitability -Foreign listing	-categorical variables -Pre-tax profit -Pre-tax profit/capital employed -Dummy variable
2003	Oyelere , Laswad and Fisher	New Zealand 229 com. listed on New Zea.S.E.	End of 98	54	Social and environmental information 22	-size -Profitability -liquidity -internationalization -diffuseness of ownership - type of sector - leverage		-Log M.C. -Log of total assets. -ROE -ROA -cash assets by total assets -Foreign listing (dummy variable) -Proportion of shares held by top 40% shareholders -Categorical variables -debt/equity ratio
2004	Marston and Polei	German Dax 100 comp.	July 2000&June 2003	100	99	----------	-Size -Ownership structure -Profitability -Foreign listing -Systematic risk	-M.C. -Free Float -ROE --Dummy variable -Beta
2004	Xiao, Yang and Chow	China 300 largest Chinese listed on either the Shanghai or Shenzhen stock exchange	December, 2001	68	Summary of financial data over a period of at least 3 years 72.4	Current year resolutions of the board of director 53	-size -Profitability -leverage - capital market access -fixed assets -Ownership structure	-Log M.C. -ROA -total liabilities/ total assets - Dummy Variable -fixed assets /total assets -shares held by government agencies /total shares -shares held by state-owned companies /total shares -shares held by legal

							-independent directors -audit quality - foreign ownership - type of sector	persons /total shares -Independent directors/total directors - Dummy Variable - shares held by foreign /total shares - Dummy Variable
2005	Borbolla, et al.	Spain 816 business	March 2004	32	Financial figures 5	Information on products 87	-size - Manager's education and training - the Manager's capacity to adapt to change and/or innovation - type of sector -competitors pressure - the quality of processes and Products -Internationalisation -importance of commercial distribution process -compatibility -complexity	-No. Of employees -Total assets -Turnover -Categorical variables -scale of 1 to 4 - Categorical variables -Dummy variable -dummy variable -dummy variable -Scale of 1 to 5 -dummy variable -investment in hardware in last two year
2006	Bollen, et al.	Australia, Belgium, France, the Netherland, South Africa and UK 270 listed companies	Dec. 2001 and October 2002	All companies 100 France 98 Belgium 96	-press releases 96	Organization structure 58	-size -Internation. - ownership structure - Leverage - company performance -Technology - Company growth -disclosure environment	-Log M.C. -Foreign revenue -Foreign listing -No. Of shareholders -Debt/equity -Stock return -ROE -Dummy variables MV/BV -Categorical

								variables
2006	Trabelsi and Labelle	Canada 118 comp. listed on Toronto S.E	Sep. To Dec. 2000	96	91(Generally)	----------	- investors' demand - Ownership structure - complexity of TFR -search for visibility - effect of competition - risk of litigation - audit quality - type of sector	-average of share traded/average of shares circulating -% of shares held by executives and major shareholders more than 10% -book to market ratio - firm's performance - the issuance of shares - cross listed firms -average ROE over the five preceding years -Variability of stock market adjusted returns over the last five years -dummy variable -categorical variables
2006	Momany and Al-Shorman	Jordon 60 comp. listed on Amman S.E.	October 2003 - September 2005	45	70	--------	-Size - Profitability - Leverage - Liquidity - Ownership dilution -Internationalization -years in business	-Total assets -ROA -Debt ratio -Current ratio -ownership concentration -institutional investors -shareholders who own 10% or more -% of foreign investors ownership -number of years
2006	Pervan	Croatian companies	June 2005	----------	----------	Management data 83	-size	-M.C. -Earnings

		55 Slovenian companies 30					-Profitability Ownership structure - Market activity -Industry type	-Total assets -ROA -ROE -ROS -No. Of shareholders -Foreign ownership -Official market. -% of M.C. -Share transactions -Ratio of traded/issued shares -Mv/Bv -Categorical variables
2006	Sriram and Laksmana	USA Fortune-1000	April 2002		Dividend information 95	Management information 90	-size - high technology -firm performance - investor institute - issuance of shares	-Log total assets -Dummy variable -ROA -% of shares held by institutions /total shares -Dummy Varible
2007	Andrikopoulos and Diakidis	140 Cyprus	March 2007	66.4	30		Size Profitability Intangible assets leverga	-Annual sales -Net Income -Market to book value - The ratio of the book value of debt to book value of equity
2007	Al-Shammari	143 Kuwait	April-June 2006	77	70		Size Leverga Liquidity Profitability Ownership Diffusion	-Log M.C. -Log total Assets - The ratio of the book value of debt to book value of equity - Current assets/current liabilities -ROE - Number of shares owned by outsiders/

							Company age	number of outstanding shares at year-end
							Auditor companies	- Number of years passed since foundation
							Internationality	- Dummy variable
							Industry type	- Dummy variable
								-Categorical variables

Appendix 7: Studies that investigate the impacts of corporate governance factors on CIR

Year	Author	Country Sample	Data Collection Date	% corporate web site	% financial disclosed information	The factors	The proxies
2007	Abd-Elsalam and Street,	UK 115 com.	2006	100	Latest interim report provided 99	-Board Independence	-proportion of non-executives to total directors
						-Role duality	-Dummy V.
						-Board Experience	-ratio of experienced/ cross directors to total directors -average age of directors -average length of service for executive directors divided by average length of service of directors for relevant market sector. - Average length of service of non-executive directors divided by average length of directors for relevant market sector.
						-ownership structure	-No. Of shares holder -major share holder -block holder
						-Technology	-Dummy V.
						-Sales concentration	-Sales of five largest companies listed over total sales of all companies listed.
						-US listing	-Dummy V.
						-Audit fees	-paid amount
						-Leverage	-long term debt/ book value of equity
						- Analyst following	- number
						-Size	-total assets
2007	Abd-Elsalam et al.	UK Top 110 listed Comp.	Mid 2005	100		- Size - Ownership structure - Director holding - Independent director	- total assets -Major holding -% of shares held by directors - Proportion of independent, nonexecutive to total directors.

						- Role duality - Analyst following - Industry type - Level of technology - Profitability -Size	-Dummy V. -Number of analyst -Dummy V. - log of Mv/Bv -ROA -Log total assets
2008	Abd-Elsalam and El-Masry,	Ireland 44 listed com.	2006	100	Recent interim financial report 89	-Board independent	-proportion of outside director to total directors. -average tenure of directors as compared to the average tenure for the sector
						-Role duality -ownership structure -Size -Audit fees -Profitability	Dummy V. -Block holder -Managerial ownership -Turnover -paid amount -ROE
2008	Barako and Tower	Indonesia 343 listed com.	2006	64		-Size -Leverage -Profitability -Company Age -ownership structure -Independent directors. -independence of audit committee.	-Log total Assets -total liabilities / total assets -ROA -No. Of years -Block holders -% of independent directors -% of independent audit committee directors
2008	Kelton and Yang	USA 284 com.	2003			- Shareholder right - Managerial ownership -ownership structure - Independent directors - Role duality - Audit committee financial expertise - Audit committee meeting frequently - Size - Profitability - Firm growth - Shares issue - Information asymmetry - Audit type - Industry type	-Corporate governance index - % of equity ownership by management and directors - Block ownership -% of independent directors on the board -Dummy V. -% of financial experts on the audit committee -No. Of meetings - Log M.C. -ROE -Mv/Bv -Dummy V. -Correlation between earnings and returns -Dummy V. -Categorical V.
2008	Al-Motrafi	Saudi Arabia	2006	84	45	-Size -Profitability	-Toatl Assets -ROA

		113 public com.				-Type of sector -Stock market lisiting -Type of Audit -Government ownership -Instititutional ownership -Individual ownership - ownership structure -Board size -role Duality	- Categorical V. - Dummy V. - Dummy V. -% of equity ownership by government, Dummy V. -% of equity ownership by institutional, Dummy V. -% of equity ownership by individual, Dummy V. -Free Float -Number of directors Dummy V.

Appendix 8: The studies which related to Egyptian environment

year	Author	Country Sample	Data Collection Date	% corporate web site	% highest non financial information	The factors	% financial disclosed information	% highest disclosed information
2000	Tawfik, M.	Egypt 58 Egyptian Banks	2000	32.8	--------	Size Profit Ownership structure	25.9	----------
2002	Mohamed, F	Egypt, Saudi Arabia, Kuwait 50 most active listed Egyptian corporation 43 most active listed Saudi Ar. Corporation 12 most active listed Kuwaitian corporations	2002	48 Egypt 81 Saudi A 100 Kuwait	-------	--------	18 Egypt 14 Saudi 50 Kuw	----------
2003	Metwaly,T	Egypt 140 companies	2003	44.2	-------	--------	40	Balance sheet 100 Income statement 100
2004	El-Dyasty, M	Egypt U.S.A Top 100 listed Egyptian and USA corporations	2004	54.6 Egypt 100 USA	4 Egypt 47.5 USA	-------	39.6 Egypt 62.6 USA	------
2008	Ezat and El-Masry	Egypt Most Active 50 companies	2006	74	-------	Size Type of business activity Profitability Levrage Liquidity Isuuance of Shares Free Float Board Composition Role Duality Board Size	67.6	67.6
2010	Aly et al.	Egypt Top 100 listed companies	2005	69	-------	Size Profitability Levrage Liquidity Industry Type Auditor size Foreign Listing	56	-------

