INVESTIGATING RISK REPORTING PRACTICES IN EGYPT

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ABSTRACT

The globalisation of capital markets and corporate failures draw shareholders' and stakeholders' attention to the importance of risk reporting. However, traditional financial statements fail to satisfy users' needs for information because they provide only a partial view regarding a company's risk profile. Recently, risk reporting has become the focus of interest. This, however, has not been translated into empirical research that investigates risk reporting in corporate annual reports. This study addresses this gap through examining risk reporting practices in Egypt. The key objectives of this study are to measure the extent of mandatory and voluntary risk reporting, identify the nature of voluntary risk reporting and investigate firm characteristics, corporate governance and ownership structure that could explain variation in risk reporting practices in the annual reports of Egyptian companies. In addition, the study aims to identify factors that may obstruct the presentation of risk reporting in annual reports of Egyptian companies.

This study is carried out in two main phases. In the first phase, the annual reports of 106 listed companies for the years 2006/2007 were examined to measure the extent of risk reporting and examine potential determinants of risk reporting. In the second phase, 15 semi-structured interviews were carried out with academics, external auditors, regulators and financial managers to identify factors that may obstruct risk reporting in corporate annual reports.

The results indicate a low level of compliance with mandatory risk reporting requirements. Also, the results indicate a low extent of voluntary risk reporting with a tendency to report more past and qualitative than future and quantitative risk-related information. It is suggested that competition, role duality, board size, ownership concentration, profitability and auditor type influence the risk reporting practices of Egyptian companies. The study identified several accounting practice problems (such as lack of effective profession and enforcement mechanisms, adequate continuing education and qualified accountants), accounting education problems (such as inadequate local accounting textbooks, bookkeeping-oriented accounting education and lack of cooperation between the profession and universities) and the Egyptian culture of secrecy, as key obstacles to the presentation of risk reporting in corporate annual reports.

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DEDICATION

To my beloved Mother, the memory of my father,

my wife, dear sister and brother and my lovely children, Joudy, Sajed and Yusuf.

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LIST OF ABBREVIATIONS

AAA	American Accounting Association
CAO	Central Authority Organisation
CEO	Chief Executive Officer
CICA	Canadian Institute of Chartered Accountants
CIFAR	Centre of International Financial Analysis and Research
CMA	Capital Market Authority
CML	Capital Market Law
EASs	Egyptian Accounting Standards
EFSA	Egyptian Financial Supervisory Authority
EGID	Egypt for Information Dissemination
EGX	Egyptian Exchange
EIAA	Egyptian Institute of Accountants and Auditors
EIoD	Egyptian Institute of Directors
ESAA	Egyptian Society of Accountants and Auditors
EU	European Union
FASB	Financial Accounting Standards Board
GAS	German Accounting Standards
IASB	International Accounting Standards Board
IASC	International Accounting Standards Committee
IASs	International Accounting Standards
ICAEW	Institute of Chartered Accountants in England and Wales
IFAC	International Federation of Accountants
IFRS	International Financial Reporting Standards
IMF	International Money Fund
K-S Test	Kolmogorov-Smirnov Test
MD&A	Management Discussion and Analysis
OECD	Organisation of Economic Cooperation and Development
OLS	Ordinary Least Square
RMRRI	Relative Mandatory Risk Reporting Index
ROSC	Reports on the Observance of Standards and Codes
SCP	Syndicate of Commercial Professions
UAE	United Arab Emirates
UAS	Uniform Accounting System
UNCTAD	United Nations Conference on Trade and Development
VIF	Variance Inflation Factor
WB	World Bank

CHAPTER 1: INTRODUCTION

1.1 Introduction

This chapter presents an introduction to this study. Section 1.2 discusses the background and motivations of the study. Research objectives, questions and justifications are presented in section 1.3. Section 1.4 is devoted to the research contribution while section 1.5 discusses the research methodology. Finally, section 1.6 presents an outline of the thesis.

1.2 Background and Motivations

The increase of international trade through multinational companies, the internationalisation of capital markets, transition from socialist centrally planned economies to free market economies and developing countries' need to attract foreign investments have emphasised the importance of financial reporting in corporate annual reports (Decker and Brunner, 2003). Regulators, investors and other stakeholders have become more interested in the level and quality of corporate financial reporting (Frost and Ramin, 2003) and companies seek to satisfy the needs of global investors and creditors (Murphy, 1999). The pressure of international capital markets has a significant impact on the financial reporting practices of multinational companies (Gray et al., 1995; Iatridis, 2008). In addition, the transition from centrally planned economies requires enhancement in corporate financial reporting to ensure that investors receive relevant and useful information (Saudagaran and Meek, 1997). Effective communication between a company and its investors is an important precondition for the effectiveness of capital markets (Akhtaruddin, 2005).

Several factors such as culture, legal systems, sources of finance, tax systems, accounting profession and inflation level may cause a diversity of accounting practices among different countries (Nobes, 2002a). This diversity may result in less optimal investment decisions, difficulties in capital market interpretation of company performance and difficulties in raising capital on favourable terms and hence there is an imperative need for comparable financial statements (Decker and Brunner, 2003). Saudagaran and Meek (1997, p.136) indicated that 'as such, diversity imposes costs on the resource allocation system worldwide. Harmonisation of this diversity may provide one solution'.

Since 1973, the International Accounting Standards Committee (IASC), the predecessor of the International Accounting Standards Board (IASB), has played an important role in harmonising accounting practices through formatting and publishing accounting

standards that underpin the preparation and presentation of financial statements (Nobes 2002b). In supporting this effort, the International Organisation of Securities Commissions recommended the acceptance of International Accounting Standards (IASs) by its members (Decker and Brunner 2003). Despite the wide acceptance of IASs, empirical research provides evidence of non-compliance. An in-depth understanding of the determinants of compliance with IASs is important to assist accounting standard-setters and regulatory bodies, such as the IASB, to support international acceptance of the IASs (Street and Gray, 2002).

The expansion in globalisation, rapid economic changes and an aggressive business environment have contributed to the increasing attention given to risk and risk management reporting (Woods and Reber, 2003; Kajüter, 2006). Corporate failures such as Enron, WorldCom and Parmalat have drawn shareholders' and stakeholders' attention to the importance of risk and uncertainty related information (Linsley et al., 2008; Solomon et al., 2000). Changes in the business environment have led to the emergence of risk management as a standalone discipline (Woods and Reber, 2003) and highlighted its role in the maximisation of shareholder value (Solomon et al., 2000). Hence, a pressing need for enhanced risk and risk management reporting has emerged (Carlon et al. 2003; Woods and Reber, 2003). Companies should report not only their activities but also the risks surrounding them and their ability to manage these risks (Eccles et al., 2001; ICAEW, 1999). Empirical research indicated that increased risk disclosure assists institutional investors in investment decisions (Solomon et al., 2000).

Enhanced risk reporting provides forward-looking information, reduces cost of capital, encourages better risk management and enhances management accountability and financial reporting usefulness (ICAEW, 1997 and 2002). Healy and Palepu (2001) and Guan et al. (2007) argue that information asymmetry and agency problems are the main motivations of the demand for financial disclosure. Lack of risk reporting leaves investors unable to adequately identify a company's risk/return profile and consequently they fail to consider the scale and categories of risk in their investment decisions (Linsley et al., 2008). In addition, if investors have to engage in their own monitoring activities to assess management effectiveness in measuring and managing different risks, this increases agency costs (Woods and Reber, 2003). A solution to information asymmetry and agency problems is based on contracts between managers and investors and accounting regulations that stimulate and require managers to disclose their private information (Healy and Palepu, 2001).

The main objectives of financial statements are to assist users to evaluate a company's ability to generate cash and cash equivalents and the timing and certainty of their generation, review its financial position and structure, liquidity and solvency and evaluate its ability to cope with changes in the surrounding environment. However, financial information in financial statements lacks adequate disclosure regarding risks and uncertainty (Cabedo and Tirado, 2004; Schrand and Elliot, 1998). In the US, Roulstone (1999) argues that quantitative risk reporting is vague, boilerplate disclosure and difficult to understand. In the UK, institutional investors consider risk reporting practices inadequate (Solomon et al., 2000). Consequently, companies should consider procedures that assist in reducing the 'risk information gap' (Eccles et al., 2001).

Accounting standard-setters and regulatory agencies have taken several steps to improve risk disclosures. For example, the IASB issued three standards related to financial instruments presentation and measurement, namely IAS 32, 39 and International Financial Reporting Standard (IFRS) 7. A similar approach has been followed by the Financial Accounting Standards Board (FASB). In addition, in 1997, the Securities and Exchange Commission promulgated the disclosure requirements for market risk of derivative instruments. However, current mandatory reporting requirements discuss only a limited set of risks and predominantly address financial risks only (Cabedo and Tirado, 2004; Eccles et al., 2001). This means that mandatory risk disclosure requirements provide only partial disclosures (Linsley et al., 2008) and provide only a limited view of a company's risk/return profile (Eccles et al., 2001). To address this deficiency of financial statements, the Institute of Chartered Accountants in England and Wales (ICAEW), the Canadian Institute of Chartered Accountants (CICA) and the IASB have taken initiatives to provide guidelines for a more comprehensive approach of risk reporting.

In 1997, the ICAEW published the first paper of a series that discuss risk reporting. In this paper, Financial Risk Reporting - Proposal for a Statement of Business Risk, the ICAEW proposed that listed companies should provide appropriate information concerning the different risks that a company may face to assist users in identifying its risk profile. The proposal suggests four steps to assist companies in preparing high quality risk reports (see Table 1.1).

Table 1.1: A Summary of ICAEW (1997): Financial Risk Reporting - Proposal for a Statement of Business Risk

Steps	Themes	Explanation
1. Identify and prioritise key risks	Consider all types of risk	Many risks may impact on prospective cash flows and the financial position. The proposal encourages companies to disclose financial/non-financial risks and internal/external risks.
2- Describe actions taken to manage each risk	Report actions taken	Investors have to be provided with essential information to facilitate their assessment of the effectiveness of management actions in amending the risk profile.
3. Identify how risk is measured	Using a wide variety of measures	There is a need to develop and improve new risk measures and expand risk measures to include measures with operational and strategic nature and not limiting them only to measures with financial nature.
4. Filtering the information to be included in a statement	Qualitative characteristics and commercially sensitive information	Qualitative characteristics of accounting information should be used as a filter for the information to be disclosed. It is essential to discuss material risks, risks that may influence company's objectives and strategies, and provide relevant, reliable, comparable and understandable disclosure.

In the same vein, in May 2006, the CICA issued an interpretive release to management discussion and analysis (MD&A) regarding risk disclosures. The underlying purpose of this release is to explain how MD&A preparation and disclosure guidance can be applied to a particular topic, namely risk reporting. The proposal of the CICA has two key steps and several sub-steps that a company can use (see Table 1.2).

Table 1.2: Summary of the CICA Risk Disclosure MD&A Interpretive Release

Key steps	Sub-steps
1. Identifying key risks to disclose	A. Identifying and classifying risks. B. Risk disclosure should be prepared through the eyes of management, integrated with financial statements, complete and material, with forward-looking orientation and with strategic perspective. C. The revision of the regulatory requirements regarding risk disclosure.
2. Determine what to disclose regarding risks	A. Risk management strategies. B. The impact of risk on underlying performance drivers. C. Organizational capability to manage risk. D. The impact of risk on results and financial condition.

The IASB issued a discussion paper, Management Commentary, in 2005 and an exposure draft on the same matter in 2009. These discuss the framework for the preparation and presentation of a management commentary. According to the IASB, the elements of a useful and relevant management commentary should include, among others, a clear description of the significant resources, risks and relationships that affect the entity's long-term value and how those resources, risks and relationships are managed (IASB, 2005 and 2009).

The link between corporate governance and risk reporting has been emphasised since enhanced disclosures of risk-related information became a main component of corporate governance reforms (Solomon et al., 2000). Whittington (1993, p.311) argues that

'financial reporting is an important element of the system of corporate governance and some failures of corporate governance may therefore be due to inadequate financial reports'. The Organisation of Economic Cooperation and Development (OECD) emphasises that 'disclosure should include...material information on...foreseeable risk factors...' (OECD, 2004, p.22) and added 'disclosure of risk is most effective when it is tailored to the particular industry in question. Disclosure about the system for monitoring and managing risk is increasingly regarded as good practices' (OECD, 2004, p.53). Similarly, the United Nations Conference on Trade and Development (UNCTAD) asserts that (UNCTAD, 2006, p.24):

> *Users of financial information and participants in the marketplace need information on foreseeable material risks, including risks specific to industries or geographical areas, dependence on certain commodities, financial market risk and derivative risks. The corporate governance structures in place to assess, manage and report on these types of risks should be the subject of corporate governance disclosure.*

Higson (2003) argues that reporting corporate performance and risk should be based on a corporate governance perspective. This confirms the view of Solomon et al. (2000) that institutional investors who consider corporate governance to be an approach to enhance corporate performance require more disclosure including risk disclosure.

Egypt is one of the most significant countries in the Middle East and North Africa region. It occupies the northeast corner of Africa and the heart of the Middle East. Egypt has very strong economic relationships with the main economic blocs in the world. For example, Egypt and the European Union (EU) have a well-established economic relationship and the EU is Egypt's principal trade partner. Imports from EU constitute 42% and 48% of total imports and exports to the EU constitute 38% and 37.5% of total exports in 2007/2008 and 2008/2009 respectively (CBE, 2010).

Egypt has witnessed a transition from a centrally planned economy to a free market one which in turn impacted on the financial reporting practices of Egyptian companies. During the 1960s, the Egyptian government adopted policies to nationalise foreign investments and build up the public sector. The government established the Central Authority Organisation (CAO) to audit state-owned companies and monitor the implementation of economic plans. To support macro-level economic planning, the CAO developed a uniform accounting system (UAS) to be applied by state-owned companies. The UAS has a significant bearing on financial reporting practices in Egypt

because it was designed to satisfy only governmental agencies' needs for information. During this period, the activity of the Egyptian exchange (EGX) collapsed.

In the early 1990s, the Egyptian government undertook an economic reform based on the privatisation of state-owned companies and the restructuring of banking and financial systems. It issued public sector law 203 of 1991 to facilitate privatisation through allowing the public offering of state-owned companies' shares in the capital market and implemented a new Capital Market Law (CML) 95 of 1992 to organise and restore the capital market. The number of listed companies increased remarkably from 654 in 1997 to 1151 in 2001. In 2005, the Egyptian stock market was ranked top of the emerging capital markets. Foreign direct investment plays an important role in the activity of the Egyptian exchange with foreigners' transactions constituting 28.4% and 47.5% of total trading volume and market capitalisation in June 2006 (CMA, 2006a).

The Egyptian government recognised the importance of high quality corporate financial reporting and the adoption of IASs as necessary prerequisites to the success of the privatisation program. In 1997, the Ministry of Economy issued the ministerial decree No. 503 to announce the issue of 19 Egyptian Accounting Standards (EASs) that are completely based on the IASs. The decree mandated the application of IASs/EASs to all companies regulated by CML. In 2006, the second version of EASs was issued containing 35 accounting standards including, for the first time, two risk-related standards, namely EAS 25: Financial Instrument: Disclosure and Presentation and EAS 33: Segment Reporting. Although Egypt was ranked in 2005 among the top five best-performing stock exchanges in terms of returns, Egypt faces some economic weaknesses similar to those of Asian countries including rigid exchange rates, lack of adequate regulation and monitoring of the financial system and lack of transparency which in turn lead to the increase in risk premium on debt (Chabrier, 1998). The deficiency of risk-related disclosures exaggerated the East Asia financial crisis because investors lack relevant information to assess companies' risk exposures (Rahman, 1998). Most Egyptian companies do not provide investors with relevant information to predict the timing, amounts and uncertainties of prospective cash flows and gain a comprehensive understanding of a company's risk profile. Risk information has received little importance in Egyptian companies' disclosure practices (Abd-Elmalek, 2006). Moreover, Ali (2005) indicates that listed companies do not sufficiently discuss future policies and risk exposures in their board of directors' reports.

It is worth addressing the risk reporting gap in the annual reports of Egyptian companies through measuring compliance with mandatory risk reporting, identifying the characteristics of voluntary risk reporting. Also, equally important is identifying the determinants of risk reporting and reasons for non-compliance with mandatory and the low presentation of voluntary risk reporting to contribute to accounting research and inform policy makers.

1.3 Research Objectives, Questions and Justification

Several studies aim to identify the impact of firm-specific characteristics such as firm size, profitability, liquidity, and industry membership on disclosure extent (Ahmed, 1996; Ahmed, 2006; Akhtaruddin, 2005; Hossain et al., 1995; Raffournier, 1995; Depoers, 2000). The main objective of the present research is to extend this stream of studies through investigating risk reporting practices in the annual reports of Egyptian listed companies. The research aims to measure compliance with mandatory risk reporting and to identify the amount and nature of voluntary risk reporting. In addition, the research aims to investigate the corporate characteristics, corporate governance and ownership structure that could explain variations in risk reporting practices and identify factors that may obstruct the presentation of risk reporting in the annual reports of Egyptian companies. The objectives of this study are met by investigating the following questions:

1. To what extent do Egyptian listed companies comply with the mandatory disclosure requirements of EAS 25 and EAS 33?
2. What are the impacts of competition, company risk level, company-specific characteristics, corporate governance and ownership structure on compliance with the mandatory risk reporting in financial statements of Egyptian listed companies?
3. Is there any change in compliance levels of mandatory risk reporting between 2006 and 2007?
4. To what extent do Egyptian listed companies provide voluntary risk reporting in their board of directors' reports?
5. What are the impacts of competition, company risk level, company-specific characteristic, corporate governance and ownership structure on the voluntary disclosure of risk-related information in board of directors' reports of Egyptian listed companies?

6. Is there any association between the extent of mandatory risk reporting and the amount of voluntary risk reporting provided in the annual reports of Egyptian listed companies?
7. What are the factors that may impede presentation of mandatory and voluntary risk reporting in the annual reports of Egyptian listed companies?

The results of this study are important to both policy makers and regulators. They should be aware of any systematic differences in the disclosure practices of different companies in order to consider these differences in any amendments to existing financial reporting requirements (Malone et al., 1993). Identifying companies characteristics that impact on disclosure will also assist regulatory agencies in their efforts to educate companies (Owusu-Ansah, 2005). Cairns (1998, p.64) indicates that the emphasis of the IASC 'has shifted from getting companies to use the standards to ensure full compliance with IASs in IAS financial statements'. Chamisa (2005) highlights the lack of studies that investigate compliance with the IASs in developing countries and calls for more country-specific studies. Empirical evidence indicates that country of domicile is a major determinant of compliance with the IASs (Herrmann and Thomas, 1996; Nicholas and Street, 2007; Street and Gray, 2002). The results of this study will provide evidence regarding compliance with the IASs in the distinctive context of Egypt.

Identifying current financial reporting practices is a first and essential step to enhance financial reporting in general and risk reporting in particular. This may be achieved through measuring the extent and amount of mandatory and voluntary risk reporting and identifying what kinds of risks are disclosed by what types of companies. In addition, the Egyptian Financial Supervisory Authority[1] (EFSA), the successor of the Capital Market Authority (CMA), could benefit from identifying the causes for non-compliance and low disclosure of risk and hence contribute to the enhancement of risk reporting practices of Egyptian companies. To date, there is no empirical study regarding the reasons of low compliance with disclosure requirements in Egypt. The results of this study may assist the EFSA to better understand the impact of secrecy as a dominant value of accounting practice in Egypt on presentation of accounting disclosure especially disclosure related to sensitive topics such as risk reporting.

Empirical evidence has noted that Egyptian companies implement IASs selectively (Dahawy et al., 2002) which supports measuring compliance with the IASs on an

[1] According to law No. 10/2009, The Egyptian Financial Supervisory Authority replaced the Capital Market Authority effective 1st of July 2009.

individual basis. However, none of the disclosure studies that address compliance with the IASs in Egypt examined compliance with risk-related accounting standards or examine the impact of corporate governance on compliance with the IASs. The results of this study may provide insights regarding the impact of two key corporate governance mechanisms, role duality and board size on the financial reporting practices of Egyptian companies.

The findings of this study could assist the EFSA to be more informed about the weaknesses in the application of IASs and guide its efforts to encourage Egyptian companies to comply with the IASs. Egyptian companies could gain several benefits from full adherence to the IASs such as listing on international stock markets, reducing the cost of capital, the possibility to raise capital internationally and the marketability of their stocks by expanding ownership.

1.4 Research Contribution

This research contributes to the disclosure literature in several dimensions through investigating risk reporting practices in the annual reports of Egyptian companies because the topic and the country have received little attention from accounting researchers.

First, although there is considerable research that addresses voluntary and mandatory disclosure practices in developed countries, little is known about developing countries in general and Egypt in particular. Few studies address compliance with mandatory disclosure requirements in Egypt. Abd-Elsalam and Weetman (2003) examined compliance with the IASs before the issuance of the EASs in 1997. Samaha and Stapleton (2008) discuss compliance with the IASs after the issuance of the EASs in 1997. However, neither of these studied compliance with the requirements of two risk-related accounting standards, namely segment reporting and financial instruments disclosure.

Second, more than 100 countries require or permit the application of IASs. The major issue, however, is the extent to which companies comply with the requirements of IASs and the challenge is to ensure that IASs are implemented by companies in both developing and developed countries (Chamisa, 2000). Empirical research provides evidence of non-compliance with the IASs (Street and Bryant 2000; Street and Gray 2002). The compliance with accounting standards is mixed and selective due to the lack of effectiveness of external auditors' and enforcement mechanism' functions (Al-Shammari et al., 2008; Street et al., 1999). This research contributes to the literature by

examining the impact of auditor type on compliance with the IASs in one of the developing countries, Egypt.

Third, Egypt is a country with notable societal values. According to Hofstede (1984), Egypt is a society with a greater tendency towards collectivism, high power distance and high uncertainty avoidance as benchmarked against the UK and the US. These societal values are associated with a preference for statutory control, uniformity, conservatism and secrecy (Gray, 1988). Consequently, Egypt is a fertile ground to address the potential conflict between risk disclosure and secrecy.

Fourth, although increasing attention has been given to risk reporting, this has not been translated to empirical research that addresses risk reporting in corporate annual reports (Linsley and Shrives 2006). Recently, a few studies have addressed risk reporting in annual reports. However, nearly all of these studies have been conducted in developed countries such as Canada (Lajili and Zéghal, 2005), Italy (Berretta and Bozzolan, 2004), Germany (Kajüter 2006), Japan (Konishi and Ali, 2007), the UK (Abraham and Cox, 2007; Linsley and Shrives, 2006; Rajab and Handley-Schachler, 2009; Woods and Reber, 2003) with exceptions being Malaysia (Amran et al., 2009) and the United Arab Emirates (Hassan, 2009). Consequently, little is known about risk reporting in developing countries in general and Egypt in particular. In addition, there is a tendency in risk reporting studies to employ bivariate statistical methods for data analysis and few of them use multivariate statistical methods and this may overlook the insights that multivariate analysis can bring. This study addresses this point by using both bivariate and multivariate statistical methods.

Fifth, risk reporting studies tend to focus on examining either voluntary (Berretta and Bozzolan, 2004; Linsley and Shrives, 2006) or mandatory risk reporting (Kajüter, 2006; Lopes and Rodrigues, 2007) and none of these studies examines the interaction between voluntary and mandatory risk reporting. This study aims to address this gap in the literature through examining the potential association between mandatory and voluntary risk reporting in the annual reports of Egyptian companies. Sixth, analytical research has suggested proprietary costs as a major determinant of disclosure in corporate annual reports. Proprietary costs explain managers' incentives to withhold information despite market incentives to disclose more information (Verrecchia, 1983; Wagenhofer, 1990). However, there is little empirical evidence regarding the impact of proprietary costs on accounting disclosure (Leuz, 2003; Prencipe, 2004). It is expected that proprietary costs

have a substantial impact on risk reporting since risk-related information is considered commercially sensitive information (ICAEW, 1997). This study aims to address this gap in the literature through empirical examination of the association between competition and risk reporting in the annual reports of Egyptian companies.

Seventh, reviewing the literature indicates that most disclosure studies aim to measure the extent of disclosure in corporate annual reports and identify key determinants that may explain the measured level of disclosure. However, very few studies take a further step and investigate the factors that may hinder presentation of mandatory and voluntary disclosure (Al-Mulhem, 2003). This study aims to provide a comprehensive investigation of risk reporting practices in Egypt. Therefore, the study intends to measure the level and amount of mandatory and voluntary risk reporting and then explore potential factors that may obstruct the presentation of risk-related information in the annual reports of Egyptian listed companies.

Eighth, prior disclosure studies seek to identify the determinants of general mandatory and voluntary disclosure without paying attention to the type of information and this may overlook the specific nature of reported information such as risk-related information. Prior disclosure studies tend to view disclosure as less defined (Gray et al. 1995). Empirical research provides evidence that determinants of disclosure vary according to the nature of disclosed information (Leuz, 2003; Meek et al., 1995). Meek et al. (1995) indicate that determinants of disclosure vary across voluntary disclosure of strategic, non-financial and financial information. In the same vein, Leuz (2003) brings additional evidence that determinants of disclosure vary across the voluntary disclosure of segment information and cash flow information. This study aims to explore whether determinants of risk reporting differ from other general disclosures.

1.5 Research Methodology

This research responds to calls for employing both quantitative and qualitative approaches in the same study (Denzin, 1978). Combining both quantitative and qualitative approaches has several advantages: it minimises the problems associated with the dependency on a single research method (Cohen et al., 2000); it contributes to enhancing research data by collecting quantitative and qualitative evidence and therefore supports research validity and credibility (Sarantakos, 2005); and it provides complementary insights to research questions (Collis and Hussey, 2003).

This study is carried out in two main phases after a review of the literature related to risk disclosure. In addition, the study reviewed a number of positive theories of accounting that explain managers' incentives to disclose or withhold information such as agency theory, political cost perspective, signalling theory, proprietary cost perspective, stakeholder theory and legitimacy theory. Based on this review, the study identified firm-specific characteristics, corporate governance and ownership structure that may explain the variation in mandatory and voluntary disclosure in corporate annual reports. These disclosure determinants are competition, company risk level, board size, role duality, auditor type, ownership concentration, managerial ownership, governmental ownership, institutional ownership, firm size, profitability, liquidity and industry

In the first phase, the study aims to measure the extent and amount of mandatory and voluntary risk disclosure in the annual reports of Egyptian listed companies. The annual reports and ownership structure of 106 companies were collected from Egypt for Information Dissemination (EGID) for the years 2006 and 2007. To measure the compliance with mandatory and presentation of voluntary risk reporting, the study uses an unweighted disclosure index and content analysis as measurement instruments which are widely used in disclosure literature (Beattie et al., 2004).

A variety of statistical methods has been used to analyse secondary data such as univariate, bivariate and multivariate analysis. Univariate analysis aims to provide descriptive statistics regarding variables under investigation. Exploring the data has been emphasised as the first essential step in quantitative data analysis (Bryman and Cramer, 2005). In bivariate analysis, the association between variables under examination is tested and potential collinearity problem is assessed. In multivariate analysis, dependent variables (extent and amount of risk disclosure) are regressed against independent variables (competition, corporate governance, ownership structure and firm-specific characteristics) to estimate the significance and direction of relationships between them. In addition, normality, linearity, heteroscedasticity assumptions are assessed. In the second phase, semi-structured interviews are carried out to better understand risk reporting practices of Egyptian companies. The interviewees are academic, external auditors, regulators and financial managers. The main objective of this stage is to identify factors that may obstruct compliance with mandatory and presentation of voluntary risk reporting. Inductive/deductive and data matrix approaches have been used in identifying main themes and conducting qualitative data analysis. Table 1.3 summarises research objectives, questions and research methods.

Table 1.3: Research Objectives, Questions and Methods

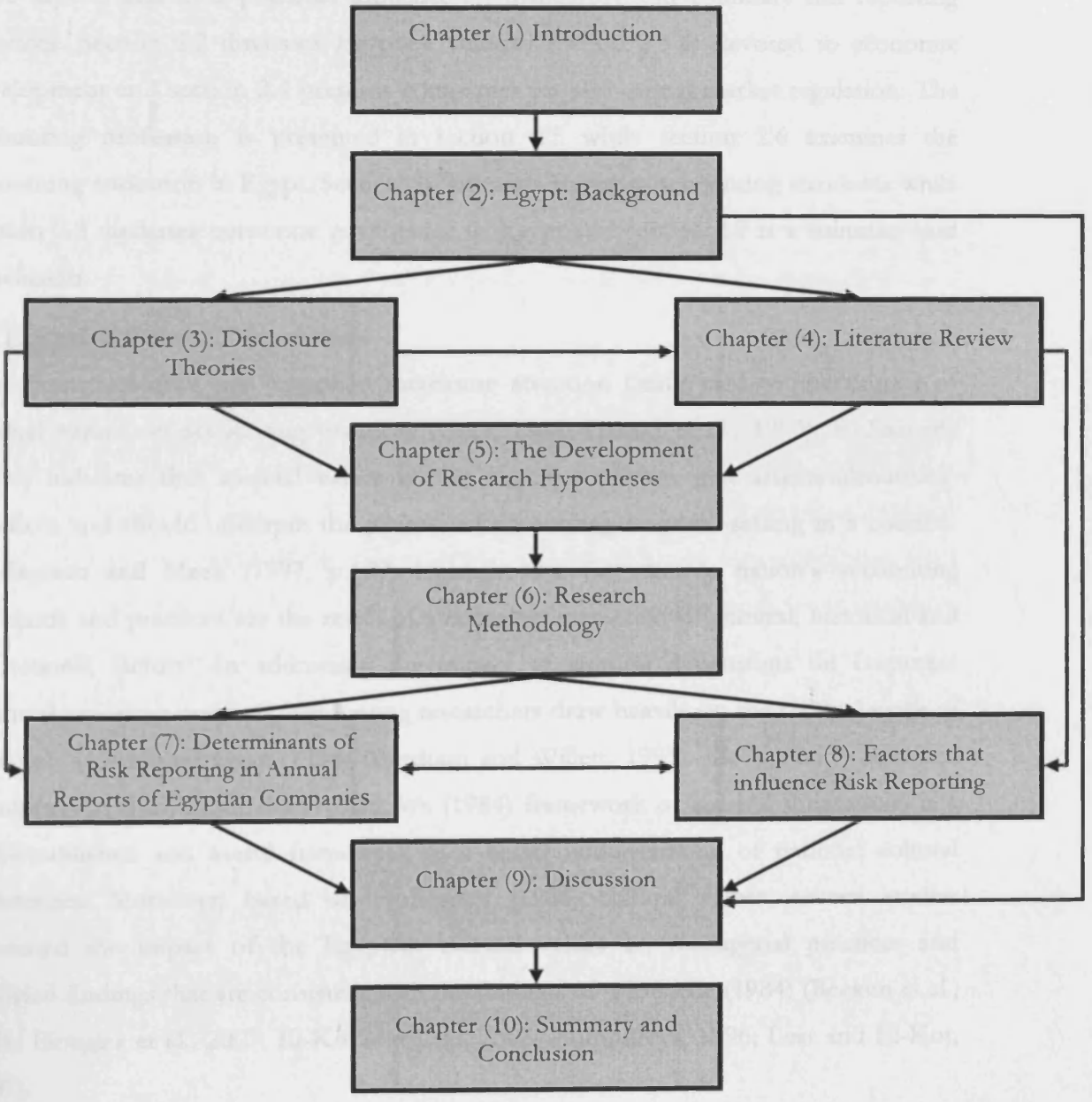
Research Objectives	Research Questions	Research Methods and Data Analysis
Measure the level of compliance with EAS 25 and EAS 33 in financial statements of Egyptian listed companies.	To what extent do Egyptian listed companies comply with the mandatory disclosure requirements of EAS 25 and EAS 33?	Unweighted disclosure index, descriptive statistics, bivariate tests and regression analysis
Identify the influence of competition, company risk level, corporate-specific, corporate governance and ownership structure characteristics that determine and influence mandatory risk reporting in financial statements of Egyptian listed companies.	What are the impact of competition, company risk level, firm characteristic, corporate governance and ownership structure on compliance with mandatory risk reporting in financial statements of Egyptian listed companies?	
Identify any changes in compliance level before and after the application of risk-related accounting standards.	Is there any change in compliance level of mandatory risk reporting between 2006 and 2007?	
Measure the amount and identify the characteristics of voluntary risk reporting in board of directors' reports of Egyptian listed companies.	To what extent do Egyptian listed companies provide voluntary risk reporting in their board of directors' reports?	Content analysis, descriptive statistics, bivariate tests and regression analysis
Identify the influence of competition, company risk level, corporate-specific, corporate governance and ownership structure characteristics that determine and influence voluntary risk reporting in board of directors' reports of Egyptian listed companies.	What are the impact of competition, company risk level, firm characteristic, corporate governance and ownership structure characteristic on the voluntary disclosure of risk-related information in board of directors' reports of Egyptian listed companies?	
Identify the association between mandatory and voluntary risk reporting in annual reports of Egyptian listed companies.	Is there any association between the extent of mandatory risk reporting and the amount of voluntary risk reporting provided in annual reports of Egyptian listed companies?	Correlation
Identify the factors that may impede compliance with and presentation of mandatory and voluntary risk reporting in annual reports of Egyptian listed companies.	What are the factors that may impede presentation of mandatory and voluntary risk reporting in annual reports of Egyptian listed companies?	Semi-structured interviews and data matrix

1.6 Thesis Outline

This thesis consists of 10 chapters. Chapter 1 presents the background and motivations, research objectives, questions and justifications and research methodology. Chapter 2 is devoted to discussing the Egyptian context. It discusses financial reporting related regulations, economic development, the cultural values of Egyptian society, accounting education and the accounting and auditing profession in Egypt. Chapter 3 presents a number of positive theories of accounting that explain the variation in the extent of disclosure in corporate financial reports such as agency theory, political cost perspective, signalling theory, proprietary cost perspective, stakeholder theory and legitimacy theory. Chapter 4 reviews the literature on the determinants of disclosure and obstacles of disclosure in corporate annual reports.

Chapter 5 presents the development of research hypotheses while chapter 6 discusses research methodology especially research approach, methods, sampling procedures, validity and reliability and ethical considerations. Chapter 7 is devoted to statistical analysis and the findings of the determinants of mandatory and voluntary risk reporting in the annual reports of Egyptian companies. Chapter 8 presents the interview results regarding the factors that may impede the compliance with mandatory and presentation of voluntary risk reporting in Egypt while chapter 9 presents a discussion of the findings. Chapter 10 is the conclusion and presents a summary of the study, recommendations, limitations and suggestions for future research. Figure 1.1 shows the thesis structure.

Figure 1.1: Thesis Structure



CHAPTER 2: EGYPT: BACKGROUND

2.1 Introduction

This chapter presents the national background of the study. It discusses Egyptian culture and its impact on accounting practices, economic development and the accounting and auditing profession. In addition, it describes regulations that influence financial reporting practices in Egypt. The chapter provides a brief presentation for aspects such as companies act, capital market regulations, accounting profession and education, Egyptian accounting standard-setting process and code of corporate governance. The key objective of providing such a discussion is evaluating the strengths and weaknesses of these aspects and their potential influence on mandatory and voluntary risk reporting practices. Section 2.2 discusses Egyptian culture. Section 2.3 is devoted to economic development and section 2.4 presents companies act and capital market regulation. The accounting profession is presented in section 2.5 while section 2.6 examines the accounting education in Egypt. Section 2.7 presents Egyptian accounting standards while Section 2.8 discusses corporate governance in Egypt and section 2.9 is a summary and conclusion.

2.2 Egyptian Culture Dimensions

Accounting research has witnessed increasing attention being paid to the impact of societal values on accounting practices (Gray, 1988; Hamid et al., 1993). El-Rashedy (2006) indicates that societal values are an important factor that affects accounting practices and should underpin the process of accounting standard-setting in a country. Saudagaran and Meek (1997, p.129) highlight the fact that 'a nation's accounting standards and practices are the result of a complex interaction of cultural, historical and institutional factors'. In addressing the impact of cultural dimensions on corporate financial reporting practices, accounting researchers draw heavily on the seminal work of Hofstede (1984) and Gray (1988) (Baydoun and Willett, 1995). Moreover, Brown and Humphreys (1995) argue that Hofstede's (1984) framework of societal dimensions is a well-established and useful framework to a better understanding of national cultural differences. Moreover, based on Hofstede's (1984) cultural values, several studies examined the impact of the Egyptian cultural values on managerial practices and reported findings that are consistent with the findings of Hofstede (1984) (Beekun et al., 2008; Douglas et al., 2007; El-Kot and Leat, 2008; Humphreys, 1996; Leat and El-Kot, 2007).

Culture is 'the collective programming of the mind which distinguishes members of one group or society from those of another' (Hofstede, 1984, p.82). Hofstede (1984, p.83-84) identifies four main cultural dimensions which are presented in Table 2.1.

Table 2.1: Hofstede's (1984) Cultural Dimensions

Cultural Dimensions	Definition
Individualism versus Collectivism	Individualism stands for a preference for a loosely knit of framework in society wherein individuals are supposed to take care of themselves and their immediate families only. Its opposite, Collectivism, stands for a preference for a tightly knit social framework in which individuals can expect their relatives, clan or other in-group to look after them in exchange for unquestioning loyalty... the fundamental issue addressed by this dimension is the degree of interdependence a society maintains among individuals. It relates to people's self-concept: 'I' or 'we'.
Large versus Small Power Distance	Power distance is the extent to which the members of a society accept that power in institutions and organizations is distributed unequally... People in Large Power Distance societies accept a hierarchical order in which everybody has a place which needs no further justification. People in Small Power Distance societies strive for power equalisation and demand justification for power inequalities. The fundamental issue addressed by this dimension is how a society handles inequalities among people when they occur.
Strong versus Weak Uncertainty Avoidance	Uncertainty avoidance is the degree to which the members of a society feel uncomfortable with uncertainty and ambiguity... Strong uncertainty Avoidance societies maintain rigid codes of belief and behaviour and are intolerant towards deviant persons and ideas. Weak uncertainty avoidance societies maintain a more relaxed atmosphere in which practice counts more than principles and deviance is more easily tolerated. The fundamental issue addressed by this dimension is how a society reacts to the fact that time only runs one way and that the future is unknown ...
Masculinity versus Femininity	Masculinity stands for a preference in society for achievement, heroism, assertiveness, and material success. Its opposite, Femininity, stands for a preference for relationships, modesty, caring for the weak, and the quality of life. This fundamental issue addressed by this dimension is the way in which a society allocates social (as opposed to biological) roles to the sexes.

Gray (1988) links Hofstede's (1984) societal values to their accounting counterparts. Accounting values proposed by Gray (1988) are important in explaining the basic features of and national difference in financial reporting practices in different countries (Salter and Niswander, 1995). Gray (1988, p.8) recognises four underlying accounting values as follows (see Table 2.2):

Table 2.2: Gray's (1988) Accounting Values

Accounting Values	Definition
Professionalism versus Statutory Control	A preference for the exercise of individual professional judgement and the maintenance of professional self-regulation as opposed to compliance with prescriptive legal requirements and statutory control.
Uniformity versus Flexibility	A preference for the enforcement of uniform accounting practices between companies and for the consistent use of such practices over time as opposed to flexibility in accordance with the perceived circumstances of individual companies.
Conservatism versus Optimism	A preference for a cautious approach to measurement so as to cope with the uncertainty of future events as opposed to as more optimistic, laissez-faire, risk-taking approach.
Secrecy versus Transparency	A preference for confidentiality and the restriction of disclosure of information about the business only to those who are closely involved with its management and financing as opposed to a more transparent, open and publicly accountable approach.

The direction of the association between Hofstede's (1984) cultural dimensions and Gray's (1988) accounting values and their potential impact on accounting practices is summarised in Table 2.3:

Table 2.3: The Association between Hofstede's (1984) Cultural Dimensions and Gray's (1988) Accounting Values

Cultural Dimension	Relationship to accounting values			
	Professionalism	Uniformity	Conservatism	Secrecy
Individualism	+	-	-	-
Uncertainty avoidance	-	+	+	+
Power distance	-	+	NR	+
Nurturing (Femininity)	NR	NR	+	+
Accounting practice mainly influenced	Authority	Application	Measurement	Disclosure

Adapted: Roberts et al. (2005, p.185).
Key:
+: Positive relationship. For example, the higher individualism is, the higher professionalism will be.
-: Negative relationship. For example, the lower uncertainty avoidance is, the higher professionalism will be.
NR: No relationship.

Empirical evidence supports the significant explanatory power of Gray's (1988) model in explaining and predicting financial reporting practices. Empirical evidence indicates that uncertainty avoidance is the strongest cultural dimension in forming an accounting profession, the nature of regulation and the nature of measurement and disclosure practices (Salter and Niswander, 1995). In the same vein, Chanchani and Willett (2004) provide empirical evidence for the usefulness of Gray's (1988) accounting values. Moreover, Baydoun and Willett (1995) argue that the impact of cultural values is likely to be more significant on disclosure than accounting measurement.

Hofstede (1984) reported Egypt as a society with a high propensity to collectivism, high power distance, high uncertainty avoidance and low masculinity as compared to Anglo/American societies such as the UK. Consequently, according to Gray (1988), Egyptian society is expected to have a tendency to accounting values that prefer statutory control, uniformity, conservatism and secrecy. Baskerville (2003) criticises the work of Hofstede (1984) and consequently the work of Gray (1988) on the ground that it equates nation with culture and it is difficult to understand culture by using numeric indices and matrices techniques.

Egypt witnessed a dramatic transition from socialist economy to free market economy which in turn may impact the accounting values of Egyptian society as described by Gray (1988). Abd-Elsalam (1999) argues that Egyptian accounting practices moved from statutory control, uniformity and more conservatism, as dominant accounting values in the socialist era in the early 1960s, to more professionalism, flexibility and less conservatism in the early 1990s as a result of the privatisation program, revitalisation of capital market and the adoption of IASs. However, Abd-Elsalam and Weetman (2007) argue that secrecy still impacts the disclosure practices of Egyptian companies. As a result, Egyptian companies are more likely to resist compliance with accounting standards and presentation of more voluntary disclosure in their annual reports (El-Rashedy, 2006; Dahawy et al., 2002) especially with the unexpected lack of effective enforcement mechanisms (see section 2.4).

The Egyptian government realised that sound corporate financial reporting and the adoption of IASs are necessary requirements for the success of its privatisation program adopted in the early 1990s (ROSC, 2002). However, the preparation of EASs that are based entirely on the IASs ignores the fact that IASs are based on the Anglo/American approach to financial reporting and reflects Western societal values (Flower, 1997). Therefore, the preparation of EASs does not reflect the nature of Egyptian societal values (El-Rashedy, 2006) and results in potential conflict between the disclosure requirement of IASs/EASs and the secrecy as a dominant accounting value in Egypt (El-Rashedy, 2006; Dahawy and Conover, 2007).

2.3 Economic Development

This section outlines the development of the Egyptian economy in the second half of the 20th century to date during which it witnessed a dramatic transition between different economic and social systems. Moreover, it sheds light on the impact of economic

transition on accounting practices and the profession in Egypt since socioeconomic and accounting changes are inseparable. The presentation of economic developments aids a better understanding of the development of the accounting profession in Egypt. Generally, the Egyptian economy has developed through five distinctive phases. A summary for each phase is presented below.

2.3.1 Pre 1956

During the pre 1956 period, the Egyptian economy was mainly agrarian together with industries closely related to agriculture, such as cotton. Government intervention in economic activities was very limited and restricted to infrastructure investment and social services while other economic activities such as banking, insurance and manufacturing were controlled by private sector (Hegazy, 1991). Foreign investment made little contribution in the industrial and agricultural sectors but had a major contribution in the financial sector (Abd-Elsalam, 1999). Even after the revolution of 1952, the private sector still received support from the Egyptian government and dominated the Egyptian economy while the public sector had a minor role in economic development. In 1954, the Companies Act was promulgated to foster confidence in the business environment and encourage the role of the private sector in economic development (Hegazy, 1991). This economic environment allows the accounting profession to play an important role and creates a demand for chartered accountants' services (Amer, 1969). In this period, the organisation of Egyptian accounting profession and financial reporting reflects western influence because the Egyptian accounting system was mainly derived from the British one (Samuels and Oliga, 1982).

2.3.2 From 1956 to 1973

This period witnessed a transition from a liberal economy to a centrally planned economy with a great role for the public sector (Abd-Elsalam, 1999). As a response to the Suez War of 1956, the Egyptian government commenced a nationalisation policy involving a radical change in the economic and social system. The main reasons behind nationalisation were to control the major strategic economic sectors, to support the national economy and to achieve social welfare through reallocating economic resources (Amer and Khairy, 1981). The Egyptian government nationalised foreign investments and launched a massive public sector to shrink the role of the private sector (Abd-Elsalam, 1999). The government believed that the public sector was the main means of economic development and social welfare (Amer, 1969). In 1952, 28% of gross

investment was directed to the public sector and by 1960 the public sector received 74% of gross investment (Ikram, 2006). By July 1964, 80% of economic resources were nationalised (Amer, 1969).

In 1962, the national charter was enacted to declare explicitly the adoption of socialist thought in Egypt. The charter was based on the philosophy that economic development should not be based on a profit-oriented private sector but must be guided by socialism; therefore the role of the private sector in the economy declined while the public sector became the engine of development and economic growth (Ikram, 2006). These dramatic changes in economic and political orientation contributed to weakening investors' confidence in the capital market and the collapse of the stock exchange (Hegazy, 1991).

The nationalisation and rapid growth of the public sector resulted in the nationalisation of the accounting profession because of the government employment of private chartered accountants and a lack of professional standards and conduct (Amer, 1969). These socio-political changes caused the Big-8 audit firms to leave Egypt in 1965 and resulted in a dramatic decline in the number of private accounting firms (Briston and El-Ashker, 1984).

During the period 1967-1973, the Egyptian-Israeli conflict reached its peak. In this period, the Egyptian government adopted a war economy policy that directed all economic policies to support the Egyptian army, national security and socially-oriented policies (Hegazy, 1991). The public sector was the main economic tool to achieve these goals and the activity of the Egyptian exchange deteriorated until the 1990s (see Table 2.4).

Table 2.4: Indicators of Stock Market Development during 1958-2002

Indicators of the Egyptian exchange activity	1958	1974	1991	2002
Number of listed companies	275	55	627	1150
Market capitalisation (%)[a]	13	1	7.80	30.10
Value of trade (%)[a]	3.20	0.10	0.10	7.40
Turnover ratio (%)[a]	22.60	0.95	4.80	24.50
Value of new issues (%)[a]	6.20	0.50	1.20	3.20

[a]As a percentage of GDP.
Source: Bolbol et al. (2005).

2.3.3 From 1974 to 1980

After the October 1973 War, the Egyptian government sought to re-build the economy through a series of political and economic reforms. Due to limited internal resources, the attraction of foreign investments was chosen as an approach (Abd-Elsalam, 1999). Law 32 of 1977 was enacted to reflect an 'open door policy' adopted by the Egyptian

government to encourage both Arab and foreign capital. The encouragement of foreign investments intensified the demand for chartered accountants because foreign enterprises refused to subject their financial statements to government audit and preferred independent auditors (Briston and El-Ashker, 1984). Moreover, professional accounting authorities grew in importance and relationships with international accounting organisations were re-established (Samuels and Oliga, 1982).

However, the implementation of the 'open door policy' was not successful. The poor application of the 'open door policy' resulted in excessive unproductive consumption patterns, a significant deficit in the balance of payments and significant reliance on external debts (Hegazy, 1991). The public sector dominated the economy especially in the manufacturing and petroleum industries, import, export and infrastructure activities (Ikram, 2006). Moreover, due to a lack of relevant financial reporting and protection of small investors, economic problems and tax disincentives to investment in securities, the stock exchange remained dormant until the 1990s (Bolbol et al., 2005).

2.3.4 From 1981 to 1990

During this period, the Egyptian government faced major economic problems such as high unemployment rates, low economic growth, low productivity of public sector enterprises and high external debts. It recognised the need to improve the business environment and encourage the private sector. Consequently, new Companies Act 159 of 1981 and new Income Tax Law 158 of 1981 were promulgated with the goal of encouraging foreign private investment. By 1986, the drop in oil prices and the world recession led to a significant decline in oil and Suez Canal revenues and a slowdown of the economy. By 1990-1991 the economy was on the verge of collapse. The budget deficit was approximately 20% of GDP and external debt was about 151% of GDP (Bolbol et al. 2005).

2.3.5 From 1991

The International Money Fund (IMF) and the World Bank (WB) persuaded the Egyptian government to move towards the privatisation of state-owned companies, reforming banking and the financial system and adopting rational exchange rate policies (Ikram, 2006).

Regarding its privatisation program, the Egyptian government issued public sector law 203 of 1991 that grouped 314 non-financial state-owned companies into 27 new holding companies and facilitated the privatisation process through allowing state-owned

companies to offer shares on the stock market. Afterwards, new capital market authority law 95 of 1992 was enacted to facilitate the privatisation process, encourage foreign investment and restore the capital market. The application of IASs/EASs became mandatory for the companies listed on the stock exchange. As of June 2000, the government had sold its controlling stake and minority interest in 118 and 16 state-owned companies respectively with a sales price of approximately L.E 14.17 billion (Ikram, 2006). The Egyptian stock market[1] achieved a rapid increase and decrease in terms of the number of listed companies and a sustained increase in market capitalisation between 1997 and 2007. Table 2.5 indicates some figures regarding the performance of the Egyptian exchange.

Table 2.5: Performance of Egyptian Exchange between 1987 and 2007

Indicators	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007
Number of listed companies	654	870	1033	1076	1110	1151	978	795	744	595	435
Market capitalization (L.E billion.)	71	82	112	121	112	122	172	243	456	534	768
Percentage of market capitalization to GDP	27%	29%	36%	36%	30%	29%	35%	43%	74%	73%	105%

Source: EGX Annual Report (2004, 2005, 2006 and 2007).

The number of listed companies dramatically increased during the period 1997-2002. Tax exemption, among other reasons, was the main motivation for companies to be listed on the EGX. Listed companies gain tax exemption equal to a percentage of paid-up capital according to the deposit rate determined by the Central Bank of Egypt (Tax law, 1981). However, in June 2002, the CMA issued new listing rules to be effective on August 2003. Due to the difficulties that companies are likely to face to satisfy the requirement of the listing and delisting rules (ROSC, 2001) and the annulment of the tax exemption by the new tax law (Tax law, 2005), the number of listed companies decreased noticeably between 2003 and 2007.

2.4 Regulatory Framework and Financial Reporting

This section provides a discussion of companies act, capital, market law, listing rules and their influence on financial reporting practices of Egyptian companies.

[1] The Egyptian Exchange (EGX) is among the oldest stock exchanges in the world and the first exchanges to be established in the Middle East. Alexandria stock exchange was established in 1883 while Cairo stock exchange was established in 1903. In 1940, they constituted the fifth largest stock exchange in the world (Hassan et al. 2006).

2.4.1 Companies Act

The adoption of socialist thought since the early 1960s, coupled with nationalisation of most existing companies at that time, resulted in a number of restrictions that prevented the establishment of new joint stock companies. The lack of individual initiatives to establish strong economic entities negatively affected the development of the national economy.

After the adoption of an open-door policy in the mid-1970s, there was an urgent need to encourage domestic and foreign investment through the issuance of a new law governing the establishment of joint stock companies. In October 1981, Law of Joint Stock Companies, Limited by Shares Companies and Limited Liability Companies No. 159/1981 (hereafter referred as the companies act) was issued. The Companies Act aims to regulate all the aspects related to companies from constitution until dissolution.

Through several articles, the Companies Act has organised the process of financial reporting in terms of the components and timing of statements and reports to be published and approved by general assembly, responsibility for preparing financial statements and information that should be included in the board of directors' report. The Companies Act indicates that (Companies Act, 1981):

1- Management is responsible for preparing financial statements and a report regarding its activity during the financial year and its financial position at the end of the financial year. The management should prepare financial statements and board of directors' report within two months of the end of the financial year.

2- Management should publish financial statements, a summary of the board of directors' report and the complete auditors' report in two daily newspapers at least two weeks before the general assembly meeting.

3- A company has to prepare financial statements according to accounting standards specified by regulations.

4- Appendix 1 of the executive regulation of the Companies Act indicates the information that should be included in the board of directors' report. The report should include an overview regarding the development of company activities and financial position. In particular, the report should include information such as:

- General status of the company, its business results and business prospects.

- The main activities of the company and its subsidiaries and any changes in subsidiaries' ownership structure during the year.
- Classification of sales and net profit (loss) according to basic activities.
- Sales exported to foreign markets.
- Information regarding stocks and bonds that are issued during the year.

5- The external auditor should state in the audit report whether the balance sheet, profit and loss account and information included in the board of directors' report are consistent with a company's records.

However, a careful review of the Companies Act and the executive regulation indicates that:

- The Companies Act does not require companies to publish a formal annual report hence a very small number of companies publish annual reports above and beyond what is required by the Companies Act (ROSC, 2001).
- The Companies Act does not discuss extensively accounting and auditing standards and does not contain any sanctions for standards violation (ROSC, 2002).
- Although the Companies Act has been revised several times, it still limits financial statements to balance sheet and profit and loss account.
- The Companies Act requires companies to publish a summary board of directors' report. However, most companies usually do not publish this summary. Even if the summary is published, it is not sufficient and ignores a lot of relevant information (Sobehi, 2002). This requirement may not assist users of financial information to make more informed decisions especially when only a summarised board of the directors' report is published (ROSC, 2002).
- The Companies Act does not include explicitly risk information in the information that should be included in board of the directors' report and leaves it to management discretion.

2.4.2 Capital Market Regulations

Although the CMA was established in 1978 by law No.73, it received its vital role and complete capacity to regulate the Egyptian capital market through law 95 of 1992. Reactivating the EGX was imperative for the success of the state-owned enterprises privatisation program. Briefly, the CML has an important role in regulating the capital

market, establishing the legal structure of the EGX, maintaining market integrity, fairness and transparency and controlling the operations of capital market participants (ROSC 2004). In order to increase its effectiveness in regulating the capital market, the CML provides the CMA with a number of administrative sanctions such as warnings, delisting, suspending and rescinding licenses, revoking transactions and examinations (ROSC, 2001).

2.4.2.1 Capital Market Law and Financial Reporting

The CML comprises several articles that govern financial reporting of listed companies. These articles identify the timing of financial statement delivery, components of financial statements and board of directors' report, what should be published and when and the sanctions for the violation of listing rules. CML states that:

1- Every company offering securities for public subscription is required to notify the authority a month prior to the general assembly meeting of its balance sheet and other financial statements as well as board of directors' and auditor' reports. The company's balance sheet and other financial statements should be prepared in accordance with accounting and auditing standards as specified, or referred to, by the executive regulations. The company should publish an adequate summary of its semi-annual and annual financial statements in two daily and widely circulated newspapers, one of which at least is in Arabic. Every company should disclose immediately any contingent fundamental conditions, which would affect its business or financial position and publish an adequate summary in two daily morning and widely circulated newspapers, one of which at least is in Arabic.

2- Delaying in the delivery of financial statements in complying with the rules of listing and delisting of securities shall be penalised by a fine of L.E. 2000 for each day of delay.

2.4.2.2 Listing and Delisting Rules of EGX and Financial Reporting

The CMA issued decree No.30 of the listing and delisting rules of EGX in June 2002 to be effective on August 2003. The rules highlight the importance of timely preparation and presentation of financial statements and full compliance with accounting and auditing standards and other regulations (ROSC, 2002). The main reason for issuing this decree was the need to enhance financial reporting practices through emphasising the importance of providing high quality disclosure by listed companies. Therefore, delisting is the consequence of non-compliance with disclosure requirements included in these

rules. Listing and delisting rules contain several articles that organise and regulate financial reporting practices as following (CMA, 2002a):

1- A listed company should ensure that the board of directors' report includes relevant information regarding audit committee activities during the year.

2- A listed company should provide the CMA and EGX with a copy of its annual financial statements, board of directors' report and auditor report whenever approved by the company's board of directors. A copy of *these financial statements* should also be sent to stock exchange within 10 days of their approval by the general assembly (Emphasis added).

3- Financial statements should be prepared according to the EASs and forms included in Appendix (3) of the executive regulation of capital market law 95 of 1992. They should also be audited according to the Egyptian auditing rules and this should be clearly stated in the auditor's report.

However, a critical review of the CML and listing and delisting rules of the EGX reveals a number of weaknesses in the regulation of financial reporting:

- In assessing the level of compliance with the Egyptian accounting standards, the CMA pays more attention to the appearance rather than substance of the annual reports (ROSC, 2002).
- Although market participants emphasise the importance of the board of directors' report in the annual reports (ROSC 2004), the absence of a detailed report in the annual reports of several listed companies is often observed (ROSC, 2001).
- There is no legal requirement to report potential risks other than the qualified auditor opinion if there is high uncertainty regarding the company's going concern (ROSC, 2004).
- Although the CMA exerts massive efforts to monitor companies' compliance with disclosure requirements of the EASs and listing and delisting rules of EGX, the effectiveness of those efforts is questionable. For example, the checklist used by the CMA to monitor companies' compliance does not cover information that should be included in the board of directors' report according to the requirements of Companies Act and listing and delisting rules of the EGX (Sobehi, 2002). Moreover, empirical research reveals non-significant

improvement in the quality of annual reports before and after the application of listing and delisting rules of the EGX (Abd-Elhamed, 2003).

- The CMA and the EGX give an extremely high priority to the timing of financial statements delivery. They emphasise the importance that a company should deliver its financial statements within the dates specified by the laws and regulations regardless the content of the financial statements (Abd-Elmalek, 2006; El-Essely, 2005).
- The sanctions of CML are related to the failure to deliver financial statements on time and are not applied to board of directors' report therefore companies have the incentive to withhold board of directors' reports without facing any sanctions.
- In general, regulations that organise capital market are weak and are not applied effectively (Abd-Elmalek, 2006). ROSC (2002, p.8) states that 'no effective regulatory mechanisms exist for imposing sanctions on accountants and auditors who fail to comply. Moreover, legal provisions are vague about the civil or criminal liabilities of parties responsible for supplying misleading or incorrect information in audited financial statements'. Giving more details, ROSC (2002, p.8) indicates that 'although there are some legal provisions that mention the liabilities of directors and auditors, these seem to be unclear and, in practice, the accountants and auditors do not face any real liability if they violate the legally established accounting and auditing standards. Egyptian accountants and auditors were never sued for their professional misconduct'.
- The EGX has no power to regulate financial reporting of listed companies. The stock exchange has no jurisdiction to impose fines for non-compliance or provide reward for compliance with financial reporting requirements (ROSC, 2002).
- The listing and delisting rules of EGX does not properly distinguish between annual financial statements and annual reports and uses these different concepts as synonyms. The failure to provide precise differentiation between these concepts may cause confusion to preparers of financial reports.

2.5 Accounting and Auditing Profession in Egypt

Egypt lacks a professional accounting and auditing authority that has the power to monitor members' performance, professional conduct and impose sanctions (ROSC, 2002). This section presents the accounting and auditing profession in Egypt through the

presentation of professional bodies, admission to the profession and auditor independence.

2.5.1 Accounting Professional Bodies

There are several professional bodies that are involved in organising and developing the profession. A summary of these professional bodies is presented below.

2.5.1.1 Egyptian Society of Accountants and Auditors

In 1946, the royal charter was enacted to establish the Royal Egyptian Society of Accountants and Auditors. In 1953 its name was changed to the Egyptian Society of Accountants and Auditors (ESAA). The main purpose of the society is to raise the education and professional knowledge of practitioners and maintain an adequate presentation of the profession internationally. The ESAA has been a member of the International Federation of Accountants (IFAC) since 1980. The ESAA supports the accounting and auditing profession in Egypt through participation in several activities such as:

- Holding courses and training programs for accountants who wish to join the profession.
- Organising lectures, seminars and discussions in all matters related to accounting and auditing profession.
- Exchanging experience with local and international associations in order to enhance the accounting and auditing profession.

Due to British colonisation, the British accounting profession had a significant influence on the ESAA (Amer and Khairy, 1981). However, the ESAA does not function as a self-regulatory agency due to a weak disciplinary authority (ROSC, 2002). The ESAA has a significant participation in setting the EASs. The ESAA has received a delegation from the committee of accounting and auditing standards. The ESAA's standards setting committee selects, translates and drafts the EASs, which are based on the IASs, and then sends them to the committee for discussion, confirmation and approval.

Members of the ESAA have to achieve at least 120 hours of continuing education during three years with a minimum of 25 hours per year. Otherwise, they may lose the ESAA membership. Moreover, the ESAA members should follow the Egyptian code of ethics for professional accountants which is based entirely on the IFAC code of ethics. Finally, the ESAA runs several training programs for its members to ensure that its members

receive high quality training before entering or when practising the profession (ROSC, 2002).

2.5.1.2 Syndicate of Commercial Professions

The Egyptian Syndicate of Accountants and Auditors was established by law 349 of 1951 and in 1972 it was dissolved and replaced by the Syndicate of Commercial Professions (SCP). The SCP consists of seven divisions one of them is the accountants and auditor division. The main objectives of the SCP are:

- Enhancing the education and professional knowledge of the members and to maintain profession dignity.
- Participating in the discussion of economic development plans.
- Participating in the planning of economic and business educational programs in order to meet society needs.
- Cooperation with national and international counterparts and exchange information and experience regarding mutual issues and projects.

However, the efforts of the syndicate are mainly limited to social services provided to its members. Moreover, the syndicate has no power for a supervisory role or contribution to organising and developing the profession (Kayed, 1990).

2.5.1.3 Egyptian Institute of Accountants and Auditors

According to the recommendation of the international conference of accountant and auditors held in Egypt in 1980, the Egyptian Institute of Accountants and Auditors (EIAA) was established by presidential decree 484 of 1983. The establishment of EIAA was a result of cooperation between the Egyptian government and United States Agency for International Development. The institute commenced its activities in 1988 as a quasi independent body under the supervision of the SCP- accounting and auditing division (Hegazy, 1991). The main objectives of the EIAA are:

- Preparing and organising practical programs, professional training and continuing education for accountants and auditors.
- Conducting research and studies needed to formulate and update accounting and auditing standards and rules of professional conduct.
- Holding scientific conferences to discuss contemporary professional issues.
- Exchanging experience with international professional organizations in all professional affairs.

The EIAA held a series of conferences to discuss the application of IASs in Egypt in 1987, 1989 and 1992. The three conferences discussed a number of accounting standards. The Table 2.6 presents these standards:

Table 2.6: Accounting Standards discussed by the EIAA

Year	Accounting standards
1987	- Disclosure of accounting policies. - Depreciation accounting. - Valuation and presentation of inventories according to historical cost. - Accounting for the effects of changes in foreign exchange rates.
1989	- Statement of resources and application of funds. - Capitalisation of borrowing costs. - Information to be disclosed in financial statements. - Presentation of current assets and liabilities.
1992	- Accounting for the effects of price changes. - Accounting for construction contacts. - Accounting for property, plants and equipments. - Accounting for business combination. - Accounting for research and development costs. - Related party disclosure. - Accounting for investments. - Accounting and disclosure of government grants and assistance. - Extraordinary items and changes in accounting policies. - Contingencies and events that occur after the balance sheet date.

Adapted: El-Deeb (1993).

However, due to a lack of enforcement power and government support, none of these standards was adopted or applied by Egyptian companies. Those standards were neither mandated by law nor included in the CML (Abd-Elsalam, 1999).

2.5.1.4 Central Authority Organisation

After the adoption of socialism and centrally planned economic policies by the Egyptian government in the early 1960s, the need for an authorised governmental professional body, that audits and monitors the financial activities of public sector companies and government agencies, had emerged. Accordingly, the Central Authority Organisation (CAO) was enacted by presidential decree 129 of 1964 which was superseded by presidential decree 144 of 1988. The main duties of the CAO are (Kayed, 1990):

- To audit state-owned companies and government agencies.
- To supervise state-owned companies in financial and technical aspects.
- To monitor the implementation of economic development plans.

In December 1966, the CAO developed a uniform accounting system (UAS) to be effective from 1st July 1967. All state-owned companies except banks and insurance companies should apply the requirements of the UAS. The transition to a centrally

planned economy highlighted the need to design and apply an accounting system that facilitates economic planning at the macro-level (Hegazy, 1991). The main objectives of the UAS are:

- Providing a wide range of necessary information for planning, coordinating and controlling purposes at all levels of the economy.
- Linking the accounts at micro and macro level to facilitate the calculation of national income through unified accounting concepts and standards.
- Facilitating collection, tabulation and storage of unified accounting information.
- Measuring the performance of state-owned companies.
- Measuring the efficiency of state-owned companies in allocating economic resources.

However, the UAS seemed to be an accounting handbook that prescribed precise measurement and evaluation procedures, movements between accounts and content and format of financial reports (Al-Hashim, 1977). Moreover, the UAS tended to undermine the importance of accounting disclosure and assigned high importance to accounting measurements. As Briston and El-Ashker (1984, p.135) state:

> *The main impetus for accounting uniformity in Egypt came not from a concern with the disclosure system but from the need for uniformity for planning and control purposes, so that particular attention is paid to the standardisation of the measurement ...*

According to the UAS, the main objective of financial statements is to reflect actual and planned operations and to assist central government in planning and evaluating the operations of different economic sectors (Al-Hashim, 1977). The UAS aimed to meet the needs of government agencies, such as the Ministry of Planning and Ministry of Finance, for information and undermined the needs of other users for accounting information such as investors (El-Essely, 1987). In fact, the users and regulators of unified accounting information are the same group (Al-Hashim, 1973).

2.5.2 Admission to the Profession

There are two main routes to joining the accounting and auditing profession in Egypt. The first route is through law 133 of 1951 (hereafter referred as the profession law) while the second route is the membership of the ESAA. The profession law and the ESAA have a significant influence on the accounting profession by restricting the practice of

public accounting to individuals with specific qualifications (Briston and El-Ashker, 1984). The requirements of each route are briefly described as follows:

2.5.2.1 Law 133 of 1951

According to the requirements of the profession law, public practising of accounting and auditing requires registration in the general registry of accountants and auditors managed by the Ministry of Finance. The candidate should comply with the following educational and training requirements:

- The applicant should have a bachelor of commerce - accounting section or bachelor of commerce - business administration section and a diploma in taxes from an Egyptian institute/university or an equivalent degree recognised by the Ministry of Higher Education.
- The applicant should spend three consecutive years of training in an auditing firm. During this period the applicant should practice all accounting and auditing related tasks without any interruption.

After completing the training requirement, the applicant should spend another five years of further practical work in order to be entitled to work as an external auditor of joint stock companies. However, the admission to the profession through this route has received several criticisms. The profession law allows the Ministry of Finance to exempt individuals occupying certain accounting positions from training requirements. For example, these accounting positions include the chief accountant or financial director in government authorities, public organisations, state-owned companies, the tax authority and CAO. These accounting positions are called 'equivalent positions'. Accordingly, several individuals became chartered accountants without the required knowledge and experience (Kayed, 1990). In addition, the profession law does not require the passing of any examinations to be a chartered accountant and the length of compulsory training does not mean that the trainee will receive adequate training and hence several trainees may practise the profession without the necessary professional skills and knowledge (ROSC, 2002).

2.5.2.2 Membership of the ESAA

According to the requirements of ESAA, the public practising of accounting and auditing requires membership of the ESAA. To be a member of the ESAA, the candidate should satisfy the following educational and training requirements:

- The applicant should have graduated from the faculty of commerce - accounting section from an Egyptian or equivalent university.
- The applicant should spend three years of training in an audit firm member of the ESAA or in the CAO.
- The applicant should have passed two exams by the end of the training period. The first exam is an intermediate exam which covers the following subjects: financial accounting, cost accounting, auditing, and information systems. The second exam is the final exam which covers management accounting, advanced auditing, advanced financial accounting and taxation.

Moreover, the ESAA membership is admitted to the members of the ICAEW and the holder of a PhD degree in accounting with three years experience in practice. Once the applicant has become a member of the ESAA he/she is entitled to act as external auditor of joint stock companies.

2.5.3 Auditor Independence

Several articles in the profession law and Companies Act support auditor independence. For example, article 27 of the profession law stated that the auditor should not:

- Engage in any other profession or business without permission.
- Advertise professional service or follow any other way that breaches the dignity of the profession to gain clients.

Moreover, Companies Act and its executive regulation stipulated that:

- The general assembly appoints the auditor(s) and determines audit fees.
- The auditor cannot combine work as an independent auditor and to be a member of the company board of directors or work permanently as a consultant for the company.

However, the independence of auditors is questionable (Kayed, 1990). ROSC (2002) identifies some indicators for auditor lack of independence in Egypt such as:

- Some auditors have issued unqualified audit reports despite material misstatements that should be mentioned in the audit report.
- Auditors may assist their clients in preparing disclosure in financial reports and selecting accounting treatments to ensure favourable tax consequences.
- Auditors may accept new clients even over their capacity. This raises quality concerns and potential violation of accounting and auditing standards.

- In practice, the process of appointment and dismissal of independent auditors influences audit quality.

This brief presentation highlights the fact that there is an urgent need to establish an independent professional body with essential authority to organise the profession according to a code of ethics (ROSC, 2004).

2.6 Accounting Education

Accounting education has been present in Egypt since 1837 through the establishment of the School of Accountancy but this closed in the late 1840s. Then, in 1868, the School of Survey and Accountancy was established. Accounting education became present in an organised structure in 1911 with the establishment of the Higher School of Commerce which became the faculty of commerce in the Egyptian University (Cairo University now). Currently, 17 government and 16 private universities, besides a large number of higher institutes, offer various degrees in accounting including Bachelor, Diploma, Master and PhD. Undergraduate study in accounting consists of 4 years of study for a B.Com with a major in accounting. The courses cover the following subjects:

- Accounting principles
- Accounting information systems
- Principles and advanced managerial accounting
- Advanced financial accounting
- Specialised accounting systems
- Principles of internal control
- Tax accounting
- Intermediate accounting
- Principles and advanced cost accounting
- Accounting for partnership
- Corporation accounting
- Zakat accounting
- Principles and advanced external auditing
- Operations research in accounting

However, there is no course that covers professional ethics and the interpretation and implementation of the EASs/IASs. Kayed (1990) highlights the major problems of accounting education in Egypt as the following:

- Lack of updated textbooks in Arabic and a shortage of discussing topics such as the role of accounting in economic development and research methodology.
- Very little attention has been given to the Egyptian accounting practice problems.
- Free government education and over population create heavy demand on higher education which, in turn, is given limited financial and technical resources. Consequently, Egyptian universities suffer from a very poor staff/students ratio and a busy schedule of faculty members.
- Textbooks mainly focused on technical rather than conceptual issues.

- Inadequacy of accounting libraries and other educational materials.

In addition, ROSC (2002) indicates that the accounting curricula cover only basic topics and fail to present international standards and practice and suffer from the shortage of implementation guidelines on the EASs/IASs. Such problems threaten the quality of accounting education in government universities.

All these problems in Egyptian accounting education have been reflected in accounting practice. Accounting education problems result in a lack of accounting knowledge of most graduates, lack of knowledge regarding the application of accounting and auditing standards, outdated Arabic translations of the IASs and the precedence of tax accounting over financial reporting. It is not surprising that auditors and clients decide on and prepare together accounting treatments and disclosures in financial reports (ROSC, 2002). Kayed (1990) argues that the development of accounting education in Egypt requires incorporating a case study approach, field trips, practical training and real world problems in accounting education.

2.7 Egyptian Accounting Standards

1980 was the first year that accounting standards became a focus of interest when the SCP sponsored the international conference of accountants and auditors held in Cairo to discuss the possibility of releasing accounting standards that suit the Egyptian context. The adoption of IASs with some necessary adjustments to be suitable for the local environment and the establishment of the EIAA were the main conclusions of the conference (Hassanen, 2003).

In the early 1990s, the Egyptian government adopted economic reform policies by applying the rules of free-market economies and a privatisation program. Therefore, the need to enhance the quality of accounting disclosure emerged as a vital factor for the success of the privatisation program during the economic transition (Sobehi, 2002). The Egyptian government realised that the existence of a sound financial system, credible corporate financial reporting and adoption of international accounting and auditing standards are key factors that underpin the success of this program (ROSC, 2002).

Chamisa (2000) provides support for the relevance of the IASs to developing countries. He establishes his argument based on several aspects, namely accounting needs, private sector and a similar environment argument. According to the accounting needs argument, the IASs are designed to provide users of financial statements with the information they need; therefore developing countries adopt the IASs because they satisfy successfully

users' needs for information. Consequently, developing countries adopt, amend, integrate in their regulations or reject certain IASs in the light of users' needs for information. The private sector argument reveals that several developing countries adopt or have transformed to a free market economy and give the private sector an important role in the economic reform process. In these circumstances, the IASs are more relevant to developing countries. Finally, the a similar environment argument is based on the claim that although each country has its unique environment, developed and developing countries share a number of similar environmental aspects and information needs. Consequently, the adoption of IASs by developing countries may bring some advantages. From the companies' viewpoint, the IASs will decrease the cost of preparing, communicating and auditing financial statements and secure more effective relationships with international investors (Roberts et al., 2005). Moreover, IASs will enhance the contracting process between companies and a number of other parties, mainly lenders and management through providing information that is more relevant (Ball, 2006).

From the investors' standpoint, the IASs may lead to more informed investment decisions and reduce investment risk by providing more accurate, relevant and timely information. In addition, the IASs may reduce information asymmetry between more informed and less informed investors. Therefore, they probably secure more protection for less informed investors (Ball, 2006). Moreover, the IASs may reduce the need to acquire more information to amend the reported information as result of applying different accounting rules, which in turn reduce the cost of data acquisition and the problems that may occur as a result of complex and vague accounting rules (Roberts et al., 2005).

Statistics about foreign investment in Egypt during the period 2001-2006 support that claim. The adoption of IASs by the Egyptian government, among other factors, contributes to the increase of direct foreign investment and foreign investment in securities. Table 2.7 indicates the figures related to the foreign investment during 2001/2006:

Table 2.7: Direct Foreign Investments and Foreign Investment in Securities

	2001/2002	2002/2003	2003/2004	2004/2005	2005/2006
Direct investment ($ million)	428.2	700.6	407.2	3901.8	6111.4
Investments in securities ($ million)	998.9	-405.2	-225.6	831.1	2746

Source: CBE (2002, 2003, 2004, 2005 and 2006).

Moreover, foreigners' transactions in the Egyptian stock market increased rapidly between 1996 and 1999. Table 2.8 highlights the significant contribution of foreigners' transactions in the Egyptian stock market in terms of the percentage of trading volume and market capitalisation.

Table 2.8: Activity of Foreign Investors in the Egyptian Exchange between 1996 and 1999

Year	Percentage of trading volume	Percentage of market capitalisation
1996	38.1%	40.7%
1997	29.9%	38.75%
1998	38.2%	40.7%
1999	48%	44%

Source: Hodeb (2006), p.192.

Recently, the percentage of foreigners' transactions in the stock market constitutes 26.9% (28.4%) of trading volume and 43.2% (47.5%) of market capitalisation in 30/6/2005 (30/6/2006) (CMA, 2006a).

2.7.1 Egyptian Standard-Setting Process

Belkaoui (1994) proposed four strategies that developing countries may choose among them in building their accounting standards. These strategies are:

1- The Evolutionary Approach

According to this approach, a developing country defines its own accounting values and needs and uses them to derive its own techniques, concepts, institutions, profession and education without any exterior pressure or intervention.

2- The Transfer of Technology Approach

The transfer of accounting technology can take place through several channels such as international accounting firms and multinational companies. In addition, international accords and cooperative arrangements have a significant role in the transfer of accounting technology.

3- The Adoption of International Accounting Standards

A developing country may adopt the IASs or employ them as the foundation for its own national standards to:

- Decrease the cost of preparing and establishing accounting standards.
- Encourage and attract foreign investment.
- Provide the accounting profession with the opportunity to cope with entrenched standards of conduct.

- Keep pace with global trends towards harmonisation.
- Strengthen its position as a committed member of the international community.

Moreover, developing countries may prefer this strategy because they lack essential financial resources, expertise and skills to establish their own accounting standards (Cairns, 1990; Roberts et al., 2005).

4- The Situationist Strategy

This strategy seeks to produce accounting standards in the context of factors that have significant influence on the development of accounting. These factors include cultural linguistics, political and civil rights, economic and demographic characteristics, legal and tax systems, education and profession.

Egypt applies the third strategy as a basis for establishing the EASs. Using mimetic isomorphism of institutional theory, Hassan (2008, p.470) analyses the reasons for adopting the IASs as a basis of the EASs. He states that:

> *The Egyptian regulators' source of knowledge, the lack of domestic investors' desires to change the EFRR (Egyptian Financial Reporting Regulation) and the immature accounting profession that is incapable of professionally enforcing new standards, have led the regulators to choose the IASs as the best framework to improve the practice of accounting in Egypt.*

In May 1996, the Minister of Economy issued decree No. 323/1996 and then decree No. 478 in 1997 to establish the committee of accounting and auditing standards and rules of professional conduct. The committee is responsible for issuing accounting standards to be used in preparation of financial statements and auditing standards to be used by auditors and related rules of professional conduct. These standards form the overall framework for the preparation of financial statements and audit work.

In October 1997, the Minister of the Economy released ministerial decree No. 503 that contained 19 EASs effective from January 1998 and then three additional standards are added by ministerial decree No. 345 of 2002. Ministerial decree 503 of 1997 mandated the use of the EASs by all enterprises regulated under the supervision of the CML. However, the introduction of the decree indicates that the IASs should be applied to any accounting treatment in the absence of the EASs (MOE, 1997).

In July 2006, the Ministry of Investment issued ministerial decree No.243 that superseded the previous ministerial decrees, No. 503 and 345. The decree contains 35

EASs based completely on the IASs, but with minor differences, effective from the January 2007. The new version of EASs remedies the deficiencies in the previous standards by including a conceptual framework for the preparation and presentation of financial statements and two risk-related accounting standards, namely EAS 25, Financial Instruments: Presentation and Disclosure and EAS 33, Segment Reporting (MOI, 2006).

It is obvious that the process followed in preparing the EASs did not follow the essential procedures suggested by the FASB in the US, the ASB in the UK and IASB. This means that the EASs ignore the environmental and cultural dimensions of Egyptian society (El-Rashedy, 2006). Belkaoui (1988, p.177) stated that 'the standard-setting process in the developing countries has not followed a unique strategy proper to these countries and their context'. Consequently, this may threaten compliance with the EASs.

2.8 Corporate Governance

Corporate governance has received increasing attention especially since the mid-1990s at both international and national level. Several international bodies such as the OECD, the WB and the IMF seek to establish and promote the principles and foundations of good corporate governance practices. They provide assessment and classification of countries in terms of the quality of corporate governance in their markets (Abd-Elhamed, 2003). At the national level, Egypt takes several initiatives to apply the principles of corporate governance such as the establishment of the Egyptian Institute of Directors (EIoD) and the embracing of the OECD's corporate governance principles.

The Asian financial crisis in 1997 and the failure of large companies in some developed countries such as Maxwell in the UK and Enron in the US have pointed out that financial, managerial corruption and manipulation highlighted the role of good corporate governance practices in eliminating these financial crises (El-Essely, 2005). In addition, developing countries that adopt economic reform policies give high priority to corporate governance in order to gain the confidence of investors and attract more foreign investment (Abd-Elhamed, 2003).

2.8.1 Corporate Governance Definition and Importance

Corporate governance is an eclectic and multifaceted subject (Brennan and Solomon, 2008); therefore, there is no consensus on a single acknowledged definition of corporate governance (Solomon, 2007). Current definitions of corporate governance form a continuum of definitions ranging from a very narrow perspective to a wider point of view (Solomon and Solomon 2004). On the one hand, corporate governance is defined

as 'the system by which companies are directed and controlled' (Cadbury Code, 1992, p.15). This definition reflects a narrow point of view of corporate governance because it focuses mainly on the importance of controls in companies (Mallin, 2006) and limits corporate governance to the relationship between a company and shareholders only (Solomon, 2007). It stresses the means of confirming that a company is managed to achieve the objectives established by shareholders (Sternberg, 2004).

Alternatively, the OECD presents a wider definition of corporate governance. According to this definition, corporate governance is 'a set of relationships between a company's management, its board, its shareholders and other stakeholders. Corporate governance also provides the structure through which the objectives of the company are set, and the means of attaining those objectives and monitoring performance are determined' (OECD, 2004, p.11). This definition provides a broad perspective of corporate governance that takes into consideration not only shareholders but also a large group of stakeholders (Solomon, 2007). In addition, it emphasises the role of corporate governance as a key element in establishing and monitoring corporate objectives and performance (Mallin, 2006). The main reason that the OECD provides a wider definition of corporate governance is to facilitate the adoption of its principles by diverse corporate governance systems around the world (Solomon and Solomon, 2004).

Corporate governance is a key factor in improving economic efficiency and growth. It maintains investors' confidence as a key factor for companies to acquire capital at lower cost (OECD, 2004). Corporate governance is important to the sustainability of companies in the long term (Mallin 2006). Effective corporate governance practices may increase the level of protection to shareholders and other stakeholders' rights, contribute to decrease risk to the minimum level and enhance a company's performance and competitive position (Abd-Elhamed, 2003).

Financial reporting is the primary source of independently verified information to capital providers about managers' performance and therefore financial reporting and corporate governance are necessarily connected (Sloan, 2001). La Porta et al. (1998, p.1140) emphasise this inevitable relationship by indicating that:

> *Accounting plays a potentially crucial role in corporate governance. For investors to know anything about the companies they invest in, basic accounting standards are needed to render company disclosures interpretable. Even more important, contracts between*

managers and investors typically rely on the verifiability in court of some measures of firms' income or assets.

The effectiveness of the governance role of accounting information depends heavily on the capacity of accounting standards to provide comprehensive measures that could capture the topic under investigation and eliminate manipulation in financial statements that may take place in the absence of the standards (Benston, 1982).

Good corporate governance emphasises the importance of risk reporting to management, shareholders and other stakeholders (Konishi and Ali, 2007). Better risk reporting will enhance management accountability, investors' protection and ensure equal treatment of all investors (ICAEW, 1997). The effective employment of corporate governance will increase the quality of disclosure and transparency in financial reports, which in turn will provide more protection to shareholders and stakeholders rights. Moreover, good corporate governance will increase compliance with accounting standards through effective auditing (Al-Hezan, 2005).

2.8.2 Corporate Governance in Egypt

As a result of increased awareness regarding the importance of corporate governance and the need to establish an independent body to issue an Egyptian code of corporate governance, the Minister of Foreign Trade issued ministerial decree No.675 of 2003 that established the EIoD. Then, the Minister of Investment issued ministerial decree No.40 of 2004 that identifies the objectives, duties and responsibilities of the EIoD as well as regulates the financial aspects and responsibilities of both the board of trustees and institute executive manager. The main objectives of the EIoD are to:

- Enhance the performance of members and chairman of management board and executive managers regarding corporate governance practices.
- Facilitate exchanging and sharing experience regarding corporate governance implementation and development through holding national and international conferences.
- Offer advice to a company's board of directors.
- Carry out research and studies in corporate governance standards and international standards related to corporate governance (MOI, 2004).

Based on these objectives, the EIoD has two key roles, developing a code of corporate governance and supporting a director's professional capabilities (ROSC, 2004). As a consequence of the continuous efforts of the EIoD, the first guidance to corporate

governance was released in October 2005. Based completely on the principles of the OECD, the guidance endeavours to identify essential procedures that support optimal equilibrium between the interests of management, shareholders and stakeholders (EIoD, 2005). The guidance provides a series of procedures that complement the articles included in Companies Act No. 159 of 1982, CML No. 95 of 1992 and listing and delisting rules of EGX. The guidance recommends that listed companies and financial institutions should apply the recommendations of this guidance. The guidance mainly discusses topics such as the role and responsibilities of the general assembly, board of directors, external auditor, internal auditing and disclosure of social policies. However, although the guidance emphasises the importance of social disclosure, it does not provide an extensive discussion of risk disclosure practices, as the principles of the OECD require.

A year later, the EIoD issued in October 2006 a code of corporate governance for the public enterprise sector that is reviewed by the OECD and World Bank experts. The main objective of the guidance is to enhance corporate governance practices of public sector enterprises which in turn will contribute to better economic performance and the success of the privatisation program (EIoD, 2006). The guidance is based entirely on the principles of the OECD and is applicable to the public sector companies regardless whether they listed on a stock exchange or not.

2.8.3 The Assessment of Corporate Governance Practices in Egypt

The WB and the IMF have launched a program to assist its member countries in discovering weaknesses in their corporate governance frameworks. The program aims to benchmark a country's corporate governance framework and companies' practices against the corporate governance principles of the OECD (ROSC, 2001). The program of Reports on the Observance of Standards and Codes (ROSC) conducted two corporate governance assessments of corporate governance practices in Egypt under the supervision of the Ministry of the Economy and Foreign Trade in 2001 and 2004. The reports indicated some weaknesses in corporate governance structure, especially the financial reporting element and made several recommendations. Although the reports indicated some minor enhancement in corporate governance practices between 2001 and 2004, they diagnosed several weaknesses. The ROSC reports (2001 and 2004) reveal that:

- Board remuneration is disclosed without details while executive managers' remuneration is not reported at all.

- The absence of material risk factors disclosure in annual reports.
- There is no adequate disclosure regarding corporate governance policies and structure.
- Very few companies have effective audit committees that can supervise the audit process.
- Timeliness of financial statements remains a problematic issue.
- Publishing a detailed board of directors' report in the annual reports of most listed companies is very rare.
- There are significant gaps between official accounting standards and actual practices. For example, there are several deficient disclosures such as lack of segment reporting, lack of related party disclosure and insufficient risk and non-performing loan disclosures by banks.

However, the ROSC (2001 and 2004) reports provide several recommendations to enhance corporate governance practices in Egypt. These recommendations are:

- There is a need to encourage more non-financial disclosure.
- It is important to introduce a code of corporate governance best practices and encourage companies to report the level of compliance with the code requirements.
- Risk disclosure should be reported besides risk management practices.
- There is urgent need to establish an independent accounting and auditing body with the power to regulate the profession based on a code of ethics.

In response to the ROSC recommendations, the EIoD was established. In addition, the CMA has put many initiatives into effect to apply a number of these suggestions. In August 2006, the CMA prepared a registry of auditors who are approved to audit the financial statements of listed companies and financial intermediaries companies (CMA, 2006b). Moreover, in December 2006, the CMA issued a standard for quality control to be applied to audit and limited review of financial statements and all auditors listed in the CMA auditors' registry should comply with that standard (CMA, 2006c). Finally, in July 2008, the CMA established a quality control unit to monitor the performance of auditors who are registered in the CMA's registers. The main objective is verifying compliance with relevant professional quality standards, auditing standards and professional conduct (CMA, 2008).