Appendix 9: Summary of CIR studies

Study	Type		Scope		Country		Index		Theories		Dis.	Model		Dependent					Independent			
	D	E	O	M	N	M	W	UW	Y	N		M	U	To	C	P	T	U	CC	CG	O	M
Louwers et. al.,1996	√		√		√					√	G											
Petravick and Gillett,1996	√		√		√					√	F											
Flynn and Gowthorp, 1997	√			√	√	√				√	F CG S											
Gray and Debreceny, 1997	√		√		√					√												
Lymer,1997	√		√		√					√	F											
Lymer and Tallberg, 1997	√			√	√					√	F											
Marston and Leow, 1998		√	√		√			√	A S I		F		√	√					√			
Petravick and Gillett,1998	√		√		√					√	F											
Ashbaugh et al., 1999		√	√		√			√		√	F	L		√					√		√	
Blommaert and Mertens, 1999	√		√		√					√	F											
Craven and Mrston, 1999		√	√		√			√	A S I		F		√	√					√			
Deller et al., 1999	√			√	√					√	F											
Hassan et. al., 1999		√	√		√			√	A S I P		F S		√	√					√			
Hedlin,1999	√		√		√					√	F											
Hussey and Sowinska,1999	√		√		√					√	F											
IASC,1999	√			√	√					√	F											
Petravick,1999	√		√		√					√	F											
Pirchegger and Wagenhofer, 1999		√		√	√		√		I		F	R		√					√		√	
Prentice et al., 1999	√		√		√					√	F											
Trites,1999	√			√	√					√	F											
Breenan and Hourigan, 2000		√	√		√					√	F		√	√					√			
Breenan and Kelly, 2000	√		√		√					√	F											
Bonson et. al., 2000	√			√	√					√	F S											
FASB,2000	√		√		√					√	F											
Fisher et al., 2000	√		√		√					√	F S											
Holm,2000	√		√		√					√	F											
Stainbank,2000	√		√		√					√	F											
Tawfik, 2000		√	√			√				√		L		√					√			
Ettredge et. al., 2001	√		√		√					√	F											
Bonson and Escobar, 2002		√		√	√			√	A S I		F S		√	√					√			
Debreceny et. al., 2002		√		√	√		√		A		F	O		√	√	√			√			
Ettredge et. al., 2002		√	√		√			√	S		F	R		√	M V				√			√
Gerrlings et al., 2002	√			√	√					√	F S											
Ismail, 2002		√		√		√			A			L		√					√			

Larran and Giner, 2002		√	√		√		√		A S I P		F S CG	R		√					√				
Lybaert, 2002	√		√		√		√	√		√	F			√	√	√	√						
Mohamed, 2002	√			√		√				√	F												
Venter, 2002	√		√		√					√	F CG												
Allam and Lymer, 2003		√		√	√			√		√	F CG	R		√					√				
Marston, 2003		√	√		√			√	A S I		F	R		√					√				
Metwaly, 2003	√			√		√				√	F												
Oyelere et al., 2003		√	√		√				A S I P		F S	L		√					√		√		
Poon et. al., 2003	√		√		√					√	F												
Rodrigues and Menezes, 2003		√	√		√				A P		F		√	√					√				
Barac, 2004	√		√		√					√	F S CG												
Davey and Homkajohn, 2004	√		√		√		√			√	F S			√	√	√	√	√					
Silva and Christensen, 2004		√	√		√			√	A S		F	R L		√	M V				√				
El-Dyasty, 2004	√			√	√	√				√	F CG												
Gowthorpe,2004	√		√		√					√	F												
Marston and Polei, 2004		√	√		√		√		A S I		F S CG	R		√	√	√			√		√		
Xiao et. al., 2004		√	√		√		√	√	A S D		F CG	R		√	√	√			√	√	√	√	
Al-Htaybat,2005		√	√			√		√	A		F	R		√					√				
Borbolla et. al., 2005		√	√		√						F	L		√					√				
Hamid, 2005	√		√		√					√	F												
Khadaroo,2005	√			√	√					√	F CG												
Smith and Pierce, 2005	√			√	√					√	F												
Bollen et. al., 2006		√		√	√		√	√		√	F	R		√					√		√		
Celik et. al., 2006		√	√			√		√	A S P		F	R		√					√		√		
Khan et al., 2006	√		√		√					√	F												
Momany and Al-Shorman, 2006		√	√			√		√		√	F		√	√					√		√		
Parbowo and Angkoso, 2006		√	√		√		√		A S I P		F	R		√					√		√		
Pervan, 2006		√		√	√			√	A S I		F CG	R		√					√		√	√	
Sriram and Laksmana, 2006		√	√		√			√		√	F S	R		√					√			√	
Trabelsi and Labelle, 2006		√	√		√			√		√	F S	T		√					√		√	√	
Abd-Elsalam and Street, 2007		√	√		√			√	A		F	R L					√		√	√	√		

Abd-Elsalam et. al., 2007		√	√		√			√	A		F CG	R		√	√			√	√	√	√	
Andrikopoulos and Diakidis, 2007		√	√			√		√	A		F S	R		√					√			
Dutta and Bosc, 2007	√		√		√					√	F S CG											
Mosws et. al., 2007	√		√		√				S		F											
Spanos and Mylonakis, 2007	√		√			√				√	F S CG											
Al-Shammari, 2007		√	√			√			A S P		F	L		√					√			
Abd-Elsalam and El-Masry, 2008		√	√		√			√	A		F	R					√		√	√	√	
Amilia and Budisusetyo,2008	√		√		√		√			√	F S			√	√	√	√	√				
Barako and Tower, 2008		√	√		√				A S		F	L		√					√	√	√	
Bogdan and Pop, 2008	√		√		√					√	F											
Ezat and El-Masry 2008		√	√			√		√		√	F	R,L			√		√		√	√	√	√
Kelton and Yang, 2008		√	√		√			√	A		F CG	R		√	√	√			√	√	√	
Al-Motrafi, 2008	√	√	√			√		√	A S		F S CG	R		√	√			√	√	√	√	√
Mohamed et al, 2009	√		√			√					F											
Despina and Demetrios, 2009	√		√		√						F S CG											
Aly et Al., 2010		√	√			√		√	A S		F	R		√	√	√			√			

Note: Type of study, D: Descriptive, E: Explanatory; Scope of application, O: one country, M: More than one country; Country of study, N: non-Middle East countries, M: Middle East countries; Index, W: weighted index, UW: unweighted index; Theories of the study, Y: the study uses a theory (A: agency, S: signalling, I: information cost, P: political costs and D: diffusion of innovation), N: the study does not use a theory; Dis: type of disclosed information, F: financial, S: social, CG: corporate governance; Model of the study, M: multivariate (R: regression, L: Logistic, O: ordinal probit and T: Tobit), U: univariate; Dependent variable, To: total, C: content (M: mandatory items, V: voluntary items), P: presentation ,T: Timeliness and U: usability; Independent variables, CC: company characteristics, CG: corporate governance, O: ownership structure and M: market related variables.

Appendix 10: The population of the study

Sector	Number of companies listed in 2007	Number of companies in the current study
Banks	23	13
Basic Resources	18	16
Chemical	20	18
Construction and Materials	55	43
Financial services excluding banks	37	27
Food and Beverage	54	44
Healthcare and Pharmaceuticals	28	23
Industrial Goods and Services and Auto	53	41
Oil and Gas	5	4
Personal and Household Products	32	26
Real Estate	45	38
Retail	14	12
Media	1	1
Technology	7	4
Telecommunications	3	3
Travel & Leisure	36	28
Utilities	4	2
Total	435	343

Note: Number of Egyptian companies according to their sectors

Appendix 11: The checklist of the study

(1) Content	Disc (1)	Not Disc (0)
1.1 Accounting and financial information		
1.1.1 Balance sheet (full or excerpt)		
1.1.2 income statement (full or excerpt)		
1.1.3 Cash flow or funds flow statement(full or excerpt)		
1.1.4 Statement of changes in stockholders' equity(full or excerpt)		
1.1.5 Notes to the accounts		
1.1.6 Management report		
1.1.7 Auditor report		
1.1.8 Previous quarterly report		
1.1.9 Share price history		
1.1.10 Market share of key products		
1.1.11 Share price performance in relation to stock market index		
1.1.12 Summary of key financial ratios		
1.1.13 Past press release		
1.1.14 Segmental reporting		
1.1.15 Financial statements according to IFRS		
1.1.16 Past financial highlights/summary		
1.1.17 Earnings or sales forecast		
1.1.18 Industry statistics or data		
1.1.19 Past dividends		
1.1.20 Performance analysis		
1.1.21 Previous financial statements		
1.1.22 Links to financial analysts		
1.1.23 Links to Egyptian Stock Exchange		
1.1.24 Item(s) separated from annual report		
1.1.25 Past Annual report (full or excerpt)		
1.1.26 The existence of company's current annual report (full or excerpt)		
1.1.27 Earning release		
1.2 Corporate governance information		
1.2.1 Notice of meetings and agenda to annual shareholders' meeting		
1.2.2 Speeches of the management board during the AGM		
1.2.3 Articles of Association		
1.2.4 Code of Ethics		
1.2.5 Board of directors (Names or photos only)		
1.2.6 Board of directors (C.V, profiles and executives/non executives)		
1.2.7 Remuneration of board of directors		
1.2.8 Management Team		
1.2.9 Chairman's message to shareholders		
1.2.10 Organizational Structure		
1.2.11 Ownership structure		
1.2.12 Corporate governance principles/guidelines		
1.2.13 Management's planes to meet objectives and strategies		
1.2.14 Charters of audit committee		
1.2.15 Charters of other committee		
1.3 Social responsibility Information		
1.3.1 Company profile		
1.3.2Company history		
1.3.3 Customer profile		
1.3.4 Employee profile/training		
1.3.5 Human resources information		
1.3.6 Environmental /safety health Report		
1.3.7 Corporate responsibility report		