2.9 Summary and Conclusion

This chapter has provided a discussion of Egyptian culture, economic development, accounting profession and education and corporate governance due to their significant impact on the accounting practices of Egyptian companies. In addition, it discussed the regulatory framework and accounting standards that organise financial reporting practices of Egyptian companies. The discussion attempted to discover the potential influences of these regulations and standards on financial reporting practices.

Egypt is a society with distinctive cultural dimensions such as a preference for collectivism, high power distance, high uncertainty avoidance and low masculinity as compared to Anglo/American societies and hence prefers accounting values that support statutory control, uniformity, conservatism and secrecy. No doubt, the secretive accounting value has a significant impact on the risk reporting practices of Egyptian companies.

The review of Companies Act, CML and listing and delisting rules of EGX indicate several weaknesses in the financial reporting environment. Although there are several regulations organising financial reporting practices in terms of the content and timing of delivery, those regulations suffer from a lack of effective application, precise and well-defined sanctions and effective monitoring systems. They also show confusion between basic concepts such as financial statements and annual reports and discouragement of voluntary disclosure. Moreover, legal requirements do not encourage risk reporting and limit the possibility of including risk information in board of directors' reports. Therefore, insufficient and summarised board of directors reports are published to users of financial statements.

Egypt needs a professional body with the power to monitor members' performance, professional conduct and impose penalties. The profession law allows individuals without the required knowledge and experience to practice. In addition, the profession law does not require any examinations or continuing education to be a chartered accountant. There is evidence regarding the lack of auditors' independence and there is an urgent need for a code of ethics.

Accounting education in Egypt suffers from several weaknesses. It covers only basic topics with a focus on book-keeping and procedures-aspects, undermines the importance of financial reporting and fails to discuss the implementation of accounting standards.

The assessment of corporate governance in Egypt indicates low disclosure of material risk factors in annual reports and a gap between official accounting standards and actual practice. In addition, there is a need to motivate Egyptian companies to present more risk and risk management disclosure.

In these circumstances, compliance with the EASs is questionable. Therefore, these circumstances emphasise the importance of measuring the level of compliance with the EASs, identifying voluntary risk reporting practices of Egyptian companies and identifying factors that may impede compliance with those standards. In addition, there is a strong need to identify the influence of corporate governance on companies' disclosure practices and to discuss factors that may threaten voluntary risk reporting. The next chapter will discuss a number of disclosure theories that assist in explaining the variation of risk reporting in companies' annual reports.

CHAPTER 3: DISCLOSURE THEORIES

3.1 Introduction

Accounting researchers employ a variety of disclosure theories to underpin a consistent and cohesive framework for examining and understanding different accounting practices (Deegan and Unerman, 2006). Generally, accounting literature distinguishes between two distinctive groups of theories, namely normative and positive theories.

Normative theories are based on the researcher's values, norms, beliefs and judgement. The main purpose of normative theories is prescription. Therefore, normative theories aim to prescribe 'what should be' in a particular situation (Deegan and Unerman, 2006; Watts and Zimmerman, 1986). Normative theories are value judgements, closed and non-empirical theories and their results are based entirely on their hypotheses (Wolk et al., 1992). The main criticism to normative theories is their limited use of observations in constructing theories; therefore they may depart significantly from existing accounting practices (Deegan and Unerman, 2006). Consequently, the results of normative theories may be viewed as unscientific and suspicious (Mathews and Perera, 1996).

During the 1970s, a tendency of accounting researchers to employ an empirical approach in accounting research flourished (Mathews and Perera, 1996). Positive theories of accounting aim to explain and predict accounting phenomena; therefore they attempt to describe 'what is' rather than prescribing 'what should be' (Deegan and Unerman, 2006; Wolk et al., 1992). The explanation focuses on providing reasons for observed accounting practices while prediction focuses on predicting unobserved accounting practices (Watts and Zimmerman, 1986).

Although different theories stem from different assumptions and provide different insights to the same phenomena, they share considerable common attributes and sometimes they overlap theoretically (Solomon, 2007). It is recommended to employ more than one theoretical perspective in one piece of research in order to benefit from the integration of theories (Shrives and Linsley, 2003a) and different points of view provided by different theories since each theory will provide a partial view about the phenomena under investigation (Deegan and Unerman, 2006). Wolk et al. (1992, p.42) support and encourage employing more than one theoretical perspective:

> *The point is not that ... theory is either 'right' or 'wrong'; theories...are both partial descriptions of the workings and interrelationships of the firm and its constituent*

participants. Various competing theories and viewpoints may bring important insights to accountants, auditors, users and standard-setters. No individual approach should be deemed superior to all others, for important contributions may come from any and all sources.

This study aims to identify and explain the extent of risk reporting in the annual reports of Egyptian listed companies. In addition, the research aims to identify empirically the impact of competition, ownership structure, firm-specific and corporate governance characteristics on risk reporting practices in Egypt. Therefore, it employs a variety of positive theories of accounting including agency theory (section 3.2), signalling theory (section 3.3), proprietary cost perspective (section 3.4), political cost perspective (section 3.5), stakeholder theory (section 3.6) and legitimacy theory (section 3.7) to better understand risk reporting practices and identify the potential determinants which may explain the variation in risk reporting practices in the annual reports of Egyptian companies. The following sections provide a presentation for these theories and section 3.8 is a summary and conclusion.

3.2 Agency Theory

Agency theory has been employed by researchers from different disciplines including accounting, economics, finance, marketing, political science, organisational behaviour and sociology (Eisenhardt, 1989). Agency theory offers the chance to examine social phenomena from a principal-agent point of view (Subramaniam, 2006). Jensen and Meckling (1976, p.308) define the agency relationship as a 'contract under which one or more persons (the principal(s)) engage another person (the agent) to perform some service on their behalf which involves delegating some decision making authority to the agent'. In addition, Jensen and Meckling (1976, p.310) define the firm as a 'nexus for contracting relationships'. These definitions are very important to accounting research since a variety of agency contracts are established and controlled in terms of accounting information (Leftwich et al., 1981).

Agency theory is based on two important assumptions (Jensen and Meckling 1976; Subramaniam, 2006; Watts, 1977):

a- Both the principal and agent are seeking to maximise their own interest.

b- The interest of the principal and that of the agent may diverge and the agent may not perform in the best interest of the principal and hence a conflict of interest may emerge.

Agency relationship and agency problem are inseparable and information asymmetry between the agent who has superior information and the principal exacerbates the problem (Subramaniam, 2006). The conflict of interest will cause two main problems: moral hazard and adverse selection. Moral hazard occurs due to the limited ability of the principal to evaluate and assess directly the manager's performance. An adverse selection problem occurs when the principal and the agent have different risk attitudes (Eisenhardt, 1989). An example of the adverse selection problem is where a manager may be reluctant to provide investors with relevant disclosure because he/she may achieve benefits from non-disclosure (Subramaniam, 2006).

In order to reduce agency problems, the principal and the agent may consider different monitoring and bonding activities and, of course, there are some costs related to those activities. Jensen and Meckling (1976) identify three types of agency costs that arise due to a lack of interest convergence between the agent and principal. These costs are monitoring expenditure by the principal, bonding expenditure by the agent and residual loss. Kelly (1983, p.116) highlighted monitoring and bonding expenditures. He stated:

> *The agent may contract to ensure that the principal's interest will not be harmed or to provide for retribution if such harm occurs. These contracts represent bonding costs that are borne by the agent. Additionally, the principal may incur expenditure in attempting to restrict the manager's actions. These monitoring costs are also borne by the agent. As they reduce the price for the firm's equity.*

Watts and Zimmerman (1979, p.276) explain residual loss. They indicated that:

> *Bondholders and shareholders anticipate the manager's behaviour and appropriately discount the price of the bonds or shares ... Hence, the promoter (or manager) ... receives less for the shares and bonds he sells that he would if he could guarantee that he would continue to act as he did when he owned the firm (i.e., when there were no outside shareholders or bondholders). This difference in the market value of the securitises is part of the cost of an agency relationship, it is part of agency costs (the residual loss), and is borne by the promoter (or manager).*

Because agency costs are inevitable and borne by the manager, he/she is motivated to reduce the expected agency costs to the possible minimum level (Jensen and Meckling, 1976). Therefore, managers are motivated to engage voluntarily in monitoring and bonding activities (Ng and Koh 1994). These activities may include bonus schemes, performance-based contracts, debt covenants, audit committees and increased disclosure

(Birt et al., 2006). Annual reports are one of the most important vehicles that managers may use to reduce agency costs via providing information to confirm their acting in the best interest of shareholders (Ness and Mirza, 1991; Watts, 1977; Watson et al., 2002). According to Firth (1980), one of the major purposes of corporate annual reports is providing information about the company to shareholders to facilitate monitoring agency relationships. Moreover, in terms of agency costs, the annual report is an effective mechanism to mitigate agency costs (DeAngelo, 1981; Depoers, 2000). Managers are motivated to provide information regarding risk management to confirm their accountability and interest to achieve the objective of shareholder wealth maximisation (Linsley and Shrives, 2000; Solomon, 2007) and to reduce information asymmetry and investors uncertainty (Shrives and Linsley, 2003b).

Based on the argument that the amount of agency costs will vary among different firms (Jensen and Meckling, 1976), accounting researchers employ agency theory to examine some unexplained corporate characteristics (Fellingham and Newman, 1979). Watts and Zimmerman (1979, p.277) argue that:

> *Agency theory predicts that accounting practices (i.e., the form, content, frequency, etc., of external reporting) would vary across corporations...depending on the nature and magnitude of the agency costs.*

Consequently, accounting researchers apply agency theory to underpin the stream of accounting research that examines the association between extent of disclosure and some specific-firm characteristics (Ng and Koh, 1994; Watts, 1977; Watson et al., 2002). Moreover, accounting researchers draw on agency theory to examine the association between corporate governance variables and extent of disclosure. They establish their analysis of this relationship on the argument of Jensen and Meckling (1976, p.308) that 'the issues associated with the separation of ownership and control in the modern diffuse ownership corporations are intimately associated with the general problem of agency'.

3.3 Signalling Theory

Signalling theory was developed to explain information asymmetry in the labour market and employed in a variety of disciplines including accounting disclosure (Campbell et al., 2001). Information asymmetry arises because one party in a market has more information than the other party (Watts and Zimmerman, 1986). Spence (1973) applies signalling theory to explain information asymmetry between the employer and employee and explains how employees with a high level of education may use this information to

signal information about their productivity to screen themselves from employees with a low level of education.

Scott (2003, p.422) defines a signal as 'an action taken by a high-type manager that would not be rational if that manager was low type'. Signalling theory aims to explain how information asymmetry between different parties in the market could be eliminated by the more informed party signalling to the less informed party (Morris, 1987). In the context of voluntary disclosure, signalling theory predicts that, in the presence of information asymmetry, investors may not be able to differentiate high quality companies, e.g. companies with high quality investment projects, from low quality companies, e.g. companies with low quality investment projects. Therefore, investors may withdraw from the capital market or offer a low, or at least average, price for any security (Scott, 2003). Consequently, high quality companies have a greater incentive to disclose more information to the capital market to distinguish themselves from low quality companies (Campbell et al., 2001) and receive an above the average market valuation while low quality companies consider signalling to the capital market very costly for them (Clarkson et al., 1994). This perspective is referred to as the market for lemons perspective[1] (Deegan and Unerman, 2006).

Companies with superior risk management performance have increased incentives to disclose risk information to gain advantages from reporting this additional information in terms of share price upward adjustments (Linsley and Shrives 2000; Shrives and Linsley, 2003b; Woods and Reber, 2003).

Although signalling and agency theory can be used to explain similar accounting practices, they are based on different assumptions. Agency theory draws on the assumptions of individual rational utility maximisation and separation of ownership and control while signalling theory is inspired by information asymmetry assumption. However, the two theories are consistent because monitoring costs and separation of ownership and control involve information asymmetry between managers and the capital market. Therefore, the two theories are not mutually exclusive and could be used together to bring more insights to a company's accounting policies' choice (Morris, 1987).

Ross (1979) argues that in a competitive market setting managers have incentives to reveal relevant information to the capital market because their compensation is

[1] Akerlof (1970, p.489) uses the 'Market for Lemons' expression in the analysis of information asymmetry in used cars market to distinguish good cars from bad cars (which in America are known as 'Lemons').

associated with a company's market value. Consequently, managers with good news information are motivated to signal this information to the market to raise equity market value. Even managers with no news information are motivated to disclose information in order to discriminate themselves from bad news companies because the capital market may interpret no news as bad news. This means that all managers except those with bad news are motivated to disclose more information to investors. Dye (1985) argues that managers may be reluctant to disclose bad news because investors' knowledge regarding managers' information is incomplete. Therefore, managers may withhold bad news because investors are uncertain about the kind of information the managers possess.

Empirical research supports the argument that companies with good news will disclose voluntarily this information to the market. Lev and Penman (1990) address whether companies that disclose earning forecasts have higher market valuation than non-forecasting companies. The study draws on the assumption that companies with good news will disclose such forecasts and therefore an increase in their market value is expected. In contrast, companies with bad news will not disclose and therefore their market value is expected to decrease. Lev and Penman (1990) indicate that companies with good news disclose forecasts to distinguish themselves from bad news companies. However, empirical evidence indicated that non-disclosing companies are not penalised in terms of equity market value decline. In other words, the result does not support the argument that the stock prices of non-disclosing companies in the same industry are negatively influenced by non-disclosure.

Contrary to Ross (1979) and Lev and Penman (1990), Skinner (1994, p.39) argues that managers may voluntarily disclose bad news for two reasons:

> *First, stockholders may sue when there are large stock price declines on earnings announcement days, since stockholders can allege that managers failed to disclose adverse earning news promptly ... Second, managers may incur reputational costs if they fail to disclose bad news in a timely manner ... For example, money managers may choose not to hold the stock of firms whose managers have a reputation for withholding bad news and analysts may choose not to follow these firms' stocks.*

In summary, the main contribution of signalling theory is its argument that managers of high quality companies have greater incentives to comply with accounting standards or provide voluntarily more information in order to screen themselves from other companies (Morris, 1987) because failure to do so will negatively impact their

compensation (Deegan and Unerman, 2006). Finally, since companies differ in quality these incentives should be greater in large firms (Morris, 1987).

3.4 Proprietary Cost Perspective

Several accounting researchers aim to model the impact of competition on management incentives to reveal voluntary disclosures (Clinch and Verrecchia, 1997). This stream of accounting research utilises a broad definition of disclosure cost. Cost of disclosure is non-zero and comprises two basic components, proprietary and non-proprietary cost (Campbell et al., 2001). Non-proprietary cost includes the cost of collecting, processing, retrieving and disseminating information. Proprietary cost is 'the cost associated with disclosing information which may be proprietary in nature and therefore potentially damaging' (Verrecchia 1983, p.181). For instance, disclosing high profit or demand may assist the company in receiving a favourable response from the capital market but at the same time may harm the company through exposure to increased competition (Gigler, 1994). Therefore, proprietary cost refers to the loss of earnings as a result of increased competition (Wagenhofer, 1990).

The main problem is a company may wish to disclose proprietary information to assist the capital market in assessing a company's share price more precisely but at the same time disclosing such information may provide valuable strategic information to competitors (Darrough and Stoughton, 1990). Therefore, the company has to trade-off the positive and negative impacts of disclosing proprietary information (Darrough, 1993) and hence it is expected that no firm will completely disclose its private information (Gigler, 1994).

Proprietary cost is very important in explaining why managers may withhold information. Verrecchia (1983) argues that when managers withhold private information, in the presence of proprietary cost, the capital market is uncertain about the reason behind this action. Consequently, the capital market may interpret information withholding as bad news or as good news but not good enough to justify disclosure.

Verrecchia (1983) argues that competition has a negative impact on voluntary disclosure. He states that 'firms in highly competitive industries may regard public disclosure of any kind as potentially costly in the assistance it renders competitors. Firms in less competitive industries may see no cost associated with making public disclosures' (Verrecchia 1983, p.191). Wagenhofer (1990) argues that a company decision to disclose private information is a trade-off between disclosing favourable and unfavourable news.

On the one hand, a company seeks to avoid proprietary cost through preventing potential competitors from taking adverse action. Therefore, the company has the incentive to disclose unfavourable information to the product market. On the other hand, a company seeks to maximise shareholders' wealth by reporting favourable information to the capital market. In contrast to Verrecchia (1983), Wagenhofer (1990) argues that proprietary cost is not only a result of disclosing proprietary information but also it could be a result of nondisclosure. A company may face proprietary cost even in the case of nondisclosure due to adverse actions by competitors based on the information conveyed by non-disclosure. Wagenhofer (1990) concludes that voluntary disclosure is a multi-dimensions decision which is influenced by competition, risk of adverse actions by potential competitors and the nature of private information.

In line with Wagenhofer (1990), Darrough and Stoughton (1990) argue that the nature of private information impacts voluntary disclosure. A company will use favourable and unfavourable information in different ways to gain benefits from the capital market and deter the entrance of potential competitors to the product market. However, contrary to Verrecchia (1983), Darrough and Stoughton (1990) conclude that competition pressure through hazard of entry encourages voluntary disclosure because low entry barriers will lead to higher entry probability and therefore full disclosure will be a consequence under a high competition environment.

Feltham and Xie (1992) indicate that managers in their decision to disclose or withhold private information are more concerned about the response of both capital and product markets to their decisions. Managers wish to report favourable news to the capital market to obtain funds on favourable terms while they disclose bad news to the product market to reduce competition. Therefore, full disclosure takes place if one of the markets is the main concern of the managers or if the response of one market is more important than that of the other market. Finally, partial disclosure exists when managers have relatively equivalent concern about the response of the two markets.

Darrough (1993) argues that the decision to provide voluntary disclosure depends on the nature of the competition in product markets and the nature of private information. He argues that disclosing private information to competitors is not always harmful, in terms of reducing prospective profits. In some circumstances, companies may benefit from sharing information to coordinate actions to their mutual advantage.

In summary, proprietary cost perspective predicts that firms with good news will voluntarily disclose more information if the perceived benefits from disclosure are greater than disclosure costs (Clarkson et al., 1994). The main contribution of proprietary cost perspective is including both the benefits and costs related to information disclosure in the analysis of disclosure practices (Prencipe, 2004) and providing a wide range of interpretation of managers' decisions to withhold information (Craswell and Taylor, 1992).

3.5 Political Cost Perspective

Firms are subject to scrutiny by a variety of political groups including government, labour unions, consumer groups and environmental lobby groups (Deegan and Unerman, 2006). The political sector has the authority, power and incentives to lobby for wealth transfer between various groups including the corporate sector which may experience wealth relocation in favour of other parties in society (Watts and Zimmerman, 1978; Hagerman and Zmijewski, 1979). Political intervention may take several forms including more social responsibility and regulation, higher corporate tax rates (Hagerman and Zmijewski, 1979), antitrust investigations, union demands, price controls (Kelly, 1983) and in extreme cases it can take forms such as nationalisation and expropriation (Watts and Zimmerman, 1978).

Political cost perspective derives its importance from its role in facilitating the inclusion of political aspects in accounting research. Political process theories acknowledge the role of accounting information in the political process (Inchausti, 1997; Watts and Zimmerman, 1986). For instance, companies with high profits could be subject to political costs if their profitability draws the attention of political parties and the media. Therefore, government may impose additional taxes or more regulation on these companies (Scott, 2003).

Companies' annual reports have a significant role in the political process. The political sector may use annual reports for close examination of politically visible firms. Consequently, firms could use their annual reports to reduce the risk of adverse political interference and related costs (Kelly, 1983; Holthausen and Leftwich, 1981).

The exposures to political scrutiny, pressure and potential wealth transfer motivate managers to adopt accounting policies that decrease reported earnings and consequently reduce wealth transfers (Deegan and Unerman, 2006; Watts and Zimmerman, 1986). Watts and Zimmerman (1978) highlight the possibility of reducing political costs and

highlight implicitly the potential role of accounting disclosure as one of the tactics that a company could use to mitigate political costs.

Based on this analysis, Belkaoui and Karpik (1989) argue that firms with high political visibility tend to use more voluntary disclosure than firms with low political visibility. In a similar manner, companies with high political sensitivity are motivated to disclose risk information to diminish governmental intervention and regulation. The obvious reason for this behaviour is reducing detailed and more costly requirements imposed by regulations and accounting standards (Linsley and Shrives, 2000). Accounting researchers employ several measures as proxies for political costs including firm size and industry membership (Kelly, 1983; Hagerman and Zmijewski, 1979).

Hagerman and Zmijewski (1979) argue that political costs are a function of firm size. This means that large companies are scrutinised more closely than smaller companies because smaller companies are less politically sensitive and thereby are less likely to be subject to political wealth transfer and adverse governmental actions (Kelly, 1983; Watts and Zimmerman, 1986). Watts and Zimmerman (1986) acknowledge the importance of industry membership as a proxy for political costs because certain industries are more politically sensitive than others. They based their argument on the U.S. government reaction to the oil and gas companies in the 1970s.

Zimmerman (1983) supports the use of firm size as a proxy for political costs. He finds a significant relationship between effective tax rates (as a proxy for political costs) and firm size after controlling for industry. Moreover, he finds that the strongest association between those two variables is in the oil and gas industry.

Empirical research supports the use of accounting disclosure in managing potential regulatory costs. Blacconiere and Patten (1994) and Patten and Nance (1998) indicate that chemicals and oil and gas companies provide more voluntary (environmental) disclosure in their annual reports to confirm their ability to manage exposure to future regulatory costs. They propose a negative relationship between investors' perception regarding the potential effect of regulatory costs and the existence of voluntary disclosure.

3.6 Stakeholder Theory

In 1963, the term 'stakeholder' was used for the first time in management research by the Stanford Research Institute (Freeman, 1983). Stakeholders are 'those groups and individuals that can affect, or are affected by, the accomplishment of organisational

purpose. Each of these groups plays a vital role in the success of the business enterprise in today's environment' (Freeman 1984, p.25). Stakeholder groups include employees, suppliers, competitors, stock markets, industry bodies, communities, society and government agencies and may extend to include future generations (Gray et al., 1996; Solomon, 2007). According to stakeholder theory, a firm could be viewed as 'a nexus of cooperative and competitive interests possessing intrinsic value' (Shankman, 1999, p.322). Stakeholders can be classified as primary or secondary stakeholders. A primary stakeholder group has an essential role for corporate survival while a secondary stakeholder group is a group that is not involved with the company in any transactions but still influences or is influenced by a company's strategies (Clarkson, 1995). In addition, Darnall et al. (2009) classify stakeholder groups into internal (located within the corporation) and external (located outside the corporation) groups.

Stakeholder theory aims to explain organisation policy towards a variety of stakeholders (Näsi et al., 1997). Stakeholder theory seeks to explain the potential influence of stakeholders' expectations on corporate strategies and how a company can manage these expectations (Deegan and Unerman, 2006). Stakeholder theory is based on the assumption that a company will respond to the expectations and demands of stakeholder groups (Deegan and Blomquist, 2006). Also, it highlights the potential influence of stakeholders on corporate operations and disclosure policies (Deegan and Unerman, 2006).

Stakeholder theory supports the importance of corporate governance structures which ensure that the management regard the interests of a wide range of stakeholders not only the interest of stockholders (Alam, 2006). Roberts (1992) argues that companies may employ disclosures for managing stakeholder relationships and building up their reputation for being socially responsible. Moreover, stakeholder theory acknowledges the importance of information in facilitating an organisation's accountability regarding its strategies that may influence stakeholders' interest and highlights the need for a conceptual framework of financial reporting that considers the information needs of a variety of user groups not only investors needs (O'Dwyer, 2005). In the same vein, Solomon (2007, p.23) states:

> *A basis for stakeholder theory is that companies are so large and their impact on society so pervasive that they should discharge an accountability to many more sectors of society than solely their shareholders.*

According to stakeholder theory, a company should provide a wide range of information, e.g. financial, social and environmental, to meet the expectations of different stakeholder groups (Alam, 2006). Gray et al. (1996, p.46) state:

> *Information ... is a major element that can be employed by the organisation to manage (or manipulate) the stakeholder in order to gain their support and approval, or to distract their opposition and disapproval.*

Therefore, companies are motivated to disclose different types of information, e.g. risk and risk management related information, in order to confirm that they act according to stakeholders' expectations (Deegan and Unerman, 2006). Based on this analysis, managers are motivated to report risk and risk management disclosure in order to establish and maintain adequate relationships with stockholders as well as other stakeholder groups and to avoid stakeholders' scepticism about a firm's prospective performance (Iatridis, 2008). Consequently, disclosing risk-related information may support a company's reputation for being more responsible than other companies that do not disclose such information. For example, a company may include environmental risk information in its annual report to satisfy the information needs of environment lobby groups and avoid more regulations (Woods and Reber, 2003).

Stakeholder theory assumes that stakeholder groups do not all have the same amount of power. Stakeholders' power is a function of the extent to which the company depend on stakeholder groups and their ability to get access to the political process and the media (Näsi et al., 1997). Consequently, a company is keen to satisfy the demands of more powerful stakeholder groups, those groups which control the essential resources of a corporation (Roberts, 1992; Ullmann, 1985). Therefore, in order to achieve its strategic objectives, a company needs to prioritise its stakeholders and to balance stakeholders' demands (Alam, 2006).

Although stakeholder and agency theory are based on different assumptions regarding human behaviour, motivation and the level of analysis (Shankman 1999) they could be viewed as compatible theories (Solomon, 2007). Hill and Jones (1992, p.134) confirm this point of view, they state:

> *Nevertheless, there is a parallel between the general class of stakeholder-agent relationships and the principal-agent relationships articulated by agency theory. Both stakeholder-agent and principal-agent relationships involve an implicit or explicit contract, the purpose of which is to try and reconcile divergent interests.*

3.7 Legitimacy Theory

Although it is very difficult to establish a definition for the notion of a social contract, researchers employ it to construct a series of societal expectations regarding how companies should perform their functions (Deegan and Unerman, 2006). Shocker and Sethi (1974, p.67) provide an explanation of the notion of a social contract:

> *Any social institution - and business is no exception - operates in society via a social contract, expressed or implied, whereby its survival and growth are based on:*
>
> 1) *The delivery of some socially desirable ends to society in general, and*
> 2) *The distribution of economic, social, or political benefits to groups from which it derives its power.*
>
> *In a dynamic society, neither the sources of institutional power nor the needs for its services are permanent. Therefore, an institution must constantly meet the twin tests of legitimacy and relevance by demonstrating that society requires its services and that the groups benefiting from its rewards have society's approval.*

Accordingly, the notion of social contract governs and organises the mutual relationship between society as a provider of economic resources on one side and the corporate sector as a provider of commodities and services on the other. In addition, it emphasises that a company should legitimate its operations.

Lindblom (1994, p.2 cited in Deegan and Unerman 2006, p.271) defines legitimacy as:

> *A condition or status which exists when an entity's value system is congruent with the value system of the larger social system of which the entity is a part. When a disparity, actual or potential, exists between the two value systems, there is a threat to the entity's legitimacy.*

In addition, Suchman (1995, p.574) defines legitimacy as:

> *A generalised perception or assumption that the actions of an entity are desirable, proper, or appropriate within some socially constructed system of norms, values, beliefs and definitions.*

These two definitions acknowledge the importance of society's perception in determining the extent to which a company meets society's expectations (Näsi et al., 1997). Legitimacy theory acknowledges the influential role of the media in shaping public opinion, orientation and perception (Deegan, 2006). The media can aggravate and guide public pressure on companies to provide more disclosures (Aerts and Cormier, 2009).

Moreover, the two definitions recognise a company as a social actor which seeks to be perceived conducting its operations in accordance with society's norms, values and boundaries (Deegan and Unerman, 2006; Gray et al., 1996; Sethi, 1978); therefore its activities are legitimate and it can continue to exist (Deegan, 2006). Legitimacy theory hypothesised that 'the greater the likelihood of adverse shifts in the social perceptions of how an organisation is acting, the greater the desirability on the part of the organisation to attempt to manage these shifts in social perceptions' (O'Donovan, 2002. p.345).

The breach of the social contract between a company and society and the failure to meet society's expectations may threaten the existence of a company (Deegan, 2006). A society may place different restrictions on this company (Deegan and Unerman, 2006). These restrictions may take the form of demand reduction by customers, supply reduction by suppliers, difficulties in recruiting employees and difficulties in attracting financial resources (Deegan, 2002; Neu et al., 1998).

Deegan (2007) argues that legitimacy is a dynamic process because society's expectations may vary from time to time and from one society to another at the same point of time. Therefore, a company should adapt to changes in society's expectations. This dynamic nature of legitimacy may result in a 'legitimacy gap' between a company and society due to the potential change in society's expectations and business strategies (Sethi, 1978; O'Donovan, 2002).

In order to reduce this legitimacy gap, Lindblom (1994) (cited in Deegan and Unerman, 2006, p.274; Deegan, 2006, p.173) suggests four tactics a company could employ to gain or maintain its legitimacy. These tactics refer to strategies that a company may use to:

- Educate and inform its 'relevant publics' about (actual) changes in the organisation's performance and activities which bring the activities and performance more into line with society's values and expectations;
- Change the perception of 'relevant publics' regarding an organisation's performance and activities - but not change the organisation's actual behaviour (while using disclosures in corporate reports to falsely indicate that the performance and activities have changed);
- Manipulate perceptions by deflecting attention from the issue of concern onto other related issues through an appeal to, for example, emotive symbols, thus seeking to demonstrate how the organisation has fulfilled social expectations in other areas of its activities; or

- Change external expectations of its performance, possibly by demonstrating that specific social expectations are unreasonable.

Legitimacy theory has been employed to explain the use of a variety of corporate strategies including voluntary disclosure in companies' annual reports (Deegan 2006). Deegan (2002), O'Donovan (2002) and Deegan and Unerman (2006) acknowledge the important role of accounting disclosure in implementing the tactics suggested by Lindblom (1994) because legitimacy theory draws heavily on society's perceptions regarding a company's operations and therefore accounting disclosure has an influential role in shaping this perception.

Shrives and Linsley (2003b) argue that companies running more risky operations might use disclosure to support their legitimacy by reporting more risk-related information to highlight how effectively they manage these risks. Similarly, Linsley and Kajüter (2008) indicate that companies may use disclosure to explain risk exposure and how it has been addressed to restore their reputation and legitimacy. Deegan and Unerman (2006) argue that companies become more concerned about reputation risk management because the failure to operate in line with society's expectations will damage a company's reputation which is an important determinant of a company's prospective value. Therefore, managers are motivated to provide risk and risk management information in the annual reports in order to gain or maintain the reputation that they meet society's values, norms and expectations and thereby support prospective profits. Moreover, companies are more motivated to comply with mandatory disclosure requirements in order to confirm their acceptance and adherence to social norms and values and to obtain social legitimacy.

Finally, it is important to consider the overlap between stakeholder theory and legitimacy theory and the confusion between political cost perspective and legitimacy theory. On the one hand, Gray et al. (1995a) contend that the accounting literature tends to deal with stakeholder and legitimacy theory as competing theories while they stem from the same assumptions. Deegan and Blomquist (2006) highlight the contrast between and the basic features of the two theories. Deegan and Blomquist (2006, pp.349-350) state:

> *Whilst legitimacy theory discusses the expectations of society in general...stakeholder theory provides a more refined resolution by referring to particular groups within society (stakeholder groups). Essentially, stakeholder theory accepts that because different stakeholder groups will have different views about how an organisation should conduct its*

operation, there will be various social contracts "negotiated" with different stakeholder groups, rather than one contract with society in general. Whilst implied within legitimacy theory, stakeholder theory explicitly refers to issues of stakeholder power, and how a stakeholder's relative power impacts their ability to "coerce" the organisation into complying with the stakeholder's expectations.

Briefly, stakeholder theory examines the impact of stakeholder groups on management strategies including disclosure (Roberts, 1992) while legitimacy theory discusses the tactics that a manager may use to gain or maintain a company's legitimacy (O'Donovan, 2002).

On the other hand, Milne (2002) argues that accounting literature seems to be confused between political cost perspective and legitimacy theory and sometimes employs political costs in such a broad manner that it blurs with other disclosure theories. Deegan and Unerman (2006) contend that legitimacy theory is distinct from political cost perspective in three aspects. First, legitimacy theory draws on the notion of social contract. Second, legitimacy theory is not based on wealth maximisation and individual self-interest assumptions. Third, legitimacy theory does not assume any hypotheses regarding market efficiency.

3.8 Summary and Conclusion

This chapter has presented a number of accounting theories that are widely used by researchers to explain and predict accounting practices including financial reporting practices. Accounting researchers have used them to explain managers' incentives to disclose information in corporate annual reports or to explain why managers may withhold information. These theories include agency theory, signalling theory, proprietary cost perspective, political cost perspective, stakeholder theory and legitimacy theory. The main reason to employ these theories is to better understand the risk reporting practices of Egyptian listed companies and identify the potential determinants of these practices.

Agency theory suggests that managers seek to reduce agency problems through increased disclosure to confirm that they work in the best interests of the shareholders. Signalling theory argues that, due to information asymmetry, managers of high quality companies are willing to disclose more information to distinguish themselves from other companies. Proprietary cost perspective examines the impact of competition on accounting disclosure and explains why managers may refrain from disclosing information in annual

reports. Proprietary cost perspective argues that managers may be reluctant to provide more disclosure if this disclosure may damage companies' competitive advantages.

Political cost perspective examines the impact of political pressures on accounting practices. It argues that companies with high political visibility disclose more information than companies with low political visibility in order to reduce any potential political interference. Stakeholder theory identifies the relationship between the company and a wide range of stakeholders and explains companies' incentives to provide a variety of information to satisfy stakeholders' demand for information. Finally, Legitimacy theory is based on the notion of a social contract between the company and society. Legitimacy theory highlights the importance of disclosure in corporate annual reports in maintaining and restoring companies' legitimacy.

A number of empirical studies that used these theories to explain disclosure practices and their determinants will be discussed in the next chapter. In addition, the development of research hypotheses will be based on these theories to examine the associations between competition, corporate-specific characteristics, corporate governance, ownership structure and risk reporting practices in Egyptian companies' annual reports.

CHAPTER 4: LITERATURE REVIEW

4.1 Introduction

The previous chapter introduced a number of disclosure theories that have been used by accounting research to explain the variation of disclosure extent in companies' annual reports. Based on these theories, this chapter reviews a number of disclosure studies closely related to risk reporting in order to identify corporate-specific characteristics, corporate governance and ownership structure that may influence the extent of risk reporting in companies' annual reports. In addition, this chapter aims to identify measurement instruments used to quantify the amount/level of disclosure and statistical analysis approaches used in data analysis. Moreover, this chapter reviews a number of studies that highlight the impact of accounting education and practice problems on disclosure in corporate annual reports.

Section 4.2 discusses risk definition and the benefits of risk reporting. Section 4.3 discusses the determinants of segmental reporting and the cost of segment disclosure. Section 4.4 presents corporate governance mechanisms as determinants of disclosure studies while section 4.5 addresses the determinants of risk reporting. Disclosure studies in Egypt are presented in section 4.6. Section 4.7 highlights accounting education and practice problems that may influence accounting disclosure. Section 4.8 is a summary and conclusion.

Since the seminal work of Cerf (1961), accounting researchers have aimed to explore and investigate firm-specific characteristics that may explain variation in disclosure quantity/quality in corporate annual reports. These characteristics, called the determinants of disclosure, include firm size, listing status, leverage, profitability and auditor type (Ahmed and Courtis, 1999).

Accounting researchers have employed different theoretical perspectives to explain and predict the relationship between disclosure quantity/quality and firm-specific characteristics. These include agency theory (Chow and Wong-Boren, 1987; Owusu-Ansah, 1998), political cost (Ahmed and Nicholas, 1994; Dumontier and Raffournier, 1998), proprietary cost perspective (Craswell and Taylor, 1992; Depoers, 2000; Gelb, 2000; Prencipe, 2004), signalling theory (Inchausti, 1997; Meek et al., 1995), legitimacy theory (Herrmann and Thomas, 1996; McKinnon and Dalimunthe, 1993) and stakeholder theory (Linsley et al., 2006).

There is a tendency for voluntary disclosure studies to focus mainly on developed countries (Cooke, 1989a; Cooke, 1989b; Cooke, 1991; Cooke, 1992; Cooke, 1993; Hossain et al., 1995; Raffournier, 1995; Depoers, 2000) while little is known regarding developing countries (Alsaeed, 2006; Chow and Wong-Boren, 1987; Hossain et al., 1994). In contrast, mandatory disclosure studies have paid more attention to developing countries (Ahmed, 1996; Ahmed, 2006; Akhtaruddin, 2005; Ali et al., 2004; Craig and Diga, 1998; Owusu-Ansah, 1998; Patton and Zelenka, 1997) and little attention has been paid to developed countries (Inchausti, 1997; Malone et al., 1993; Owusu-Ansah, 2005; Wallace et al., 1994). This may be because compliance with mandatory requirements is a major concern for developing countries. A variation between companies, especially in developing countries, regarding their compliance with mandatory requirements is expected because there are incentives for non-compliance such as lack of effective enforcement mechanisms and a weak accounting profession (Ahmed and Nicholas, 1994) and hence, under these circumstances, mandatory disclosure tends to be voluntary in nature (Marston and Shrives, 1996). A few disclosure studies have investigated disclosure determinants in the Middle East in general (Alsaeed, 2006; Al-Shammari et al., 2008) and Egypt in particular (Abd-Elsalam and Weetman, 2003; Hassan et al., 2006; Samaha and Stapleton, 2008).

Disclosure is an abstract concept and therefore its measurement is not a straightforward process (Malone et al., 1993; Wallace, 1987). Accounting researchers have sought to construct a measurement instrument to quantify this abstract concept. Generally, accounting researchers can choose between a disclosure index and thematic content analysis (Beattie et al., 2004). Therefore, measurement validity and reliability have become critical issues to disclosure studies regardless of the measurement instrument used (Marston and Shrives 1991). A disclosure index can be used to measure the extent of disclosure in a certain context (Coy et al., 1993). A disclosure index is employed to measure the level of mandatory, voluntary and aggregate (both mandatory and voluntary) disclosure in annual reports based on research objectives (Marston and Shrives, 1991). In measuring the extent of disclosure, accounting researchers use different scoring schemes; namely dichotomous scoring (Abd-Elsalam and Weetman, 2003; Cooke, 1989a; Owusu-Ansah, 1998; Samaha and Stapleton, 2008) or ordering scheme (Buzby, 1974b; Copeland and Fredericks, 1968; Robins and Austin, 1986). Moreover, researchers may select between a weighted and an unweighted disclosure index. A weighted index refers to an index which assigns a higher importance to certain information items than others based

on the perception of user groups such as investors regarding their relative importance. In contrast, an unweighted index assigns equal importance to each information item. Both weighted and unweighted disclosure indices have their opponents and proponents (Akhtaruddin, 2005; Chavent et al., 2006; Owusu-Ansah, 2000). A number of studies use both of them and find non significant differences in the results (Adhikari and Tondkar, 1992; Chow and Wong-Boren, 1987).

Content analysis is a systematic method that seeks to provide a valid and reliable quantitative presentation of specific communication content (Berelson, 1952; Riffe et al., 2005). Content analysis has been used extensively by social and environmental disclosure studies (Gray et al., 1995b; Hackston and Milne, 1996; Milne and Adler, 1999; Tsang, 1998; Unerman, 2000) and recently by risk reporting studies (Beretta and Bozzolan, 2004; Linsley and Shrives, 2005 and 2006; Shrives and Linsley, 2003b; Woods and Reber, 2003) due to its assistance in identifying the basic characteristics of reported information. Content analysis assists researchers to reduce a large amount of coding units to a manageable few sets of themes or categories (Boyatzis, 1998; Neuendorf, 2002; Weber, 1990).

From a statistical point of view, disclosure studies tend to employ different statistical techniques to investigate the relationship between the extent of disclosure and its determinants. Researchers may employ bivariate analysis (Cooke, 1993; Konishi and Ali, 2007; Marston and Robson, 1997; Salamon and Dhaliwal, 1980; Samaha and Stapleton, 2008; Tai et al., 1990) and/or multivariate analysis (Alsaeed, 2006; Cooke, 1991; Depoers, 2004; Meek et al., 1995; Prencipe, 2004). Univariate analysis includes the Chi-square test, the t-test, the Mann-Whitney U test and the Wilcoxon Signed Rank test. Multivariate analysis includes the use of regression analysis to investigate simultaneously the impact of firm-specific characteristics on disclosure extents. Researchers use different approaches of regression. For example, Alsaeed (2006), Chow and Wong-Boren (1987) and Owusu-Ansah (1998) use ordinary least square (OLS) regression while Kelly (1994), Dumontier and Raffournier (1998), El-Gazzar et al. (1999), Leuz (2004) and Brit et al. (2006) employ logit/probit regression. Selection between different regression approaches is influenced by the nature of disclosure extent (dependent variable) measurement. Several disclosure studies tend to transform dependent variable (extent of disclosure) and/or independent variables (determinants) to ranks (Ali et al., 2004; Lang and Lundholm, 1993; Wallace and Naser, 1995) or to normal scores (Cooke, 1998; Ghazali and Weetman, 2006; Haniffa

and Cooke, 2002) before applying OLS regression to consider the nature of the dependent variable and to reduce any potential statistical problems.

4.2 Risk Definition and Benefits of Risk Reporting

This section discusses risk definition and the benefits of risk reporting.

4.2.1 Risk Definition

It is useful to define the term 'Risk' before providing any further discussion of empirical research regarding risk reporting. Schrand and Elliott (1998) argue that defining risk is a complicated task for many reasons. First, different users have different perspectives regarding different types of risk. For example, some users may focus on liquidity risk while others may focus on market risk. In addition, different users may have different preferences regarding risk time scale. For example, some users may focus on short-term liquidity risk while others consider long-term liquidity risk as more crucial. Second, a difficulty in defining risk may arise because risk type may influence management capability to control it.

The most important question regarding risk definition is whether it is a one-sided or two-sided concept (Schrand and Elliott, 1998). A one-sided definition of risk takes into consideration only the exposure to loss; risk is defined as the probability of loss (Horcher, 2005). A two-sided risk definition is compatible with finance discipline's definition which considers risk as the variability of outcomes around the expected return. This means that this definition accepts both positive and negative outcomes (Shrives and Linsley 2003a). A two-sided concept of risk is supported by the result of a case analysis undertaken by the American Accounting Association (AAA) and the FASB reported at the 1997 annual conference: Risk and Financial Reporting. The participants pointed out that risk definition should be a two-sided concept which includes the potential for gain and the exposure to loss (Schrand and Elliott, 1998).

Accounting standards such as IAS 32 and EAS 25 provide a definition for four categories of financial risks (see Table4.1). The main theme of these risk categories emphasises financial risks and ignores non-financial risks.

Table 4.1: Financial Risk Categories

Risk Category	Risk Definition
Market risk	A- Currency risk: the risk that the value of a financial instrument will fluctuate because of changes in foreign exchange rates. B- Fair value interest rate risk: the risk that the value of a financial instrument will fluctuate because of changes in market interest rate. C- Price risk: the risk that the value of financial instrument will fluctuate due to changes in market price, whether those changes are caused by factors specific to the individual instrument or its issuer or factors affecting all instruments traded in the market.
Credit risk	The risk that one party to a financial instrument will fail to discharge an obligation and cause the other party to incur a financial loss.
Liquidity risk	The risk that an entity will face difficulty in raising funds to meet commitments associated with financial instruments. Also, liquidity risk may result from an inability to sell a financial asset quickly at close to its fair value.
Cash flow interest rate risk	The risk that future cash flow of a financial instrument will fluctuate due to changes in market interest rates. In the case of a floating rate debt instrument, for example, such fluctuations result in a change in the effective interest rate of the financial instrument, usually without a corresponding change in its fair value.

However, other professional bodies provide a broader risk definition that includes both financial and non-financial risks. For example, ICAEW (1997) adopted the definition of risk as 'uncertainty as to the amount of benefits. The term includes both potential for gain and exposure to loss'. This definition emphasises that business risks lead to uncertainty about benefits that companies may achieve when performing their goals, targets and strategies. Consequently, inappropriate risk reporting may contribute to investors' misperception about the certainty of prospective cash flows (ICAEW, 1997). This definition takes a balanced view and emphasises the potential for upside and downside risk as well. Moreover, this definition successfully recognises that risks might occur as a result of internal and external factors and might be featured as financial and non-financial risks.

Based on this point of view, Linsley and Shrives (2006, p.388) provide a broad definition of risk reporting. Disclosures are considered as being:

> *risk disclosures if the reader is informed of any opportunity or prospect, or of any hazard, danger, harm, threat or exposure, that has already impacted upon the company or may impact upon the company in the future or of the management of any such opportunity, prospect, hazard, harm, threat or exposure.*

This definition is a two-sided definition that includes both risk opportunity and exposure. Moreover, this definition has important consequences in the statistical analysis of risk reporting. Based on this definition, risk disclosures could be classified into various categories according to economic consequences (bad, neutral and good news risks), time

orientation (past versus future risks) and risk quantification (quantitative versus qualitative risks). This definition of risk reporting is adopted through this study.

4.2.2 Benefits of Risk Reporting

It is evident that providing risk information will contribute to achieving numerous benefits to preparers and users of annual reports. For example:

- Providing information about management's risk strategy and tolerance may assist users in evaluating a company's financial position and performance as well as identifying the sustainability and fluctuation of earning and cash flows (CICA, 2006).
- The existence of an enhanced risk management process is an underlying prerequisite to achieve improved risk reporting. Companies which acknowledge the importance of risk reporting are most likely to successfully develop and improve their risk management strategies and this may result in maximising shareholder value (ICAEW, 1997).
- Providing high quality risk information may lead to a code of best practice of risk management policies and standardised risk measurement which in turn may result in an enhancement in companies' awareness concerning risk management and measurement practices (CICA, 2006).
- The underlying objective of financial reporting is providing useful information that assists users of financial reports in making economic decisions through reporting information about the amount, timing and uncertainty of prospective cash flows. Reporting forward-looking information about key factors that may impact prospective performance, cash flow and financial position is important to investors and financial markets (ICAEW, 1997).
- Risk reporting contributes to promoting accountability by permitting management to disclose useful information about their efforts to discharge their responsibilities as well as supporting investor protection through helping investors to confirm or amend their view about a company's risk profiles (ICAEW, 1997).

Healy and Palepu (2001) argue that improved share liquidity and lower cost of capital are the main benefits of increased disclosure. Diamond and Verrecchia (1991) indicate analytically that increased disclosure to reduce information asymmetry will increase the liquidity of shares and hence a company could reduce its cost of capital through

attracting large positions from institutional investors. Reduced information asymmetry has a significant role in decreasing the cost of capital and security prices volatility (Kothari, 2001). Providing high quality risk disclosure may lead to a decrease in the cost of capital, suitable risk premium and effective resource allocation (CICA, 2006). A company's risk profile and uncertainty related to prospective cash flows are underlying factors in determining a company's cost of capital. Creditors request a high risk premium for lending to risky companies. Consequently, adequate risk reporting may contribute to more effective resource allocation and providing capital at the lowest cost (ICAEW 1997). Several empirical studies provide support for this point of view.

In respect of liquidity, Welker (1995) examines empirically the association between analysts' ratings of a firm's disclosure as a measure of disclosure and bid-ask spreads as a measure of liquidity. The result indicates a significant negative association between the two measures. This means that companies with high disclosure ratings have a small bid-ask spread and hence their shares are more liquid. In the same vein, Leuz and Verrecchia (2000) examine the association between disclosure and liquidity in Germany. The results indicate that German firms that apply the IASs or US GAAP, and hence provide higher disclosure, have lower bid-ask spreads and higher share turnover than firms that apply German GAAP only.

With respect to the cost of capital, Botosan (1997) examines the association between the level of voluntary disclosure and the cost of equity capital. The results indicate that, for companies with low analyst following, there is a significant negative association between the extent of voluntary disclosure and the cost of equity capital even after controlling for company size and market beta. In the same vein, Sengupta (1998) tests the association between corporate disclosure quality and cost of debt. The result indicates a significant negative association between disclosure quality and cost of debt. Moreover, Hail (2002) and Botosan and Plumlee (2002) find a similar conclusion.

4.3 Segment Reporting Studies

Segment reporting refers to the split of a company into its major segments and provides information about each. The importance of segment reporting stems from the distinctive features of different countries and industries in terms of profitability, growth opportunities, degree and type of risks, rates of return on investments and capital requirements (Roberts et al., 2005). Based on the information regarding line of business and geographic segments, the past performance and future prospects of a company can

be better understood (Roberts, 2002). Gray and Roberts (1989) indicate that the benefits of voluntary disclosure include more informed investment decisions, more accurate risk assessment and more accurate earning forecasts. In addition, providing information about segments' earning, risks, and growth opportunities can protect these companies from over or under reactions from stockholders. Moreover, providing segmental reporting will assist financial analysts and creditors as well as investors in the decision making process (Herrmann and Thomas, 1996).

4.3.1 Costs of Segment Reporting

Roberts and Gray (1995) identify two major costs of segmental reporting, namely the cost of collecting, processing and disseminating information (non-proprietary costs) and competitive disadvantage as a result of reporting segment information (proprietary costs). With respect to the first group of costs, Edwards and Smith (1996) argue that cost of collecting and processing information is not a significant deterrent to segment reporting because accounting information systems in most companies already produce such disaggregated information. Moreover, a large number of managers indicate that information systems in their companies did not need significant enhancement to produce segment information. This result confirms Gray and Roberts' (1989) findings that cost of data collection and processing seems to be important but not significant enough to limit voluntary segment disclosure.

With respect to the second group of costs, Leuz (2004) argues that segmental reporting is a highly sensitive topic because it reveals strategic information regarding business and geographic segments. Gray and Roberts (1989) believe that segment reporting is more sensitive to the cost of competitive disadvantage as a major obstacle to disclosure. Edwards and Smith (1996) confirm this point of view. They indicate that competitive disadvantage is a main reason for non-disclosure of segment information. Several empirical researchers support this argument. For instance, Leuz (2004), Brit et al. (2006) and Nicholas and Street (2007) indicate that competition is a key determinant of segment reporting.

4.3.2 Determinants of Mandatory Segment Reporting

A number of research papers that discuss the determinants of mandatory segment reporting will be presented in this subsection.

Prather-Kinsey and Meek (2004) identify disclosure practices and the degree of compliance with segment reporting under the requirements of IAS 14 for a sample of

international companies that claimed the adoption of IASs during the period 1997-1999. In addition, the study aims to relate the level of compliance with segment reporting to firm-specific characteristics, namely company size, country of domicile, industry type, international listing and auditor type. The study uses a sample of 133 companies in 1997, 146 companies in 1998 and 134 companies in 1999 covering 22 countries and 6 industries. The analysis indicates that the adoption of IAS 14 results in a significant increase in the number of lines of business and geographic segments disclosed. The study documents a low level of compliance with primary and secondary segments disclosure requirements. Moreover, regression analysis for the primary segment indicates significant positive relationships between level of compliance, country of domicile (being located in Switzerland), international listing status and auditor type (being audited by one of the Big-5 auditors). In contrast, regression analysis for the secondary segment indicates positive relationships between level of compliance with segment reporting and company size, industry type and auditor type (being audited by one of the Big-5 auditors).

Focusing on the Middle East, Al-Omari et al. (2007) examine the level of compliance with segment disclosure and its determinants in the annual reports of Jordanian companies. To measure the level of segment disclosure, they construct a disclosure index that consists of 21 items which are derived from IAS 14 and the Jordanian Securities Commission requirements. The sample consists of 67 industrial companies listed on the Amman stock exchange in 2002. The results show a very low average compliance with the segment disclosure requirement of 15%. The results indicate positive relationships between firm size, governmental ownership and the level of mandatory segment reporting. However, the result supports non-significant associations between leverage, assets-in-place, earnings volatility and the extent of segment disclosure.

Nicholas and Street (2007) investigate the impact of competition on the decision of segment reporting according to the requirements of IAS 14. Moreover, the study controls for company size and country of domicile. The study examines the annual reports of a global sample of 160 companies that are domiciled in 15 countries during the period 1999-2002. Logistic regression indicates a significant association between competition and the disclosure of business segment reporting. In addition, the result shows a positive association between firm size and disclosure of business segment reporting. Finally, the result indicates a negative association between disclosure of business segment reporting and being domiciled in China and France in 2001-2002 and 1999-2000 respectively.

Recently, Wan-Hussin (2009) investigates the determinants of the decision to adopt mandatory segment reporting by Malaysian companies. The study examines the impact of family member representation on the board of directors and board characteristics on the adoption of segment reporting. In addition, the study controls for firm size, leverage, institutional ownership, profitability, board size and ethnicity of the chief executive officer (CEO). The study examines the annual reports for the years 2001 and 2002 of 64 companies spanning 8 industrial sectors. Binomial and multinomial regression indicates positive relationships between the representation of family member on the board, percentage of affiliated directors and the adoption of mandatory segment reporting. However, the results do not support any significant association between the other determinants and the adoption of mandatory segment reporting.

This review indicates that little attention has been given to the determinant of mandatory segment reporting in general and in the Middle East in particular. This study will attempt to fill this gap through addressing the determinants of mandatory segment reporting in one of the Middle East countries, Egypt.

4.3.3 Determinants of Voluntary Segment Reporting

Several accounting studies aim to explain the variation in voluntary segment reporting in corporate annual reports. The main focus is voluntary segment reporting in developed countries, especially Australia. However, little is known regarding voluntary segment reporting in developing countries such as Egypt.

McKinnon and Dalimunthe (1993) examine economic incentives for voluntary segment reporting in Australia. Based on proprietary cost perspective, agency theory and political cost perspective, the study tests the impact of diversification, ownership diffusion, level of minority interest, company size, industry membership and financial leverage on the decision of voluntary segment reporting. The study measures company size through three proxies: total assets, number of shareholders and number of subsidiaries and measures diversification through a dummy variable that takes the value one when the company is diversified on unrelated markets and technology and the value zero when the company is diversified on related industries. The study surveys the annual reports of 65 diversified companies listed on the Australian stock exchange for the year ending during 1984. The probit regression result documents a significant association between ownership diffusion, being oil, gas and mining companies, level of minority interest, company size and voluntary segment reporting. However, there is no evidence for a

significant association between type of diversification, financial leverage and the decision of voluntary segment reporting.

Kelly (1994) provides additional empirical evidence about the association between the decision of voluntary segment reporting and certain firm characteristics. Based on agency theory and proprietary cost perspective, the study examines the influence of return on investment, financial leverage and some control variables such as industry membership, firm size and auditor identity on segment reporting decisions. The study reviews the annual reports of 132 multi segment companies listed on the Australian stock exchange in the year 1984. Applying binary probit regression, the result indicates that there is a significant negative association between return on investment and the decision of voluntary segment reporting. This means that companies with high return on investment are reluctant to provide segment reporting in order to reduce proprietary cost accompanied by segment disclosure such as competition disadvantage or attracting new competitors to the market. In addition, there is a significant influence of industry membership on the decision of voluntary segment disclosure. Companies operating in the field of building contractors and supplies and industrial and diversified resources tend to voluntarily disclose segment information. However, the decision of voluntary segment reporting is not significantly related to leverage, company size, auditor identity and other industry membership.

Mitchell et al. (1995) examine the differences in segment reporting practices in Australia. The study investigates economic incentives for the decision of voluntary segment reporting. Consequently, the study tests the influence of company size, leverage, assets-in-place, earning volatility, ownership diffusion, minority interest, listing on foreign stock exchanges, diversification and industry type on voluntary segment reporting. The study reviews annual reports of 129 diversified companies listed on the Australian stock exchange for the year 1983. The sample includes 43 companies that disclose segment information and 86 companies that did not. The logit regression indicates positive associations between company size as measured by total assets, number of shareholders and number of subsidiaries, leverage, industry membership and the voluntary adoption of segment reporting. In other words, companies which are large, highly leveraged and involved in oil and mining activity tend to provide voluntary segment reporting. However, there are non-significant associations between assets-in-place, earnings volatility, ownership diffusion, minority interest, listing on foreign stock exchange, diversification and voluntary segment reporting.

Herrmann and Thomas (1996) aim to identify segment disclosure practices of companies in the European Union and to examine factors which may explain variation in the quality of segment reporting. The study examines the influence of country, firm size, industry type and multiple listing status. The study analyses the annual reports of 223 companies from 10 countries for the year 1992-1993. The study documents that 'country' variable has a significant influence on line of business and geographical segment reporting. France and the UK provide the highest amount of business and geographical segment information compared to other countries. In addition, there is a significant positive relationship between company size and the quality of segment reporting. In other words, large firms tend to disclose higher quality segment reporting than small firms. Multiple listing status has a significant positive influence only on the quality of geographical segment reporting but does not have any significant influence on business segment reporting. However, there is a non-significant influence for the 'industry' variable on the quality of business and geographical segment reporting. This study can be criticised on the ground that it does not determine the basis used to classify industries according to competition and political risk. Moreover, the study does not mention the basis used to classify countries according to the proprietary nature of segment reporting.

Following the study of McKinnon and Dalimunthe (1993), Aitken et al. (1997) examine the influence of the same variables on voluntary segment reporting decisions. The main differences between the two studies are the measurement of diversification and sample size. McKinnon and Dalimunthe (1993) measure diversification using a dummy variable while Aitken et al. (1997) build a continuous variable which captures the degree of diversification through measuring the correlation among the earning of the firm's segments. In respect of sample size, McKinnon and Dalimunthe (1993) use a sample that consists of 65 companies while Aitken et al. (1997) filter the sample by excluding one segment companies and hence the sample is limited to 26 companies only. Statistical analysis indicates a significant association between minority interest, company size and the voluntary segment reporting decision while the influence of ownership diffusion and industry is mixed. Also, there is no evidence for a significant influence for financial leverage on segment reporting. Finally, diversification has a significant association with voluntary segment reporting decisions. Therefore, firms which diversify into unrelated industries tend to adopt segment reporting voluntarily. This implies that the proxy of diversification on the basis of the correlation among segments earnings enhances the

measurement of diversification compared to the proxy of diversification of McKinnon and Dalimunthe (1993).

Focusing on the Italian context, Prencipe (2004) examines the determinants of the extent of segment reporting for a sample of 64 non-financial companies listed on the Milan stock exchange in 1997. Specifically, the main contribution of the study is its attempt to investigate the influence of three new determinants which are derived from the theoretical framework of proprietary cost perspective. These determinants are the correspondence between segments and legally identifiable sub-groups of companies, listing status age and growth rate of total assets. Also, the study examines the effect of company size, ownership diffusion, leverage and profitability on the extent of segment reporting. These variables are derived from the theoretical framework of agency theory. The result indicates significant positive relationships between the correspondence between segments and legally identifiable sub-groups of companies, listing status age and the extent of segment reporting. This result supports the relevance of proprietary cost perspective to segment reporting and assists in explaining companies' incentive to withhold segmental disclosure. However, there is a non-significant relationship between the growth rate of total assets and the extent of segment reporting. In respect of agency theory variables, there are positive relationships between company size, leverage, ownership diffusion and the extent of segment reporting while there is no evidence of a significant association between profitability and the extent of segment disclosure. However, the study limits the analysis to line of business segments only. Furthermore, it supports the argument that there is a non-significant difference between the weighted and unweighted disclosure index since the two indices reveal similar results.

Focusing on Germany, Leuz (2004) examines the impact of competition as a potential determinant of voluntary disclosure on segment disclosure in annual reports of German companies for the year 1996. The sample consists of 109 non-financial companies and the variables used as determinants of voluntary segment reporting are trading volume, profitability and capital intensity. Furthermore, the study controls for firm size, leverage, diversification, concentration of ownership and foreign business. Probit regression indicates that German companies with low profitability and which face high barriers to entry are more likely to report segment information. Moreover, the result shows that large firms and less concentrated-ownership companies tend to provide voluntary segment information. However, the result indicates non-significant associations between

leverage, trading volume, diversification, foreign business and voluntary segment disclosure.

Brit et al. (2006), in the Australian context, investigate the impact of ownership concentration, competition in product markets and the interaction between ownership and competition on voluntary segment reporting. The study uses a sample of the top 500 companies during the period 2001-2003 with 825 firm/year observations. The study proxies for ownership by the percentage of shares owned by the top 20 shareholders and proxies for competition in the industry by the Herfindahl index while controls for firm size and cross-listing. Probit regression indicates positive associations between ownership concentration, competition in product markets, the interaction between ownership and competition and voluntary segment reporting. Companies with high levels of ownership concentration and companies operating in a high competition industry tend to disclose more voluntary segment information. Moreover, the result indicates positive significant associations between firm size, cross-listing and voluntary segment disclosure.

4.4 Corporate Governance Studies

This section presents a discussion of a number of studies that aim to identify the impact of corporate governance and ownership characteristics on mandatory (section 4.4.1) and voluntary (section 4.4.2) disclosure. However, little attention has been given to the impact of corporate governance and ownership characteristics on risk reporting.

4.4.1 Corporate Governance and Mandatory Disclosure

Very few studies address the impact of corporate governance mechanism on mandatory disclosure, namely mandatory share option disclosure. Forker (1992) examines the impact of corporate governance mechanism and ownership patterns on mandatory share options disclosure. The study employs the proportion of non-executive directors on the board, audit committee and role duality as proxies for corporate governance mechanism and employs managerial ownership as a proxy for ownership pattern. In addition, the study controls for the proportion of share options held by directors, firm size and auditor type. The study examines financial statements of the largest 97 and the smallest 85 UK listed companies for the period between October 1987 and September 1988. The order probit regression model indicates a positive association between the proportion of options held by directors and mandatory share options disclosure. In addition, the result shows a negative association between role duality and share options disclosure. This means that companies with a high proportion of options held by directors and companies with

separation between the chair of the board and the CEO position tend to comply more with mandatory share options disclosure. Moreover, the results do not support any association between the other variables and mandatory disclosure of share options.

Focusing on Australia, Bassett et al. (2007) examine the association between corporate governance and level of mandatory employee stock option disclosures in the annual reports of 283 listed companies. The study employs auditor type, proportion of non-executive directors sitting on the audit committee, board size, proportion of non-executive directors with no related party transactions sitting on the board and role duality to proxy for corporate governance mechanisms and controls for firm size and US listing. The result indicates a positive association between auditor type and mandatory employee stock option disclosures but a negative association between role duality and mandatory employee stock option disclosures. This means that companies audited by one of the Big-4 auditors and companies with separation between the chair of the board and the CEO tend to comply more with mandatory employee stock option disclosures. However, there is no evidence for a significant association between the other variables and mandatory employee stock option disclosures.

4.4.2 Corporate Governance and Voluntary Disclosure

A number of disclosure studies address the impact of corporate governance mechanism on general voluntary disclosure with little attention being given to voluntary risk reporting.

Ho and Wong (2001) examine the relationship between certain corporate governance factors and the level of discretionary disclosure provided in the annual reports of 98 companies listed on the Hong Kong stock exchange for the year 1997. The main objective of the study is to identify corporate governance mechanisms that probably influence firms' disclosure behaviour. They test the impact of the proportion of independent non-executive directors, the existence of an audit committee, the existence of dominant personalities and the proportion of family members on the board on the level of voluntary disclosure. To measure the extent of voluntary disclosure, the study uses a disclosure index weighted by financial analysts' perceptions of the importance or the usefulness of certain information items. Regression analysis indicates that there is a significant positive relationship between the existence of an audit committee and level of voluntary disclosure. Also, there is a significant negative relationship between the proportion of family members on the board and level of voluntary disclosure. This

means that companies that have an audit committee and a low percentage of family members on the board tend to release more voluntary disclosure than companies without an audit committee and with a high percentage of family members on the board. There was no evidence for a significant relationship between the percentage of independent non-executive directors, the existence of dominant personalities and level of voluntary disclosure.

Eng and Mak (2003) test the potential impact of corporate governance on the extent of voluntary disclosure for a sample drawn from firms listed on the Singapore stock exchange at the end of 1995. The main purpose of the study is to investigate the association between ownership structure (managerial ownership; blockholder ownership and existence of government ownership), board composition (percentage of outside directors on the board) and level of voluntary disclosure. The study surveys the annual reports of 158 companies in 9 industries. Regression analysis shows that there are significant negative relationships between managerial ownership, percentage of outside directors on the board and extent of voluntary disclosure while there is a significant positive association between existence of governmental ownership and extent of voluntary disclosure. This means that the voluntary disclosure level increased with the existence of governmental ownership and decreased with higher managerial ownership and higher proportion of outside directors on the board. Moreover, there is a non-significant association between blockholder ownership and extent of voluntary disclosure. In the same context, Cheng and Courtenay (2006) examine the relationship between board structure and the extent of voluntary disclosure. The study investigates the association between board size, the percentage of independent non-executive directors and the CEO duality on the extent of voluntary disclosure. The study surveys the annual reports of 104 firms listed on the Singapore Stock Exchange in the year 2000. The regression analysis indicates that a high level of voluntary disclosure is significantly associated with a high percentage of independent non-executive managers on the board. Moreover, the analysis reveals that companies with a majority of independent directors on the board have a higher level of voluntary disclosure than companies with a low representation of independent directors on the board. Finally, there are non-significant associations between board size, the CEO duality and the extent of voluntary disclosure.

Focusing on developing countries, Barako et al. (2006) examine voluntary disclosure practices in Kenya and their association with corporate governance and ownership structure variables, namely proportion of independent directors on the board, the CEO

duality, audit committee, shareholder concentration, foreign ownership and institutional ownership. Barako et al. (2006) implement a weighted and unweighted disclosure index consisting of 47 information items to measure the extent of voluntary disclosure and investigate the annual reports of 43 financial and non-financial companies listing on the Nairobi stock exchange from 1992 to 2001. Statistical analysis indicates that there is a significant increase in the extent of voluntary disclosure through the period under investigation. In addition, there are significant positive associations between having an audit committee, foreign ownership, institutional ownership and the extent of voluntary disclosure. Contrary to expectation, there are significant negative associations between the proportion of independent directors on the board, shareholder concentration and the level of voluntary disclosure. Finally, there is no support for a significant association between the CEO duality and level of voluntary disclosure. The main contribution of the study is examining voluntary disclosure practices and its determinants through longitudinal research which covers 10 years. However, they do not provide separately any descriptive statistics about the average of voluntary disclosure level for each year under investigation and so the development of the extent disclosure could not be clearly assessed.

In another developing country, Tsamenyi et al. (2007) identify disclosure practices and factors that probably influence the extent of voluntary disclosure in a developing country, Ghana. The study examines the impact of blockholding ownership and dispersion of shareholding on the extent of voluntary disclosure for a sample of 22 financial and non-financial companies listed on the Ghana stock exchange during the period 2001-2002. This sample forms 97.54% of the market capitalisation at the end of December 2002. The results are a sign of the low level of voluntary disclosure. The extent of disclosure is 48.23% and 52.52% for 2001 and 2002, respectively. Also, there is a significant negative association between the extent of voluntary disclosure and blockholding ownership. This means that companies with high blockholding ownership tend to provide low voluntary disclosure because blockholders can get more information through the influence of their executive and board representation. Moreover, the results indicate that there is a significant positive association between the extent of voluntary disclosure and dispersion of shareholding. However, the study uses a small sample size which may reduce the generalisability of the results.

Huafang and Jianguo (2007) examine the association between corporate governance and voluntary disclosure to identify empirically discretionary disclosure practises and its

determinants in China. The study tests the impact of ownership structure and board composition on voluntary disclosure. Ownership structure is measured by blockholder ownership, managerial ownership, state ownership, legal-person ownership and foreign listing/shares ownership while board composition is measured by the proportion of independent directors and the CEO duality. The study surveys the annual reports of 559 companies listed on the Shanghai stock exchange in 2002. The sample covers 11 different industries. Descriptive statistics indicate that the extent of voluntary disclosure is notably low. The average disclosure level is 4.92% with a minimum of 0% and a maximum of 21%. In respect of ownership structure, regression analysis points out that the extent of voluntary disclosure significantly increases with the increase in blockholder ownership and foreign listing/shares ownership. However, there are non-significant associations between managerial ownership, state ownership, legal-person ownership and the extent of voluntary disclosure. In respect of board composition, the result indicates that there is a significant positive association between the proportion of independent directors on board and the extent of voluntary disclosure while there is a significant negative association between the CEO duality and the extent of voluntary disclosure.

4.5. Risk Reporting Studies

The lack of risk disclosure information in financial reports is a key element that threatens the relevance of financial reports (Cabedo and Tirado, 2004). Annual reports suffer from inappropriate disclosure of different types of risk and forward looking information. Consequently, a lot of effort should be exerted in order to address this 'reporting gap' and to enhance the relevance of financial reports (Eccles et al., 2001). However, only a few papers examine the nature and the determinants of risk reporting. Most of these studies address risk reporting in developed countries such as Canada (Lajili and Zéghal, 2005), Italy (Berretta and Bozzolan, 2004) Germany (Kajüter, 2006), Japan (Konishi and Ali, 2007), the UK (Abraham and Cox, 2007; Shrives and Linsley, 2003b; Linsley and Shrives, 2006; Woods and Reber, 2003) and the exception is Malaysia (Amran et al., 2009) and the United Arab Emirates (Hassan, 2009). In addition, there is a tendency for risk reporting studies to focus on voluntary risk reporting (Beretta and Bozzolan, 2004) and give little attention to mandatory risk reporting (Lopes and Rodrigues, 2007). In this section both mandatory (section 4.5.1) and voluntary (section 4.5.2) risk reporting studies will be presented.

4.5.1 Determinants of Mandatory Risk Reporting

Only a few studies address the determinants of mandatory risk reporting. Consequently, our understanding to these determinants is limited.

Kajüter (2006) analyses the development of risk reporting practice and its determinants in Germany. Through a longitudinal study, Kajüter (2006) examines the annual reports of 80 non-financial companies listed on the DAX100-Index with 405 company-year observations during the period 1999-2003. Using content analysis, the result indicates that the total volume of risk information and risk management system information have increased significantly during the period 1999-2003. The bivariate analysis indicates significant positive associations between company size (as measured by total assets), ownership diffusion (as measured by the percentage of shares owned by small individual investors) and the total volume of risk disclosure. In addition, there is a variation in the total volume of risk disclosure between industry sectors. However, this variation is statistically non-significant. The multivariate analysis confirms positive significant relationships between company size, ownership structure and volume of risk reporting. Moreover, industry type has a significant influence on the volume of risk disclosure. Kajüter (2006) provides a study of risk reporting over an extended period from 1999 until 2003 for a large sample size. As opposed to other studies of risk reporting, this study examines the determinants of risk reporting by examining the 'simultaneous impact' of three independent variables, company size, ownership structure and industry type, on the extent of risk reporting rather depending on bivariate analysis only. However, the study does not provide any analysis of the nature and the characteristics of risk reporting during the period under study and fails to give a complete picture about the development of risk reporting practices in Germany during 1999-2003.

Lopes and Rodrigues (2007) examine the compliance with the IASs, namely IAS 32 and 39, and the determinants of risk disclosure practices in financial reports of Portuguese listed companies. The study examines associations between the level of compliance with IAS 32/39 and firm and corporate governance characteristics including firm size, economic sector, auditor type, listing status, multinationality, leverage, reliance on equity market, the Portuguese securities market recommendations and the proportion of independent directors on the board. The study employs an unweighted disclosure index derived from IAS 32 and IAS 39 and reviews the annual reports of 55 financial and non-financial companies listed on Euronext Lisbon in 2001. Descriptive statistics indicate that the level of compliance is 44% and ranges from 16% to 64%. Accounting policy

disclosure achieves the highest level of compliance (80%) and credit risk disclosure achieves the lowest level of compliance (6%). On the one hand, multivariate analysis indicates that there are significant positive associations between company size, auditor type and the level of compliance with IASs. On the other hand, there are negative associations between economic sector, listing status and the level of compliance with IASs. This result reveals that companies which are large, audited by one of the Big-4, involved in the non-financial sector and with multiple listing status provide a higher level of compliance than companies which are small, non-audited by one of the Big-4, involved in the financial sector and listed on the domestic stock market only. However, there is no evidence for a significant association between multinationality, leverage, reliance on equity market, the Portuguese securities market recommendations, the proportion of independent directors and level of compliance.

Focusing on the Middle East, Hassan (2009) examines risk reporting in the United Arab Emirates (UAE). The study crafts a disclosure index of 45 information items to measure the extent of risk reporting in annual reports of Emirate companies and employs four firm-specific variables; namely company size, industry type, level of risk and reserves, to explain the variation in risk reporting practices. The sample size is limited to 41 financial and non-financial companies and their annual reports of 2005 have been examined. The result indicates a low level of risk reporting, 19.61%. The regression result indicates that both level of risk and industry type are main determinants of risk reporting in the UAE while firm size and reserves have a non-significant impact on risk reporting. Companies with a high risk level and financial companies provide a high level of risk reporting compared to companies with low risk levels and non-financial companies. The main drawback of this study is the limited sample size and the pooling of financial and non-financial companies in one sample despite the fact that they operate under different regulations and might face different risks.

4.5.2 Determinants of Voluntary Risk Reporting

A number of studies address the determinants of voluntary risk reporting. Most of them take place in developed countries while little is known about developing countries.

Woods and Reber (2003), in a pilot study, examine risk disclosure practices in the UK and Germany during 2000 and 2001. The study has three main objectives. First, to analyse and compare the extent and the nature of risk disclosure in the annual reports of a sample of UK and German companies. Second, to examine the impact of German

Accounting Standard 5 (GAS 5) on the extent and the nature of risk disclosure presented by German companies. Third, to examine risk disclosure practices across different industries. The sample consists of six UK companies and their German counterparts as matched by size and covers six industries, namely airways, banking, energy, financial services, pharmaceuticals and telecommunication. Findings indicate that the implementation of GAS 5 resulted in a significant increase in the extent (as classified by risk categories) and the nature (as classified by risk characteristics) of risk disclosure in the annual reports of German companies during the period 2000 and 2001. However, the UK companies present significant high risk disclosures in terms of the extent and the nature compared to German companies during the period 2000 and 2001. Moreover, there is a significant increase in the extent of risk disclosure across all industries during 2000 and 2001. Also, there is a significant difference in risk disclosure by industry sector between UK and German companies in 2001.

This study is one of the seminal studies that explore risk reporting practices. The comparison between the UK and Germany is useful since each country has a different risk reporting approach. While the UK adopts a voluntary risk reporting approach, Germany adopts a mandatory one. However, the main drawback of the study is the small sample size and the method of applying content analysis. The study searches, using computer software, firstly for the word 'risk' and secondly identifies sentences related to risk reporting. Consequently, the search may fail to identify some risk-related sentences just because they do not contain the word 'risk'.

Shrives and Linsley (2003b) examine and compare risk reporting in the financial reports of a sample of UK and German companies for the year 2001. The study explores the association between the amount of risk disclosure and firm-specific attributes, namely company size (as measured by total assets, total sales and equity market value), book to market value of equity and financial leverage. The study surveys the annual reports of 11 UK companies and their matched German counterparts. Non-parametric statistical analysis reveals a non-significant difference in the total amount of risk disclosure and the amount of risk disclosure classified by risk categories presented by German companies and that provided by UK companies. This result contradicts the result of Woods and Reber (2003) and this may be due to the sample size and different methodological approaches of content analysis. Bivariate non-parametric analysis indicates that there is a significant positive association between the total amount of risk disclosure and company size as measured by total sales while there are non-significant associations between the

other two measures of firm size (total assets and equity market value), book to market value of equity, leverage and the total amount of risk disclosure. Woods and Reber (2003) and Shrives and Linsley (2003b) are considered to be crucial studies in the risk reporting literature since each study examines risk reporting in the UK and Germany from a distinct point of view. Taken together, these two studies allow examination of the impact of GAS 5 on risk reporting through statistical comparison of the level of risk disclosure presented in the annual reports of German companies before and after the application of the German accounting standards. Also, they examine the association between the extent of risk disclosure and company characteristics. Moreover, they present comparative studies of the extent and the nature of risk disclosure between UK and Germany companies.

Beretta and Bozzolan (2004) propose a framework for risk disclosure analysis through developing a disclosure index which assists in the assessment of risk disclosure quality. This framework of risk disclosure quality consists of four interrelated components: information content, the influence of risks (economic sign) on company future performance, type of measures (qualitative/quantitative) used to express the potential effects of risks and the approach of risk management. To measure these four components, Beretta and Bozzolan (2004) construct four different indices: quantity, density, depth and outlook profile of disclosure. The study surveys the MD&A section of 85 non-financial companies listed on the Italian stock exchange in 2001. The result indicates that Italian companies tend to disclose more information about company characteristics and disclose less information about company strategy and environment. Moreover, Italian companies do not tend to disclose any information about the influence of risks on future performance. In addition, Italian companies tend to disclose more financial information compared to non-financial information. In respect of the associations between company size, industry type and disclosure indices, regression analysis indicates that company size and industry have a significant association with both quality and depth index while they have non-significant associations with density, outlook profile and the quality (total) index. Consequently, Beretta and Bozzolan (2004) argue that the latter three indices can be used to rank companies according to their risk disclosure quality. Botosan (2004) criticises the indices proposed by Beretta and Bozzolan (2004) on the grounds that these indices, like previous indices found in the disclosure literature, merely measure the quantity not the quality of disclosure through counting information items.

Lajili and Zéghal (2005) investigate risk disclosure and risk management information in the annual reports of Canadian companies. The main objective of the study is to examine risk disclosure characteristics (intensity, nature, volume and location) and usefulness. The sample consists of 300 companies as of December 1999. In terms of disclosure intensity, the result indicates a disclosure rate of 76% and this means that 24% of the sample do not provide any information about risk management. Moreover, 23% of the disclosing companies provide mandatory disclosure only, 14% of the disclosing companies provide voluntary disclosure only while 63% of the disclosing companies provide both mandatory and voluntary disclosure. Furthermore, all the companies that operate in department stores, financial management, food stores, hospitality, industrial contractors, integrated oil, mining, mining exploration, pipelines and wholesale distributions provide risk reporting. In contrast, companies involved in breweries and beverage and tobacco industries do not provide risk information at all. In terms of disclosure volume, the results indicate that the volume of risk disclosure in the MD&A section is greater than the volume of risk disclosure in the notes to financial statements section. In terms of risk management disclosure location, the result indicates that 85% of the sample disclose risk information in the MD&A section only while 82% of the sample disclose risk management information in the notes to financial statements section only. In addition, 67.55% of the sample disclose risk management information in both the MD&A and notes to financial statements sections. Furthermore, financial risk, commodity risk and market risk category are the most frequently disclosed categories since 25% of the sample provide such disclosure. In terms of the nature of risk information, the results reveal that risk information disclosed by Canadian companies has a qualitative nature. Consequently, the usefulness of such disclosure is limited due to ambiguities, scattering and the lack of quantification.

Focusing on the UK, Linsley and Shrives (2006) investigate the characteristics of risk disclosure presented in the annual reports of 79 non-financial companies listed within the FT-SE100 in the UK for the year-end date near to January 2001. The study examines the associations between company size, company risk levels and the extent of risk disclosure. The study measures company size through two proxies: turnover and equity market value and measures company risk level through seven different proxies: gearing ratio, asset cover, beta factor, ratio of book to market value, qui score, Business in the Community Index of Corporate Environmental Engagement (BIE Index) and Innovest Eco Value '21™ Rating model. The result reveals that risk management policy and integrity risk

categories are the top of risk categories presented by UK companies. This pattern of disclosure reflects the impact of the Turnbull Report on financial reporting. Also, statistical analysis documents that the number of non-monetary, future, good risk disclosure sentences are significantly greater than the number of monetary, past and bad risk disclosure sentences, respectively. Furthermore, bivariate analysis indicates significant positive associations between the two measures of company size, BIE Index and ECO Value as measures of company risk level and the volume of financial, non-financial and total risk disclosure. Finally, there is no evidence for a significant association between the volume of risk disclosure and the other five measures of company risk level.

Focusing on the banking industry, Linsley et al. (2006) analyse the financial reports of a sample of UK and Canadian banks in order to examine the pattern of risk disclosure provided by these banks. The study aims to explore the association between amount of risk disclosure and bank size, profitability, level of bank risk and risk definition disclosure. The study reviews financial reports of 18 matched pairs banks (9 banks form each country matched by size) for the year-end near to December 2001. In respect of the pattern of risk disclosure, the result indicates that credit risk category, capital structure/adequacy risk category and market risk category have the highest volume of risk disclosures. In addition, UK and Canadian Banks tend to disclose more qualitative, future and neutral risk disclosures than quantitative, past and good/bad news disclosures. In respect of the association between the volume of risk disclosure and some bank-specific characteristics, statistical analysis indicates a non-significant difference between the volume of risk disclosure presented by UK banks and that of their Canadian counterparts. Furthermore, there are significant positive associations between the two measures of bank size (total assets and market capitalisation), the number of risk definitions and the volume of risk disclosure. However, there are non-significant associations between profitability, the level of bank risk and the volume of risk disclosure. Nevertheless, the study does not provide a separate analysis for each country instead it combines the two groups of banks into one.

Following Linsley and Shrives' (2006) path-setting study, Konishi and Ali (2007) investigate risk reporting practices in Japan. The study has two objectives. The first is to explore the nature of risk reporting practices. The second is to explain the association between the volume of risk disclosure and some corporate characteristics, specifically, company size (turnover and total assets), profitability (return on assets and return on equity), the level of company risk (gearing ratio and market to book value), industry and

ownership distribution pattern. The study surveys the annual reports of 100 non-financial companies listed on the Tokyo Stock exchange for the year-end date near to March 2003. In respect of the nature of risk reporting, the result indicates that the number of non-monetary and good risk disclosures is significantly greater than the number of monetary and bad/neutral risk disclosure. Also, the number of past risk disclosures significantly exceeds the number of future risk disclosures. In respect of the association between the volume of risk disclosure and corporate attributes, in line with Linsley and Shrives (2006), the bivariate analysis indicates significant positive associations between the two measures of company size and the volume of total, financial and non-financial risk disclosures. The result provides evidence that risk disclosures vary across different industries. However, there is no evidence for significant associations between profitability, level of company risk, ownership distribution pattern and the volume of risk disclosures.

Abraham and Cox (2007) examine the association between ownership structure, corporate governance, US listing characteristics and the quantity of risk reporting in the annual reports of 71 UK companies for the year 2002. The study focuses on institutional investors, the number of executive directors, the number of dependent non-executive directors, the number of independent directors and US dual listing as key determinants of risk reporting. Moreover, the study controls for firm size, leverage, stock return volatility and industry. The results support positive associations between US dual listing, the number of executive and independent directors, firm size, return volatility and the amount of risk reporting. This means that British companies with dual listing, a large number of executive and independent directors, high stock return volatility and a large size tend to present more risk disclosures. In addition, the result shows a negative association between institutional ownership and the quantity of risk disclosure and presents evidence regarding the impact of industry on risk disclosure. However, leverage and number of dependent non-executive directors have non-significant impacts on the amount of risk disclosure.

Amran et al. (2009) examine the determinants of voluntary risk management reporting in the annual reports of Malaysian companies. The study examines the impact of company diversification, firm size, leverage, and industry on risk management disclosure through the examination of the annual reports of 100 non-financial companies listed on the Bursa Malaysia for the year 2005. Using content analysis and OLS regression, the results indicate that large companies provide more risk management disclosure than small

companies and presents evidence regarding the impact of industry membership on risk management disclosure. Finally, the results do no support any impact of leverage and diversification on risk management disclosure.

More recently, Rajab and Handley-Schachler (2009) examine the impact of firm size, leverage, industry, and US listing on risk reporting in the UK. The study aims to assess risk disclosure practices in three periods 1998, 2001 and 2004 to examine the impact of accounting regulation recommendations on risk reporting. The study employs a sample that consists of 52 UK non-financial listed companies 28 of them companies with US listing. The result indicates that the average of risk disclosure sentences has increased dramatically from 50.23 sentences (1998) to 64.96 (2001) and to 93.5 (2004) across the period under investigation. Using bivariate analysis, the result reveals non-significant associations between firm size, leverage and risk disclosure. In contrast, the result suggests significant impacts of industry and US listing on risk reporting. Industrial companies and companies with US listing tend to disclose more risk information than non-industrial and non US listing companies.

4.6 Disclosure Studies in Egypt

Although financial reporting practices in developed countries have been extensively investigated by a large number of studies, there is a lack of empirical evidence about the association between the level of mandatory/voluntary disclosure and corporate characteristics in developing countries (Alsaeed, 2006; Ahmed and Nicholls, 1994; Akhtaruddin, 2005). This section presents a number of studies that address mandatory and voluntary disclosure in Egypt.

Abd-Elsalam and Weetman (2003), in their exploratory study, investigate the impact of relative familiarity and language barriers on the level of compliance with IASs. In order to test this influence, they construct three disclosure indices: an index for the IAS items which already exist in long established company legislation (IAS-CA), an index for IAS items which exist in a new capital market law (IAS-CML) and an index for IAS items which are not available in an approved Arabic version (IAS-NA). Moreover, the study aims to explain the observed level of compliance in terms of corporate-specific characteristics including legal form, profitability, share trading, type of business, audit firm, leverage and the manner of referring to international standards in audit reports. The study surveys the annual reports of 72 non-financial companies listed on the EGX for the year 1995/1996. The results document that Egyptian companies do not provide full

compliance with IASs since the overall level of compliance is 83%. However, the level of compliance with IAS items which already exist in company law is significantly greater than both the IASs items which exist in a capital market law and IASs items which are not available in an approved Arabic translation. In respect of the first index, regression analysis results indicate significant positive associations between legal form, share trading and the level of compliance with IAS-CA. In respect of the second index, there are significant positive associations between share trading, types of business, audit firm and the level of compliance with IAS-CML while the association with financial leverage is significant and negative. Finally, there are significant positive associations between legal form, audit firm, the manner of referring to auditing standards (only in the case of omitting audit firm) and the level of compliance with IAS-NA.

Dahawy et al. (2002) examine empirically the association between accounting cultural values and the implementation of IASs in Egypt. Based on Hofstede's (1984) and Gray's (1988) cultural and accounting values models, the study explains dominant accounting values in Egypt. According to these models, the dominant accounting values are secrecy and conservatism which are related to accounting disclosure and measurement respectively. The study performs an in-depth analysis for the financial statements of three companies which operate in the infrastructure sector for three years. Moreover, the study interviews the CEO and head of accounting department of each company. Financial statements were benchmarked against IAS 1 (presentation of financial statements), 5 (information to be disclosed in financial statements), IAS 8 (profit or loss for the period, fundamental changes in accounting policies), IAS 21 (the effects of changes in foreign currency rates) and IAS 25 (accounting for investments) during 1995-1997. The finding indicates that the conflict between secrecy as an accounting value and IASs disclosure requirements results in a significant non-compliance and selective implementation of IASs. The three companies' present a lower level of disclosure than what is required by IASs and their managements are selective in standards' implementation.