1.3.8 Mission/Vision statement		
1.3.9 Discussing on product quality and safety		
1.3.10 Certificate of quality assurance (ISO)or awards of best practice(for service companies)		
1.3.11 Donations/sponsoring to community groups		
1.3.12 Links to products (services) and sales information		
1.4 Contact details information		
1.4.1 The existence of investor relations section		
1.4.2 Name of investor relations officer		
1.4.3 E-mail to investor relations		
1.4.4 Phone number to investor relations		
1.4.5 Postal address to investor relations		
Total content		59
(2) Timeliness of information		
2.1 Current press releases or news		
2.2 Current share price		
2.3 Calendar for future financial events		
2.4 Pages indicate the latest update		
2.5 Hints for finding current information directly		
2.6 Current key financial ratios		
2.7 Current financial highlight/summary		
2.8 Option to register for future e-mail alerts regarding press releases, newsletters, etc		
2.9 The most recent quarterly report reports		
2.10 Current dividends announcements		
Total timeliness		10
(3) Presentation		
3.1 Annual report in PDF-format		
3.2 Annual report in html-format		
3.3 Any financial statements in PDF format		
3.4 Any financial statements in HTML format		
3.5 Graphic images		
3.6 Flashes (moving pictures)		
3.7 Sound files		
3.8 Video files		
3.9 webcast events		
3.10 Clear boundaries between the annual report and other information		
3.11 Change in printing friendly format possible		
3.12 Ability to download information		
3.13 Investor presentation		
3.14 Multilanguage of home page		
Total presentation		14
(4) Usability		
4.1 Link to annual report on home page		
4.2 Help site		
4.3 Pull-down menu		
4.4 Internal search box		
4.5 Next/previous/top buttons to navigate sequentially		
4.6 one click to get to investor relations information		
4.7 Site Map		
4.8 Feed Back		

4.9 Table of contents		
4.10 Mailing list		
4.11 Privacy statement		
4.12 Legal statement		
4.13 FAQ (in the investor relation page)		
4.14 Financial glossary		
4.15 Book mark the page		
4.16 External links (other than Egyptian stock exchange)		
4.17 Online investor information order services		
Total Usability		17
Total		100

Appendix 12: The theories and prior literature that explain the formulated hypotheses

Variables	Hypotheses	Explained Theories	Empirical findings		
			+	-	N.S
Companies' characteristics II1					
Size	**II1.1**	Agency, capital market, signalling, information costs,	Marston and Leow, 1998, Ashbaugh et al., 1999, Craven and Marston, 1999, Pirchegger and Wagenhofer, 1999, Brennan and Hourigan, 2000, Ettredge et al., 2002, Bonsón and Escobar, 2002, Debreceny et al., 2002, Ismail, 2002, Larrán and Giner, 2002, Oyelere et al., 2003, Xiao et al., 2004, Marston and Polei, 2004, García-Borbolla et al., 2005, Sriram and Laksmana, 2006, Momany and Al-Shorman, 2006, Bollen et al., 2006		
Profitability	**II1.2**	Political, stakeholder and signalling	Ismail, 2002, Pervan, 2006 and Celik et al. 2006	Marston and Polei, 2004 and Cormier et al, 2009	Ashbaugh et al. 1999; Larran and Giner 2002; Oyelere et al. 2003; Xiao et al. 2004; Silva and Christensen, 2004; Abd-Elsalam et al. 2007; Andrikopoulos and Diakidis. 2007; Barako et al., 2008 and Abd-Elsalam and El-Masry, 2008
Leverage	**II1.3**	Agency, signalling	Ismail, 2000; Xiao et al. 2004; Celik et al. 2006; Momany and Al-Shorman 2006; Prabowo and Angkoso 2006 and Abdel-Fattah 2008	Eng and Mak, 2003	Brennan and Hourigan, 2000; Debreceny et al. 2002; larran and Giner, 2002; Oyelere et al.2003 and Abd-Elsalam and Street, 2007
Legal Form	**II1.4**	Capital need and political	Abd-Elsalam, 1999	Hassan ,2006	
Company Age	**II1.5**	Capital need and signalling	Owusu-Ansah, 1997 and Barako et al., 2008		Haniffa and Cook, 2002. Mangena, 2004; Alsaeed, 2006. Akhtaruddin

					2005,Omar 2007 and Al-Shammari 2007
Asset In Place	**H1.6**	Capital need and signalling	Mitchell, 1995 and Haniffa and Cooke, 2002	Chow and Wong-Boren, 1987; Bradbury, 1992; Hossain et. al. 1994; Hossain et. al. 1995; Ho and Wong, 2001 and Omar, 2007	
Market- related H2					
Activity Type	**H2.1**	Political cost and signalling	Marston and Leow, 1998; Craven and Marstone, 1999 ; Marston 2003; Brennan and Hourigan 2000; Rodrigues and Menezes 2003 ; Celik et al. 2006 and Momany and Al-Shorman , 2006		Larrán and Giner, 2002; Eng and Mak, 2003; Trabelsi and Labelle 2006 and Barako et al., 2008
Foreign listing	**H2.2**	Agency, capital need, stakeholder, diffusion of innovation	Cook, 1989, 1991; Ahmed and Nicholls, 1994; Hossain et al. 1994; Meek et al. 1995; Hossain et. al. 1995; Marston and Polei, 2004; Mangena 2004; Anderson and Daoud 2005; Collet and Hasky 2005; Celik et al. 2006; Trabelsi and Labelle ,2006; Omar 2007 and Abdel-Fattah 2008	Debreceny et al. 2002	Oyeler et al. 2003and Marston, 2003
Audit Type	**H2.3**	Agency, signalling, political and diffusion of innovation	Suwaidan 1997; Ahmed and Courtis 1999; Al-Shiab 2003; Xiao et al., 2004; Trabelsi and Labbele 2006; Kelton and Yang 2008 and Abdel-Fattah 2008		Abdelsalm 1999; Hassan e al., 1999; Haniffa and Cooke, 2002; Ali et.al 2004; Alsaeed 2006; Anderson and Daoud 2005; Khaldoon, 2005, and Omar, 2007
Shares Volatility	**H2.4**	Agency, signalling and political	Lang and Lundholm, 1993; Bushee and Noe, 1999 and Botosan and Plumee, 2000,	Patel, 1976	Leventis, 2001
Shares Activity	**H2.5**	Agency, signalling, capital need and diffusion of innovation	Abd-Elsalam and Weetman 2003 and Hassan, 2006 (for mandatory disclosure)	Hassan, 2006 (for voluntary disclosure)	
Shares Issuance	**H2.6**	Signalling, capital need, political, legitimacy, diffusion of innovation	Lang and Lundholm, 1993; Clarkson and Kao, 1994; Ettredge et al. 2002 and Bauwhede & Willekens 2008	Labelle, 2002, Xiao et al 2004, and Sriram and Laksmana, 2006	Nagar et al., 2003
Ownership structure H3					

Block holder Ownership	**II3.1**	Agency	Chau and Gray, 2002; Haniffa and Cooke, 2002	McKinnon and Dalimunthe 1993; Hossain et al. 1994; Mitchell et al. 1995; Schadewitz and Blevins 1998; Oyelere et al. 2003; Kelton and Street, 2008	Raffournier 1995; Ghazali and Weetman; Eng and Mak 2003; Trabelsi and Labelle, 2006 ; Abd-Elsalam and Street, 2007; Barako et al., 2008 and Abdel-Fattah, 2008
Managerial ownership	**II3.2**	Agency, signalling and stewardship	Warfield et al. 1995; Chau and Gray, 2002; Mohd-Nasir and Abdulah, 2004; Karamanou and Vafeas, 2005; Chen and Jain 2007 and Jiang and Habib, 2009	Gelb 2000; Rahman 2002; Eng and Mak, 2003 and Mohd and Weetman, 2006	Chen and Jaggi, 2000; Nagar et al. 2003 ; Mangena and Pike 2005 and Donnelly ; Muchahy,2008 and Kelton and Yang 2008
Government ownership	**II3.3**	Agency, capital need, information costs and political	Suwaidan, 1997; Eng and Mak, 2003; Chen and Jian 2007 and Abdel-Fattah, 2008	Mohd, 2004; Xiao et al., 2004 and Jiang and Habib, 2009	Al-Htaybat, 2005 and Prabowo and Angkoso, 2006
Institutional ownership	**II3.4**	Agency, capital need, information costs and diffusion of innovation	Healy et al., 1999	Schadewitz and Blevins, 1998; Ajinka et al. 2005; Karamanou and Vafeas, 2005 and Sriram and Laksmana, 2006	Suwaidan, 1997; Haniffa and Cooke, 2002; Celik et al., 2006; Omar, 2007 ; Donnelly and Mulcahy 2008 and Abdel-Fattah, 2008
Corporate governance II4					
Board Size	**II4.1**	Agency	Karamanou and Vafeas, 2005; Laksmana, 2008 and Abdel-Fattah, 2008		Lakhal 2003; Arcay and Vazquez, 2005; Cheng and Courtenay, 2006 and Donnelly and Mulcahy 2008
Non-Executive directors	**II4.2**	Agency and signalling	Chen and Jaggi, 2000; Xiao et al. 2004 (for presentation) ; Arcay and Vazquez, 2005; Cheng and Courtenay, 2006; Abd-Elsalam et al. 2007; Abd-Elsalam and El-Masry, 2008; Donnelly and Mulcahy, 2008 and Kelton and Yang, 2008	Eng and Mak, 2003; Gule and Leung, 2004; Abd-Elsalam and Street, 2007 and Abdel-Fattah, 2008	Ho and Wong, 2001; Haniffa and Cooke, 2002; Lakhal, 2003; Xiao et al. 2004; Mangena and Pike, 2005 ; Mohd and Weetman, 2006 and Barako et al., 2008
Role Duality	**II4.3**	Agency and stewardship		Forker, 1992; Lakhal, 2003 and Gul and Leung, 2004	Haniffa and Cooke, 2002; Arcay and Vazquez, 2005; Cheng and Courtenay, 2006; Ghazali