Dahawy and Conover (2007) extend the study of Dahawy et al. (2002) through depending on a more comprehensive disclosure checklist prepared by the CMA which is based on IASs to measure Egyptian companies' compliance with mandatory disclosure requirements. The study uses a sample of 17 companies of the most active companies in the EGX for the year 2004. The result indicates that Egyptian companies do not present a full compliance with IASs; the average compliance level is 61% with a maximum of 76% and a minimum of 52%. Culture has been highlighted as a major reason for non-

compliance with IASs. However, the study suffers from some limitations. First, the sample size is rather small, it focuses only on the most active companies and it fails to relate the measured level of compliance to firm-specific characteristics to provide an explanation for variation in compliance level. Second, the study does not refer to other factors that may cause non-compliance and which need more investigation to identify their impact on compliance level.

Hassan et al. (2006) examine the determinants of mandatory and voluntary disclosure through using data of 77 non-financial listed companies spanning the period 1995-2002. The study constructs two different disclosure indices to measure the level of disclosure in annual reports. The first index consists of 49 disclosure items and is designed to measure the level of compliance with mandatory disclosure while the second index consists of 26 disclosure items and is designed to measure the level of voluntary disclosure. Hassan et al. (2006) construct the two indices based on the CMA disclosure checklist and disclosure checklist of the Centre of International Financial Analysis and Research (CIFAR). The results indicate that Egyptian companies have a high level of compliance with mandatory disclosure while they provide a rather low level of voluntary disclosure. The level of mandatory disclosure is 90% while the level of voluntary disclosure is 48%. With respect to the determinants of mandatory disclosure, the results indicate that Egyptian companies which are small in size, belong to the private sector, more profitable, with high leverage and are heavily traded on the stock exchange provide a higher level of compliance than companies which are large, belong to the public sector, less profitable, less leveraged and less traded. With respect to the determinants of voluntary disclosure, the results show that companies that are large, belong to the private sector, more profitable, with less leverage and are less traded companies provide a higher level of voluntary disclosure than companies which are small, belong to the public sector, less profitable, high leverage and heavily traded.

The approach used by Hassan et al. (2006) to distinguish mandatory items from voluntary items is a major threat to the findings. The study calculates a compliance level for each item of the 75 items that comprise the disclosure checklist across the sample. Then, by visualising the result, the study uses a disclosure level of 78% as a cut-off point to distinguish between mandatory and voluntary disclosure. Any items with a disclosure level above 78% are included in the mandatory index otherwise they are included in the voluntary index. This treatment explains why the compliance level is high compared to other studies in Egypt and voluntary disclosure extent is low. Moreover, the study uses

the CIFAR disclosure checklist which is used and developed to assess disclosure level in developed countries regardless of its relevance to the Egyptian context. The approach used by Hassan et al. (2006) may distort the findings.

Samaha and Stapleton (2008) measure the level of compliance with IASs disclosure requirements in the annual reports of Egyptian companies and examine the influence of legal status, industry sectors and trading activities on level of compliance. They check the financial statements of 281 listed companies for the year 2002 against a disclosure checklist that is based on the IASs none of which is IAS 14 or IAS 32. These accounting standards are classified into three groups. The first group consists of IASs that are covered in Egyptian regulations. The second group consists of IASs that are covered in Egyptian regulations but with some differences while the third group covers IASs that are not included in Egyptian regulations. The results indicate that Egyptian listed companies present a low level of compliance with IASs; the overall average level of compliance is 50%. Moreover, the results reveal that the compliance level with the first group of IASs is significantly higher than the level of compliance with the second and third group of IASs. The result highlights the fact that Egyptian listed companies provide a minor voluntary compliance with IASs that are not adopted by the EASs. Finally, bivariate analysis reveals that most actively traded companies provide a higher level of compliance with IASs than less actively traded companies while there is a non-significant difference in the level of compliance between private and public companies and manufacturing and trade/service companies.

Recently, El-Sayed and Hoque (2010) examine the impact of international environmental factors on voluntary disclosure practices of the top 100 non-financial companies listed on the EGX. The international environmental factors are the intensity of global competition, international socio-political institutions, international accounting standards and international financial institutions. These factors are measured according to a 5-point likert scale through a questionnaire survey send to chief financial officers of the sample companies to elicit their perception regarding the impact of these factors on voluntary disclosure while voluntary disclosure is measured according to an unweighted binary disclosure index. Also, the study controls for firm size, government ownership, industry membership and cross listing. Descriptive statics show a low level of voluntary disclosure. On average, the disclosure level is 55%. The result indicates a significant positive association between international accounting standards, international financial institutions and voluntary disclosure. The result reveals a significant negative association

between governmental ownership and voluntary disclosure. However, there are non-significant association between voluntary disclosure and the other variables.

In summary, disclosure studies in Egypt highlight the secretive nature of Egyptian society and its potential impact on mandatory and voluntary disclosure in the annual reports of Egyptian companies. They report low presentation of mandatory and voluntary disclosure. However, none of these studies addresses mandatory or voluntary risk reporting practices, a topic that is influenced significantly by cultural dimensions. This study will address this gap through examining compliance with EAS 33 and 25 and voluntary risk reporting and their determinants in Egypt.

4.7 Accounting Education and Practice Problems in Developing Countries

Developing countries are the focus of a number of accounting research studies that examine accounting education and practice problems. Because of their interdependence, accounting education has a significant role in enhancing accounting practice through providing qualified and competent accounting graduates (Tipgos, 1987). In addition, accounting research aims to identify the potential impact of these problems on compliance with mandatory and presentation of voluntary disclosure requirements. Accounting education and practice problems are a threat to risk reporting; a topic that requires a very high accounting skills and knowledge.

4.7.1 Education and Practice Problems

Several accounting studies highlight the problems that have been impact on accounting education and practice in developing countries while other studies aim to propose several strategies that may assist in overcoming these problems.

In 1976, the AAA established a committee to identify accounting education and practice problems in developing countries in order to improve accounting in these countries. Based on a questionnaire survey of 62 participants from different continents, the results indicate 14 accounting practice problems (group 1) and 12 accounting education problems (group 2). The first group includes problems such as shortage of qualified accountants, lack of a strong professional society, lack of effective legislation, procedures-oriented accounting practices and tax-oriented accounting practices. The second group includes problems such as inadequate local accounting textbooks, inadequate accounting education for decision makers and managers, procedures approach to accounting education and poorly organised educational accounting programs.

In the same vein, Enthoven (1985) identifies the basic features of accounting education and the profession in developing countries. He argues that professional institutions are seen to be very weak, ineffective and their institutional framework seems to be out-of-date. In addition, accounting education programs and accounting research are separated and are not directed to the economic objectives of developing countries. Akathaporn et al. (1993) investigate the factors that may impede accounting education and profession development in Thailand. Based on a questionnaire survey of accounting educators, government accountants and public accountants, they identify several reasons that negatively impact the development of accounting education and the profession. The respondents recognise the irrelevance of the accounting curricula, shortage of qualified instructors and the lack of updated accounting textbooks as the main reasons for accounting education problems. In addition, the respondents point out that managers of Thai companies have very little accounting knowledge and consider accounting necessary only for tax purposes. Furthermore, the respondents highlight the lack of punishment mechanism and lack of cooperation between academics and practitioners as potential reasons that hinder the development of accounting education, the profession and hence accounting practice in Thailand. Recently, McGee (2006) has highlighted the factors that may hinder the adoption and implementation of IFRS in transition economies. He identifies four potential factors namely, low power of audit firms to force their clients to apply IFRS due to the fear of losing clients, bookkeeping-oriented accounting, the tax authority employ tax standards rather than IFRS to determine tax liability and translation problems because some English expressions, did not have any local counterparts.

Enthoven (1985) argues that the development of accounting practice in developing countries needs more attention to be paid to effective cooperation between the accounting profession and educational institutes in both accounting education and research, enhancement to accounting curricula, continuing accounting education and more emphasis on theoretical aspects in the accounting curricula. In the same vein, Tipgos (1987) proposes a number of strategies to enhance accounting education and practice in developing countries including maintaining professional integrity through monitoring certification procedures, establishing regulations for continuing education, providing internship programs for students and faculty members and cooperation in educational aspects between the profession and universities. Jensen and Arrington (1983) and Akathaporn et al. (1993) highlight the importance of cooperation between academics and practitioners in accounting research. While Lin and Deng (1992) argue that the

objectives (roles) of accounting, qualitative characteristics of accounting information and basic elements of accounting reports should underpin a comprehensive framework for accounting education and practice in developing countries. Al-Basteki (2000) investigates external auditors, preparers of financial reports point of views regarding the strategies for enhancing the accounting profession and practice in Bahrain through a questionnaire survey. Fourteen different potential strategies were presented to the participants who were asked to rank their effectiveness in improving the accounting profession and practice. The results indicate that among the most effective strategies are continuing education for certified accountants, strengthening the power and responsibility of accountants' societies, providing practical training to accounting students during their undergraduate education and establishing disciplinary measures against violators. More recently, McGee (2006) argues that the successful implementation of IFRS requires convincing practitioners and managers that the new requirements should be learned and applied, continuing professional education and upgrading the accounting curricula of universities.

The previous studies highlight the importance of continuing education, practical training of accounting students and cooperation between the profession and universities in education and research as potential strategies to overcome the problems of accounting education and practice in developing countries. Continuing education programs will assist practitioners to cope with the fast changing requirements of their duties (Tipgos, 1987). In addition, practical training for accounting students in their undergraduate studies will assist them to apply accounting knowledge in real world situations (Lin and Deng, 1992). Furthermore, cooperation between the profession and universities will assist in discussing real world problems and will provide the essentials inputs to conduct relevant academic research (Al-Basteki, 2000; Akathaporn et al., 1993).

4.7.2 Factors impeding Presentation of Mandatory and Voluntary Disclosure

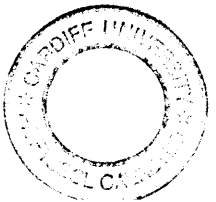
Several accounting studies highlight the low level of compliance with mandatory disclosure (Akhtaruddin, 2005; Marston and Robson, 1997; Patton and Zelenka, 1997) and low presentation of voluntary disclosure (Barako et al., 2006; Ho and Wong, 2001). However, a few accounting researchers identify the factors that may impede compliance with and presentation of mandatory and voluntary disclosure. As McGee (2006, p.202) pointed out:

Adopting IFRS is one thing. Implementing them is something else. The mere fact that a government might adopt new accounting rules does not mean that they will be swiftly, efficiently and comprehensively applied and implemented throughout the economy.

This is the case in Egypt since the mere adoption of IFRS could not guarantee improvement in the quality of corporate financial reporting (ROSC, 2002). The CMA annual report of 2002 and the ROSC report of 2004 notice that there are gaps between authorised accounting standards and actual practices (CMA, 2002b; ROSC, 2004). However, the CMA has not put into effect any initiatives to investigate the reasons behind this gap. This study intends to fill this gap by exploring the potential factors that may lead to non-compliance with the EASs and the low presentation of voluntary disclosure in corporate annual report.

Based on the problems of accounting education and practice discussed in the previous subsection, few studies have examined their impact on accounting disclosure. Tai et al. (1990) investigate the reasons for non-compliance with mandatory disclosure requirements in Hong Kong through interviewing executive officers of five listed companies. The interviewees highlighted the following reasons as a cause for non-compliance: difficulties in interpretation of accounting and auditing standards; lack of sufficient accounting knowledge and financial resources to cope with changes in disclosure requirements, shortage of professional accounting staff; and impression management to improve a company's financial position and performance appearance.

Edwards and Smith (1996) aim to investigate preparers' perceptions regarding the costs related to compliance with segment reporting in UK companies. Drawn from a questionnaire survey and semi-structured interviews, the results indicate that competitive disadvantages, confidentiality and low benefits to external users are the main reasons for non-disclosure of segment reporting. With respect to competitive disadvantage, the result indicates that about 33% of the respondents consider competitive disadvantage a main concern. In addition, the administrative costs of collecting and processing data are not, generally, a reason for non-presentation of segment reporting since about 10% of the respondents indicate that their information systems require significant changes to be able to produce segment information. Recently, Al-Mulhem (2003) has investigated the obstacles for non-compliance with mandatory disclosure requirements in Saudi companies. The study aims to identify preparers and external auditors' perceptions for causes of non-compliance through a questionnaire survey. The results point to the



weakness of enforcement mechanisms and accounting education programs, the lack of qualified accountants, lack of awareness regarding accounting concepts and objectives of financial reporting, difficulties in understanding and interpreting disclosure requirements and lack of sufficient financial resources for accounting training as the main reasons for non-compliance with mandatory disclosure requirements.

4.8 Summary and Conclusion

This chapter has presented a review of a number of disclosure studies that measure the extent of mandatory and voluntary disclosure and relate disclosure extent to firm-specific, corporate governance and ownership characteristics. Disclosure studies employed different measurement instruments (disclosure index and content analysis) to quantify disclosure since direct measurement is difficult due to the conceptual nature of disclosure. In addition, disclosure studies employed different statistical approaches (bivariate and multivariate analysis) for statistical analysis. These varieties in measurement instruments, settings of the study, sample size, number of disclosure determinants and statistical analysis techniques have led to mixed results (Wallace et al., 1994).

Basically, this chapter reviewed three main groups of disclosure studies, namely segmental disclosure, corporate governance studies and risk reporting studies. Studies in each group have been divided into mandatory and voluntary studies and a summary is presented after each group of studies.

Regarding segmental disclosure studies, it is apparent that there is shortage of studies that address determinants of mandatory segmental disclosure in the Middle East generally and in Egypt in particular. Moreover, almost all the studies that address determinants of voluntary segment reporting take place in developed countries, especially Australia, and little is known about developing countries and Egypt specifically. Furthermore, empirical evidence highlights the impact of cost of disclosure and the competitive disadvantage of segmental disclosure. Prior studies indicate that there is a low level of compliance with mandatory segmental disclosure. The results indicate that competition, firm size, country of domicile and auditor type may explain variation in compliance levels. Previous studies highlight diversification, industry, firm size, ownership structure, leverage and profitability as major determinants of voluntary segment reporting.

Regarding corporate governance studies, most of these investigated the impact of corporate governance and ownership structure on voluntary disclosure and little is known about their potential impact on mandatory disclosure. In addition, most of these

studies focused on developed countries and little is known about developing countries such as Egypt. Prior studies employed several corporate governance variables such as role duality, board size, audit committee and board competition and ownership patterns such as governmental ownership, institutional ownership, managerial ownership and ownership diffusion to investigate their impact on the extent of disclosure. However, these studies have provided mixed results.

Regarding risk reporting studies, almost all of these studies focus on voluntary risk reporting and a very few on mandatory disclosure. To a great extent, the majority of studies focus on risk reporting practice in developed counties such as Canada, Italy, Germany, Japan and the UK, while risk reporting practices in developing countries have not been investigated extensively. None of these studies examined the impact of competition on risk reporting. There is a tendency in risk reporting studies to employ bivariate statistical analysis and therefore they lack the power and robustness provided by multivariate statistical analysis. Furthermore, none of these studies examines the association between voluntary and mandatory risk reporting or identifies the reasons for low compliance with and presentation of mandatory and voluntary risk reporting. Finally, regarding the determinants of risk reporting, empirical research has also provided mixed results.

As regards disclosure studies in Egypt, very few discuss mandatory and voluntary disclosure. They indicate a low level of compliance with the IASs and low presentation of voluntary disclosure is expected due to the secretive culture of Egyptian society. In addition, it is evident that Egyptian companies apply accounting standards in a selective manner. Therefore, it is important to examine compliance with accounting standards on an individual basis since compliance levels may differ from one standard to another. However, none of these studies discuses mandatory and voluntary risk reporting in the annual reports of Egyptian companies.

This chapter has reviewed a number of studies that identify and discuss accounting education and practice problems because these problems may clarify the unexplained low compliance with accounting standards and low presentation of voluntary disclosure reported by several disclosure studies. These studies underline the inadequate local textbooks, bookkeeping-oriented accounting education and limited emphasis on objectives of financial reporting as major problems of accounting education in developing countries. In addition, a shortage of qualified accountants, an ineffective

profession, tax-oriented accounting practices and ineffective enforcement mechanisms have been highlighted as major problems of accounting practice.

Based on the prior studies that discuss determinants of disclosure, the next chapter will develop and discuss research hypotheses regarding possible determinants of risk reporting practices in Egypt.

CHAPTER 5: THE DEVELOPMENT OF RESEARCH HYPOTHESES

5.1 Introduction

The accounting literature that has been discussed in the previous chapter introduces a number of determinants that may influence companies' disclosure practices. These determinants are derived from a number of disclosure theories including agency theory, signalling theory, political cost perspective, proprietary cost perspective, legitimacy theory and stakeholder theory besides empirical prior research. Based on disclosure theories and the findings of empirical research discussed in chapter 3 and 4 respectively, the research hypotheses have been constructed to explain the potential relationship between risk reporting practices (dependent variable) and risk reporting determinants (independent variables). These hypotheses will be tested empirically using multivariate statistical analysis in chapter 7. This study aims to examine the impact of competition, corporate governance (board size, role duality and auditor type), ownership structure (ownership concentration, governmental, managerial and institutional ownership) and company risk level on risk reporting. In addition, the study controls for several firm-specific characteristics such as firm size, profitability, liquidity and industry membership. In addition, it aims to test changes in compliance between 2006 and 2007. Finally, the study aims to examine the association between mandatory and voluntary risk reporting.

EAS 25, Financial Instruments: Presentation and Disclosure, and EAS 33, Segment Reporting, have been selected for this study to reflect mandatory risk reporting because they are the most relevant accounting standards which are closely related to risk reporting. They reflect different financial risks and the geographic and business segment risks a company may face and therefore assist users of financial statements to identify a company's risk/return profile.

Section 5.2 discusses the impact of competition, corporate governance, ownership structure, firm characteristics and company risk level on risk reporting. Section 5.3 is devoted to the change of compliance between 2006 and 2007 while section 5.4 discusses the association between mandatory and voluntary risk reporting. Section 5.5 is a summary and conclusion.

5.2 Determinants of Risk Reporting

This section aims to develop hypotheses regarding the impact of competition, corporate governance, ownership structure, firm-specific characteristics and company risk level on risk reporting based on disclosure theories and the findings of empirical results.

5.2.1 Competition

A proprietary cost perspective predicts that a firm is less motivated to provide voluntary disclosure of proprietary information because potential competitors may use this information to make a decision regarding entering its product market (Dye, 1985). Therefore, competition in the product market is a key determinant of disclosure policy (Clarkson et al., 1994) because the entry of a potential competitor to a product market will negatively impact the prospective cash flows of an incumbent firm (Depoers, 2000).

Accounting researchers tend to use barriers to entry as a proxy for competition (Clarkson et al., 1994; Depoers, 2000). The proprietary cost perspective predicts that firms operating with high barriers to entry tend to disclose more information than firms that operate with low barriers to entry because disclosure cannot be used by potential competitors due to the difficulty of entering the product market (Depoers, 2000; Laidroo, 2009). Therefore, companies that are protected by high entry barriers are more likely to provide commercially sensitive information such as segment and risk-related information (Leuz, 2004).

Empirical evidence reports mixed results for the relationship between barriers to entry and disclosure extent. Depoers (2000) reveals a positive relationship between barriers to entry and voluntary disclosure. In the same vein, Clarkson et al. (1994) find a positive relationship between voluntary disclosure of forecast in the MD&A section of annual reports and barriers to entry. Companies with a high level of entry barriers are more likely to include forecasts in their MD&A than companies with a low level of entry barriers. Moreover, Leuz (2004) reports a significant positive association between barriers to entry and voluntary disclosure of segment information in the annual reports of German companies. In addition, Laidroo (2009) documents a positive relationship between barriers to entry and disclosure extent. In contrast, Prencipe (2004) finds a non-significant relationship between barriers to entry and voluntary segment disclosure.

Based on the aforementioned theoretical and empirical evidence, the following hypotheses are to be tested:

H_{1a}: there is a positive relationship between barriers to entry and the level of mandatory risk disclosure of EAS 25 in the annual reports of Egyptian companies.
H_{1b}: there is a positive relationship between barriers to entry and the level of mandatory risk disclosure of EAS 33 in the annual reports of Egyptian companies.
H_{1c}: there is a positive relationship between barriers to entry and the amount of voluntary risk disclosure in the annual reports of Egyptian companies.

As a proxy for competition, barriers to entry is measured by the amount of total fixed assets since this expresses the amount of investment or capital required to establish the production process as competitive as well-established companies in the industry (Depoers, 2000).

5.2.2 Corporate Governance

This subsection aims to develop hypotheses regarding the association between corporate governance and risk reporting practices. Corporate governance variables used in this study are board size, role duality and auditor type.

5.2.2.1 Board Size

Corporate governance research investigates the impact of board size as an important market-based factor on firm performance effectiveness due to the advantage and disadvantages related to it (Luo, 2005).

On the one hand, a small board suffers from a shortage of sufficient expertise and high agency costs as a result of the CEO dominance over the board which in turn impair a board's ability to meet corporate governance responsibilities (Bassett et al., 2007; Jensen, 1993). On the other hand, a large board enjoys wide and more diversified expertise and knowledge (Luo, 2005). However, large boards may suffer from dysfunctional problems such as lack of board involvement, ineffective discussion and coordination, untimely decisions and reduced individual commitments (Judge and Zeithaml, 1992). Moreover, extremely large boards may have ineffective monitoring abilities (Cheng and Courtenay, 2006). In brief, the advantages of a large board may be outweighed by the incremental costs of poor communications and decision-making (John and Senbet, 1998).

A few empirical studies have examined the association between board size and voluntary disclosure and come to the same conclusion. Cheng and Courtenay (2006) find a non-significant association between board size and voluntary disclosure in the annual reports of firms listed on the Singapore stock exchange. Bassett et al. (2007) investigate the association between board size and mandatory/voluntary employee stock option

disclosure in the annual reports of Australian listed companies. The result reveals non-significant associations between mandatory and voluntary disclosure and board size. In the same vein, Donnelly and Mulcahy (2008) investigate the relationship between board size and voluntary disclosure in annual reports of Irish companies. In line with Bassett et al. (2007), the result indicates a non-significant association between the two variables. These results confirm Cheng and Courtenay's point of view (2006, p.266) that 'there is no preponderance of theory or empirical evidence to suggest a relation between board size and levels of voluntary disclosure, and it remains an empirical issue'. These results highlight the importance of conducting more research in different contexts to explore empirically the relationship between voluntary/mandatory disclosure and board size. Based on the aforementioned theoretical and empirical evidence, the following hypotheses are to be tested:

H_{2a}: there is a relationship between board size and the level of mandatory risk disclosure of EAS 25 in the annual reports of Egyptian companies.

H_{2b}: there is a relationship between board size and the level of mandatory risk disclosure of EAS 33 in the annual reports of Egyptian companies.

H_{2c}: there is a relationship between board size and the amount of voluntary risk disclosure in the annual reports of Egyptian companies.

In this study, board size is measured by the number of board members following Donnelly and Mulcahy (2008).

5.2.2.2 Role Duality

From a corporate governance perspective, the board of directors is a key structural mechanism in monitoring managerial behaviour and providing protection to stakeholders (Rechner and Dalton, 1991). Corporate governance and management literature distinguish between two distinctive types of leadership structure, namely dual leadership and unitary leadership structure (Solomon, 2007). In a dual leadership structure only one person holds the position of the CEO and chair of board of directors (role duality) while in a unitary leadership structure there is a separation between the two positions (Barako et al., 2006).

Based on the assumption that an executive manager is an 'opportunistic shirker', agency theory calls for the separation between the CEO and chair of the board of directors. In other words, agency theory supports the separation between decision management and decision control (Fama and Jensen, 1983). Separating the two positions supports the

board of directors' role in monitoring and disciplining executive managers (Barako et al., 2006), supports the required system of checks and assessment of executive managers' performance (Rechner and Dalton, 1991) and deters withholding unfavourable information to the capital market (Ho and Wong, 2001). Moreover, the CEO duality is a significant threat to monitoring quality and closely related to poor quality disclosure (Forker, 1992). Separating the position of the CEO and chair of board of directors will assist in maintaining board independence, reducing agency costs, improving performance and increasing board effectiveness (Donnelly and Mulcahy, 2008).

In contrast, based on the assumption that an executive manager is an honest steward of shareholders' interests, stewardship theory supports combining the positions of the CEO and the chair of board of directors for many reasons. Combining the two positions will provide the CEO with complete power and authority over the company, his/her role will become clearly identified to all managerial levels and the firm can benefit from unity of directions which in turn improves firm effectiveness and supports shareholders' interests (Donaldson and Davis, 1991).

Empirical evidence presents mixed conclusions for the relationship between role duality and disclosure extent. Forker (1992) and Huafang and Jianguo (2007) find a negative association between role duality and disclosure extent while Ho and Wong (2001), Haniffa and Cooke (2002), Cheng and Courtenay (2005), Barako et al. (2006) and Ghazali and Weetman (2006) document a non-significant relationship between the two variables. Based on the aforementioned theoretical and empirical evidence, the following hypotheses are to be tested:

H_{3a}: there is a negative relationship between role duality and the level of mandatory risk disclosure of EAS 25 in the annual reports of Egyptian companies.
H_{3b}: there is a negative relationship between role duality and the level of mandatory risk disclosure of EAS 33 in the annual reports of Egyptian companies.
H_{3c}: there is a negative relationship between role duality and the amount of voluntary risk disclosure in the annual reports of Egyptian companies.

In this study, role duality is measured by a dummy variable following Forker (1992), Ho and Wong (2001), Cheng and Courtenay (2006) and Huafang and Jianguo (2007).

5.2.2.3 Auditor Type

It is argued that a company's auditor has a significant influence on disclosure policy and hence the disclosure extent in annual reports (Ahmed and Nicholas, 1994; Firth, 1979; Tai et al., 1990). Therefore, auditor selection is likely to be related to disclosure decisions (Craswell and Taylor, 1992).

Auditing is a key monitoring procedure that reduces agency costs (Chow, 1982; Jensen and Meckling, 1976). DeAngelo (1981) argues that audit quality - in terms of high probability of reporting misstatements and non-compliance with reporting requirements - is an increasing function of auditor size. Large audit firms are more likely to resist clients' pressure than small audit firms because the former have a large number of clients with little relative contribution to their revenue (DeAngelo, 1981) while the latter are more responsive to clients' demands due to significant dependence on their clients (Malone et al., 1993). Large audit firms have a well-established reputation compared to small audit firms (Watts and Zimmerman, 1986) hence they lose more than small audit firms if they fail to report client misstatements or non-compliance with mandatory reporting requirements (DeAngelo, 1981). Therefore, companies may select large audit firms to legitimise their activities and confirm their compliance with societal norms and values. In addition, in line with agency theory, large audit firms are likely to confer more assurance to shareholders which in turn reduces monitoring costs (Wallace and Naser 1995).

Consistent with signalling theory, Hossain et al. (1995) and Depoers (2000) argue that the selection of an external auditor could signal a firm's value. Bar-Yosef and Livnat (1984) indicate that selection of big audit firms is a signal to the capital market that managers expect high prospective cash flows and also stockholders tend to prefer large audit firms because of their ability to share large losses in cases of poor performance. Moreover, large audit firms are more accurate in their audit reports, more experienced in collecting and interpreting audit evidence, have staff with relevant client-specific background and have more experience in auditing listed companies (Lennox, 1999).

Dumontier and Raffournier (1998, p.225) argue that big audit firms are motivated to force their clients to adopt the IASs to 'prove they are independent and thus strengthen their reputation' and to maintain their 'competitive advantage in controlling the application of international accounting standards because of the superior international

training of their employees and because of the existence of economies of scale in the development of competence in international accounting standards'.

Wallace et al. (1994) argue that audit firms with international affiliations are likely to be larger and supported by the expertise of their affiliated international audit firms than other local audit firms. Al-Omari et al. (1999) confirm this argument by indicating that investors and creditors in Jordan prefer audit firms with international affiliations because of their expertise. Moreover, international audit firms confer more credibility on financial reports (Patton and Zelenka, 1997).

Empirical evidence regarding the association between auditor type (being audited by one of the Big-4 audit firms or being audited by audit firms with international affiliations) and disclosure extent is inconclusive. Ahmed (1996), Inchausti (1997), Patton and Zelenka (1997), Abd-Elsalam and Weetman (2003) and Prather-Kinsey and Meek (2004) reveal a significant positive relationship while Hossain et al. (1994), Kelly (1994), Wallace et al. (1994), Dumontier and Raffournier (1998), Owusu-Ansah (1998) and Depoers (2000) document a non-significant association between auditor type and disclosure extent. More interestingly, Forker (1992) and Wallace and Naser (1995) find a negative relationship between auditor type and disclosure extent. Based on the aforementioned theoretical and empirical evidence, the following hypotheses are to be tested:

H_{4a}: there is a positive relationship between auditor type (being audited by audit firms with international affiliations) and the level of mandatory risk disclosure of EAS 25 in the annual reports of Egyptian companies.

H_{4b}: there is a positive relationship between auditor type (being audited by audit firms with international affiliations) and the level of mandatory risk disclosure of EAS 33 in the annual reports of Egyptian companies.

H_{4c}: there is a relationship between auditor type (being audited by audit firms with international affiliations) and the amount of voluntary risk disclosure in the annual reports of Egyptian companies.

Auditor type, in this research, is presented by a dummy variable following Malone et al. (1993), Wallace et al. (1994), Dumontier and Raffournier (1998), Abd-Elsalam and Weetman (2003) and Lopes and Rodrigues (2007).

5.2.3 Ownership Structure

This subsection aims to develop hypotheses regarding the association between ownership structure and risk reporting. Ownership concentration, governmental

ownership, managerial ownership and institutional ownership will be used as determinants of disclosure in this research.

5.2.3.1 Ownership Concentration

In diffused ownership companies, agency theory predicts a divergence of interest between the agent(s) and principal(s) due to the separation of ownership and control and the emergence of agency costs (Jensen and Meckling, 1976). The magnitude of monitoring costs, and consequently agency costs, in a widely held company is greater than that of a closely held company (Eng and Mak, 2003; Leftwich et al., 1981) due to increased information asymmetry between shareholders and management (Prencipe, 2004). Financial disclosure in annual reports has been suggested as an effective mechanism that assists shareholders to better monitor management behaviour and hence reduces agency costs and information asymmetry (Depoers, 2000; Malone et al., 1993). Based on the above argument, it is expected that widely held companies are more likely to provide more information in their annual reports than closely held companies to confirm their acting in the best interests of shareholders and to meet the information needs of a large number of small shareholders (Craswell and Taylor, 1992; Depoers, 2000; Haniffa and Cooke, 2002; Ghazali and Weetman, 2006; Wallace and Naser, 1995). However, Barako et al. (2006) argue that in more diffused ownership companies investors' ability to monitor management behaviour is very weak due to a small ownership stake and therefore they may fail to force the management to provide more disclosure in annual reports.

In contrast, in concentrated ownership companies, large shareholders have incentives to collect more information, to monitor management and to exercise more significant control over the firm and its management (Shleifer and Vishny, 1997) which in turn may decrease the demand for information disclosure (Guan et al., 2007 ; Lakhal, 2007).

The association between compliance with mandatory disclosure requirements and ownership concentration is also justified in agency theory context. Small investors encourage compliance with the IASs because of their need for extensive disclosure in annual reports and the unaffordable costs in obtaining more information (Dumontier and Raffournier, 1998). Consequently, widely held companies have increased incentives to comply with accounting standards, as a bonding activity selected by the managers or as a monitoring activity enforced by investors (Dumontier and Raffournier, 1998; Owusu-Ansah, 1998).

Empirical evidence provides mixed findings regarding the relationship between ownership concentration and disclosure extent. Huafang and Jianguo (2007) reveal a positive relationship while Barako et al. (2006), Guan et al. (2007), Tsamenyi et al. (2007) and Laidroo (2009) document a negative relationship between the two variables. Finally, Craswell and Taylor (1992), Eng and Mak (2003) and Ghazali and Weetman (2006) reveal a non-significant relationship between ownership concentration and disclosure extent. Based on the aforementioned theoretical and empirical evidence, the following hypotheses are to be tested:

H_{5a}: there is a negative relationship between ownership concentration and the level of mandatory risk disclosure of EAS 25 in the annual reports of Egyptian companies.

H_{5b}: there is a negative relationship between ownership concentration and the level of mandatory risk disclosure of EAS 33 in the annual reports of Egyptian companies.

H_{5c}: there is a negative relationship between ownership concentration and the amount of voluntary risk disclosure in the annual reports of Egyptian companies.

Following Huafang and Jianguo (2007), Guan et al. (2007) and Laidroo (2009), ownership concentration is measured, in this study, by the percentage of ordinary shares held by substantial shareholders.

5.2.3.2 Managerial Ownership

Agency theory expects a potential conflict of interest between management and shareholders and the emergence of agency costs as a result of the separation between ownership and control. Drawing on agency theory, managerial ownership has been suggested as a vehicle to align the interest of managers and shareholders (Gelb, 2000; Ghazali and Weetman, 2006; Guan et al., 2007; Laidroo, 2009).

Jensen and Meckling (1976) indicate analytically that the smaller the managerial ownership the greater the need for monitoring activities because managers with low share ownership have greater incentives to consume perks and transfer wealth from shareholders (Chow, 1982; Ghazali and Weetman, 2006). In contrast, the greater the managerial ownership the smaller the agency costs (Owusu-Ansah, 2005) because managers in this case bear a large proportion of their decisions consequences (Ghazali and Weetman, 2006). In brief, Chow (1982, p.274) states that 'the degree of conflicts between the manager and the firm's shareholders and thus the amount of potential

wealth transfer, increase inversely with the managers' ownership'. This means that low managerial ownership fuels the need for more monitoring activities. Based on the aforementioned argument, it is expected that companies with low managerial ownership are more likely to provide more risk-related information in the annual reports than companies with high managerial ownership to confirm their work in the best interest of the stockholders.

Empirical evidence documents inconclusive results for the relationship between managerial ownership and disclosure extent. Consistent with the prediction of agency theory, Gelb (2000), Chau and Gray (2002), Eng and Mak (2003) and Ghazali and Weetman (2006) find a significant negative relationship between disclosure extent and managerial ownership. In contrast, Forker (1992), Guan et al. (2007), Huafang and Jianguo (2007) and Laidroo (2009) reveal a non-significant relationship between disclosure extent and managerial ownership. Based on the aforementioned theoretical and empirical evidence, the following hypotheses are to be tested:

H_{6a}: there is a negative relationship between managerial ownership and the level of mandatory risk disclosure of EAS 25 in the annual reports of Egyptian companies.

H_{6b}: there is a negative relationship between managerial ownership and the level of mandatory risk disclosure of EAS 33 in the annual reports of Egyptian companies.

H_{6c}: there is a negative relationship between managerial ownership and the amount of voluntary risk disclosure in the annual reports of Egyptian companies.

Managerial ownership, in this study, is measured by the percentage of ordinary shares held by management following Huafang and Jianguo (2007), Guan et al. (2007,) Donnelly and Mulcahy (2008) and Laidroo (2009).

5.2.3.3 Governmental Ownership

Government ownership is considered as a monitoring mechanism that might impact disclosure in companies' annual reports. Accounting literature provides contradictory justifications for the possible relationship between governmental ownership and financial disclosure. Due to accountability to society, government institutions and agencies may force companies with governmental ownership to disclose more information (Ghazali and Weetman, 2006). Governmental ownership may encourage companies to provide more risk disclosure especially in transition economies where governments adopt a

privatisation programme by attracting new finance from capital market or selling their stake in state-owned companies (Laidroo, 2009; Makhija and Patton, 2004). The conflict between commercial objectives of the business and the interests of the society places more pressure on these companies (Mak and Li, 2001) to provide more information (Eng and Mak, 2003).

Alternatively, government ownership my induce companies to provide less information because they operate under separate governmental monitoring (Ghazali and Weetman, 2006). Moreover, these companies need low outside finance (Laidroo, 2009), have easy access to different sources of finance and receive less discipline from the market for corporate control since the government tends to be a long-term investor (Eng and Mak, 2003).

Empirical evidence reveals inconsistent results for the relationship between governmental ownership and disclosure extent. While Eng and Mak (2003) document a positive relationship, Ghazali and Weetman (2003) and Laidroo (2009) reveal a non-significant relationship between governmental ownership and disclosure extent. Based on the aforementioned theoretical and empirical evidence, the following hypotheses are to be tested:

H_{7a}: there is a relationship between governmental ownership and the level of mandatory risk disclosure of EAS 25 in the annual reports of Egyptian companies.
H_{7b}: there is a relationship between governmental ownership and the level of mandatory risk disclosure of EAS 33 in the annual reports of Egyptian companies.
H_{7c}: there is a relationship between governmental ownership and the amount of voluntary risk disclosure in the annual reports of Egyptian companies.

Following Ghazali and Weetman (2006), Huafang and Jianguo (2007) and Laidroo (2009), governmental ownership is measured by the percentage of ordinary shares held by government.

5.2.3.4 Institutional Ownership

Institutional investors are substantial holders of equity securities and their influence on firms' disclosure practices is well documented. Institutional investors are highly motivated to play an active role in monitoring companies' practices including disclosure practices (Barako et al., 2006; Guan et al., 2007) because of their expertise and resources, effectiveness in performing monitoring activities and powerful use of voting rights (Donnelly and Mulcahy, 2008). Therefore, institutional investors have an implicit

commitment to ensure that managers work to the best interests of all shareholders (Birt et al., 2006).

Institutional investors have greater incentives to demand more information regarding their investment for performance assessment and information asymmetry reduction purposes (Diamond and Verrecchia, 1991; El-Gazzar, 1998). Therefore, companies are motivated to disclose risk-related information in their annual reports to assist institutional investors in portraying companies' risk/return profile because they may reduce their stake in companies with inadequate risk disclosures (Shrives and Linsley, 2003b).

Lakhal (2007) argues that institutional investors may act as traders or owners. As traders, institutional investors are transient investors who have increasing incentives to demand more information. However, as owners, institutional investors play the role of large shareholders versus small investors; they monitor the company on behalf of small investors and hence demand less disclosure. Bushee and Noe (2000) support a positive association between transient institutional investors and financial disclosure. They find that transient institutional investors invest significantly in firms with high disclosure and raise their stake in response to increased disclosure.

Empirical research provides mixed results for the relationship between institutional investor ownership and disclosure extent. El-Gazzar (1998), Healy et al. (1999), Barako et al. (2006), Guan et al. (2007) and Laidroo (2009) document a positive association between institutional ownership and disclosure extent. This result indicates that institutional investors are playing an active role in demanding more information disclosure to monitor managers due to their significant stake of ownership and the desire to protect their professional reputation (Guan et al., 2007).

In contrast, Schadewitz and Blevins (1998) reveal a significant negative relationship between interim disclosure and institutional ownership in Finnish companies. The result suggests the existence of other communications channels, such as a seat on the board, to acquire information rather than published reports. In the same vein, Lakhal (2007) indicates a non-significant relationship between voluntary earnings disclosure in financial press release and institutional ownership in French companies. The result suggests that institutional investors act as owners and have the ability to obtain their information needs directly from the firm and hence their need for corporate disclosure is diminished. In addition, Donnelly and Mulcahy (2008) reveal a non-significant association between

voluntary disclosure and institutional ownership. In line with Lakhal (2007), Donnelly and Mulcahy (2008) argue that institutional investors are passive with respect to disclosure in general or they have more efficient and timely channels for extracting relevant information. Based on the aforementioned theoretical and empirical evidence, the following hypotheses are to be tested:

H_{8a}: there is a relationship between institutional ownership and the level of mandatory risk disclosure of EAS 25 in the annual reports of Egyptian companies.
H_{8b}: there is a relationship between institutional ownership and the level of mandatory risk disclosure of EAS 33 in the annual reports of Egyptian companies.
H_{8c}: there is a relationship between institutional ownership and the amount of voluntary risk disclosure in the annual reports of Egyptian companies.

Institutional ownership, in this study, is measured by the percentage of shares held by institutional investors following Schadewitz and Blevins (1998), Barako et al. (2006), Guan et al. (2007), Lakhal (2007), Donnelly and Mulcahy (2008) and Laidroo (2009).

5.2.4 Company Risk Level

This subsection develops hypotheses regarding the association between a company risk level and risk reporting.

5.2.4.1 Leverage

Leverage is a measure of external finance in relation to a firm's capital. Leverage may impact both a firm's motivation to disclose more information and the demand of long-term creditors for more information (Patton and Zelenka, 1997). Leverage has been used by accounting researchers to investigate the influence of a firm's capital structure on the choice of accounting policies (Dhaliwal, 1980). Moreover, leverage can be used as a proxy for risk induced by a firm's capital structure (Beaver et al., 1970). The higher a firm's debts, the greater the volatility of earnings, the greater the cash flow required to meet fixed interest charges and hence the greater the probability of default risk (Dhingra, 1982).

Several studies examined the association between accounting determined risk measure, such as leverage, and risk determined measure, such as Beta value as a measure of systematic risk (Abdelghany, 2005; Dhingra, 1982; Selva, 1995). The main idea behind this association is 'if an association is observed, the evidence supports the joint hypothesis that accounting data reflect the underlying events that determine securities riskiness and that such events are also reflected the market prices of securities' (Beaver et

al., 1970, p. 655). Beaver et al. (1970) and Dhingra (1982) report a positive association between leverage and market risk. Moreover, Farrelly et al. (1985) document a positive relationship between leverage and financial analysts' perception of risk; therefore leverage can be considered as a possible measure of risk (Linsley and Shrives, 2006).

Agency theory predicts that the greater the proportion of debt in a firm's capital structure the greater the incentives for wealth transfer from debtholders to stockholders (Myers, 1977). Stockholders are motivated to benefit on the account of debtholders by taking decisions such as paying large dividends, accepting risky projects or issuing more senior debts (Chow, 1982; Schipper, 1981). Consequently, agency theory predicts that agency costs are likely to be high for highly leveraged firms (Jensen and Meckling, 1976; Smith and Warner, 1979; Watts, 1979).

The potential conflicts between debtholders and stockholders will place highly leveraged firms under close monitoring by debtholders (Ahmed and Nicholas, 1994) who may demand more information including risk information to assist them in assessing a firm's ability to discharge its obligations (Craswell and Taylor, 1992) and in determining whether the managers breach debt covenants (Wallace et al., 1994). Therefore, agency theory predicts that highly leveraged firms have greater incentives to disclose voluntarily more information than less leveraged firms to highlight that they are successfully monitoring and managing different risks (Linsley et al., 2006; Wallace et al., 1995; Zarzeski, 1996). In addition, highly leveraged firms are expected to comply more with the IASs because accounting standards facilitate the monitoring function of annual reports (Dumontier and Raffournier, 1998). Disclosing more information will reduce the conflict between shareholders and debtholders (Depoers, 2000), agency costs and information asymmetry (Chavent et al., 2006; Inchausti, 1997) and facilitate monitoring activities (Hossain et al., 1994; Raffournier, 1995). In contrast, Lakhal (2007) argues that firms with high debts are more likely to provide debtholders with more private information; hence there is less need for additional information in annual reports. According to stakeholder theory, creditors are one of the main financial stakeholders of a company (Neu et al., 1998). Roberts (1992) argues that leverage is a proxy for creditors' stakeholder power and hence companies with high leverage levels are likely to be more responsive to creditors' expectations.

Empirical evidence reveals mixed results regarding the association between leverage and disclosure extent. Malone et al. (1993) report a positive relationship while Ahmed and

Nicholls (1994), Wallace et al. (1994), Wallace and Naser (1995), Abd-Elsalam and Weetman (2003) and Alsaeed (2006) document a non-significant association. In contrast, El-Gazzar et al. (1999) and Guan et al. (2007) reveal a negative relationship between leverage and disclosure extent. Based on the aforementioned theoretical and empirical evidence, the following hypotheses are to be tested:

H_{9a}: there is a positive relationship between leverage and the level of mandatory risk disclosure of EAS 25 in the annual reports of Egyptian companies.
H_{9b}: there is a positive relationship between leverage and the level of mandatory risk disclosure of EAS 33 in the annual reports of Egyptian companies.
H_{9c}: there is a positive relationship between leverage and the amount of voluntary risk disclosure in the annual reports of Egyptian companies.

Leverage, in this research, is measured by the percentage of total liabilities to total assets following Raffournier (1995), Inchausti (1997), Patton and Zelenka (1997), Dumontier and Raffournier (1998), Depoers (2000) and Prencipe (2004).

5.2.5 Firm Characteristics

This subsection develops hypotheses regarding the association between firm-specific characteristics as control variables and risk reporting. Firm characteristics included in the study are firm size, profitability, liquidity and industry membership.

5.2.5.1 Firm Size

Firm size is considered one of the most important variables that influences disclosure extent. Firm size could proxy for different perspectives including competitive advantages, information production costs, management ability and advice and political costs (Ball and Foster, 1982; Leftwich et al., 1981). Therefore, firm size is a comprehensive variable (Abd-Elsalam, 1999) which is most reported as a significant determinant of firm disclosure policy (Ahmed and Courtis, 1999; Foster, 1986). Accounting researchers have advanced various reasons to support a positive relationship between firm size and the extent of disclosure. They employed agency theory, political cost perspective, proprietary cost perspective, disclosure cost and other perspectives to underpin the hypothesised association between firm size and disclosure extent.

Agency theory predicts that agency cost is an increased function of firm size as a consequence of difficulties in performing monitoring activities in large firms (Jensen and Meckling, 1976). In order to minimise agency costs, managers are likely to disclose voluntarily more information (Chow and Wong-Boren, 1987). In addition, large firms are

more expected to comply with accounting standards' requirements than smaller firms in order to provide superior credibility to their financial reports (Dumontier and Raffournier, 1998).

Moreover, large firms are more politically sensitive and hence are subject to relatively larger wealth transfers than smaller firms (Hagerman and Zmijewski, 1979; Watts and Zimmerman, 1986). Therefore, large firms are more likely to face political interference (Wallace et al., 1994) and are expected to be scrutinised by several governmental agencies (Buzby, 1975). Consequently, in order to support their legitimacy, large firms are expected to disclose more information than small firms to minimise public pressures, government intervention (Hassan et al., 2006; Singhvi and Desai, 1971) and to improve their image in the public eye and their ability to gain public support (Craswell and Taylor, 1992).

In addition, based on a disclosure cost perspective, researchers argue that collecting, preparing and disseminating information is a costly process and disclosure costs are relatively low for large firms (Ahmed and Nicholas, 1994; Dumontier and Raffournier, 1998; Singhvi and Desai, 1971; Tai et al., 1990). Large firms have the essential resources, expertise and skilled individuals to report more information which in turn results in less non-compliance with disclosure requirements (Ahmed and Nicholas, 1994; Ali et al., 2004; Depoers, 2000). Lang and Lundholm (1993) argue that disclosure cost is a decreasing function of firm size as a result of a fixed component of disclosure costs. Finally, due to operations complexity, large firms employ effective management information systems that produce large volumes of information and this may reduce the cost of reporting information (Buzby, 1975; Cooke, 1989a).

Based on proprietary cost perspective, Craswell and Taylor (1992) argue that proprietary cost is likely to be inversely related to firm size. This means that large firms face less competitive disadvantages by reporting more information than small firms which think that more disclosure may threaten their competitive position (Ahmed, 1996; Buzby, 1975; Singhvi and Desai, 1971; Tai et al., 1990). In the same vein, disclosing more information assists large firms to reduce investors' adverse reaction to information withholding (Inchausti, 1997; Prencipe, 2004).

Firm size could be considered a signal regarding a firm's ability to adopt and apply accounting standards. Therefore, large firms are more likely to report information and to comply with statutory regulation than small firms. Murphy (1999, p.127) argues that

'larger firms may have the financial resources required to implement a new set of standards. Smaller firms might find that the benefits derived from using IASC standards might not offset the funds required to purchase software, hire consultants or train personnel'.

Consistent with signalling theory, Hossain et al. (1994) argue that large firms are more likely to report voluntarily more information than small firms because investors may interpret non-disclosure as bad news which in turn may negatively influence a firm's value in capital markets. Schipper (1981) argues that disclosure in annual reports can contribute effectively to solve monitoring problems which increase with the number of owners. Hassan et al. (2006) contend that signalling more disclosure to investors will contribute to eliminating information asymmetry between large firms and their investors. In addition, large firms have a wide range of stakeholders who may have a wide variety of information needs that a company should satisfy by disclosing more and varied information including risk-related information (Linsley et al., 2006).

Other reasons underpinning a positive relationship between firm size and disclosure extent are related to the greater dependence of large firms on the capital market to attract finance than smaller firms (Ali et al., 2004; Cook, 1991; Tai et al., 1990). Thereby, large firms have greater incentives to disclose more information and comply with mandatory disclosure requirement in their annual reports (Ahmed and Nicholas, 1994) to reduce the cost of equity and debt capital (Botosan, 1997; Sengupta, 1998). In addition, large firms seem to be followed by a large number of financial analysts which in turn create enormous demand for more information (Bhushan, 1989; Lang and Lundholm, 1996). Consequently, firms can satisfy this demand by disclosing more and various information in their annual reports (Cooke, 1991; Wallace and Naser, 1995; Zarzeski, 1996).

Accounting researchers used different measures as proxies for firm size including total assets (Abd-Elsalam and Weetman, 2003; Hossain et al., 1995; Patton and Zelenka, 1997), sales (Depoers, 2000; Hassan et al., 2006; Inchausti, 1997; Raffournier, 1995), market capitalisation (Wallace and Naser, 1995), number of shareholders (Cooke, 1989b; Cooke, 1991) and a composite index of a number of variables using factor analysis (Cooke, 1992; Craig and Diga, 1998). However, there is no theoretical justification to prefer one measure to the others.

Empirical evidence suggests a positive relationship between firm size and disclosure extent (Dumontier and Raffournier, 1998; Marston and Robson, 1997; Owusu-Ansah,

2005; Tai et al., 1990; Wallace et al., 1994). In addition, Ahmed and Courtis (1999) in their meta-analysis study support a positive association between the two variables. However, Ahmed and Nicholls (1994), Ahmed (1996), Patton and Zelenka (1997) and Street and Bryant (2000) document a non-significant relationship between firm size and the extent of disclosure. Based on the theoretical perspectives and empirical results, the following hypotheses are to be tested:

H_{10a}: there is a positive relationship between firm size and the level of mandatory risk disclosure of EAS 25 in the annual reports of Egyptian companies.
H_{10b}: there is a positive relationship between firm size and the level of mandatory risk disclosure of EAS 33 in the annual reports of Egyptian companies.
H_{10c}: there is a positive relationship between firm size and the amount of voluntary risk disclosure in the annual reports of Egyptian companies.

Following Meek et al. (1995), Raffournier (1995), Inchausti (1997), Depoers (2000), Prather-Kinsey and Meek (2004), Prencipe (2004) and Hassan et al. (2006), firm size in this research is measured by net sales.

5.2.5.2 Profitability

Accounting researchers tend to employ profitability to explain cross-sectional variations in disclosure extent among different companies. They use different theoretical perspectives to underpin their argument regarding the hypothesised relationship between profitability and disclosure extent.

Based on signalling theory, Meek et al. (1995) argue that firms with high profitability have greater incentives to distinguish themselves from less profitable firms and signal their outstanding performance to investors. Moreover, companies with superior risk management performance might want to highlight the contribution of risk management strategies to their profitability (Linsley et al., 2006). Therefore, firms with high profitability will disclose voluntarily more information to the capital market than less profitable firms to protect the firm from undervaluation (Inchausti, 1997). In addition, more profitable firms tend to comply with the IASs more than less profitable firms because compliance signals outstanding performance especially as the IASs limit earning management practices (Dumontier and Raffournier, 1998).

Agency theory predicts that managers of firms with high profitability will disclose voluntarily more information in order to protect their interests (Inchausti, 1997). Managers of those firms have greater incentives to disclose more information to protect

their positions and compensations, to discourage takeovers (Singhvi and Desai, 1971; Marston and Shrives, 1996) and to advance a positive impression of their performance (Alsaeed, 2006).

Moreover, consistent with political cost perspective, firms with high profitability will disclose more information than less profitable firms in order to explain the reasons for their superior performance (Inchausti, 1997). Therefore, they can avoid governmental intervention, such as high tax rates, and legitimise their activities by confirming their accordance with society's values and norms.

In contrast to the above arguments, more profitable firms may be reluctant to disclose more information, such as segment information, due to the proprietary costs imposed on firms as a result of the attraction of new competitors (Prencipe 2004). In addition, less profitable firms may disclose voluntarily more information to justify their poor performance (Owusu-Ansah, 1998). Furthermore, managers opt to report poor performance to reduce potential litigation and reputation costs (Skinner, 1994). The aforementioned theoretical arguments provide different directions regarding the relationship between profitability and disclosure extent. Lang and Lundholm (1993) argue that the direction of this relationship is ambiguous.

Empirical evidence reveals inconsistent results for the association between profitability and disclosure extent. For example, Patton and Zelenka (1997), Owusu-Ansah (1998), Ali et al. (2004) and Hassan et al. (2006) document a positive relationship. In contrast, Kelly (1994) documents a negative relationship while Malone et al. (1993), Wallace et al. (1994), Raffournier (1995), Abd-Elsalam and Weetman (2003) and Alsaeed (2006) report a non-significant relationship between the two variables. Based on the theoretical and empirical evidence, the following hypotheses are to be tested:

H_{11a}: there is a relationship between profitability and mandatory risk disclosure of EAS 25 in the annual reports of Egyptian companies.

H_{11b}: there is a relationship between profitability and mandatory risk disclosure of EAS 33 in the annual reports of Egyptian companies.

H_{11c}: there is a relationship between profitability and voluntary risk disclosure in the annual reports of Egyptian companies.

In this research, profitability is measured as the percentage of net profit to total assets following Dumontier and Raffournier (1998), Inchausti (1997) and Ali et al. (2004).

5.2.5.3 Liquidity

Liquidity ratio expresses a firm's ability to discharge short-term liabilities without the need to liquidate its long-term assets and hence proxies for the soundness of its financial position. Many parties such as investors, lenders and governmental agencies are concerned about whether a firm is a going concern and consider liquidity as a key factor in evaluating bankruptcy risk (Owusu-Ansah, 2005; Wallace and Naser, 1995). Dhingra (1982) highlights the importance of liquidity in achieving companies' strategic objectives and the adaptability to changing circumstances and environment.

In line with signalling theory, firms with high liquidity are likely to disclose more information than firms with low liquidity in order to signal their superior management performance in risk management and the strength of their financial position to interested parties (Wallace et al., 1994). However, in contrast, Wallace et al. (1994) argue that firms with low liquidity may disclose more information to justify and explain the reasons for their poor performance compared to firms with high liquidity.

Empirical evidence reveals inconclusive findings for the relationship between liquidity and disclosure extent. Owusu-Ansah (2005) reports a positive relationship while Wallace and Naser (1995) and Alsaeed (2006) report a non-significant relationship. More interestingly, Wallace et al. (1994) document a negative relationship between liquidity and disclosure extent. Based on the aforementioned theoretical and empirical evidence, the following hypotheses are to be tested:

H_{12a}: there is a relationship between liquidity and the level of mandatory risk disclosure of EAS 25 in the annual reports of Egyptian companies.

H_{12b}: there is a relationship between liquidity and the level of mandatory risk disclosure of EAS 33 in the annual reports of Egyptian companies.

H_{12c}: there is a relationship between liquidity and the amount of voluntary risk disclosure in the annual reports of Egyptian companies.

Following Owusu-Ansah (1998 and 2005), in this research, the liquidity is measured as current assets excluding inventories/current liabilities.

5.2.5.4 Industry Membership

Industry membership is one of the variables advanced by researchers to explain cross-sectional variations in disclosure practices across industries. It is expected that variations in disclosure levels in annual reports of companies operating in different industries will

be found (Cooke, 1992; Malone et. al., 1993). Many reasons have been advanced to support this hypothesis.

Industry membership is a key proxy for political costs (Ball and Foster, 1982). Watts and Zimmerman (1986) argue that industry membership is likely to influence political vulnerability since certain companies, such as oil and gas companies, are more politically sensitive than others. Moreover, due to their strategic significance, particular industries are subject to scrutiny from governmental agencies, socially sensitive interest groups, the media and the general public (McKinnon and Dalimunthe, 1993; Roberts, 1992). Consequently, firms in these industries may provide more disclosure including risk-related information in their annual reports to legitimise their activities and confirm their compliance with societal values. Furthermore, companies in risky industries have incentives to reduce investors' uncertainty regarding the timing and amount of prospective cash flows by disclosing more information to assist them in evaluating a company's risk/return profile (Herrmann and Thomas, 1996; McKinnon and Dalimunthe, 1993).

A firm usually tends to adopt the same disclosure policy followed by other firms in the same industry because failure to do so may be interpreted by investors as a signal of bad news (Inchausti, 1997). In addition, Verrecchia (1983) argues that proprietary costs vary across different industries. Patten (1991) adds that public pressure varies across different industries. Therefore, the relevance of a certain set of disclosure practices is expected to vary between industry groups (Meek et al., 1995).

The peculiarity of each industry is another reason for differences in disclosure extent across industries (Wallace et al., 1994). Moreover, Cooke (1989a and 1991) refers to the bandwagon effect - the impact of an influential firm with a superior level of disclosure on other firms in the industry - as a potential reason for variation in disclosure practices across industries. Furthermore, technological and market constraints due to competition have a significant impact on a company's risk profile and hence risk disclosure in its annual report (Beretta and Bozzolan, 2004). Finally, Owusu-Ansah (1998) argues that there is variation in the level of mandatory disclosure across industries because the nature of operations and diversity of products in certain industries may influence their ability to comply with mandatory disclosure requirements.

Empirical evidence regarding the association between industry membership and disclosure extent reveals mixed results. While Kelly (1994), Wallace and Naser (1995),

Craig and Diga (1998), Abd-Elsalam and Weetman (2003) and Lopes and Rodrigues (2007) document a significant relationship, Tai et al. (1990), Wallace et al. (1994), Herrmann and Thomas (1996), Inchausti (1997) and Patton and Zelenka (1997) document a non-significant relationship between industry membership and disclosure extent. Based on the aforementioned theoretical and empirical evidence, the following hypotheses are to be tested:

H_{13a}: there is a relationship between industry membership and the level of mandatory risk disclosure of EAS 25 in the annual reports of Egyptian companies.
H_{13b}: there is a relationship between industry membership and the level of mandatory risk disclosure of EAS 33 in the annual reports of Egyptian companies.
H_{13c}: there is a relationship between industry membership and the amount of voluntary risk disclosure in the annual reports of Egyptian companies.

In this research, industry membership will be presented using a dummy variable following Wallace and Naser (1995), Patton and Zelenka (1997), Ali et al. (2004) and Alsaeed (2006).

Finally, based on the above discussion, it is useful to summarise the relationships between the extent of risk reporting, competition, corporate governance, ownership structure and firm-specific characteristics in a conceptual framework (see Figure 5.1). A conceptual framework is 'a presentation, either graphically or in narrative form of the main concepts or variables, and the presumed relationship with each other' (Punch, 1998, p.56). A conceptual framework assists in a clear presentation of the relationships between variables and focusing thinking in planning and data analysis stages (Punch, 1998).

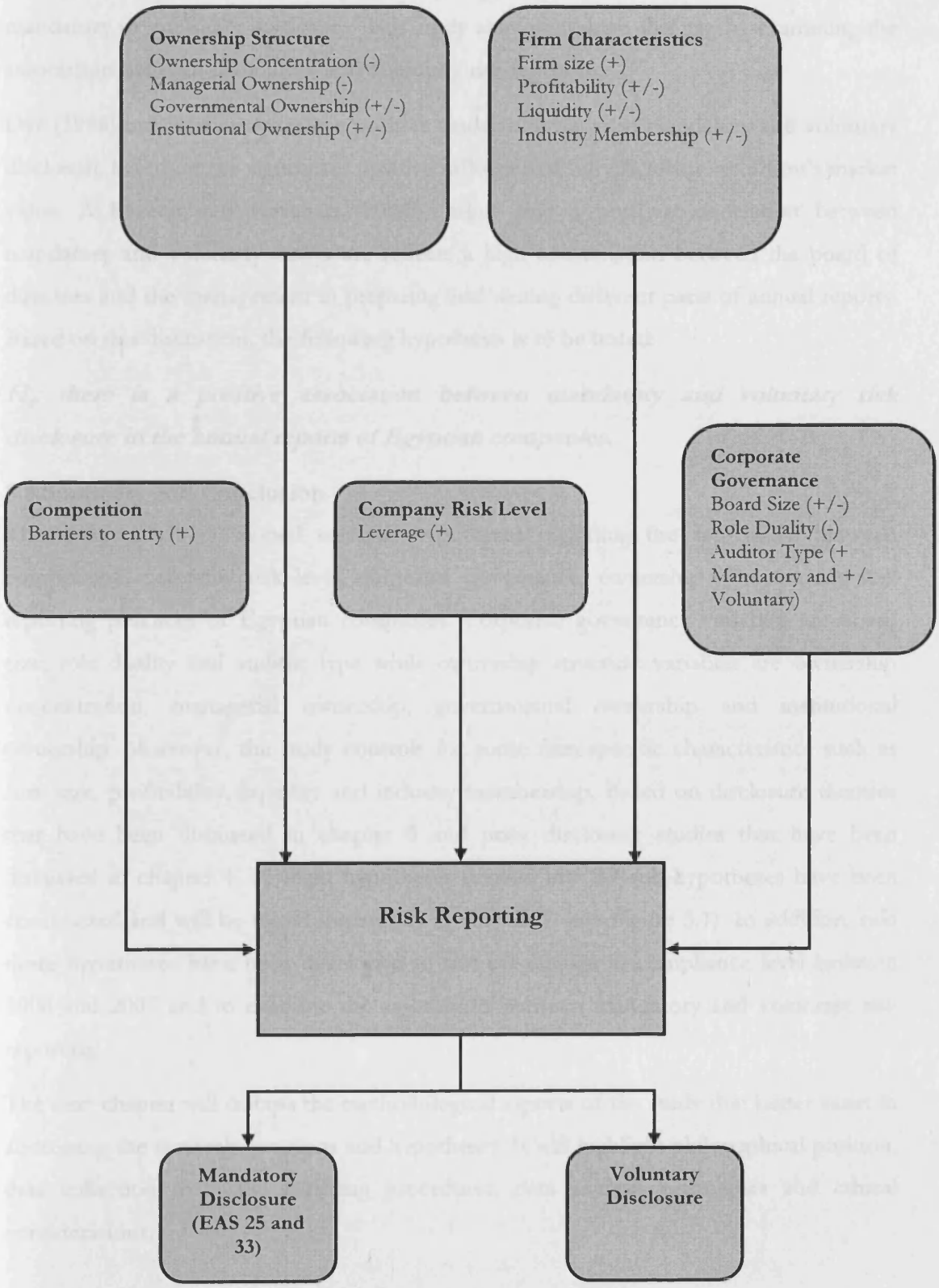
5.3 Changes in Level of Compliance between 2006 and 2007

The first version of the EASs was issued in October 1997 with 19 accounting standards to be effective from January 1998; none of them discusses segment reporting or financial instruments disclosure. However, Egyptian companies should apply IASs to any issues that are not addressed by EASs by referring to the English version of the IASs. This means that Egyptian companies should comply with IAS 14 (Segment Reporting) and 32 (Financial Instrument: Presentation and Disclosure). The second version of EASs was issued in July 2006 with 35 accounting standards to be effective from the 1st of January 2007. In the second version two risk-related accounting standards are introduced in Arabic, namely EAS 25: Financial Instruments: Presentation and Disclosure and EAS 33: Segment Reporting. McGee (2006) argues that language barriers may be a significant

obstruct to the successful implementation of IFRS. Based on the Egyptian Context, Abd-Elsalam and Weetman (2003) indicate that the lack of authoritative source material in the local language, Arabic, is a major reason of non-compliance with IASs. They report a relatively high level of compliance (94%) with IAS items that already included in Companies Act while compliance level with IAS items that are not available in Arabic was 36% only. Ten years between the first and the second version of the EASs was sufficient to make Egyptian companies more familiar with the application of EASs especially with the fact that they should refer to the IASs in the absence of the EASs. Therefore, it is expected that introduction of the Arabic version of EAS 25 and 33 will increase compliance level between 2006 and 2007. In addition, the EFSA and the EGX should force listed companies to comply with the EASs. Based on this discussion the following hypothesis is to be tested:

H_1: there is a significant increase in the compliance level with mandatory risk disclosure of Egyptian companies between 2006 and 2007.

Figure 5.1 A Conceptual Framework of the Relationships between the Extent of Risk Reporting, Competition, Corporate Governance, Ownership Structure, Firm-specific Characteristics and Company Risk Level



5.4 Association between Mandatory and Voluntary Risk Reporting

There is a lack of accounting research regarding the association between mandatory and voluntary disclosure. This may be because empirical studies tend to focus on either mandatory or voluntary disclosure. This study aims to address this gap by examining the association between mandatory and voluntary risk reporting.

Dye (1986) indicates analytically a positive association between mandatory and voluntary disclosure based on the significant positive influence of full disclosure on a firm's market value. Al-Razeen and Karbhari (2004b) argue that a positive association between mandatory and voluntary disclosure reflects a high coordination between the board of directors and the management in preparing and writing different parts of annual reports. Based on this discussion, the following hypothesis is to be tested:

H_1: there is a positive association between mandatory and voluntary risk disclosure in the annual reports of Egyptian companies.

5.5 Summary and Conclusion

This chapter has developed research hypotheses regarding the association between competition, company risk level, corporate governance, ownership structure and risk reporting practices of Egyptian companies. Corporate governance variables are board size, role duality and auditor type while ownership structure variables are ownership concentration, managerial ownership, governmental ownership and institutional ownership. Moreover, the study controls for some firm-specific characteristics such as firm size, profitability, liquidity and industry membership. Based on disclosure theories that have been discussed in chapter 3 and prior disclosure studies that have been discussed in chapter 4, 13 main hypotheses divided into 39 sub-hypotheses have been constructed and will be tested statistically in chapter 7 (see Figure 5.1). In addition, two more hypotheses have been developed to test the change in compliance level between 2006 and 2007 and to examine the association between mandatory and voluntary risk reporting.

The next chapter will discuss the methodological aspects of the study that better assist in addressing the research questions and hypotheses. It will highlight philosophical position, data collection methods, sampling procedures, data analysis techniques and ethical considerations.

CHAPTER 6: RESEARCH METHODOLOGY

6.1 Introduction

The preceding chapters discussed the disclosure theories and literature regarding the determinants of disclosure and the factors that hinder disclosure in companies' annual reports. Based on this discussion, research hypotheses have been developed. It was mentioned in the introduction that this study would be conducted through two main phases. Phase 1 aims to measure the level and amount of mandatory and voluntary risk reporting then to examine the determinants of risk reporting while phase 2 aims to identify factors that may hinder the presentation of mandatory and voluntary risk reporting. This chapter aims to present the methodological aspects that can assist in answering the study's research questions. A clear understanding of ontological and epistemological assumptions is essential to realise the interrelationship between main research components and to defend a philosophical position (Grix, 2002).

Section 6.2 presents the research purpose while section 6.3 and section 6.4 discuss the research philosophy and research approach respectively. Section 6.5 presents the data collection methods used in collecting primary and secondary data. The secondary data collection methods and issues regarding measurement validity, measurement reliability, sample size, location of risk information and statistical tests are presented in section 6.5.2. The primary data collection methods and issues regarding the interviewing process, interviewees' selection process, qualitative data analysis and ethical considerations are discussed in section 6.5.3. Section 6.6 is a summary and conclusion.

6.2 Research Purpose

In terms of research purpose, research is classified as descriptive, explanatory or exploratory. The main purpose of descriptive research is to 'portray an accurate profile of persons, events or situations' (Robson 2002, p.59). In other words, the aim is to provide a description of the problem under investigation as it exists (Collis and Hussey, 2003; Zikmund, 2000). Availability of essential information regarding the research problem is a prerequisite for collecting relevant data in descriptive research (Robson, 2002).

Explanatory research aims to investigate a structured research problem in order to explain and identify patterns of relationships between variables (Saunders et al., 2007; Robson, 2003). Explanatory research is considered an extension of descriptive research

by focusing not only on description but also on explanations of relationships between variables (Collis and Hussey, 2003).

Exploratory research is appropriate for unstructured research problems (Ghauri and GrØnhaug, 2002) or when a field of study suffers from a shortage of relevant literature that may assist in gaining appropriate information regarding the research problem (Collis and Hussey, 2003). The main aim of exploratory research is to remove ambiguity from, and provide a clear understanding of, a research problem (Saunders et al., 2007; Zikmund, 2000). Moreover, exploratory research is more appropriate to 'find out what is happening, particularly in little-understood situations, seek new insights, ask questions, access phenomena in a new light and generate ideas and hypotheses for future research' (Robson 2002, p.59). The manifest character of that research is searching for rather than testing patterns and hypotheses (Collis and Hussey, 2003). Interviewing experts in the field of study is one of the predominant methods employed in exploratory research (Saunders et al., 2007).

This study is considered to be explanatory and exploratory. In part, it aims to explain variations in the level (amount) of mandatory (voluntary) risk reporting of Egyptian companies as dependent variables using competition, firm-specific, ownership structure and corporate governance characteristics as independent variables. Moreover, this research aims to explore factors that may impede compliance with EAS 25 and 33 and hinder the presentation of voluntary risk reporting in the annual reports of Egyptian companies.

6.3 Research Philosophy

Social research has a number of fundamentally different philosophical stances, including positivism, realism, idealism and interpretivism. These philosophical stances have an enormous influence on the design of research methodology and the whole research process (Stiles, 2003). There is a general consensus that positivism and interpretivism are the most influential paradigms that have guided social research orientations (Corbetta, 2003). It is important to recognise the philosophical stance that a research study adopts since it has a significant influence on research design, data-collection methods and data analysis techniques (Collis and Hussey, 2003).

6.3.1 Positivism

Positivism can be defined as 'the study of social reality utilising the conceptual framework, the techniques of observation and measurement, the instruments of

mathematical analysis, and the procedures of inference of the natural science' (Corbetta 2003, p.13). From an ontological perspective, positivism believes that reality exists independently out of our experience (Collis and Hussey, 2003) and thinking, observing and recording are our instruments to investigate this reality (Moses and Knusten, 2007). In addition, positivism believes that there is only one objective, simple and unchanged reality which may be controlled by general and rigid laws (Sarantakos, 2005). Moreover, positivism claims that reality is the sum of sub-elements and studying these sub-elements may lead to knowledge of the complete reality (Wimmer and Dominick, 2000).

From an epistemological point of view, researchers and the objects they investigate are completely detached. Researchers who adopt a positivist position believe that objects they research exist before, during and after the examination process (Collis and Hussey, 2003). Therefore, a researcher neither influences nor is influenced by the object under examination (Remenyi et al., 1998).

From a methodological standpoint, positivism is concerned with sample representativeness, measurement, testing hypotheses, causality and generalisation (Bryman and Bell, 2003). In summary, positivism contains 'realist/objectivist ontology and an empiricist epistemology, guides the strategy of quantitative methodology and therefore prescribes fixed designs and quantitative methods' (Sarantakos, 2005, p.30).

From the above presentation, it could be concluded that the main objective of positivism is providing explanations and predictions of the subject under investigation and generating general statements that are formatted in law-like generalisations regarding the population as a whole similar to those of natural science (Cohen et al., 2000; May, 1997; Remenyi, 1998).

However, the main criticism of positivism is ignorance of the complexity of the social world and insistence on the suitability of dealing with the social world in the same manner as natural science. This results in losing the real essence of social phenomena through diminishing social world complexity to a sequence of general statements (Saunders et al., 2007).

6.3.2 Interpretivism

As a result of the criticism of positivism which is based on the complexity of the social world and differences between the centre of attention of social science from that of natural science, many researchers have adopted a different philosophical position that provides a different research philosophy that can overcome the limitations of positivism

(Bryman and Bell, 2003). Therefore, interpretivism has emerged at a sharp contrast to positivism on the research philosophy continuum. It is defined as a philosophical stance which applies 'naturalistic approaches to inductively and holistically understand human experience in context-specific settings" (Amaratunga et al., 2002, pp.18-19). Also, interpretivism is 'the school of thought that stresses the importance of interpretations as well as observations in understanding the social world' (Snape and Spencer, 2003, p.7).

From an ontological perspective, interpretivism believes that reality is socially constructed through people's experience and interpretations (Stiles, 2003). This means that there is no one objective reality because the world is just the creation of our minds (Walliman, 2006). In fact, because each individual constructs his/her own reality, there are multiple realities (Remenyi et al., 1998). In addition, interpretivism believes that reality is holistic and cannot be split into sub-elements (Wimmer and Dominick, 2000). The consequence of this ontological position is twofold. Firstly, reality is subjective and depends on what people perceive and construct as reality but not the reality as exists (Cohen et al., 2000). Secondly, in studying social phenomena, social researchers have to take into account social, contextual and individual factors that may influence people's perception of reality (Moses and Knusten, 2007).

From an epistemological point of view, there is no detachment between a researcher and object under investigation (Corbetta, 2003). Interpretivism assumes that a researcher is involved in the research process (Collis and Hussey, 2003) and a real interaction between them exists (Snape and Spencer, 2003).

From a methodological perspective, interpretivism seeks to use research methods that provide closeness to the subject under investigation and assists in obtaining an in-depth understanding of participants' personal standpoints (Collis and Hussey, 2003). The aim is to obtain a unique explanation for a certain situation in a particular context (Wimmer and Dominick, 2000).

In summary, interpretivism contains 'constructionist ontology, and an interpretivist epistemology, guide the strategies of qualitative methodology and prescribe mostly flexible designs and qualitative methods' (Sarantakos, 2005, p.30).

6.3.3 Philosophical Position of Current Research

The philosophical position of this research lies between positivism and interpretivism. In other words, this research adopts a middle position that lends itself to the appropriate attributes of both positivism and interpretivism (Walliman, 2006). This middle position is

recommended by several researchers. For example, Collis and Hussey (2003, p.48) support the possibility of the middle position between the two extremes by stating that 'as you move along the continuum, the features and assumptions of one paradigm are gradually relaxed and replaced by those of the other paradigm'. Moreover, Moses and Knusten (2007, p.13) consider that this middle position is achievable by 'blending some of the most attractive features of both the naturalist and constructivist approaches'. Furthermore, Saunders et al. (2007, p.116) indicate the suitability of the middle position for business research by confirming that 'business and management research is often a mixture between positivist and interpretivist'.

From an ontological point of view, this middle position believes that there is a reality out there independent of our experience and interpretations (May, 1997). However, this reality is diverse and multi-dimensional and therefore, during investigating this reality, an equal importance and weight should be given to both researcher's and respondent's interpretations (Snape and Spencer, 2003). Reality is knowable in a deficient manner due to its special nature and unavoidable insufficient human knowledge. Consequently, theories and generalisation related to the reality under investigation should be formatted in probabilistic rather than deterministic laws (Corbetta, 2003).

From an epistemological point of view, although a researcher seeks to be neutral and objective, he or she may influence the object under investigation (Snape and Spencer 2003). In addition, the interpretation and understanding of social phenomena should take into consideration the circumstances and theoretical framework that govern these phenomena (Corbetta, 2003).

From a methodological point of view, combining both qualitative and quantitative approaches is desirable since it assists in investigating phenomena from different perspectives and overcome the limitations of depending only on one approach and therefore obtaining appropriate answers for research questions (Snape and Spencer, 2003).

6.4 Research Approach

In the field of social research, a distinction is made between two distinguished research approaches namely, quantitative and qualitative. The choice between quantitative and qualitative approaches is heavily influenced by research purpose and philosophical position (Collis and Hussey, 2003). These two approaches lend themselves to different

ontological and epistemological assumptions (Sarantakos, 2005). Table 6.1 summarises these differences:

Table 6.1: Fundamental Differences between Quantitative and Qualitative Research Strategies

	Quantitative	Qualitative
Principle orientation to the role of theory in relation to research	Deductive[1], testing of theory	Inductive[2], generation of theory
Epistemological orientation	Natural science model, in particular positivism	Interpretivism
Ontological orientation	Objectivism	Constructionism

Source: Bryman and Bell (2003, p.25).

However, researchers tend to argue for combining these approaches in a multi-approach study in order to minimise pitfalls and maximise advantages. The next sub-sections aim to identify the main characteristics of quantitative and qualitative approach and the merits of combining them.

6.4.1 Quantitative Approach

Quantitative research can be defined as 'a research strategy that emphasises quantification in the collection and analysis of data and that entails a deductive approach to the relationship between theory and research ... has incorporated the practices norms of natural scientific model... embodies a view of social reality as an external objective reality' (Bryman and Bell, 2003, p.25). The quantitative approach applies the methods used in natural science to investigate social phenomena. Therefore, quantitative research depends on fixed-structured and closed research designs (Corbetta, 2003; Snape and Spenser, 2003). A quantitative approach aims to achieve the standardisation of data collection methods in order to facilitate generalisation to the entire population through depending on representative samples (Corbetta, 2003). In summary, quantitative research is 'objective in nature and concentrates on measuring phenomena. Therefore, a quantitative approach involves collecting and analysing numerical data and applying statistical tests' (Collis and Hussey, 2003, p. 13).

The main power of a quantitative approach springs from allowing comparisons between variables through using appropriate statistical techniques. Furthermore, quantitative research provides precise, cost-effective and easily aggregated statistical measures (Patton, 1990). However, the quantitative approach suffers from several limitations. This

[1] Deductive reasoning is a 'study in which a conceptual and theoretical structure is developed and then tested by empirical observation, thus particular instances are deduced from general inferences' (Collis and Hussey 2003, p.15).

[2] Inductive reasoning is a 'study in which theory is developed from the observation of empirical reality; thus general inferences are induced from particular instances' (Collis and Hussey 2003, p.15).

approach focuses on measurement issues and minimises the importance of meaning and interpretations that respondents give to reality. In addition, it mainly focuses on hypothesis-testing and undermines the importance of hypothesis-generation (Snape and Spencer, 2003). Moreover, the quantitative approach fails to discover the essence of social reality, studies objects in isolation from their context, and focuses on quantifications of social phenomena which may result in biased perceptions regarding these phenomena.

6.4.2 Qualitative Approach

Qualitative research is defined by Denzin and Lincoln (2003, pp. 4-5) as:-

> *A situated activity that locates the observer in the world. It consists of a set of interpretive, material and practices that make the world visible. These practices transfer the world. They turn the world into a series of representations, including field notes, interviews ... Qualitative research involves an interpretive, naturalistic approach to the world. This means that qualitative researchers study things in their natural settings ...*

The qualitative research pays more attention to the meaning and interpretation of social phenomena besides the researcher's and the respondent's own understanding of reality under investigation, uses research methods that emphasise in-depth, rich understanding and interpretations and facilitates themes and hypothesis generation (Snape and Spencer, 2003). Consequently, qualitative research mainly focuses on comprehension rather than generalisation and therefore adopts non-standardised research methods and tends to use small and intentionally selected samples (Corbetta, 2003). In summary, qualitative research can be constructed as a 'research strategy that usually emphasises words rather than quantification in the collection and analysis of data ... emphasises an inductive approach to the relationship between theory and research ... and embodies a view of social reality as a constantly shifting emergent property of individuals' creations' (Bryman and Bell, 2003, p.25).

The qualitative research is suitable for studying research questions in an open manner and seeks to provide an in-depth and rich understanding and interpretation of the social world (Patton 1990; Snape and Spencer, 2003). However, qualitative research has some limitations. This approach is criticised for being subjective because the researcher is the instrument for both data collection and analysis and also because of the close contact between researcher and respondents (Patton, 1990). In addition, qualitative research is less powerful in producing comparisons and studying relationships among variables than

quantitative research. Moreover, qualitative research is time consuming (Sarantakos, 2005).

After presenting the main characteristics of quantitative and qualitative approach, it is useful to provide a comparison between them in terms of research planning, data collection and analysis and the final product (see Table 6.2).

Table 6.2: Main Characteristics of Quantitative and Qualitative Approach

	Quantitative Research	Qualitative Research
Research Planning		
Theory-research relationship	Structured; logically sequential phases. Deduction	Open, interactive Induction
Function of literature	Fundamental in defining theory and hypotheses	Auxiliary
Concepts	Operationalized	Orientative, open, under construction
Relation with the environment	Manipulative approach	Naturalistic approach
Psychological researcher-subject interaction	Neutral, detached, scientific observation	Empathetic identification with the perspective of the subject studied
Physical researcher- subject interaction	Distance, detachment	Proximity, contact
Role of subject studied	Passive	Active
Data Collection		
Research design	Structured, closed, precedes research	Unstructured, open, constructed in the course of research
Representativeness	Statistically representative sample	Single case not statistically representative
Recording instrument	Standardized for all subjects. Objective: data-matrix	Varies according to subjects' interest. Tends not to be standardised
Nature of the data	'Hard', objective and standardised (objectivity vs. subjectivity	'Soft', rich and deep (depth vs. superficiality)
Data Analysis		
Object of the analysis	The variable (analysis by variable, impersonal)	The individual (analysis by subjects)
Aim of the analysis	Explain variation (variance) in variables	Understand the subjects
Mathematical and statistical techniques	Used intensely	Not used
Production of Results		
Data presentation	Tables (relationship perspective)	Extracts from interview and text (narrative perspective)
Generalisation	Correlations. Causal models. Laws. Logic of causation	Classifications and typologies. Ideal types. Logic of classification
Scope of results	Generalisability	Specificity

Source: Corbetta (2003, p.37).

6.4.3 Triangulation

The previous sub-sections have presented the main features of quantitative and qualitative research. Although there are major ontological and epistemological differences between them, researchers have called for a combination of quantitative and qualitative

approaches which is sometimes called triangulation or a multi-method approach (Wimmer and Dominick, 2000). Quantitative and qualitative approaches should be regarded as complementary rather than competing approaches (Snape and Spencer, 2003). Obviously, each approach possesses distinctive features which make it more appropriate for addressing certain dimensions of the research problem than the other (Sarantakos, 2005).

Triangulation is defined as 'the use of different methods and sources to check the integrity, or extend inferences, drawn from the data' (Ritchie, 2003, p.43). The essence of triangulation springs from the fact that:

> *No single method ever adequately solves the problem of rival causal factors ...Because each method reveals different aspects of empirical reality, multiple methods of observations must be employed. This is termed triangulation. I now offer as a final methodological rule the principle that multiple methods should be used in every investigation* (Denzin, 1978, p. 28).

Triangulation brings many advantages to research; it assists in underpinning research design through overcoming the pitfalls and maximising the advantages of each individual approach (Patton, 1990). This means that triangulation will minimise the deficiencies of depending on a single method and defeat the problem of 'method-boundedness' (Cohen et al., 2000) which may lead to misleading conclusions (Robson, 2000). Moreover, triangulation will support research validity and credibility through enriching the nature of research data by combining both qualitative and quantitative data (Sarantakos, 2005). Moreover, triangulation may assist a researcher to obtain broader and complementary insights to the topic under investigation (Collis and Hussey, 2003). Lincoln and Guba (1985) differentiate four types of triangulation:-

- Data triangulation which refers to collecting data in different time scales and/or from various sources in the same study.
- Investigator triangulation which refers to the use of various researchers to collect and analyse the data and compare the results in an independent manner in order to reduce bias resulting from the use of only one investigator.
- Methodological triangulation which refers to the use of both quantitative and qualitative methods in a multi-method study to examine the same topic. The main aim is minimising the bias resulting from the use of only one method.

- Theories triangulation refers to the use of different theoretical perspectives in order to extend the knowledge through borrowing a theory from a certain domain to explain a phenomenon in another domain (Collis and Hussey, 2003; Flick, 2002).

This research will achieve data, methodological and theoretical triangulation. Data triangulation takes place by collecting data from two different sources. The first source, secondary data, is collecting data about the Egyptian companies under investigation. The data collected from this source cover basic company, ownership structure and corporate governance characteristics. The second source, primary data, is collecting data through semi-structured interviews with four groups of participants.

In terms of methodological triangulation, this research will apply a quantitative approach to identify the nature, level and amount of mandatory and voluntary risk disclosure and then apply a qualitative approach to identify reasons that may impede companies from compliance with mandatory risk disclosure and make them reluctant to provide voluntary risk disclosure. The use of a qualitative approach as a successor to a quantitative approach is an effective way of combining both quantitative and qualitative research because many statistical results require in-depth explanations (Snape and Spencer, 2003). This way of combining quantitative and qualitative research may contribute to enhancing research interpretability through shedding light on areas to which statistical figures cannot bring any insights (Robson, 2000). In addition, disclosure studies support combining both quantitative and qualitative approaches. Dahawy et al. (2002) recommend the use of qualitative interviews in disclosure studies to obtain a better understanding of the reasons that hinder the application of certain accounting standards.

In terms of theoretical triangulation, this research employs a number of disclosure theories such as agency theory, signalling theory, political cost perspective, proprietary cost perspective, stakeholder theory and legitimacy theory to examine and explain the variation of risk reporting in the annual reports of Egyptian companies.

6.5 Data Collection Methods

In this section, the main objective is to present the methods that will be used in data collection. According to the research approach presented in section 6.4, this research will use both quantitative and qualitative methods that best provide the appropriate answers to the research questions. In analysing accounting narratives, this research will use two methods: a disclosure index for mandatory risk reporting and content analysis for

voluntary risk reporting. In addition, this research will use semi-structured interviews to explore factors behind non-compliance and low presentation of mandatory and voluntary risk reporting. However, before providing further discussion on the process of data collection, it is important to discuss some factors and cultural difficulties that may face researchers in the field of financial reporting in Egypt.

6.5.1 Data Collection Considerations

The need for permission and the shortage of accurate and up-to-date primary and secondary data are the main sources of difficulties that researchers are likely to face in the data collection process in Egypt (Parnell and Hatem, 1999). Hanafi and Gray (2005) share their experience regarding data collection in the Egyptian context. Their experience sheds light on potential difficulties related to collecting annual reports and conducting interviews. Hanafi and Gray (2005) indicate that:

- Collecting annual reports through direct contact with companies, by means of sending faxes, mails and emails, is not an effective vehicle and brings low responses.
- The main reason for the extremely low response is the companies' belief that the annual report is a sensitive document.
- The term 'annual reports' can refer to different things. It may refer to financial statements, financial statements and notes to financial statements and occasionally the audit report. This means that annual reports may not contain a board of directors' report. It is not surprising to find this confusion due to the absence of a clear distinction between financial statements and annual reports in the Company Act, CML and the listing/delisting rules of the EGX. Consequently, many companies do not attach the board of directors' report to financial statements.
- Due to concerns regarding confidentiality, it is very difficult to encourage a large number of participants to take part in interviews.