					Weetman, 2006; Abdlesalam and Street, 2007; Abd-Elsalam et al. 2007; Kelton and Yang, 2008 and Abd-Elsalam and El-Masry, 2008
Family Members	**H4.4**	Agency, signalling, capital need, legitimacy, stakeholder and information costs	Wang 2006; Ali et al. 2007; Abdel-Fattah, 2008	Ho and Wong 2001; Haniffa and Cooke 2002; Ghazali and Weetman, 2006 and Chen et al., 2008	Chen and Jian, 2007
Foreign Members	**II4.5**		Abdel-Fattah , 2008		

Appendix 13: Disclosure of accounting and financial information on the Egyptian listed companies' website

Accounting and Financial information	No.	%
Past press release	55	30.6
Past financial highlights/summary	55	30.6
Balance sheet (full or excerpt)	49	27.2
income statement (full or excerpt)	48	26.7
Previous financial statements	46	25.6
Cash flow or funds flow statement (full or excerpt)	38	21.1
Statement of changes in stockholders' equity (full or excerpt)	36	20
Summary of key financial ratios	35	19.4
Market share of key products	34	18.9
Notes to the accounts	33	18.3
Auditor report	32	17.8
Segmental reporting	28	15.6
Performance analysis	27	15
Previous quarterly report	27	15
Industry statistics or data	27	15
Management report	26	14.4
Past Annual report (full or excerpt)	19	10.6
Share price history	18	10
Item(s) separated from annual report	18	10
Earnings or sales forecast	18	10
The existence of company's current annual report (full or excerpt)	16	8.9
Share price performance in relation to stock market index	16	8.9
Links to financial analysts	12	6.7
Financial statements according to IFRS	11	6.1
Past dividends	9	5
Earning release	9	5
Links to Egyptian Stock Exchange	5	2.8

Note: Frequencies of financial information, IFRS= International Financial Reporting Standards

Appendix 14: Disclosure of corporate governance information on the Egyptian listed companies' website

Corporate governance information	No.	%
Board of directors (names or photos only)	76	42.2
Ownership structure	68	37.8
Chairman's message to shareholders	61	33.9
Organisational Structure	53	29.4
Management's plans to meet objectives and strategies	48	26.7
Management Team	45	25
Board of directors (C.V., profiles and executives/non-executives)	25	13.9
Corporate governance principles/guidelines	14	7.8
Charters of audit committee	12	6.7
Code of Ethics	11	6.1
Articles of Association	10	5.6
Charters of other committees	9	5
Notice of meetings and agenda of annual shareholders' meeting	8	4.4
Speeches of the management board during the AGM	4	2.2
Remuneration of board of directors	1	0.6

Appendix 15: Disclosure of corporate social responsibility information on the Egyptian listed companies' websites

Corporate social responsibility information	No.	%
Company profile	170	94.4
Links to products (services) and sales information	168	93.3
Company history	141	78.3
Discussion on product quality and safety	94	52.2
Customer profile	72	40
Mission/Vision statement	70	38.9
Certificate of quality assurance (ISO) or awards of best practice (for service companies)	61	33.9
Employee profile/training	57	31.7
Environmental/safety health report	40	22.2
Human resources information	26	14.4
Donations/sponsoring to community groups	19	10.6
Corporate responsibility report	17	9.4

Appendix 16: Disclosure of contact details information on the Egyptian listed companies' websites

Contact details information	No.	%
E-mail of investor relations	32	17.8
The existence of investor relations section	24	13.3
Phone number of investor relations	24	13.3
Name of investor relations officer	22	12.2
Postal address of investor relations	16	8.9

Appendix 17: The disclosure of presentation information on the Egyptian listed companies' website

Items	No.	%
Multilanguage of home page	66	36.7
Flashes (moving pictures)	61	33.9
Clear boundaries between the annual report and other information	47	26.1
Ability to download information	45	25
Change in printing friendly format possible	43	23.9
Any financial statements in PDF format	33	18.3
Graphic images	33	18.3
Annual report in PDF-format	23	12.8
Video files	22	12.2
Investor presentation	20	11.1
Sound files	18	10
Any financial statements in HTML format	16	8.9
Annual report in html-format	2	1.1
Webcasting events	1	0.6

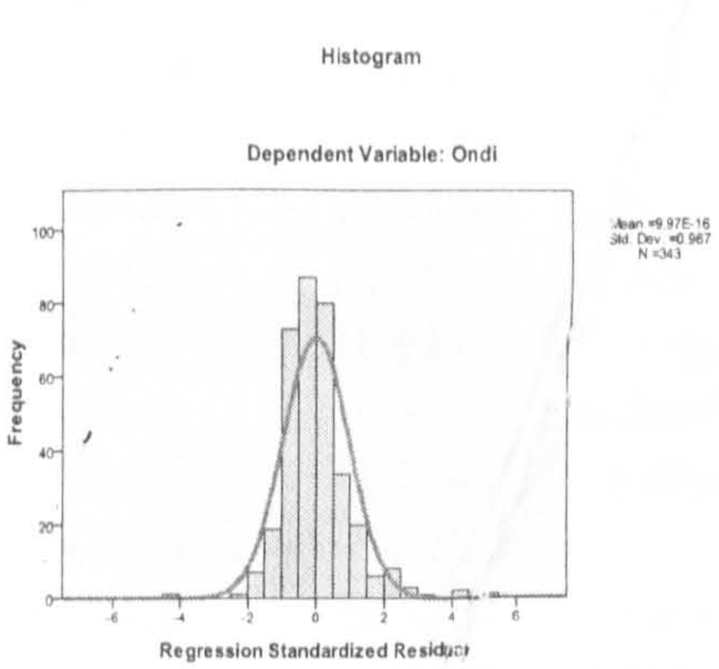
Appendix 18: The disclosure of timeliness information on the Egyptian listed companies' websites

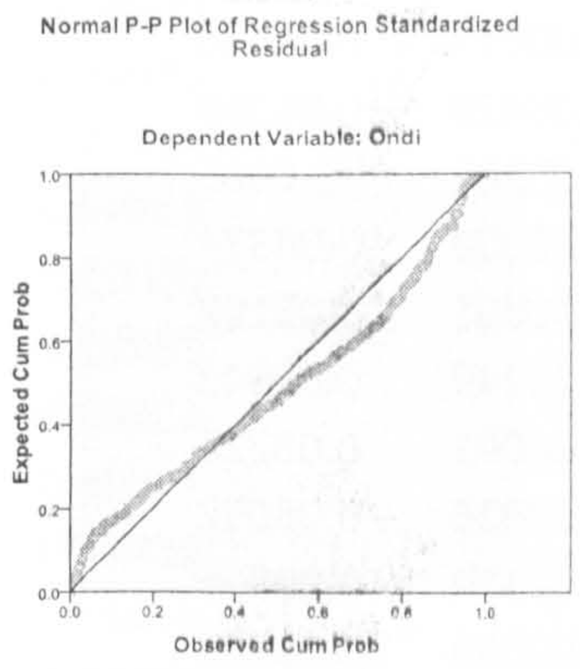
Items	No.	%
Current press releases or news	57	31.7
The most recent quarterly reports	35	19.4
Pages indicating the latest update	29	16.1
Current key financial ratios	28	15.6
Current financial highlight/summary	28	15.6
Hints for finding current information directly	25	13.9
Option to register for future e-mail alerts regarding press releases, newsletters, etc	25	13.9
Current share price	16	8.9
Current dividends announcements	10	5.6
Calendar for future financial events	9	5

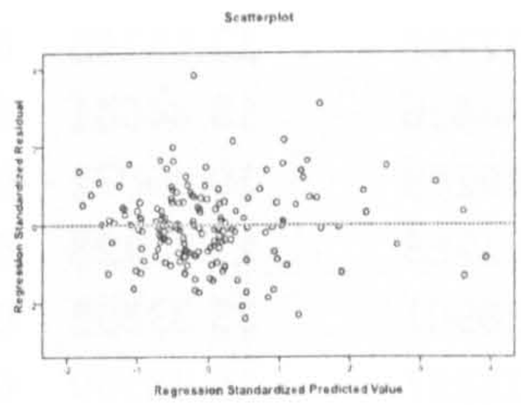
Appendix 19: The disclosure of usability information on the Egyptian listed companies' websites