Taking into account these difficulties, Hassan et al. (2006) recommended that the annual reports are obtained through sources such as the CMA and the EGX rather than approaching other possible sources, such as companies themselves. Due to these difficulties, the EGX attempts to provide a solution to the problem of obtaining listed companies' annual reports through establishing a fully-owned subsidiary, EGID. The EGID was established in 1999, and began exclusively broadcasting the EGX data to

local and international customers in early 2002. The main task of the EGID is to make all information of listed companies, such as ownership structure, financial statements, and dividend payments, available to all users (ROSC, 2004).

6.5.2 Secondary Data Collection Methods

Generally, accounting is considered as a measurement and communication discipline since it aims to identify, measure and report economic information to different groups of users (Belkaoui, 1981). Financial reporting is a concept that comprises all the information provided in annual reports and the additional sources of information (Wolk et al., 1992). Healy and Palepu (2001) argue that the identification of the extent of disclosure is one of the main difficulties that disclosure research may face. This is due to the very nature of the term disclosure which makes it difficult to be measured directly. Wallace (1987, p.431) indicates that:

> *Financial disclosure is an abstract concept that cannot be measured directly. It does not possess inherent characteristics by which one can determine its intensity or quality like the capacity of a car.*

In addition, Malone et al. (1993, pp.257-258) confirm this point of view and reveal that:

> *Extent of financial disclosure is more a concept, subject to different interpretations, than it is a measurable variable. Differing interpretations would include differing sources of financial disclosure. Furthermore, even if there existed a consensus of opinion as to the sources of financial disclosure, the means by which to measure the extent therefore would vary. Because extent of financial disclosure cannot be directly measured, another measure served as a proxy.*

Consequently, accounting researchers seek to establish an instrument to measure this abstract concept. Beattie et al. (2004) present a summary of a variety of approaches that may be used by researchers in the analysis of accounting narratives in corporate annual reports. An apparent distinction can be made between two major approaches in analysing narratives in annual reports namely, the subjective approach and semi-objective approach.

A subjective approach is a scoring process based on financial analysts' ranks of disclosure practices. A famous example of such a scoring scheme is the one provided by the Association of Investment Management and Research in the US which has been used by several researchers as a proxy for disclosure adequacy (Botosan and Plumlee, 2002; Lang and Lundholm, 1993; Sengupta, 1998). The assessment of overall company disclosure

adequacy covered three basic categories: annual published information, quarterly and other published information and investor relations and related aspects. The final disclosure ratings are weighted to derive company score and industry ranks. The main disadvantage of subjective rating is that it measures analysts' perceptions of disclosure rather than actual disclosure (Lang and Lundholm, 1993). In addition, it is difficult to understand accurately analysts' motivations and how the rating process is constructed (Healy et al., 1999). Moreover, Healy and Palepu (2001) argue that analysts' ranking is questionable due to ambiguity regarding criteria employed in selecting companies to be included in the survey, biases inherent in the rating process and, finally, it is very difficult to determine to what extent analysts in the sub-committees seriously perform the ratings. Therefore, bias and errors in judgement may negatively influence scores awarded to companies (Sengupta, 1998).

Alternatively, a semi-objective approach comprises a variety of different methods that could be used by researchers such as disclosure indices, thematic content analysis, readability studies and linguistic studies. Due to subjectivity and the bias that subjective rating brings besides the unavailability of such a rating in Egypt and taking into consideration research objectives, this research will depend on a semi-objective approach, namely a disclosure index and content analysis, to measure the level and the amount of mandatory and voluntary risk reporting. In section 6.5.2.1 and 6.5.2.2, this study will discuss the main features and steps in the disclosure index and content analysis respectively.

6.5.2.1 Disclosure Index

A disclosure index is defined as:

> *An instrument designed to measure a series of items which, when aggregated, gives a surrogate score indicative of the level of disclosure in the specific context for which the index was devised. Extant indices can be categorised according to whether the index items are weighted or unweighted and whether the items are evaluated dichotomously or according to the quality of individual disclosures* (Coy et al., 1993, p.112).

Coy and Dixon (2004) state that a disclosure index is a single-figure ratio that is widely used by accounting researchers to identify a disclosure level reflecting the entire content of annual reports or a certain aspect under investigation such as social and environmental reporting or risk reporting. Similarly, Marston and Shrives (1991) believe that a disclosure index is a useful research instrument and a sign of its usefulness is its continuous usage

by accounting researchers for more than four decades since the work of Cerf (1961). Therefore, the disclosure index continues to be employed by researchers since disclosure in annual reports remains a focus of accounting research.

A disclosure index has some advantages; it is a simple well understood proxy for disclosure; also it could be used in the performance evaluation of preparers (Coy et al., 1993). In addition, it assists in comparing the extent of disclosure of different companies (Wallace, 1988). In constructing a disclosure index, a researcher has to take decisions regarding:

- Whether the index measures quantity or quality of disclosure.
- The nature of information and items selection.
- A scoring scheme.
- A weighted versus an unweighted index.
- Non-applicable information items.
- Calculating the index.

All these points will be discussed in turn in the next sub-sections.

6.5.2.1.1 Quantity versus Quality

An important question has been raised by accounting researchers regarding whether the disclosure index measures quantity or quality of disclosure. Buzby (1974a) indicates that the definition of adequate disclosure should cover form, content and amount of information in annual reports besides the qualitative characteristics that accounting information should meet. This means that adequate disclosure in annual reports depends mainly on both quality and quantity of information (Owusu-Ansah, 1998). Several researchers argue that disclosure quality is measurable (Beretta and Bozzolan, 2004; Hail, 2002; Sengupta, 1998). However, measuring disclosure quality is a hard task due to the lack of a definition for 'disclosure quality' and because of the non-affordable cost of measuring quality (Botosan, 2004). Measuring disclosure quality requires a complex set of subjective judgements which impair measurement validity (Woods and Reber, 2003). In addition, the need for extensive data and extravagant assessment contributes to the complexity of measuring disclosure quality (Shevlin, 2004). Botosan (2004, p.290) states that:

> *All disclosure measurement frameworks designed to date ... ultimately rest upon mere counts of disclosure items and the mentioned hypothesis that*

quantity and quality are positively related ...disclosure quality is inherently immeasurable.

Marston and Shrives (1991) assert that a disclosure index is merely an instrument to measure the quantity of disclosure but not necessarily the quality of disclosure while Core (2001) indicates that enhanced measures of disclosure quality should be developed. This study aims to measure the extent of mandatory risk reporting in financial statements of Egyptian companies and hence it identifies the quantity of disclosure rather than the quality of disclosure.

6.5.2.1.2 Nature of Information and Items Selection

Accounting researchers employ the disclosure index in order to measure the level of disclosure in companies' annual reports. The purpose of the study has a great impact on the nature of items to be included in the index as well as item selection procedures (Marston and Shrives, 1991). Items to be included in a disclosure index could be classified, according to their nature, as mandatory, voluntary and aggregate (a mix of mandatory and voluntary) items. A disclosure index which contains only mandatory items aims to measure the degree of compliance with compulsory disclosure requirements (Owusu-Ansah, 2000; Wallace et al., 1994) while a disclosure index which contains only voluntary items aims to measure the level of voluntary disclosure (Chow and Wong-Boren, 1987; Cooke, 1989a; Depoers, 2000; Hossain et al., 1994; Hossain et al., 1995). Finally, a disclosure index which contains both mandatory and voluntary items aims to measure the aggregate level of disclosure (Cooke, 1993).

With respect to items selection procedure, Marston and Shrives (1991 and 1996) argue that there are many approaches that could be used to determine relevant items that should be included in a disclosure index such as reviewing relevant literature, list of best practices derived from a survey of companies' annual reports, international or national accounting standards, legal requirements or using a disclosure checklist that was previously constructed by other researchers. In addition, researchers are likely to seek the opinions of users of annual reports to derive items to be included in the index (Coy and Dixon, 2004).

This study's disclosure index comprises mandatory disclosure items only in order to measure the degree of compliance with mandatory risk disclosure requirements based on EAS 25 and 33. Using accounting standards in constructing the index will maintain

content and construct validity through eliminating subjectivity in choosing disclosure items.

Regarding the number of items in a disclosure index, there is no general theory to determine the number of items to be included (Wallace et al., 1994; Wallace and Naser, 1995). Moreover, there is no empirical evidence to support the view that a disclosure index with fewer items is less favourable than a disclosure index with more items (Marston and Robson, 1997). The number of items in a disclosure index varies among studies. However, the number of items to be included in a disclosure index is not a problematic issue in this study since it is completely based on the requirements of EAS 25 and 33.

6.5.2.1.3 Scoring Scheme

Accounting literature indicates that accounting researchers have applied a number of different scoring schemes in measuring the extent of disclosure (Hossain et al., 1994). Scoring schemes can take a number of different forms such as nominal scores which are used to measure the level of disclosure by exploring disclosure or non-disclosure of an information item or ordinal score to capture the degree of detail in disclosing an information item (Beattie et al., 2004).

Researchers have used simple dichotomous (nominal) scoring schemes to account for the presence or absence of an information item (Beattie et al., 2004). This means that disclosure is transferred to a binary variable, whether a certain item is disclosed or not disclosed (Wallace, 1988). Consequently, this scoring scheme awards the item a score of one if it is reported and zero if it is not reported (Abd-Elsalam and Weetman, 2003; Ahmed and Nicholls, 1994; Cooke, 1993).

Alternatively, other researchers have proposed a scoring scheme that awards points according to the degree of specificity in disclosed information in order to take into consideration qualitative aspects of disclosure. For example, Copeland and Fredericks (1968) proposed an index for measuring the extent of disclosure based on the particular descriptive information in annual reports. Similar to the approach adopted by Copeland and Fredericks (1968), Buzby (1974b) proposed a disclosure index which assigns a score according to the extent of detail in reporting information in annual reports. For certain information items, Buzby (1974b) provides a full score if it was disclosed in detail while a half score was awarded if it was disclosed in summary. Wallace et al. (1994) and Wallace and Naser (1995) proposed a scoring scheme which aimed to reward the depth of

information reported in annual reports through giving extra weight to density of disclosure. According to this approach, companies are given an extra score if they provide more disaggregated information or more explanation which increases users' understanding of accounting information. Therefore, companies will obtain scores based on how words improve the understandability of accounting numbers. However, this approach can be criticised on the grounds that it contains a high degree of subjectivity since the scoring process depends on the coder's perception regarding the ability of qualitative information to improve the understandability of quantitative information.

This study will use a dichotomous scoring scheme because it is less subjective than other approaches. In addition, in terms of research objectives, this approach is more appropriate because it assists in measuring compliance with mandatory risk reporting. This means that the key focus is whether a certain company complies (discloses) or does not comply (fails to disclose) mandatory risk-related information rather than assessing the quality of that disclosure.

6.5.2.1.4 Weighted versus Unweighted Index

One of the essential issues that a researcher has to take into consideration in constructing a disclosure index is determining whether some items in the index should be assigned a higher weight than others (Patton and Zelenka, 1997). In terms of the relative importance of information items, two distinctive approaches have emerged, namely the unweighted and weighted disclosure indices.

In an unweighted disclosure index, each information item is given equal weight (Akhtaruddin, 2005; Owusu-Ansah, 2000; Wallace et al., 1994). Therefore, this approach overlooks the relative importance of each information item to different group of users (Owusu-Ansah, 2000). In addition, an unweighted disclosure index fails to differentiate between poor and excellent disclosure (Coy et al., 1993). However, an unweighted disclosure index does facilitate independent analysis without relying on the perceptions of a particular user group (Chow and Wong-Boren, 1987). Furthermore, it removes the need for judgement concerning the relative importance of each information item (Owusu-Ansah, 2000). Besides, it permits the investigation of disclosure extent in a 'general purpose' context since all information items are considered as equally important to the 'average' user (Wallace, 1988). An unweighted index is a useful instrument when the research focus is directed at all users of annual reports and not limited to a specific group of users (Cooke, 1989a). Finally, assigning different weights by different user

groups to each information item may 'neutralise' the weights of each information item among all user groups (Wallace, 1988).

Alternatively, a weighted index acknowledges the relative importance of individual items of information to different groups of users (Inchausti, 1997). Different groups of users may tend to assign varying degrees of importance to different information items (Marston and Shrives, 1991). As Cooke (1989a, p.115) stated 'clearly one class of user will attach different weights to an item than another class of user'.

Researchers may use different ways to derive weights (Ahmed and Nicholls, 1994; Chavent et al., 2006; Wallace et al., 1994). Weights may be determined arbitrarily by researchers (Cerf, 1961; Singhvi and Desai, 1971), weights previously used in other studies may be used (Barrett 1977) or average weights derived from attitude surveys of users' perceptions regarding the importance of each information item (Buzby, 1975; Stanga, 1976; McNally et al., 1982; Inchausti, 1997).

Using weights may bring many potential problems. Weights may not reflect actual use of information since they are derived from a survey which is not a real economic situation (Chow and Wong-Boren, 1987). Attaching weights may favour certain user groups and consequently provide a further source of subjectivity in constructing a disclosure index (Marston and Shrives, 1996). Moreover, assigning weights through a scaling instrument is misleading because the relative importance of each information item varies according to several factors such as transaction/event, company, industry, and time of study (Wallace, 1989). Finally, empirical research (Adhikari and Tondkar, 1992; Chow and Wong-Boren, 1987; Prencipe, 2004; Robbins and Austin, 1986) indicates that weighted and unweighted indices provide non-significant differences in their results. Consequently, the use of an unweighted index has become a pattern in disclosure studies because it decreases subjectivity in the scoring process (Ahmed and Courtis, 1999) and the bias resulting from using an unweighted index is lower than that of a weighted index (Marston and Shrives, 1991).

Based on the previous discussion, this study will employ an unweighted index because its focus is not directed at a particular group of users and all information items have the same relative importance.

6.5.2.1.5 Non-applicable Items

Another issue that a researcher should take into consideration in constructing a disclosure index is whether unreported information items are irrelevant or non-applicable

to a certain company in the sample or not (Owusu-Ansah, 2000). It is crucial in awarding scores to different companies to make a clear distinction between the absence of and non-disclosure of a certain information item (Inchausti, 1997). Failure to consider non-applicable information items will result in penalising a particular company during the scoring process by awarding that company a score of zero for a non-applicable item which is not expected to be disclosed (Ali et al., 2004) which in turn may favour larger and more diversified companies compared to small and less diversified companies (Cooke, 1991; Street and Bryant, 2000).

In order to minimise the bias that may result from penalising companies for irrelevant information items, this study will apply the approach proposed by Cooke (1989a) who recommends that the entire annual report should be first read before making any judgement regarding irrelevant items. The main advantage of this approach is to permit the coder to identify the nature and complexity of each company's activities before making an informed judgement regarding these items (Ali et al., 2004). This approach has been widely followed by several studies (Ahmed, 1996; Ahmed and Nicholls, 1994; Ali et al., 2004; Cooke, 1993; Hossain et al., 1994; Owusu-Ansah, 1998) and will be applied in this study.

6.5.2.1.6 Calculating the Index

In calculating the level of compliance with mandatory risk reporting requirements, this study will employ an additive, dichotomous, unweighted relative index which has been previously used by several researchers (Ahmed, 1996; Cooke, 1989a; Raffournier, 1995; Street and Bryant, 2000). A relative index is expressed as a ratio of computed actual scores obtained by a company to maximum scores that a company can be expected to obtain (Ahmed and Nicholls, 1994; Ali et al., 2004; Wallace, 1988). The main advantage of a relative disclosure index is that it addresses the problem of non-applicable items (Ahmed, 1996) when information items do not apply equally to different companies in the sample (Moore and Buzby, 1972; Owusu-Ansah, 2000). Therefore, companies are not penalised for non-disclosure of non-applicable information items (Marston and Shrives, 1991). To be more precise, a disclosure index is operationally expressed as (number of items disclosed)/(number of items disclosed + number of items not disclosed) (Patton and Zelenka, 1997). This means that under a dichotomous scoring scheme, a company is awarded one for disclosure and zero for non-disclosure while the non-applicable item will be omitted from both numerator and denominator of the

disclosure index (Abd-Elsalam and Weetman, 2003). Following Owusu-Ansah (2000), the relative mandatory risk reporting index (MRRI) is expressed as following:

$$MRRI_{ij} = \sum_{i=1}^{n_j} d_{ij} \; / \sum_{i=1}^{m_j} d_{ij}$$

where:

d_{ij} = disclosure value of i item of information required of j sample company. It is one if it is disclosed or zero if it is not disclosed.

m_j = number of mandated information items applicable to, and are expected to be disclosed by, the j sample company where m_j= total number of information items.

n_j = number of mandated information items applicable to and are actually disclosed by the j sample company.

6.5.2.2 Content Analysis

The second method in the semi-objective approach is content analysis. Content analysis is a research method that has been extensively used in social science generally and social and environmental disclosure studies particularly. Content analysis is defined as 'a research technique for the objective, systematic and quantitative description of the manifest content of communication' (Berelson, 1952, p.18). Moreover, content analysis is:

> *a summarising, quantitative analysis of messages that relies on the scientific method (including attention to objectivity-intersubjectivity, a priori design, reliability, validity, generalisability, replicability and hypothesis testing) and is not limited as to the types of variables that may be measured or the context in which the messages are created or presented* (Neuendorf, 2002, p.10).

These definitions highlight the underlying concepts in quantitative content analysis such as systematic procedures, objectivity through coding manifest rather than latent content and measurement reliability and validity. Systematic investigation means that coding procedures and rules are consistently applied in order to reduce the coders' bias to the minimum while the design of adequate classification categories, coding rules and focusing on manifest content enhances objectivity (Bryman and Bell, 2003). The appropriate and comprehensive design of classification categories and coding instructions are basic prerequisites for achieving objectivity (Wimmer and Dominick,

2000). Potter and Levine-Donnerstein (1999, p.265) conclude that 'objectivity is a reasonable expectation with ... coding manifest content'.

Quantitative content analysis is a reduction process that aims to code a large number of coding units such as words, sentences or paragraphs in a very small number of categories (Weber, 1990) with an objective to achieve statistical analysis rather than express any impression regarding a message (Neuendorf, 2002).

Quantitative content analysis has several merits. It is a non-obtrusive and non-reactive research method that assists in establishing a manageable set of data without the need to get access to the message sender (Riffe et al., 2005). It is a very transparent and flexible technique that can be used in different research situations (Bryman and Bell, 2003). Moreover, content analysis is a preferable method in cases where other data collection methods may result in biased responses (Kolbe and Burnett, 1991). Content analysis is a safe method that provides the chance to add coded categories, correct mistakes and include missing data (Woodrum, 1984).

However, quantitative content analysis limits the analysis to manifest content only while latent content may be important (Brewerton and Millward, 2001; Riffe et al., 2005). Furthermore, it focuses only on recorded communications (Babbie, 1998). Finally, content analysis is a time consuming and costly research method (Wimmer and Dominick, 2000).

It has been previously highlighted that systematic examination is a core character of content analysis. Systematic examination emphasises the importance of a well established coding scheme that clearly identifies categories as well as rules used in the classification process. Three important pillars of the coding scheme should be well defined, namely coding unit, classification scheme and coding instructions. A detailed presentation of these is provided in the following subsections.

6.5.2.2.1 Unit of Coding

Unit of coding is the basic part of the collected data that could be meaningfully assessed (Boyatzis, 1998). Measurement in content analysis depends on counting the occurrence of coding units (Weber, 1990) which may reflect the importance of a topic to the reporting entity (Gray et al., 1995b). Researchers have employed a variety of coding units including word, sentence, portion of page and paragraph. Words have been extensively used as a coding unit because word coding is a simple process compared to other units of coding (Brewerton and Millward, 2001) and it permits searching for certain words in

the text (Gray et al., 1995b). However, separate words have no meaning except in a sentence format (Milne and Adler, 1999). Moreover, determining the meaning of a word in certain circumstances is a problematic issue which may result in a severe disagreement between coders (Hackston and Milne, 1996) because the meaning of a word depends on its context (Brewerton and Millward 2001). Using a paragraph as a unit of coding suffers from complexity (Frankfort-Nachmias and Nachmias, 1996). Ng (1985 cited in Hackston and Milne, 1996, p.84) criticises the use of portions of pages as coding units because there is a wide range of print, column and page size used in preparing annual reports which may threaten comparability of the annual reports and may result in biased measures.

Finally, using a sentence as a coding unit is justified on the basis that it results in more reliable inter-coder reliability[1] measures compared to other units of coding such as words and removes the need to account for, or standardise, the number of words (Hackston and Milne, 1996). The main advantage of sentences is that they can be counted more accurately than other coding units (Tsang, 1998). Milne and Adler (1999, p.243) support the use of the sentence as a coding and measurement unit because 'using sentences for both coding and measurement seems likely, therefore, to provide complete, reliable and meaningful data for further analysis'. Hackston and Milne (1996, p.86) argue that there is no need to standardise for the length of the annual reports because 'there is no restriction on the number of pages an annual report can include and, if companies consider additional disclosure is sufficiently important, it is believed they will include extra pages in the report'.

Consequently, based on the previous discussion, this study will use the sentence approach as a coding and measurement unit. This approach has been used by several risk disclosure studies (Amran et al., 2009; Kajüter, 2006; Konishi and Ali, 2007; Linsley and Shrives, 2006; Woods and Reber 2003), intellectual capital disclosure studies (Abeysekera and Guthrie, 2005; Bozzolan et al., 2003; Cerbioni and Parbonetti, 2007) and social and environmental disclosure studies (Tsang, 1998; Williams, 1999).

6.5.2.2.2 Classification Scheme

The systematic examination offered by content analysis highlights the importance of categories because the findings are based on categories' validity. Berelson (1952, p.147) emphasises the importance of developing categories in content analysis by stating that:

[1] Inter-coder reliability refers to levels of agreement among independent coders who code the same content using the same coding instrument (Wimmer and Dominick, 2000, p.150).

Content analysis stands or falls by its categories. Particular studies have been productive to the extent that the categories were clearly formulated and well adapted to the problem and to the content. Content analysis studies done on a hit-or-miss basis, without clearly formulated problems for investigation and with vaguely drawn or poorly articulated categories, are almost certain to be indifferent or low quality, as research productions.

In order to support measurement reliability and validity and appropriate data analysis, many authors suggest that categories in the classification scheme should meet certain conditions (Brewerton and Millward, 2001; Holsti, 1969; Neuendorf, 2002; Riffe et al., 2005):

- Categories should reflect the research purpose.
- Categories should be mutually exclusive; this means that coding units cannot be placed in more than one category or subcategory.
- Categories should be exhaustive; categories should be appropriately designed to capture all coding units; therefore each unit coding is placed in a relevant category.
- Categories should be independent; placing of any coding unit does not depend on other units of coding.
- Each category should have a separate rule for classifying coding units.

There are two distinct approaches in developing categories or themes in content analysis. These approaches are theory/prior research-driven approach and inductive approach (Boyatzis, 1998). The main advantage of the former approach is its support for measurement validity through guiding researchers to focus only on particular categories and assisting researchers in constructing appropriate coding rules that should be used in categories' identification and the codification process (Potter and Levine-Donnerstein, 1999).

In seeking to measure the amount of risk reporting, it is therefore helpful to classify risks into categories that allow for cross-sector comparisons of risk reporting (Woods and Reber, 2003). This study will follow a prior research-driven approach because there are a reasonable number of disclosure studies that used relevant categories which can be used in data analysis purposes. This study will depend on a model suggested by ICAEW (1997) and used by prior risk reporting studies (Amran et al., 2009; Konishi and Ali, 2007; Linsley and Shrives, 2006; Woods and Reber, 2003). In addition, this study will depend on risk categories proposed by German Accounting Standard 5 (exposure draft) because

it is the only accounting standard that addresses risk reporting in a comprehensive manner (GASB 2000). Appendix 1.A presents risk categories used in this study to classify risk reporting.

6.5.2.2.3 Coding Instructions

The other important pillar in the coding scheme is coding instructions. The coding instruction is 'a statement of instructions to coders that specifies the categories that will be used to classify the text based on a set of written rules that define how the text will be classified. The coding ... enables the message content to be coded in a consistent matter' (Bryman and Bell, 2003, p.202). This definition emphasises the role of coding instructions in enhancing inter-coder reliability by shaping clear rules that assist coders to consistently code the texts.

Caution should be exercised in establishing clear and precise coding instructions because coding instructions should be written in enough detail to efficiently guide coders during the coding process. However, more detailed coding instructions may cause difficulties in the coding process (Riffe et al., 2005). The aim is to create a balanced set of coding instructions. This study will depend on coding instructions proposed by Shrives and Linsley (2003b) Linsley and Shrives (2006) and used by Konishi and Ali (2007) and Amran et al. (2009) as a basis for the coding instructions of this research (see Appendix 1.B).

6.5.2.3 Measurement Validity

Measurement validity is one of the most important characteristics of quantitative research. Neuendorf (2002, p.112) summarises the essence of validity by stating that 'validity is the extent to which a measuring procedure represents the intended, and only the intended, concept. In thinking about validity, we ask the question, are we measuring what we want to measure?'. In a semi-objective approach, a clear distinction is made between face and content validity. Face validity refers to 'the correspondence between investigators' definition of concepts and their definitions of the categories that measured them. A category has face validity to the extent that it appears to measure the construct it is intended to measure' (Weber, 1990, p.12). In other words, face validity refers to the extent to which a measure appears to plausibly capture the concept under investigation (Babbie, 1998). On the other hand, content validity is the extent to which a measure captures all the features of the concept under examination (Neuendorf, 2002). In quantitative research, careful constructions and systematic and standardised

administration of the measurement instrument are important steps in achieving measurement validity (Patton, 1990).

In order to achieve both face and content validity and therefore measurement validity, two basic steps are recommended. The first step is establishing a well designed coding scheme (classification scheme and coding instructions) that guides coders in the coding process (Potter and Levine-Donnerstein, 1999). The second step is getting some reviews for the coding scheme by some experts in the field of study (Neuendorf, 2002; Bryman and Bell, 2003). The study follows these two steps in establishing both face and content validity.

Firstly, this study, as previously highlighted, depends on risk categories that have been previously used by a number of academic researchers in constructing categories used in coding voluntary risk reporting. Furthermore, this research depends on EAS 25 and 33 in constructing disclosure index for measuring compliance with mandatory risk reporting. Secondly, the coding scheme has been reviewed by two independent auditors and academics (hereafter referred to as the reviewers) who have the essential and also immense experience in the field of financial reporting. Asking those reviewers to examine the categories and coding instructions ensures the validity of the coding scheme. Regarding the disclosure index of mandatory risk reporting, a preliminary disclosure checklist based on EAS 25 and 33 has been prepared. In addition, this list has been benchmarked against the disclosure checklist of KPMG and Ernst & Young to ensure inclusion of any relevant disclosure item. The reviewers examined the indices and removed some items because they believed that these items will not be disclosed by all or at least by the majority of Egyptian companies (Hassan, 2009). They removed fair values, hedging activities, collateral and derecognition disclosure from the check list of EAS 25 and removed items such as inter-segment transfers, changes in accounting policies and entity share of the net profit (loss) of associates, joint ventures or other investments accounted for under the equity methods from the check list of EAS 33. Appendix 2 presents the final disclosure index of EAS 25 and 33. Regarding the voluntary risk reporting, the reviewers checked the categories to be used in this study and confirmed its suitability to be employed in coding voluntary risk reporting in the annual reports of Egyptian companies.

6.5.2.4 Measurement Reliability

Reliability is the other important criterion by which the quality of a certain research can be judged. Establishing reliability is not an easy process because it depends on the amount of training, definition of categories and complexity of the coding scheme (Bauer, 2000).

In the context of a semi-objective approach, Krippendorff (2004) identifies three types of reliability: stability, reproducibility and accuracy. Stability refers to the extent to which coding the text by only one coder will result in a similar result over time. Reproducibility or inter-coder reliability refers to the extent to which replicating coding procedures by more than one coder will bring about the same results. Finally, accuracy refers to the extent to which coding procedures result in the desired outcomes through assessing the coder's judgement in accordance with a certain standard or norm. The assessment of these types of reliability requires different procedures; for example, measuring stability requires test re-test procedures, measuring reproducibility requires assessing the proportion of coding errors between different coders while measuring accuracy requires the existence of a predefined standard (Milne and Adler, 1999). Weber (1990) argues that stability is the weakest form of reliability since only one coder codes all the texts while accuracy is the strongest form of reliability but it is difficult to measure due to the absence of predefined standards or norms. Consequently, reproducibility is quite often used in assessing reliability.

Reliability in content analysis covers two key issues, namely reliability of coded data and reliability of coding instruments. In order to confirm the reliability of coded data, researchers tend to employ multiple coders to code the same texts and report the coefficient of agreement between them or use a single coder with sufficient training. In order to demonstrate the reliability of coding instruments, researchers tend to establish well-defined coding categories and decision rules (Milne and Adler, 1999).

Taking into account that the annual reports under examination are written in Arabic besides the availability of well-specified coding categories and decision rules (Konishi and Ali, 2007; Linsley and Shrives, 2006; Shrives and Linsley, 2003b; Woods and Reber, 2003), the coding process in this study will be conducted by a single coder. The main advantage of employing a single coder is ensuring consistency of the coding process (Haniffa and Cooke, 2002 and 2005; Laidroo, 2009). According to Milne and Adler (1999), well-specified coding categories and decision rules will lead to little inconsistency

when used by relatively inexperienced coders and hence reduce the need for expensive use of multiple coders. Following Ghazali and Weetman (2006), a second round of coding for a sample of the annual reports was done after completing the first round to ensure consistency and there are non-significant differences between the coding in the two rounds. An illustration of the coding process is presented in Appendix 3.

6.5.2.5 Population and Sample

In 2006, a total of 407 companies are listed and traded on the EGX and comprise the initial population for this study. Fifty six financial companies such as banks and insurance companies are excluded since they operate under different regulations. In addition another company operating in the media sector is excluded due to data unavailability. The final population for the year 2006 consists of 350 non-financial companies. Following the same procedure, the population for the year 2007 consists of 288 non-financial companies (see Table 6.3).

Table 6.3: Summary of Population

	2006	2007
Total of listed companies	595	435
Non-traded companies	(188)	(98)
Listed and traded companies	407	337
Financial companies	(56)	(48)
Media companies	(1)	(1)
Non-financial companies	350	288

The quantitative approach tends to use probability sampling in which every individual unit in the population has a known, but not necessarily equal, chance to be randomly selected in the sample (Burgess, 1982; Ritchie et al., 2003). Therefore, the sampling process is predetermined and collecting data starts as soon as units are chosen (Arber, 2001). The main aim of probability sampling is obtaining a representative sample that facilitates statistical inference from sample statistics to population parameters (Patton, 1990). Consequently, probability sampling is usually appropriate for testing-hypotheses research (Ritchie et al., 2003). Probability sampling includes simple random sample, systematic sampling, stratified sampling, multistage sampling and cluster sampling.

Stratified random sampling aims to produce a more representative and accurate sample compared to simple random sampling by confirming that various groups in the population are represented in the sample and therefore avoids the over-sampling or under-sampling that may take place in simple random sampling (De Vaus, 2002; Frankfort-Nachmias and Nachmias, 1996; Riffe et al., 2005). Stratified sampling design has three stages. Firstly, the population is divided into relatively homogenous sub-groups

which are called strata. Secondly, within each stratum, sampling units are randomly selected. Finally, the sampling units from all strata are pooled to form the sample (Corbetta, 2003; Remenyi et al., 1998). This approach has been followed by Haniffa and Cooke (2005) and Holder-Webb et al. (2008). In this study, the strata are identified according to the EGX's sectors classification that classifies listed companies into 17 sectors. This means that all different sectors, except banks, financial services and media, are represented in the sample.

Determining the sample size is influenced by two important factors: the degree of accuracy and the extent of variation in the key characteristics of the population (De Vaus, 2002). This study will apply the following formula to determine the sample size that takes into account these two factors (Corbetta, 2003; Saunders et al., 2007)[1]:

$$S = \frac{P(1-P)}{\frac{A^2}{Z^2} + \frac{P(1-P)}{N}}$$

where:

S = Sample size required.

N = Number of elements in population.

P = Preliminary estimate of percentage of companies in population who possess the attribute of interest.

A = Accuracy desired (for example 5%).

Z = number of standard deviations of the sampling distribution (Z units) that correspond to the desired confidence level (1.96 for 95% confidence level and 1.64 for 90% confidence level).

To run this formula, a researcher should deduce the value of P. Saunders et al. (2007) propose the inferring of P from a pilot sample of about 30 observations. This approach has been followed by Samaha and Stapleton (2008). In this study, the attribute of interest for the sampling process a company should be traded at least for the last 4 years, 30 companies are drawn randomly, of them 27 companies meet the criteria therefore P= 90%. Using the following parameters, P= 90%, Z= 1.96, A= 0.05 and N= 350, the sample consists of 101 companies. However, it is intended to increase the sample size by 5%. Therefore, the final sample consists of 106 non-financial companies (see Appendix

[1] This formula was developed and published by the American National Education Association in 1960. Also some research methodology books publish tables for determining sample size for a given population based on this formula (see for example Cohen et al., 2000, p.94 and Sarantakos, 2005, p.173).

4). Due to data availability, only 67 and 72 board of directors' reports were available for the years 2006 and 2007 respectively (see Table 6.4).

Table 6.4: Summary of Collected Financial Statements and Board of Directors Reports

Year	Financial Statements	Board of Directors Reports
2006	106	63
2007	106	72

Due to data availability and difficulties of data collection discussed in section 6.5.1, it seems that disclosure studies in Egypt tend to use a relatively small sample size. Table 6.5 presents a summary of sample size for some disclosure studies.

Table 6.5: Summary of Sample Size for Some Disclosure Studies in Egypt

Study	Sample Size	Population	Percentage of Sample Size
Dahawy and Conover (2002)	15	503	3%
Abd-Elsalam and Weetman (2003)	72	746	9.6%
Samaha and Stapleton (2008)	281	934	30%

This study uses a reasonable sample size compared to other disclosure studies in the Egyptian context as it represents 30.3% and 36.8% of the population in 2006 and 2007 respectively.

6.5.2.6 Location of Risk Information

Although there are a number of diverse channels that a company may use to communicate financial information including annual reports, media and press releases, communications with analysts, companies' websites, newsletter advertisements and announcements and booklets and brochures (Marston and Robson, 1997; Zéghal and Ahmed, 1990), this study will focus only on measuring the level and the amount of mandatory and voluntary risk reporting in annual reports for several reasons. First, annual reports are the major and most important source of information that a company may use to disseminate financial information to diverse user groups including investors, creditors, financial analysts, government agencies and other stakeholders (Deegan and Rankin, 1997; Hossain et al., 1994; Neu et al., 1998; Singleton and Globerman, 2002). Second, it is difficult to construct a measurement instrument such as a disclosure index that captures information disclosed in all various communications channels (Marston and Robson, 1997). Third, empirical evidence provides support for the superiority of annual reports as a major source of information. Chang et al. (1983) investigate the usefulness of annual reports for three user groups; namely individuals, institutional investors and financial analysts from three countries, the US, the UK and New Zealand. The results regarding the importance of annual reports as a source of information indicate that both

individual investors and financial analysts in the US and New Zealand and institutional investors across the three countries rank annual reports as the most important source of information for investment decisions. More recently, empirical evidence from the Middle East region has given similar results. Abu-Nassar and Rutherford (1996), Al-Razeen and Karbhari (2004a) and Mirshekary and Saudagaran (2005) investigate user groups' perception of corporate financial information sources in Jordan, Saudi Arabia and Iran respectively, and they point out that different user groups consider annual reports as the most important source of information. Mirshekary and Saudagaran (2005) argue that this result is instructive and applicable to other countries in the Middle East region due to the similarity in their social, political and economic environment.

Although there is increasing use of internet reporting as a vehicle to disseminate accounting information to a wide range of users (Marston and Polei, 2004), empirical research presents evidence of the low usage of internet reporting by Egyptian companies. Salama (2009) examines internet reporting of social responsibility disclosure by the 50 most active Egyptian listed companies. His final sample consisted of 16 companies since he excludes 34 companies for different reasons such as companies without websites and companies with websites under construction. In the same vein, Aly et al. (2010) examine internet reporting of the 100 most active listed companies. They exclude 36 companies with web sites under construction and two insurance companies. Their final sample consisted of 62 companies, of them only 35 companies that report voluntary disclosures on their websites.

6.5.2.7 Statistical Tests

This section introduces statistical techniques used in data analysis and testing research hypotheses. From a statistical point of view, data can be classified regarding the level of measurement it represents into four groups, namely nominal (categorical) scale, ordinal scale, interval scale and ratio scale (Sheskin, 2004). The first two groups are called nonparametric data and the last two groups are called parametric data and this classification has a significant impact on what data can represent and how data could be analysed (Hair et al., 2006). This section discusses univariate, bivariate and multivariate statistical tests, related assumptions and measures used to test the assumptions of multiple linear regression.

6.5.2.7.1 Univariate Analysis

Many researchers emphasise the importance of exploring the data as a first and essential step in statistical analysis (Bryman and Cramer, 2005). It is important to understand the nature of the distribution shape of the variables under examination (Hair et al., 2006). Therefore, it is recommended that statistical analysis should begin with descriptive statistics and graphs (Myers and Well, 2003) such as location, dispersion measures and distribution shape (Barrow, 2006). These descriptive statistics include mean, standard deviation, range, skewness and kurtosis measures while graphs include boxplot, histogram, and normal probability plot. These descriptive statistics and graphs will assist in examining individual variables using a set of complementary methods, gaining a reasonable idea regarding the precise form of data distribution and assessing normality assumption (Hair et al., 2006). In addition, these descriptive statistics and graphs provide an in-depth examination of the data and hence assist in discovering any potential problems that may have a negative impact on statistical analysis (Myers and Well, 2003).

6.5.2.7.2 Bivariate Analysis

In bivariate analysis, the main concern is studying the relationship or differences between a pair of variables. For testing association between variables, Pearson's product moment correlation coefficient, the r coefficient, which is designed for interval/ratio scale or Spearman's coefficient of rank correlation, the rho coefficient, which is designed for ordinal scale could be used. The use of these two tests depends on satisfying certain assumptions regarding the distribution of the variables. Regardless of which test is employed, the coefficient of correlation produces a value between -1 and +1 where -1 means perfect negative association, +1 means perfect positive association and zero means no relationship between the two variables. However, it is recommended to examine a scatterplot of the relationship between variables before computing the coefficient of correlation because a scatterplot is a powerful diagnostic tool for any non-linear relationship between variables. Scatterplot assists in discovering the direction, strength of the relationship and whether the relationship is linear or not. If the relationship between the variables is nonlinear the use of the Pearson product moment correlation coefficient is inappropriate and yields meaningless results and it is preferable to use the Spearman coefficient of rank correlation (Bryman and Cramer, 2006; Peers, 2006). Moreover, Myers and Well (2003) argue that Spearman's rho coefficient is more resistant than Pearson's r coefficient because it eliminates the importance of extreme values.

In order to examine the differences between variables in independent samples, the t-test (parametric test) or the Mann-Whitney test (non-parametric test) could be used while the t-test or the Wilcoxon Signed ranks test could be employed for related samples. The choice between these tests depends on satisfying several assumptions regarding the distribution of the data such as normality and homogeneity of variance assumptions. Hair et al. (2006) indicate that the aforementioned univariate and bivariate techniques will assist in:

- Attaining basic understanding of the data and relationships between variables.
- Ensuring whether the data satisfy the requirement of multivariate analysis.
- Ensuring that the results of statistical analysis are valid and accurate.

6.5.2.7.3 Multivariate Analysis

Multivariate analysis is a group of statistical methods that simultaneously analyse multiple measurements on the variables under examination (Hair et al., 2006). One of the most widely used multivariate techniques in social science is multiple regression. Multiple regression is a statistical method for simultaneous examination of the relationships between a set of independent variables (predictors) and a single dependent variable (response) (Dewberry, 2004; Landau and Everitt, 2004). Therefore, multiple regression assists in investigating the impact of certain independent variables on the dependent variable while controlling for other independent variables (Allison, 1999).

The dependent variable should be a quantitative continuous unbounded variable (Field, 2005) and the independent variable(s) should be quantitative or categorical variables. Categorical independent variable(s) could be transformed to a set of dichotomous variables by employing dummy variable coding. The rule for transforming categorical variables is that K of categories should be represented by K-1 dummy variables to avoid perfect multicolinearity (Allison, 1999; Ho, 2006). Multiple regression technique is based on basic assumptions (Field, 2005, Hair et al., 2006; Ho, 2006):

1. Linearity which refers to a linear relationship between dependent and independent variables.
2. Normality which implies that the residuals (error term) are normally distributed with a mean of zero and a common variance of σ^2.
3. Homoscedasticity which refers to equal variance of residuals. This means that the variability of residuals at one value of the independent variable is approximately the same at other levels of the independent variable.

Checking the aforementioned assumptions and satisfying them is a crucial step in the data analysis process because the validity of multiple regression results depends strongly on meeting those assumptions (Allison, 1999). For example, the violation of the normality or the homoscedasticity assumption will result in invalid, too stringent or too insensitive, hypotheses tests while the violation of the linearity assumption may underestimate the actual strength of the relationship between variables (Hair et al., 2006).

In order to test and check multiple regression assumptions, it is recommended to employ a plot of standardised residuals against the standardised predicted value, histogram and normal probability plot of the residuals to check the assumptions 1 to 3 (Field, 2005). In addition, Ramsey's RESET Test will be used to test the functional form of a regression model. This test aims to capture any non-linearity in the regression model by introducing different forms of predicted values of dependent variable as regressors and test whether the increase in R^2 is statistically significant. The null hypothesis of this test is a correct linear specification of the regression function and rejecting the null hypothesis indicates a misspecification of a linear function (Gujarati, 2003; Heij et al., 2004; Verbeek, 2004). Furthermore, the Breusch-Pagan test and Cook-Weisberg tests will be used to test the homoscedasticity assumption. The null hypothesis of these two tests is a constant variance and rejecting the null hypothesis indicates a violation of the homogeneity assumption. The Ramsey's RESET Test, the Breusch-Pagan test and the Cook-Weisberg are available in STATA software.

Statisticians recommend data transformation to mitigate problems arising from the violation of the basic assumptions of multiple linear regression (Allison, 1999; Chatterjee and Hadi, 2006). Data transformation assists in satisfying the underlying assumptions of multivariate techniques and improving the correlation between variables (Hair et al., 2006). Data transformation includes using logarithms, logit, inverse, square root, cubed and squared approaches.

In addition, collinearity is an important issue that should be examined carefully in multiple linear regression. Collinearity is a matter of the extent not existence of a problem (Gujarati, 2003). Collinearity refers to high correlation between two or more independent variables in the multiple regression model (Hair et al., 2006). Due to collinearity, a certain independent variable may explain relatively little variance of the dependent variable because the independent variable shares much of its variance with other independent variables (Dewberry, 2004) and this diminishes the predictive power

of independent variables (Hair et al., 2006). Traditionally, collinearity could be checked by examining a correlation matrix of all independent variables for any highly correlated independent variables. It is suggested that a correlation of 0.8 or more may be a matter for concern (Field, 2005; Gujarati, 2003). The main disadvantage of this simple method is the possibility that the bivariate correlation may conceal serious collinearity among variables. Although the correlation matrix may reveal a low correlation between a pair of independent variables, collinearity may still be a potential problem (Allison, 1999; Gujarati, 2003). A more precise, formal and more frequently used measure of collinearity is the variance inflation factor (VIF) which refers to the degree to which each independent variable is explained by other independent variables in a multiple regression model (Hair et al., 2006). As a rule of thumb, it is suggested that a VIF value of 10 or above indicates a serious collinearity problem in the regression model (Field, 2005; Gujarati, 2003; Hair et al., 2006; Paulson, 2007). Moreover, A Condition index is a powerful measure to detect collinearity. Through principle components approach, sets of linear combination of independent variables are constructed and the variability, eigenvalue, accounted for by each of the component is determined. A condition index for each component is the square root of the highest eigenvalue divided by the eigenvalue for that component. Belsley et al. (1980) suggest that a condition index greater than 15 indicates a possible collinearity problem while a value greater than 30 indicates a serious problem. Myers and Well (2003, p.665) suggest that if one or more of the eigenvalue is zero this indicates that one or more of the variables is completely redundant.