Items	No.	%
Mailing list	162	90
Table of contents	143	79.4
Next/previous/top buttons to navigate sequentially	68	37.8
Pull-down menu	67	37.2
Feed Back	67	37.2
Site Map	52	28.9
Internal search box	47	26.1
One click to get to investor relations information	38	21.1
External links (other than Egyptian stock exchange)	34	18.9
Privacy statement	22	12.2
FAQs (on the investor relations page)	20	11.1
Legal statement	19	10.6
Link to annual report on home page	17	9.4
Bookmark the page	9	5
Online investor information order services	8	4.4
Help site	7	3.9
Financial glossary	7	3.9

Appendix 20: Assumptions for CIR model







Appendix 21: Methods of outliers

Z Score	Mahalanobis	Cook's	Leverage
0.59581	21.15157	0.00008	0.06221
1.50654	26.35046	0.00297	0.0775
0.35285	28.51202	0.00247	0.08386
-1.75192	27.64064	0.01691	0.0813
-0.87821	80.77791	0.00582	0.23758
1.5444	24.57515	0.01357	0.07228
-0.26787	18.8296	0.00023	0.05538
2.25633	27.06586	0.03798	0.07961
-0.36094	39.88171	0.0004	0.1173
1.15673	22.07422	0.00401	0.06492
-1.0665	24.08297	0.00038	0.07083
0.40873	22.64259	0.00146	0.0666
-2.05053	20.6088	0.01078	0.06061
-1.10557	16.52978	0.00222	0.04862
0.20464	28.96446	0.00021	0.08519
0.08527	10.32844	0.00003	0.03038
-0.7679	11.47162	0.00091	0.03374
0.18423	10.99946	0.00002	0.03235
-1.81616	20.30698	0.01135	0.05973
0.07553	54.11945	0.00013	0.15917
-0.50641	27.27885	0.00006	0.08023
0.00297	24.68139	0.00002	0.07259
0.78164	19.60371	0.00257	0.05766
0.05127	12.8543	0.00376	0.04928
0.02711	16.88687	0.00007	0.04967
-1.37118	20.08597	0.00595	0.05908
-0.55415	23.53189	0.00275	0.06921
0.90724	19.15327	0.00159	0.05633
0.43839	15.75167	0.00062	0.04633

0.08969	18.86767	0.00021	0.05549
-0.24734	24.79008	0.00119	0.07291
1.01278	18.76691	0.00474	0.0552
-0.28404	15.42084	0.00019	0.04536
1.06538	28.11206	0.00428	0.08268
0.60303	17.16899	0.00285	0.0505
0.36202	14.8723	0.0008	0.04374
-0.32701	17.55165	0.00061	0.05162
-0.98436	18.84681	0.00249	0.05543
0.16268	10.95072	0.00001	0.03221
0.01763	17.31128	0.00026	0.05092
-0.28901	33.33895	0.00114	0.09806
0.28237	18.38959	0.00009	0.05409
-0.8173	18.97627	0.0033	0.05581
-0.30772	14.38316	0.00028	0.0423
-1.06489	30.6675	0.00037	0.0902
1.12208	26.91396	0.00998	0.07916
-0.49537	11.76872	0.00081	0.03461
-0.02461	22.39063	0.0035	0.06585
-0.7403	19.91649	0.00129	0.05858
-0.45455	20.16279	0.00081	0.0593
-0.79743	19.66382	0.00071	0.05783
2.0032	11.95656	0.00669	0.03517
-0.21086	13.8725	0.00072	0.0408
2.14216	24.63009	0.01304	0.07244
-0.71597	24.20089	0.0009	0.07118
-0.11731	24.65455	0.00025	0.07251
0.69284	17.16535	0.00146	0.05049
0.05762	20.79812	0.00001	0.06117
-0.44226	8.16558	0.00003	0.02402
-1.21622	20.1403	0.00596	0.05924
0.75817	20.47993	0.00453	0.06024
-0.59361	32.00232	0.01096	0.09412
0.32003	23.2118	0.0001	0.06827
0.46591	15.57462	0	0.04581
1.31442	54.64387	0.02828	0.16072
1.08797	17.22051	0.00767	0.05065
0.58626	12.76801	0.00042	0.03755
0.03415	17.29715	0.00071	0.05087
0.6039	13.63897	0.00166	0.04011
0.66235	12.27859	0.00143	0.03611
-0.73312	17.21384	0.00106	0.05063
0.06889	29.01898	0.00026	0.08535
0.34473	15.97693	0.00024	0.04699
-0.66249	20.68226	0.00202	0.06083

-1.77043	20.42021	0.00455	0.06006
1.28706	75.89535	0.00015	0.22322
-1.58735	48.74247	0.01742	0.14336
0.09599	15.89603	0	0.04675
-0.37887	26.63145	0.00073	0.07833
-0.38429	19.45703	0.00181	0.05723
0.04955	36.84064	0.00117	0.10835
-0.10912	16.62771	0.00007	0.04891
-1.52881	20.34594	0.00477	0.05984
-1.19668	36.48938	0.0092	0.10732
-0.14938	5.8353	0	0.01716
-4.25416	48.24657	0.13527	0.1419
-0.41825	18.6194	0.00046	0.05476
-0.31561	15.4283	0.00042	0.04538
-0.20884	18.02274	0.00014	0.05301
-1.05236	15.44663	0.00104	0.04543
-0.59749	20.01593	0.00117	0.05887
2.86917	51.34119	0.0264	0.151
-0.14558	21.18577	0.00055	0.06231
-0.91581	27.12559	0.00207	0.07978
2.35404	18.89871	0.01543	0.05558
-0.51753	33.84269	0.00001	0.09954
-1.90067	16.87918	0.01168	0.04964
-0.62553	23.29011	0.00118	0.0685
-0.56131	33.86782	0.00101	0.09961
0.21212	51.95202	0.00066	0.1528
0.51687	24.66763	0.00007	0.07255
0.00133	27.1979	0.00188	0.07999
0.8276	36.04893	0.00051	0.10603
-0.40686	36.5136	0.00006	0.10739
-0.05432	27.75868	0.00046	0.08164
0.06586	41.12334	0	0.12095
-0.59276	39.42096	0.00034	0.11594
1.06666	35.0502	0.00115	0.10309
-0.99184	25.44127	0.00369	0.07483
-0.52423	40.92951	0.00634	0.12038
-1.99889	36.7834	0.00527	0.10819
0.2672	23.10107	0.00029	0.06794
-0.15813	20.24979	0.00008	0.05956
-0.31147	33.22019	0.00523	0.09771
1.29346	30.10464	0.00832	0.08854
0.07462	51.03823	0.00254	0.15011
-0.41144	54.4804	0.00188	0.16024
-0.90283	23.29452	0.0018	0.06851
0.20526	14.09963	0	0.04147

-0.06989	9.06467	0.00013	0.02666
-0.69684	18.52853	0.00519	0.0545
-0.64915	13.10639	0.00073	0.03855
1.12023	18.27926	0.0036	0.05376
0.43081	15.62055	0.00008	0.04594
-1.44617	13.92101	0.00222	0.04094
-0.13156	17.7041	0.00006	0.05207
-0.67391	18.31041	0.0009	0.05385
0.26536	12.44384	0.00003	0.0366
-0.20193	28.82439	0.00012	0.08478
-0.86906	21.62028	0.00048	0.06359
0.40807	20.90884	0.00027	0.0615
-0.08087	14.59409	0	0.04292
-0.21778	16.54442	0.00038	0.04866
0.53119	9.56952	0.00034	0.02815
-0.2028	15.17662	0.00007	0.04464
0.87741	8.96152	0.00045	0.02636
-0.05731	11.08161	0.00031	0.03259
0.33973	12.26506	0.00013	0.03607
-0.94396	17.32497	0.0026	0.05096
-0.61041	12.94703	0.00008	0.03808
0.3057	22.5185	0	0.06623
0.12378	17.82926	0.00019	0.05244
-0.34342	17.76254	0.00131	0.05224
1.83514	23.82212	0.00964	0.07007
-1.13817	22.42218	0.00319	0.06595
-0.62844	25.94249	0.00487	0.0763
0.50782	19.91369	0.00099	0.05857
-0.21454	18.23065	0.00249	0.05362
-0.67996	8.52326	0.00085	0.02507
-0.61453	28.99228	0.00108	0.08527
0.21095	30.57242	0.00002	0.08992
0.39672	18.22459	0.00011	0.0536
0.75655	13.93545	0.00051	0.04099
-0.2989	15.74769	0.00003	0.04632
0.02105	14.24589	0	0.0419
-0.25657	17.26746	0.00119	0.05079
0.29851	17.51879	0.00067	0.05153
0.55957	17.03208	0.00017	0.05009
0.24217	13.00338	0.00027	0.03825
-0.59595	11.44681	0.00025	0.03367
-0.91645	12.18869	0.00195	0.03585
-0.56291	18.62391	0.00149	0.05478
-0.82814	28.77482	0.00014	0.08463
-1.06312	16.09301	0.00348	0.04733

0.29595	24.23825	0.00002	0.07129
-0.59257	27.3716	0.00052	0.0805
0.80995	10.44669	0	0.03073
-0.7337	16.92682	0.00104	0.04978
-0.62182	23.40175	0	0.06883
0.25383	14.15228	0.00228	0.04162
-0.41453	16.7534	0.00019	0.04927
-0.14019	24.40543	0.00177	0.07178
-0.58986	15.68577	0.00008	0.04613
0.11519	21.00311	0.00016	0.06177
0.02225	10.2861	0.00008	0.03025
0.17714	25.94413	0.00016	0.07631
0.63967	13.54044	0.00322	0.03982
-0.13849	31.14376	0.00033	0.0916
-0.70588	13.14435	0.00071	0.03866
-0.97351	11.8286	0.00119	0.03479
0.33264	13.40312	0.00062	0.03942
-0.99943	14.65038	0.00268	0.04309
-0.93801	28.9315	0.0002	0.08509
-0.0115	13.62581	0.00003	0.04008
1.13145	30.75698	0.00487	0.09046
-0.05325	28.45347	0.00043	0.08369
-0.33333	6.95198	0.00023	0.02045
-0.35907	32.8871	0.00527	0.09673
1.01797	13.18645	0.00054	0.03878
0.16357	19.93372	0.00161	0.05863
-0.66578	18.78802	0.00336	0.05526
5.44929	52.23854	0.18077	0.15364
-0.35212	22.99984	0.00037	0.06765
-0.15505	18.17854	0.00004	0.05347
-0.00824	20.61998	0.00023	0.06065
1.05577	10.79458	0.00065	0.03175
-0.01952	11.28902	0.0001	0.0332
1.73026	56.46436	0.00004	0.16607
-0.66727	21.1944	0.00124	0.06234
0.136	20.09058	0.00069	0.05909
2.06845	23.20496	0.03822	0.06825
0.11479	9.09822	0.0002	0.02676
-0.9534	13.82777	0.00153	0.04067
0.20037	11.73194	0.00003	0.03451
-0.42819	18.31856	0.00189	0.05388
0.08746	14.64875	0.00059	0.04308
0.55147	19.30124	0.00296	0.05677
0.39022	17.123	0.00001	0.05036
-0.3298	14.10306	0.00167	0.04148

1.31564	50.8559	0.02271	0.14958
0.67546	10.5822	0.00104	0.03112
0.47736	15.90245	0.00003	0.04677
0.73848	13.99841	0.00061	0.04117
1.05924	25.5006	0.00205	0.075
1.07621	14.47907	0.00255	0.04259
0.99821	16.89258	0.00569	0.04968
0.94408	17.46549	0.00161	0.05137
-0.4459	15.52394	0.0001	0.04566
0.26116	19.45324	0.00024	0.05722
-0.77454	15.92055	0.00064	0.04683
0.04853	8.71926	0.00022	0.02564
0.36204	24.07352	0.00024	0.0708
0.23583	12.65138	0.00002	0.03721
0.25421	12.33083	0.00037	0.03627
-0.48354	19.73563	0.0001	0.05805
-0.29295	22.19686	0.00002	0.06528
0.09146	21.04086	0.00004	0.06188
-0.13498	19.69361	0.00003	0.05792
-0.13052	11.72549	0.00528	0.01298
-0.87644	15.30083	0.00445	0.045
-0.27273	17.3585	0	0.05105
-1.42485	18.57112	0.0039	0.05462
0.29396	20.50094	0.00172	0.0603
-0.76922	15.00665	0.00138	0.04414
-0.35044	10.07574	0.00027	0.02963
-0.44946	24.2424	0.00039	0.0713
0.22464	19.80852	0.00025	0.05826
-0.67363	20.50324	0.00068	0.0603
-0.40836	22.32701	0.0015	0.06567
-0.18241	11.36292	0.00001	0.03342
-0.35736	13.68653	0.00032	0.04025
-0.10943	16.07574	0.00002	0.04728
-0.42577	13.03751	0	0.03835
-0.23146	10.61351	0.00001	0.03122
-0.22896	57.4175	0.0068	0.16888
-0.13838	17.23876	0.00102	0.0507
0.13514	9.95979	0.00002	0.02929
-0.15472	11.75374	0.00014	0.03457
-0.49967	15.22146	0.0002	0.04477
0.19327	26.48207	0.00032	0.07789
0.2261	12.6566	0	0.03723
0.6223	34.62431	0.00007	0.10184
3.06504	17.20892	0.01889	0.05061
0.47018	14.92904	0.00089	0.04391

0.77139	6.82204	0.00075	0.02006
-0.14594	10.48475	0	0.03084
0.04299	15.94025	0.00043	0.04688
-0.97327	33.51436	0.00019	0.09857
-0.1958	21.01194	0.00018	0.0618
-0.50899	30.64584	0.0097	0.09013
-0.57119	48.30326	0.00267	0.14207
-0.96743	23.57074	0.00194	0.06933
0.15486	37.86644	0.00647	0.11137
-0.80332	15.13722	0.00248	0.04452
-0.63068	32.05366	0.00002	0.09428
0.07439	32.6774	0.00852	0.09611
-1.29389	23.9534	0.01121	0.07045
1.13034	19.89185	0.00616	0.05851
-0.82233	16.52153	0.0013	0.04859
0.76393	15.03038	0.00329	0.04421
-0.08863	13.77335	0.00005	0.04051
0.38569	14.26851	0.00071	0.04197
-0.51815	18.71485	0.00003	0.05504
-0.83981	20.64891	0.00052	0.06073
-0.36843	22.86046	0.00004	0.06724
-0.90659	42.57098	0.00156	0.12521
0.63668	34.26021	0.00529	0.10077
-0.05729	21.05357	0.0012	0.06192
0.85798	21.22376	0.00029	0.06242
0.91837	10.46605	0.00086	0.03078
-0.62128	15.15422	0	0.04457
0.48592	12.59001	0.00002	0.03703
-0.63949	23.86901	0.00114	0.0702
-0.01164	19.75142	0	0.05809
-0.11677	19.82236	0.00059	0.0583
-0.97763	38.66501	0.02158	0.11372
-1.26341	31.97315	0.007	0.09404
2.00477	22.45042	0.01309	0.06603
2.92244	31.59556	0.059	0.09293
1.13739	14.80809	0.00122	0.04355
-0.06412	17.61642	0.00017	0.05181
-1.05374	20.54555	0.00089	0.06043
2.35274	18.01656	0.00965	0.05299
-0.8954	23.61659	0.00195	0.06946
-0.67472	24.40129	0.00003	0.07177
-0.35674	16.35981	0.0007	0.04812
-0.06114	18.90672	0.00001	0.05561
1.9439	34.73356	0.00844	0.10216
0.10177	16.42175	0.00078	0.0483

0.77086	19.13761	0.00369	0.05629
-0.07544	11.22072	0.0002	0.033
0.14031	15.76334	0.00139	0.04636
0.6212	13.81544	0.00069	0.04063
1.0149	20.93451	0.00115	0.06157
-1.22435	19.37042	0.00834	0.05697
-0.89522	16.32183	0.00405	0.04801
-0.61085	18.37793	0.00007	0.05405
4.00219	21.33959	0.04605	0.06276
-1.24837	32.19534	0.0013	0.09469
0.28297	11.55048	0.00002	0.03397
4.33212	34.40076	0.13136	0.10118
1.61047	63.81627	0.00923	0.18769
2.22012	65.97278	0.11552	0.19404
0.31636	13.0722	0.00006	0.03845
-0.6815	22.81361	0.00203	0.0671
0.52467	15.99581	0.00032	0.04705
-1.15068	28.44632	0.00238	0.08367
0.18564	41.25005	0.00082	0.12132
-1.06748	13.66348	0.00221	0.04019
0.35066	18.13363	0.00036	0.05333
0.50968	29.17918	0.00062	0.08582
-0.38187	17.82406	0.00023	0.05242
-0.38693	28.14289	0.00183	0.08277
0.34704	26.12418	0.00007	0.07684
-0.21002	21.90083	0.00126	0.06441
0.20939	14.00812	0.00035	0.0412
-0.57641	14.77075	0.00078	0.04344
-0.33229	25.18454	0.00027	0.07407
0.69488	12.10756	0.00115	0.03561
0.07674	38.60012	0.00792	0.11353
2.61315	19.94711	0.01259	0.05867
-0.57552	14.0899	0.00047	0.04144
-0.26446	10.98346	0.00035	0.0323
-0.56161	34.32346	0.01254	0.10095
-1.06958	21.16466	0.00199	0.06225
-0.84126	14.3023	0.00077	0.04207
-0.77315	14.07689	0.0011	0.0414
0.13127	21.31813	0.00024	0.0627
-0.36249	12.83212	0.00027	0.03774
-0.12063	16.84269	0.00041	0.04954
-0.4041	16.12124	0	0.04742
-0.92567	11.99176	0.00163	0.03527
1.1447	35.95326	0.00961	0.10574

Appendix 22: The summary of multivariate analysis findings for CIR

Variables	Hypotheses	Models			Explained theories	Supported literature
		U	L	T		
Company Characteristics II1						
Size	H1.1	***	***	***	Information costs (Supported)	Ashbaugh et al., 1999; Brennan and Hourigan, 2000; Ettredge et al., 2002; Larran and Giner, 2002; Oyelere et al., 2003; Marston, 2003; Silva and Christensen, 2004; Al-Htaybat, 2005; Garcia-Borbolla et al., 2005, Sriram and Laksmana, 2006, Celik et al., 2006; Prabowo and Angkoso, 2006; Andrikopoulos and Diakidis, 2007; Barako et al., 2008; Aly et al., 2010
Profitability	H1.2	insignificant			Not Supported	Ashbaugh et al., 1999; Larran and Giner, 2002; Oyelere et al., 2003; Silva and Christensen, 2004; Andrikopoulos and Diakidis, 2007; Aly et al., 2010
Leverage	H1.3	**	***	***	Agency (Supported)	Ng and Koh, 1994; Hossain et al., 1995; Ahmed and Courtis, 1999; Celik et al., 2006; Momany and Al-Shorman, 2006; Prabowo and Angkoso, 2006; Abdel-Fattah, 2008. However, it contradicts Wallace and Naser, 1995; Ahmed 1996; Chen and Jaggi, 2000; Depoers 2000; Brennan and Hourigan, 2000; Larran and Giner, 2002; Oyelere et al., 2003; Aly et al., 2010
Legal Form	H1.4	*	*	**	Capital need and political (Supported)	Abd-Elsalam and Weetman, 2003
Company Age	H1.5	insignificant			Not Supported	Haniffa and Cook, 2002; Mangena, 2004; Alsaeed 2006; Akhtaruddin 2005; Omar 2007; Barako et al. 2008
Asset In Place	H1.6	insignificant	**	***	Capital need and signalling (Supported)	Mitchell, 1995; Haniffa and Cooke, 2002
Market related H2						
Activity Type	H2.1	***	***	***	Political and signalling (Supported)	Marston and Leow, 1998; Craven and Marstone, 1999; Brennan and Hourigan, 2000; Marston 2003; Momany and Al-Shorman, 2006; Celik et al., 2006; Aly et al., 2010
Foreign listing	H2.2	***	***	***	Stakeholder and legitimacy (Supported)	Cook, 1989, 1991; Ahmed and Nicholls, 1994; Hossain et al., 1994; Meek et al., 1995; Hossain et al., 1995; Mangena 2004; Anderson and Daoud, 2005; Collet and Hasky, 2005; Trabelsi and Labelle, 2006; Celik et al., 2006; Omar, 2007; Abdel-Fattah, 2008; Aly et al., 2010
Audit Type	H2.3	insignificant	*	insignificant	Signalling and diffusion of innovation	Suwaidan, 1997; Ahmed and Courtis, 1999; Al-Shiab, 2003;Trabelsi and Labelle, 2006;

					(Supported)	Abdel-Fattah, 2008; Aly et al., 2010
Shares Volatility	H2.4	insignificant	**	***	Signalling (Supported)	Lang and Lundholm, 1993; Bushee and Noe, 1999; Botósan and Plumee, 2000; Trabelsi and Labelle, 2006
Shares Activity	H2.5	insignificant	insignificant	*	capital need, political and legitimacy (Supported)	Abd-Elsalam and Weetman, 2003; Hassan, 2006
Shares Issuance	H2.6	insignificant	(*)	insignificant	Signalling (Supported)	Xiao et al., 2004; Sriram and Laksmana, 2006; Kelton and Yang, 2008
Ownership Structure H3						
Block Holder Ownership	H3.1	insignificant	(*)	(*)	Agency (Supported)	McKinnon and Dalimunthe, 1993; Mitchell et al., 1995; Schadewitz and Blevins, 1998; Oyelere et al., 2003; Bauwhede and Willekens, 2008
Managerial ownership	H3.2	insignificant	**	**	Signalling and Stewardship (Supported)	Warfield et al., 1995; Chau and Gray, 2002; Mohd-Nasir and Abdulah, 2004; Karamanou and Vafeas, 2005; Chen and Jain, 2007; Jiang and Habib, 2009
Government ownership	H3.3	insignificant	(***)	(***)	Information costs and political (Supported)	Mohd, 2004; Jiang and Habib, 2009
Institutional ownership	H3.4	(***)	(***)	(**)	Information costs (Supported)	Schadewitz and Blevins, 1998; Ajinka et al., 2005; Karamanou and Vafeas, 2005; Sriram and Laksmana, 2006
Corporate governance II4						
Board Size	H4.1	insignificant	*	*	Agency (Supported)	Beasley, 1996; Beasley and Salterio, 2001; Klein, 2002; Karamanou and Vafeas, 2005; Laksmana, 2008; Abdel-Fattah, 2008
Non-Executive directors	H4.2	*	insignificant		Not Supported	Ho and Wong, 2001b; Haniffa and Cooke, 2002; Lakhal, 2003; Mangena and Pike, 2005; Mohd and Weetman, 2006
Role Duality	H4.3	insignificant			Not Supported	Haniffa and Cooke, 2002; Arcay and Vazquez, 2005; Cheng and Courtenay, 2006; Ghazali and Weetman, 2006; Abdel-Fattah, 2008
Family Members	H4.4	insignificant	**	*	Cost-benefit, legitimacy and stakeholder	Wang, 2006; Ali et al., 2007; Abdel-Fattah, 2008
Foreign Members	H4.5	insignificant			Not Supported	Pervan, 2006; Said et al., 2009

Note: U= un-transformation model, L= log transformation mode, T=Tobit model.

Appendix 23: Bivariate analysis between CIR components and continuous variables

Variables	Pearson				Spearman			
	Content	Presentation	Timeliness	Usability	Content	Presentation	Timeliness	Usability
Size	.547***	.502***	.514***	.455***	.394***	.394***	.343***	.365***
Prof	.109**	.067	.098**	.153***	.058	.028	.014	.067
Lev	.221***	.182***	.250***	.230***	.193***	.222***	.180***	.180***
C Age	-.013	-.032	-.008	-.007	.032	.004	.009	.007
Asst Plc	-.059	-.070	-.058	-.058	-.055	-.113**	-.061	-.056
Sh Volatility	.213***	.173***	.215***	.119**	.119***	.207***	.140***	.104**
Sh Activity	.352***	.338***	.350***	.249***	.222***	.296***	.231***	.197***
B Holder	-.232***	-.187***	-.195***	-.141***	-.172***	-.146***	-.164***	-.150***
Man Own	-.046	-.038	-.076	-.037	-.091	-.021	-.063	-.067
Gove Own	-.011	.002	.006	-.014	.203***	.161***	.185***	.137***
Ins Own	-.060	-.078	-.034	-.010	-.042	-.045	-.062	-.015
B Size	.246***	.230***	.228***	.253***	.206***	.187***	.176***	.240***
Non Exec	.150***	.177***	.178***	.152***	.102**	.170***	.133***	.116**

Note: Size = Company size, Prof = Profitability, Lev = Leverage, C Age = Company age, Ass Plc = Assets in place, Sh Volatility = Shares volatility, Sh Activity = Shares activity, B Holder = Block holder ownership, Man Own = Managerial ownership, Gov Own = Governmental ownership, Ins Own = Institutional Ownership, B Size = Board size, Non-Exec = Non-executive directors

Appendix 24: T- test for the correlation between dummy variables and CIR components

Variables	T-test							
	Content		Presentation		Timeliness		Usability	
	Mean	T. value	Mean	T. value	Mean	T. value	Mean	T. value
L Form		-0.336		-0.343		-0.693		-0.807
Yes	.10		.08		.06		.12	
No	.11		.09		.08		.14	
Fin T		3.53***		3.65***		2.90***		3.75***
F.	.23		.20		.18		.26	
N.F.	.09		.07		.06		.12	
F Listing		5.40***		4.96***		4.02***		4.02***
Yes	.68		.51		.60		.50	
No	.10		.08		.06		.13	
Audit		5.33***		5.16***		4.35***		4.89***
B 4	.20		.17		.15		.21	
N B 4	.07		.05		.04		.10	
Sh Issue		1.60*		1.52*		1.94**		2.38***
Yes	.14		.11		.11		.17	
No	.10		.08		.06		.12	
R Duality		-2.22**		-1.94**		-1.43*		-2.01**
Yes	.09		.07		.06		.12	
No	.14		.11		.10		.16	
Fam		.381		-0.051		0.900		0.223
Yes	.12		.08		.09		.14	
No	.11		.09		.07		.13	
Fore		2.99***		3.38***		2.62***		2.43***
Yes	.16		.14		.12		.17	
No	.09		.06		.05		.12	

Note: L Form = Legal form, Fin T = Type of activity, F Listing = Foreign listing, Audit = Audit type, Sh Iss = Shares issuance, R Duality = Role duality, Fam = Family members on the board, Fore = Foreign members on the board.

Appendix 25: Mann-Whitney test for the correlation between categorical variables and CIR components

Variables	Mann Whitney test							
	Content		Presentation		Timeliness		Usability	
	Mean Rank	Z value	Mean Rank	Z value	Mean Rank	Z value	Mean Rank	Z value
Legal Form		-1.39		-.814		-.525		-.221
Yes	189.44		181.32		177.16		174.75	
No	169.16		170.48		171.16		171.55	
Type		-4.06***		-3.65***		-4.82***		-3.95***
F.	226.93		217.06		223.13		225.18	
N.F.	164.34		165.71		164.87		164.58	
Foreign Listing		-4.33***		-4.70***		-4.83***		-4***
Yes	305.33		304.17		288.72		294.39	
No	168.41		168.44		168.85		168.70	
Audit Type		-4.86***		-4.28***		-5.18***		-4.53***
B 4	206.62		199.86		200.91		204.07	
N B 4	154.54		157.95		157.42		155.82	
S. Issue		-1.74**		-1.40*		-3.02***		-2.75***
Yes	186.21		182.42		191.33		194.33	
No	166.56		168.01		164.60		163.45	
Role Duality		-2.04**		-1.96**		-1.18		-1.90**
Yes	163.79		164.80		168.26		164.39	
No	184.97		183.37		177.90		184.02	
Family Mem.		-.663		-.278		-.054		-.052
Yes	168.54		170.67		171.78		172.27	
No	175.25		173.24		172.21		171.75	
Foreign Mem.		-1.48*		-2.45***		-2.28**		-1.68**
Yes	182.07		187.23		184.14		183.40	
No	166.44		163.60		165.30		165.71	

Note: L Form = Legal form, Fin T = Type of activity, F Listing = Foreign listing, Audit = Audit type, Sh Iss = Shares issuance, R Duality = Role duality, Fam = Family members on the board, Fore = Foreign members on the board.

Appendix 26: The findings of multivariate analysis for CIR components

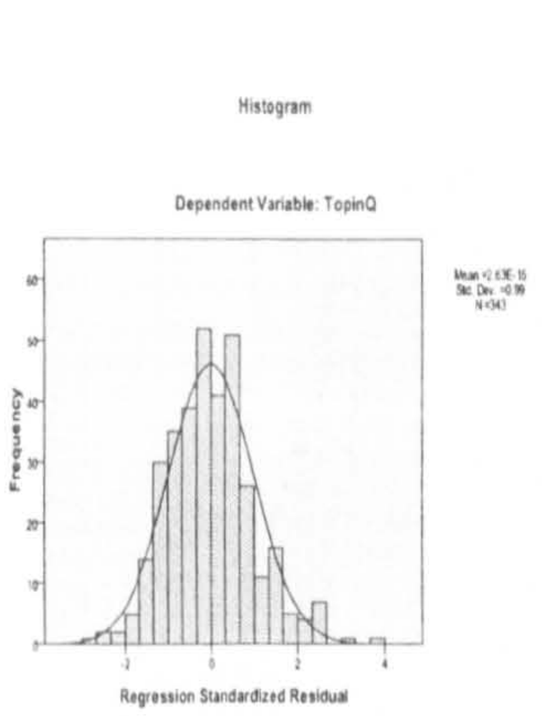
Variables	Content			Presentation			Timeliness			Usability		
	Theories	E.F	S.L	Theories	E.F	S.L	Theories	E.F	S.L	Theories	E.F	S.L
Company Characteristics												
Size	Political	+	B,C,D, E,F,G, H,M,N, K,O	Information costs	+	E,G, H,O	Diffusion innovation	+	N,P	TAM	+	I
Prof.	Not Sup.	NS	B,F,G, H,N,O	Not Sup.	NS	G,O	Not Sup.	NS	N,P	Not Sup.	NS	
Lev.	Agency	+	D,G	Agency	+	G	Diffusion innovation	+		TAM	+	
L. Form	Political	+	G	Capital need	+		Not Sup.	N		Not Sup.	N	
C. Age	Not Sup.	NS		Not Sup.	NS		Not Sup.	NS		Not Sup.	NS	
A. Place	Signalling	+	G				Not Sup.	N		TAM	+	
Market related												
Type	Signalling	+	A,J	Political	+		Diffusion innovation	+		TAM	+	
F. list.	Agency	+	H	Capital need	+	H	Diffusion innovation	+		TAM	+	I
Audit T.	Political	+	O	Signalling	+		Not Sup.	NS		Not Sup.	NS	
S. Vol.	Political	+	K	Signalling	+		Not Sup.	NS		Signalling	+	
S. Act.	Capital need	+		Political	+		Diffusion innovation	+		Not Sup.	NS	
S. Iss.	Signalling	-	O	Signalling	-		Not Sup.	NS		Not Sup.	NS	
Ownership Structure												
B. Holder	Agency	-	O	Not Sup.	NS		Not Sup.	NS	M, N	Not Sup.	NS	I,M
Man. Own	Stewardship	+		Not Sup.	NS	O	Not Sup.	NS	M,P	TAM	+	
Gov. Own	Political	-	G	Information costs	-		Diffusion innovation	-		TAM	-	
Ins. Own	Information costs	-	L	Information costs	-		Diffusion innovation	-		Not Sup.	NS	
Corporate governance												
B. Size	Agency	+		Not Sup.	NS		Not Sup.	NS		TAM	+	
N. Exe.	Not Sup.	NS	G	Not Sup.	NS		Not Sup.	NS	M	Not Sup.	NS	M
R. Duality	Not Sup.	NS	M,O	Not Sup.	NS	O	Not Sup.	NS	N,P	Not Sup.	NS	M
F. Mem.	Stakeholder	+		Political	+		Diffusion innovation	+		Not Sup.	NS	
For. Mem.	Not Sup.	NS		Not Sup.	NS		Not Sup.	NS		Not Sup.	NS	

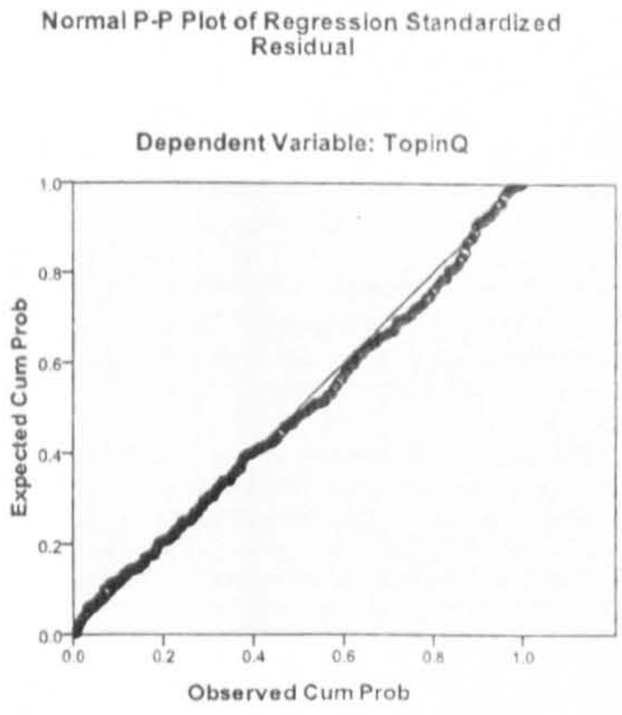
Note: E.F.= Empirical Findings, S.L.= Support literature, Not sup= not Supported, NS= Not significant, Prof.= Profitability
A= Brennan and Hourigan, 2000; B= Ettredge et al. 2002; C= Bonson and Escobar 2002; D= Ismail, 2002; E= Debreceny et al. 2002; F= Laren and Giner 2004; G= Xiao et al. 2004; H= Marston and Poli 2004; I= Bollen et al., 2006; J= Celik et al., 2006; K= Trabelsi and Labelle, 2006; L= Sriram and Laksmena 2006; M= Abd-Elsalam et al 2007; N= Abd-Elsalam and Street 2007; O= Kelton and Yang, 2008 and P= Abdelsalam and Elmasrey 2008.

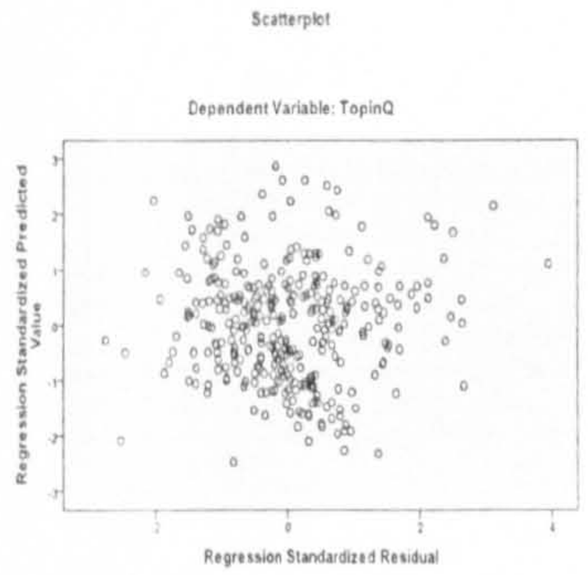
Appendix 27: Operationalisation of CIR economic consequences models

Variables	Acronym	Proxy
Dependent Company value		
Tobin's Q ratio	Q	Equity market value plus total debt book value divided by assets book value
Market to Book equity value	M/B	Market to Book equity value
Independent		
Corporate Internet reporting	CIR	Total index of CIR
Control		
Company Size	Size	The natural logarithm of market capitalisation
Profitability	ROE	Net income divided by total equity
Foreign Listing	F List	Dichotomous variable coded "1" if company listed on a foreign stock exchange, "0" otherwise
Block holder ownership	B Holder	The percentage of shareholders who hold 5% or more
Board size	B Size	The number of the members on the board
Role Duality	R Dual	Dichotomous variable coded "1" if the CEO is the chairman at the same time, "0" otherwise

Appendix 28: Assumptions for first model of measuring company value







Appendix 29: Assumptions for second model of measuring company value