Another aspect that should be examined cautiously is identifying influential observations, outliers and leverage points. Influential observations are observations that have inconsistent impact on the regression model. Outliers are observations with large residual value and which differ from the general trend of the data. Leverage points are observations that have undue impact over regression model coefficients because they differ from other observations regarding their independent variable values (Hair et al., 2006; Field, 2005).

Outliers could be detected graphically by plotting standardised or studentised residuals for each observation and identifying observations with standardised or studentised residuals larger than 2 or by using values corresponding to t values (Chatterjee and Hadi, 2004; Hair et al., 2006). For instance, it is expected that 5% of standardised or studentised residuals are outside the range $|t| =< 2$ (Fox 1991).

Leverage points could be detected by a leverage measure (the hat value) which assesses the influence of the observed value of the independent variable over the predicted value of the dependent variable. The leverage value lies between 0 (no impact) and 1 (complete impact) with an average value of $(K+1)/n$[1] (Field, 2005). It is recommended to examine cases with a leverage value greater than twice the average $[2(K+1)/n]$ (Belsley et al., 1980). With regard to influential points, there are several measures that could be used to assess the impact of these influential observations upon the regression model such as (Chatterjee and Hadi, 2006; Field, 2005; Hair et al., 2006; Fox, 1991):

- DIFFit: DIFFit refers to the difference between adjusted predicted value (obtained by excluding the observation) and original predicted value (obtained by including the observation). If the observation has no large impact on the regression model the difference should be small. It is recommended to examine the observation that its |DIFFit| exceeds the threshold $2\sqrt{(K+1)/(n-K-1)}$.
- DIFBeta: DIFBeta refers to the influence of deleting a single observation on the parameters of the regression model. Observations with |DIFBeta| exceeds 1 may be a cause for concern because of undue influence over model parameters.
- Cook Distance: Cook Distance is the most representative measure of the impact of a single observation on the overall fit of the regression model. It is recommended that an observation with a Cook Distance greater than 4/n-k-1 should be examined.

Finally, all these diagnostics tools should be used in assessing the robustness and predictive ability of a regression model and should not be used as a justification for removing observations from the data analysis (Field, 2005). Belsley et al. (1980, p.15) note that:

> *There is room for misuse of the ... procedures. High-influence data points could conceivably be removed solely to effect a desired change in a particular estimated coefficient, its t-values or some other regression output.*

Hair et al. (2006) emphasise the importance of evaluating outliers, leverage and influential observations in terms of the context of analysis and the information they provide. Finally, the analysis of variance or Kruskal-Wallis test, a non-parametric test, could be used to test the differences between three or more groups of sample data.

[1] K is the number of independent variables in regression model while n is the sample size.

6.5.3 Primary Data Collection Method

This section presents the main features of a semi-structured interview as a method for collecting primary data. It also discusses the process of interviewing, the credibility and dependability of qualitative interviewing, interviewees' selection process, qualitative data analysis and ethical considerations.

6.5.3.1 Semi-structured Interview

Interviewing is one of the methods most extensively used in social science to collect primary data. There are many types of interviews; at one end is the structured interview and at the other end of the continuum is the unstructured interview (Seidman, 1998). The choice among them depends on the philosophical position, research design (Healey and Rawlinson, 1994), research objectives and research purpose (Corbetta, 2003).

In a structured interview, the interviewer employs a predetermined and standardised set of questions. The interviewer's role is to ask each interviewee the same questions with the same words and in the same order (Corbetta, 2003; Saunders et al., 2007) and to record the answers on a pre-coded answers schedule (Rubin and Rubin, 1995). This type of interview aims to provide all respondents with an identical interviewing situation (Bryman and Bill, 2003). Consequently, any differences between interviewees' answers are related to real differences not to the interview context itself (May, 1997). The basic assumptions of this type of interview are that each question has identical meaning to every interviewee (Rubin and Rubin, 1995) and each interviewee essentially has the same motivation (Corbetta, 2003; Bryman and Bell, 2003). These assumptions facilitate comparability between answers as well as generalisation to the population as a whole through using a representative sample (May, 1997).

In an unstructured interview, a researcher does not have a structured list of questions to ask; instead he/she has only a list of themes or topics that should be explored during the course of conversation (Bryman and Bell, 2003; Saunders et al., 2007). Unstructured interviews enable the respondents to discuss spontaneously their opinions, experience and reactions on a certain issue using their own frame of reference. In unstructured interviews, both questions and answers are un-standardised and are not systematically pre-coded (Ghauri and GrØnhaug, 2002). Therefore, unstructured interviews pay more attention to the respondents' point of view and focus on meaning rather than quantification and comparability of answers (May, 1997).

In a semi-structured interview, an interviewer has a series of themes and questions to be explored during the course of the interview. The order of the themes and questions may vary from one interview to another; also the interviewer has the chance to add or remove questions depending on interview context (Bryman and Bell, 2003; Saunders et al., 2007). The semi-structured interviews permit the interviewer to ask for more clarification and elaboration if the answers are ambiguous and to probe for more in-depth answers (Corbetta, 2003). The semi-structured interview permits the respondents to provide their answers in their own words but at the same time it permits greater comparability than unstructured interviews (May, 1997). In a semi-structured interview a series of open-ended questions are used with no predetermined answers and the respondent is free to choose any direction he/she prefers (Seidman, 1998). This type of question allows the interviewee to respond spontaneously and hence new answers may emerge. Moreover, it assists in exploring new themes and recognising the respondent's levels of knowledge and understanding of the issues under examination (Bryman and Bell, 2003).

The above discussion highlights the fact that both the questions' content and their form are important factors in distinguishing between different types of interviews. In structured interviews both the content and form of questions are predetermined while in unstructured interviews they are not predetermined. In semi-structured interviews the content but not the form of question is predetermined (Corbetta, 2003).

The semi-structured interview is considered a relevant method particularly when the centre of investigation focuses on the reasons that lie behind a certain phenomenon (Healey and Rawlinson, 1994). Thus the semi-structured interview is a suitable research method for this study because it will assist in identifying the factors that hinder the presentation of mandatory and voluntary risk reporting. Semi-structured interviews assist in exploring certain topics in more depth and providing substance and texture to the topic under examination by adding illustrative evidence to the quantitative results (Corbetta, 2003). It permits the interviewer to get a comprehensive idea of the respondents' point of view because it allows the respondents to answer in their own language without any restrictions. Moreover, It provides the interviewer with the chance to get more elaboration, to follow-up respondents' answers and to explore factors that underpin respondents' opinions and beliefs (Ghauri and GrØnhaug, 2002; Legard et al., 2003). Furthermore, the semi-structured interview is a flexible method; it can be utilised in different empirical situations and shaped according to the context of the interview itself so that the interviewer is able to react to themes that emerge during the course of

interview (Corbetta, 2003; Legard et al., 2003). The semi-structured interview is a reasonably effective method of investigation when the concern is investigating relations and interactions rather than identifying patterns. Also, it is a very effective research method when interviewees' experiences are widely varying (Healey and Rawlinson, 1994).

However, the semi-structured interview has some disadvantages. It depends heavily on the interviewer's conversational skills and in addition data analysis and interpretation are difficult processes (Ghauri and GrØnhaug, 2002; Patton, 1990). It require much more effort to first gain access and contact, then conduct the interviews, and finally analyse the data and report the findings (Seidman, 1998).

6.5.3.2 The Process of Interviewing

In a semi-structured interview, a researcher should take into consideration the following issues: an interview guide, rapport, probing and interview recording.

In semi-structured interviews, it is usually recommended that the researcher uses an interview guide. This is a checklist of themes, topics or detailed questions to be explored in the interview (Kvale, 1996). The underlying purpose of an interview guide is to provide the interviewer with guidelines and to ensure that the basic information is obtained from all interviewees (Patton, 1990). In preparing an interview guide, questions should be well crafted to facilitate getting relevant responses to research questions; questions should also be worded using understandable and relevant language for all the interviewees (Bryman and Bell, 2003).

An interview guide assists in establishing a systematic and comprehensive interview across a number of different interviewees, keeping the interaction between participants focused but not overlooking interviewees' perspectives and allowing them to be expressed so that the interviewer can use the limited time more efficiently (Patton, 1990). This study's interview guide consists of four sections as follows (see Appendix 5):

Section 1: Introduction.
Section 2: Background information.
Section 3: Factors that may impede compliance with mandatory risk reporting and presentation of voluntary of risk-related information.
Section 4: Conclusion of the interview.

As regards rapport, it is recommended that the interviewer should establish a relationship of trust and rapport with the interviewees which ensures their complete cooperation

during the interview (Corbetta, 2003). Rapport is a relationship that encourages interviewees to enthusiastically participate in the interview (Bryman and Bell, 2003). Rapport could be established at the beginning of the interview through introducing the purpose and importance of the study and ensuring full confidentiality and anonymity. Better rapport will result in obtaining rich, in-depth and useful information (Ghauri and GrØnhaug, 2002). The interviewer should establish an appropriate and balanced rapport since an over-emphasised rapport may cause confusion to the interviewee and could bring undesired results (Seidman, 1998).

Probing is an important issue in semi-structured interviews. The semi-structured interviews allow the interviewer to probe and hence to enhance the richness of responses particularly when the interviewees do not completely understand the questions or do not provide comprehensive answers (Bryman and Bell, 2003; Legard et al., 2003). Probing can serve three underlying functions, namely identifying the desired level of answers, clarifying any vagueness or completing missing information and indicating that the interviewer pays attention to the interviewee's answers (Rubin and Rubin, 1995). Consequently, probing may result in discovering new themes which are important for understanding the phenomenon under investigation and obtaining appropriate answers to research questions (Saunders et al., 2007).

Finally, recording the interview is one of the most important aspects to be discussed with the interviewee. It is recommended that the interview is tape-recorded whenever feasible. An interviewer should concentrate on what is being said by the interviewee, probing and following-up rather than concentrating on taking notes on what is being said (Bryman and Bell, 2003). Recording the interview maintains the respondent's answers in their original, accurate and complete form and permits the interviewer to pay more attention to the conversation (Legard et al., 2003). However, recording the interview may bring undesired results by preventing free expression during the interview (Corbetta, 2003).

This study began the interview by introducing the research objectives, importance and ethical considerations. The main aim of this introduction is to establish a well-balanced rapport and to remove any misunderstanding regarding the meaning and purpose of the research especially where the tradition of research is not well-established (Hatem, 1994). In addition, the researcher uses the interview guide to control the course of the interview without overlooking the importance of probing questions. Finally, in respect of interview recording, similar to Kamel (2006) and Hassan (2008), the researcher was not allowed to

record the interviews; therefore notes were recorded mainly during and immediately after the course of each interview.

6.5.3.3 Credibility and Dependability

Applying validity and reliability as previously highlighted in positivism/quantitative research is inappropriate for interpretivism/qualitative research due to the major differences between them. Stenbacka (2001) argues that quantitative and qualitative researches have fundamentally different purposes; quantitative research aims to generate explanation while qualitative research aims to generate understanding. These differences support the need to redefine validity and reliability in the context of qualitative research.

Consequently, researchers have called for distinct concepts for validity and reliability in quantitative and qualitative research (LeCompte and Goetz, 1982). In other words, each approach should be assessed on its own paradigm's terms (Healy and Perry, 2000). Lincoln and Guba (1985) propose two important concepts and several strategies that aim to define and establish the quality of qualitative research. They propose the use of credibility and dependability in qualitative research which are analogous to validity and reliability in quantitative research.

6.5.3.3.1 Credibility

Credibility in qualitative research refers to accuracy, correctness or genuineness (Robson, 2002). Credibility is related to concepts such as honesty, triangulation and data richness (Cohen et al., 2000). It is important to identify sources of potential bias that may threaten credibility before addressing strategies that aim to establish it. Lincoln and Guba (1985) argue that researcher bias and respondent bias are the most important sources of bias in qualitative research.

On the one hand, researcher bias refers to the influence of a researcher's values, frame of reference, pre-conceptions and assumptions about the inquiry process. Researcher bias takes place when a researcher intentionally selects respondents who may agree with his/her ontological and epistemological position (Padgett, 1998) or deliberately selects the data to be analysed and reported (Robson, 2002). On the other hand, respondent bias has many forms that lie between two extremes; reluctance and helpfulness. Respondents may refuse to give information in order to defend their privacy or may enthusiastically provide answers that, they believe, will help a researcher (Padgett, 1998; Robson, 2002).

In interviewing, Oppenheim (1996) suggests a number of potential sources of bias such as inappropriate sampling, poor rapport, poor interview management, biased prompting

and poor probes, biased coding process, biased transcripts recording and inappropriate managing of problematic interviews. Therefore, minimising these threats contributes to enhanced credibility (Cohen et al., 2000).

Lincoln and Guba (1985) propose some strategies for enhancing credibility including prolonged engagement, triangulation and member check. Prolonged engagement entails spending sufficient time in order to achieve objectives such as understanding phenomena and context and establishing trust between the researcher and respondents. Building trust is a crucial strategy to minimise deception and hence maximise credibility (Padgett, 1998; Flick, 2002). Moreover, member check is one of the most important strategies for enhancing credibility (Lincoln and Guba, 1985) through minimising researcher bias (Padgett, 1998). Member check entails validation of transcripts, codes, interpretations and conclusions by referring back to respondents. This study tends to use rapport, place the participants in context and check the experience and comments of each interviewee against those of other interviewees as appropriate procedures to enhance credibility (Seidman, 1998).

6.5.3.3.2 Dependability

Dependability in qualitative research refers to fidelity to context, specific situations, authenticity, integrity, data richness and depth and meaningfulness (Cohen et al., 2000). Lincoln and Guba (1985) believe that creating an audit trail is one of the most important strategies to achieve dependability. Auditing is 'an exercise in reflexivity, which involves the provision of a methodologically self-critical account of how the research was done' (Seale, 1999, p.468). According to this strategy an auditor reviews the data such as transcripts and field notes, data collection, reduction and analysis process, results and result reports, interpretations, recommendations and decisions taken by the researcher (Flick, 2002). The underlying aim of auditing is ensuring that the proper procedures have been employed (Bryman and Bell, 2003). Establishing an effective audit trail in qualitative research requires sufficient documentation for every individual step in data collection, coding and analysis (Padgett, 1998).

Since documentation is at the heart of dependability, the researcher will keep clear documents that prescribe each step in the research process to facilitate an audit trail. Moreover, as suggested by Flick (2002), this study will use the first interview to review the interview guide, generate new interview questions (if any) and enable training.

6.5.3.4 Interviewees Selection Process

The qualitative approach tends to use non-probability sampling in which there is no technique to identify the probability of every individual unit to be included in the sample (Burgess, 1982). This means that the probability of selection is unknown and some units have zero probability of being included in the sample (Arber, 2001). The main aim of non-probability sampling is selecting information-rich units which are able to provide rich and in-depth insights regarding research questions (Patton, 1990) and therefore a non-probability sample is mostly relevant in exploratory research (Remenyi et al., 1998). Ritchie et al. (2003, p.78) summarise the basic features of non-probability sampling as follows:

> *Units are deliberately selected to reflect particular features of or groups within the sampled population. The sample is not intended to be statistically representative: the chances of selection for each element are unknown but, instead, the characteristics of the population are used as the basis of selection.*

Qualitative research is likely to use non-probability sampling for several reasons. First, the underlying assumptions of qualitative research are extremely different from those of quantitative research. Second, a statistically representative sample tends to be large and this makes the use of qualitative methods time-consuming. Third, statistically representative data provide superficial data and this may impede the in-depth examination required by qualitative research (Mason, 2002). Fourth, non-probability sampling is a preferred choice for studying a specific issue or phenomenon in a great focus and depth (Mason, 2002). Fifth, non-probability sampling is advised for convenience and limited resources or when the sampling population is inadequately defined or a sampling frame is unavailable (Frankfort-Nachmias and Nachmias, 1996). Mason (2002, pp.137-138) defines purposive sampling as:

> *a set of procedures where the researcher manipulates their data generation, analysis, theory and sampling activities interactively during the research process, to a much greater extent than in statistical sampling. This sampling strategy is intended to facilitate a process whereby researchers generate and test theory from the analysis of their data (inductive reasoning) rather than using data to test out or falsify a pre-existing theory (deductive reasoning).*

In purposive sampling researchers can choose among a variety of different sampling techniques one of which is stratified purposive sampling. Stratified purposive sampling is

a technique that aims to examine differences related to a particular theme or event. Sample units are chosen because they have unique attributes and experience which assist in intensive exploration of that theme or event. The sample has been built according to certain criteria in order to yield a sample that is theoretically and empirically meaningful (Mason, 2002) and therefore the knowledge and experience of interviewees are necessary criteria in selection process in order to obtain more in-depth insights regarding research questions (Remenyi et al., 1998). In line with these conditions, the interviewees in this study are selected on the following criteria:

- They should have the required and the essential knowledge and experience in the field of financial reporting and accounting standards.
- They are willing and enthusiastic to be interviewed.

The main aim of purposive sampling is theoretical not statistical generalisation (Mason, 2002). Consequently, in purposive sampling the main focus is whether the sample provides adequate access to the relevant data or not rather than sample size. Patton (1990, p.184) confirms this point by stating that:

> *There are no rules for sample size in qualitative inquiry. Sample size depends on what you want to know, the purpose of the inquiry, what's at stake, what will be useful, what will have credibility, and what can be done with available time and resources.*

Since there is no determined sample size in qualitative research, researchers in qualitative research seek for some criteria to guide them in determining the relevant number of respondents. Seidman (1998) proposes two criteria for this purpose; sufficiency and saturation. On the one hand, sufficiency refers to interviewing a reasonable number of participants that can reflect the population and present the diversity in participants' education, work experience and work position. On the other hand, saturation refers to the point at which the interviewer gets no new insights and answers. Beside these two criteria, the available time and resources are also important factors (Patton, 1990). Kvale (1996, p.102) supports this argument and indicates that 'in current interview studies, the number of interviews tend to be around 15 ±10. This number may be due to a combination of the time and resources available for the investigation and of the law of diminishing return'.

In this study, the main target is interviewing academics, external auditors, financial managers besides the CMA, the EGX and the EIoD disclosure department officers. The researcher contacted staff from two leading Egyptian universities who are interested and

experienced in financial reporting; this contact brought three interviews. In addition, the researcher contacted auditing firms that are affiliated with international auditing firms, namely the Egyptian partners of Deloitte and Touche, Ernst & Young, KPMG, Mazars, RSM International, PricewaterhouseCoopers and Russell Bedford. Contact with those firms resulted in six interviews since one of the firms did not respond to several approaches. The researcher sought the help of these firms to arrange interviews or provide contact details of financial managers among their clients who can satisfy the interviewing criteria. Only three auditing firms provided contact details of five financial managers. However, after contacting them several attempts, only two financial managers agreed to be interviewed. Finally, the researcher contacted the CMA, the EGX and the EIoD requesting an interview with officers from their disclosure departments. After several attempts, they allowed the researcher to interview four of their officers. In summary, given time and financial resource constraints, the researcher conducted 15 interviews. The qualification and experience of each interviewee is presented as follows (see Table 6.6):

Table 6.6: Interviewees Groups

Interviewees	Interviewee Code	Position	Qualification	Years of experience
Academics	AC1	Lecturer	PhD	12
	AC2	Assistant Professor	PhD	17
	AC3	Professor	PhD	29
External Auditors	AD1	Audit manager	Diploma in auditing and financial accounting	14
	AD2	Audit manager	Diploma in auditing and financial accounting	11
	AD3	Vice partner	Diploma in auditing and financial accounting	21
	AD4	Executive manager	Diploma in Tax, auditing and financial accounting	16
	AD5	Audit manager	Diploma in auditing and financial accounting	16
	AD6	Partner	PhD	35
Regulators	RG1	Vice manager	Diploma in financial accounting	15
	RG2	Vice manager	MBA	9
	RG3	Manager	Diploma in financial accounting	25
	RG4	Manager	MBA	20
Financial Managers	FM1	Manager	Master in accounting and finance	17
	FM2	Manager	Diploma in tax and financial accounting	12

In semi-structured interviews, interviewing a restricted number of participants seems to be the norm in accounting research in Egypt. For example, Hanafi and Gray (2005), Kamel (2006) and Hassan (2008) interviewed 12, 16 and 12 participants respectively.

6.5.3.5 Qualitative Data Analysis

The non-standardised and complex nature of qualitative data has significant consequences for the analysis process (Saunders et al., 2007). The collection and analysis of qualitative data is an interactive cyclical process (Miles and Huberman, 1994). In addition, data analysis is not an easy task but requires special skills. Spencer et al. (2003, p.199) indicate that:

> *Analysis is a challenging and exciting stage of the qualitative research process. It requires a mix of creativity and systematic searching, a blend of inspiration and diligent detection.*

Consequently, there is no agreed and standardised procedure regarding how qualitative analysis should be performed (Sarantakos, 2005). This in turn results in diverse approaches which differ in the aim and focus of the analytical process (Spencer et al., 2003). Saunders et al. (2007) propose general procedures for the analysis process including categorisation, data unitising, recognising and developing categories and developing and testing theories to reach conclusions.

There is a general consensus that the coding process is a major part of qualitative data analysis (Bryman and Bell, 2003). Codes are tags and labels used for assigning units of meaning to collected data (Miles and Huberman, 1994). Dey (1993) argues that coding is an essential means to identify what is being analysed and to make meaningful comparisons between different cases and variables. The coding process is a crucial step in data management which facilitates data labelling, storing and retrieving (Savenye and Robinson, 2004). Categories used in data analysis should satisfy two aspects (Dey, 1993). First, they should be meaningful in relation to the data (internal aspect). Second, they should be meaningful in relation to other categories (external aspect).

Generally, there are two approaches for generating categories, namely the deductive and inductive approach. The deductive approach tends to use a theoretical perspective or prior research in establishing categories in advance. It depends on pre-determined categories in the coding process (Dey, 1993; Saunders et al., 2007). The main advantages of this approach are supporting the connection between the research and the existing body of literature and providing an initial framework for data analysis (Saunders et al., 2007). One of the examples of the deductive approach is a pattern matching proposed

by Yin (2003). This approach involves comparing an empirically based pattern with a predicted pattern based on a predetermined theoretical proposition to explain the expected findings.

On the other hand, the inductive approach aims to generate categories from the data itself without the use of any pre-determined theoretical perspective or prior work (Saunders et al., 2007). This approach is suitable for cases where data cannot be allocated using pre-determined categories (Dey, 1993) and hence it facilitates exploring the data and identifying the themes and issues to be examined (Saunders et al., 2007). One of the examples of the inductive approach is the data matrix approach proposed by Miles and Huberman (1994). They argue that qualitative data analysis comprises the following simultaneous activities: data reduction, data display and conclusion drawing and verification. Data reduction refers to 'the process of selecting, focusing, simplifying, abstracting and transforming the data that appear in written-up field notes or transcriptions' (Miles and Huberman, 1994, p.10). First, data reduction facilitates the analysis process by focusing, sharpening and organising data and allows detailed examination of selected cases (Miles and Huberman, 1994; Savenye and Robinson, 2004). Data reduction includes activities such as summarising, coding, themes identification, making clusters and partitions and writing memos. Second, data display is another important step in qualitative data analysis. A display is 'an organised, compressed assembly of information that permits conclusion drawing and action' (Miles and Huberman, 1994, p.11). Data display aims to organise reduced data in a visual display (Saunders et al. 2007). Data display is an important tool for understanding, explaining and exploring the phenomena under investigation (Walliman, 2006). Data display may take forms such as matrices and networks. Moreover, data display is important step for the validity of qualitative analysis (Miles and Huberman, 1994). Third, conclusion drawing and verification aims to search for the meaning of the data, regularities and patterns, explanations, causal relationships and propositions (Miles and Huberman, 1994). In other words, this activity aims to recognise key themes and trends in the data and make comparisons between cases (Saunders et al., 2007, Savenye and Robinsons, 2004) and it examines the data for their plausibility, sturdiness and confirmability (Miles and Huberman, 1994).

A data matrix is a table with identified rows and columns where data are fitted into the cells (Saunders et al., 2007). The main purpose of a data matrix is to provide a general description and a comparative analysis for the cases under investigation (Nadin and

Cassell, 2004). It assists in assembling research questions and explanations more easily (Miles and Huberman, 1994). The presentation of data matrices allows comparisons between and across different cases (Walliman, 2006). Moreover, a data matrix approach assists a researcher to focus on and organise the data more coherently (Miles and Huberman, 1994), provides accessibility to a massive amount of qualitative data (Nadin and Cassell, 2004) and provides a formal and systematic approach for qualitative data analysis (Saunders et al., 2007).

Finally, Dey (1993) and Saunders et al. (2007) point to the possibility of combining deductive and inductive approaches in one research. They acknowledge the importance of research and interview questions as a vital source of ideas for generating categories. In addition, they suggest the modification of categories to ensure their sufficiency and comprehensiveness to fit the data. This study follows the recommendations of Dey (1993) and Saunders et al. (2007) and employs both deductive and inductive approaches to derive categories used in qualitative data analysis. Based on prior studies regarding the factors that impede the presentation of mandatory and voluntary disclosure, this research aims to generate deductively these factors. In addition, based on the data itself, it aims to generate inductively themes regarding the factors that the interviewees mentioned in their responses. An illustration of coding and data matrix is presented in Appendix 6.

6.5.3.6 Research Ethics and Ethical Considerations

Growing attention has been given to the ethical aspects of social research and the commitments that researchers should fulfil to protect those who participate in or are affected by an inquiry (Cohen et al., 2000). Ethical issues arise at each phase of social research such as research design, data collection and analysis and reporting of findings (Bryman and Bell, 2003; Sekaran, 2003). For example, in qualitative interviews establishing rapport and encouraging interviewees to talk results in serious ethical obligations (Rubin and Rubin, 1995). It is important that a researcher ensures that the research is methodologically sound and ethically defensible (Saunders et al., 2007). Ethics refers to a code of conduct or expected societal norms of behaviour regarding the rights of those who participate in or are affected by research (Saunders et al., 2007; Sekaran 2003). This code ensures that the research will be conducted ethically and will result in no harm or adverse consequences to participants (Cooper and Schindler, 2008). De Vaus (2002) argues that most professional codes of ethics highlight the following pillars; voluntary participation, informed consent, no harm, anonymity, confidentiality and privacy.

Voluntary participation means that participants should understand that their participation in the research is completely voluntary so they can withdraw at any time without giving a reason (De Vaus, 2002). Informed consent means that a researcher should provide potential participants with as much information as might be needed to make an informed decision regarding their participation in a study (Bryman and Bell, 2003). Informed consent secures effective cooperation between a researcher and the participants (Zikmund, 2000). Most professional codes of ethics encourage researchers to obtain a signed informed consent statement (Rubin and Rubin, 1995). This statement contains relevant information regarding:

- The nature, purpose and basic procedures of the study.
- Basic features of the research design.
- The identity of the researcher.
- A description of the potential benefits and reasonably anticipated risks of the study.
- A confirmation regarding voluntary participation, confidentiality and anonymity (De Vaus, 2002; Kvale, 1996; Sarantakos, 2005).

No harm means that a research should not entail any procedures that can cause harm to participants (Sarantakos, 2005). For example, a researcher should not exercise any pressures on potential participants to gain access (Saunders et al., 2007) or ask any questions that can distress or embarrass the participant and therefore cause psychological harm (De Vaus, 2002). Anonymity means that information provided by the participants should in no circumstances reveal their identity (Cohen et al., 2000). One means to attain anonymity, ensures that the respondent's name should not appear on the research instrument or the data (Sarantakos, 2005). Confidentiality means that the reported findings will neither include the respondents' names nor make it possible for the information to be traced back to a particular respondent (Sarantakos, 2005). Therefore, private data identifying the participant will not be reported (Kvale, 1996) and no one except the researcher will gain access to these data (Seidman, 1998). Ensuring confidentiality will improve the quality and honesty of responses, encourage participation in the study and protect participants' privacy (De Vaus, 2002). Finally, privacy means that a researcher should not intrude into the private affairs of the respondent or disregard a respondent's values and beliefs (Bryman and Bell, 2003).

Cardiff Business School is keen to ensure that all research being undertaken within the school is ethically sound and therefore any research should be approved, on ethical grounds, by the School's ethics committee before a candidate can collect the data. In this study, an application form, a copy of the interview guide and informed consent forms have been submitted to and approved by the ethics committee.

In this study, the researcher has taken several precautions to ensure that the study is ethically sensible and defensible. At the beginning of the interview, the researcher ensured that the participants were well informed regarding the purpose and objectives of the study and potential benefits of the study. The researcher explicitly informed the participants that their participation is entirely voluntary and hence they had the right to withdraw at any time, refuse to answer any question they wished not to answer or withhold any part of the interview data they choose (Seidman, 1998). As required by the ethics committee, the participants signed off two forms; anonymous and confidential data (see Appendix 5). To ensure anonymity and confidentiality, transcription was done by the researcher only and the transcripts contained only initials for all proper names (Seidman, 1998). Also, interview responses and participants' identification are inaccessible (Cooper and Schindler, 2008) and informed consent forms are kept apart from interview responses so it is impossible to identify a participant's identity (Sarantakos, 2005). During the interview, the researcher avoided pressing the participants for a response, asking demeaning questions or exercising subjective selection in data recording (Saunders et al., 2007). Regarding data processing and storage, the researcher confirms that the data will be processed fairly and will not been kept for longer than is required (Bryman and Bell, 2003). Finally, it is ethically vital that the reported findings well represent the data and the significance of the results is not deliberately overstated (Zikmund, 2000).

6.6 Summary and Conclusion

The aim of this chapter was to present the methodological aspects of this study because they not only reflect the ontological and epistemological position but also influence the choice of data collection methods and data analysis. The discussion in this chapter presented the research purpose, research approach, and criteria to judge research quality. This research is an explanatory and exploratory study that aims to explain the determinants of risk reporting and to explore the factors that may impede the presentation of risk reporting in corporate annual report. The distinction between quantitative and qualitative approaches was established. However, this study has

combined quantitative and qualitative approaches, a form of triangulation, to address properly the research questions. Two data collection methods were discussed, namely the disclosure index/content analysis and semi-structured interviews. The former is used to analyse accounting narratives in annual reports (Phase 1) and the latter is used to obtain rich information regarding the factors that may impede compliance with and presentation of mandatory and voluntary risk disclosure (Phase 2).

In constructing a disclosure index, the researcher discussed the merits of weighted and unweighted indices, the score scheme, the selection of information items, and the treatment of non-applicable items. Based on this discussion, an unweighted dichotomous disclosure index will be used in this study. Regarding content analysis, the researcher discussed coding unit, classification scheme and coding instructions. This study depends on EAS 25 and 33 and the risk categories developed by the ICAEW and the GAS 5 in the coding process to enhance measurement validity. Different statistical techniques that will be used to test the research hypotheses have been presented including bivariate and multivariate tests. The financial statements of 106 companies have been selected according to a stratified sampling procedure and will be examined via disclosure index and content analysis.

Fifteen interviewees have been selected according to certain criteria and a deductive/inductive approach will be used in the coding process and identifying the main themes. In addition, the ethical considerations raised in semi-structured interview have been discussed. The main methodological issues discussed in this chapter and research phases are summarised in Table 6.7.

Table 6.7: Methodological Aspects and Research Phases

	Phase 1	Phase 2
Research Purpose	Explanatory	Exploratory
Research Approach	Quantitative	Qualitative
Sample	Probability sample	Non-probability sample
Research Methods	Disclosure Index and Content Analysis	Semi-structured Interviews
Research Quality	Validity and Reliability	Credibility and Dependability
Data Analysis	Quantitative Analysis	Qualitative Analysis

CHAPTER 7: DETERMINANTS OF RISK REPORTING IN ANNUAL REPORTS OF EGYPTIAN COMPANIES

7.1 Introduction

This study examines the determinants of risk reporting in the annual reports of Egyptian listed companies through investigating empirically the association between competition, company risk level, ownership structure, corporate governance characteristics as independent variables and mandatory/voluntary risk reporting as dependent variables. It also controls for some firms' characteristics. There are 13 main research hypotheses, divided into 39 sub-hypotheses, to be tested empirically and justified using disclosure theories and compared to the empirical findings of similar studies. In addition, two more hypotheses are constructed to test the change in compliance level between 2006 and 2007 and to examine the association between mandatory and voluntary risk reporting. The previous chapter discussed the methodological aspects of the study especially measurement instruments, statistical analysis techniques, sampling procedures and measurement validity and reliability.

This chapter presents the results of descriptive, bivariate statistics and multivariate statistical analysis and is organised as follows. Section 7.2 summarises the research hypotheses and section 7.3 discusses sample representation. Section 7.4 presents descriptive statistics of dependent and independent variables as well as bivariate tests. Section 7.5 discusses data transformation. Section 7.6 explains the multiple linear regression models employed to test the research hypotheses and provides the results while section 7.7 discusses the assumptions of multiple regression and section 7.8 is a summary and conclusion.

7.2 Research Hypotheses

Research hypotheses have been developed based on disclosure theories (chapter 3) and empirical research (chapter 4) and were discussed in chapter 5. A brief summary of these hypotheses is presented below (see Table 7.1):

Table 7.1: Summary of Relationship between Determinants of Risk Reporting and Risk Reporting

Categories of Risk Reporting Determinants	Determinants of Risk Reporting	Measures	Expected Direction of the Relationship between Determinants and Risk Reporting
Competition	Barriers to Entry	Total Fixed Assets	+
Corporate Governance	Board Size	Number of directors on the Board	+/-
	Role Duality	Dummy variable	-
	Auditor type	Dummy variable	+ (Mandatory)/ +/- (Voluntary)
Ownership Structure	Ownership concentration	Percentage of ordinary share held by substantial shareholders (>= 5%)	-
	Managerial ownership	Percentage of ordinary shares held by management	-
	Governmental ownership	Percentage of ordinary share held by government	+/-
	Institutional ownership	Percentage of shares held by institutional investors	+/-
Company Risk Level	Leverage	Percentage of total liabilities to total assets	+
Firm Characteristics	Firm size	Net sales	+
	Profitability	Percentage of net profit to total assets	+/-
	Liquidity	Acid test ratio	+/-
	Industry membership	Dummy variable	+/-

7.3 Sample Representativeness

It will be important to provide a summary descriptive statistics of the sample before performing any statistical analysis. Table 7.2 provides information regarding the sample based on sales, total assets and market value as measures of company size.

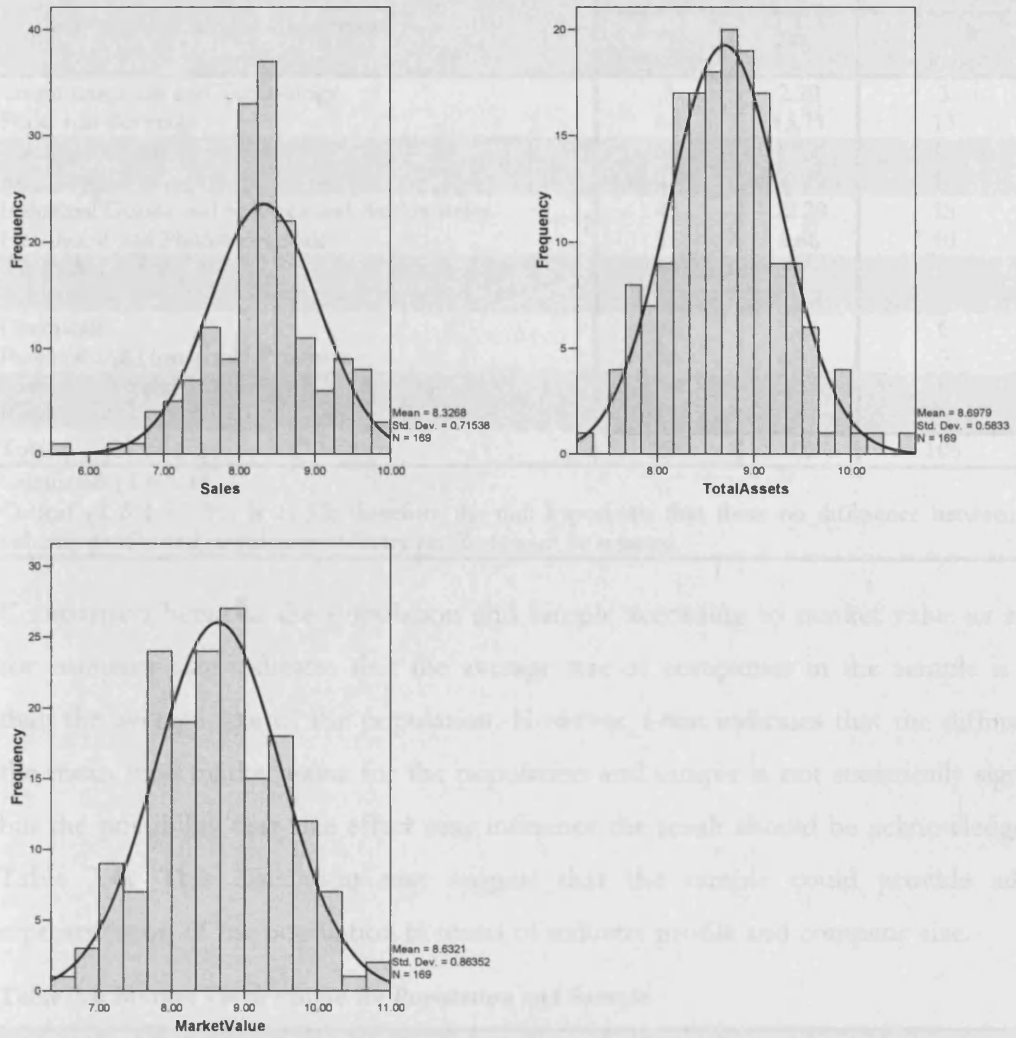
Table 7.2: Summary Statistics of the Sample

	Mean	Median	S.D	Min	Max
Sales (E£ million)	640	210	1400	0.55	9240
Total Assets (E£ million)	1840	545	5680	42.96	5680
Market Value (E£ million)	2730	312	9960	2.32	83000

* Exchange rate of British Pound (£) against Egyptian Pound (E£) is £1 = E£ 11.25 in 2006.

Moreover, a histogram for logarithm of sales, total assets and market value indicates that Egyptian companies would be considered small companies (see Figure 7.1).

Figure 7.1: Histogram of Sales, Total Assets and Market Value of the Sample



The comparison between population and sample according to the EGX's industrial sectors classification is presented in Table 7.3. Construction and material sector represents 16% of the population and equally represented in the sample. The majority of other industries seem to be reasonably represented in the sample. A Chi-squared test indicated that there is a non-significant difference between the industry profile of the population and that of the sample.

Table 7.3: Population and Sample Industry Profile

Industry Classification	Population		Sample	
	No. of companies	%	No. of companies	%
Communication and Technology	8	2.29	3	2.83
Food and Beverage	48	13.71	13	12.26
Construction and Materials	56	16.00	17	16.04
Real Estate	43	12.29	10	9.43
Industrial Goods and Services and Automobiles	43	12.29	15	14.15
Healthcare and Pharmaceuticals	31	8.86	10	9.43
Travel & Leisure	30	8.57	9	8.49
Oil and Gas	9	2.57	3	2.83
Chemicals	18	5.14	6	5.66
Personal and Household Products	30	8.57	9	8.49
Basic Resources and Utilities	18	5.14	6	5.66
Retail	16	4.57	5	4.72
Total	350	100	106	100
Calculated $\chi 2 = 1.45$ Critical $\chi 2$ for $\alpha = 5\%$ is 16.92; therefore the null hypothesis that there no difference between sample industry profile and population industry profile cannot be rejected.				

Comparison between the population and sample according to market value as a proxy for company size indicates that the average size of companies in the sample is higher than the average size of the population. However, t-test indicates that the difference in the mean total market value for the population and sample is not statistically significant but the possibility that size effect may influence the result should be acknowledged (see Table 7.4). This discussion may suggest that the sample could provide adequate representation of the population in terms of industry profile and company size.

Table 7.4: Market Value Profile for Population and Sample

	Mean	Median	S.D	Minimum	Maximum
Population (E£ million)	1200	75	5900	1	83000
Sample (E£ million)	2730	312	9960	2.32	83000
t-test = -1.528, P > 10%; therefore the null hypothesis that there no difference between company size in the population and that in the sample cannot be rejected.					

7.4 Descriptive Statistics and Bivariate Analysis

This section provides descriptive statistics of dependent, categorical and continuous independent variables. Descriptive statistics presented in this section include mean, median, standard deviation, maximum and minimum value, skewness, kurtosis, and normality test. In addition, a bivariate analysis tests the difference in the level (amount) of mandatory (voluntary) risk reporting between 2006 and 2007, the nature of voluntary risk reporting in 2006 and 2007 and the association between mandatory and voluntary risk reporting.

7.4.1 Dependent Variable-Mandatory Risk Reporting

Descriptive statistics show a very low level of compliance with EAS 25 and EAS 33 in both 2006 and 2007. In respect of EAS 25, the average compliance level in 2006 is 19.33% with a range of 50% as a maximum and 5% as a minimum and a median of 18.18%. In 2007, a slight improvement on the level of compliance with EAS25 has been achieved. The average level of compliance increased to 21.57% with a range of 71% as a maximum and 5% as a minimum and a median of 20.83% (see Table 7.5).

Table 7.5: Descriptive Statistics of EAS 25 in 2006 and 2007

EAS 25	Mean	Median	Standard Deviation	Minimum	Maximum	Skewness	Kurtosis
2006	19.33%	18.18%	7.9%	5%	50%	1.43	3.65
2007	21.57%	20.83%	10.2%	5%	71%	2.08	6.22

* Kolmogorov-Smirnov test indicates that indicates that the normality assumption is rejected and the distribution of the variable is not normal (For 2006 and 2007, $P < 0.001$).
* Wilcoxon Signed Ranked Test indicates that the increase in compliance level between 2006 and 2007 is statistically significant ($Z = -4.144$, $P < 0.001$).

In respect of EAS 33, the average level of compliance with EAS 33 in 2006 is 18.25% with a range of 80% as a maximum and 0% as a minimum and a median of 15% while the average level of compliance in 2007 decreased to 17% with a range of 60% as a maximum and 0% as a minimum and a median of 10% (see Table 7.6). This result is not a surprise and consistent with ROSC (2004) that points out the lack of segment reporting in the annual reports of the 30 top-listed Egyptian companies.

Table 7.6: Descriptive Statistics of EAS 33 in 2006 and 2007

EAS 33	Mean	Median	Standard Deviation	Minimum	Maximum	Skewness	Kurtosis
2006	18.25%	15%	13.7%	0%	80%	2.16	6.71
2007	17%	10%	12.7%	0%	60%	2.01	4.42

* Kolmogorov-Smirnov test indicates that indicates that the normality assumption is rejected and the distribution of the variable is not normal (For 2006 and 2007. $P < 0.001$).
* Wilcoxon Signed Ranked Test indicates that the change in compliance level between 2006 and 2007 is not statistically significant ($Z = -0.992$, $P > 0.05$).

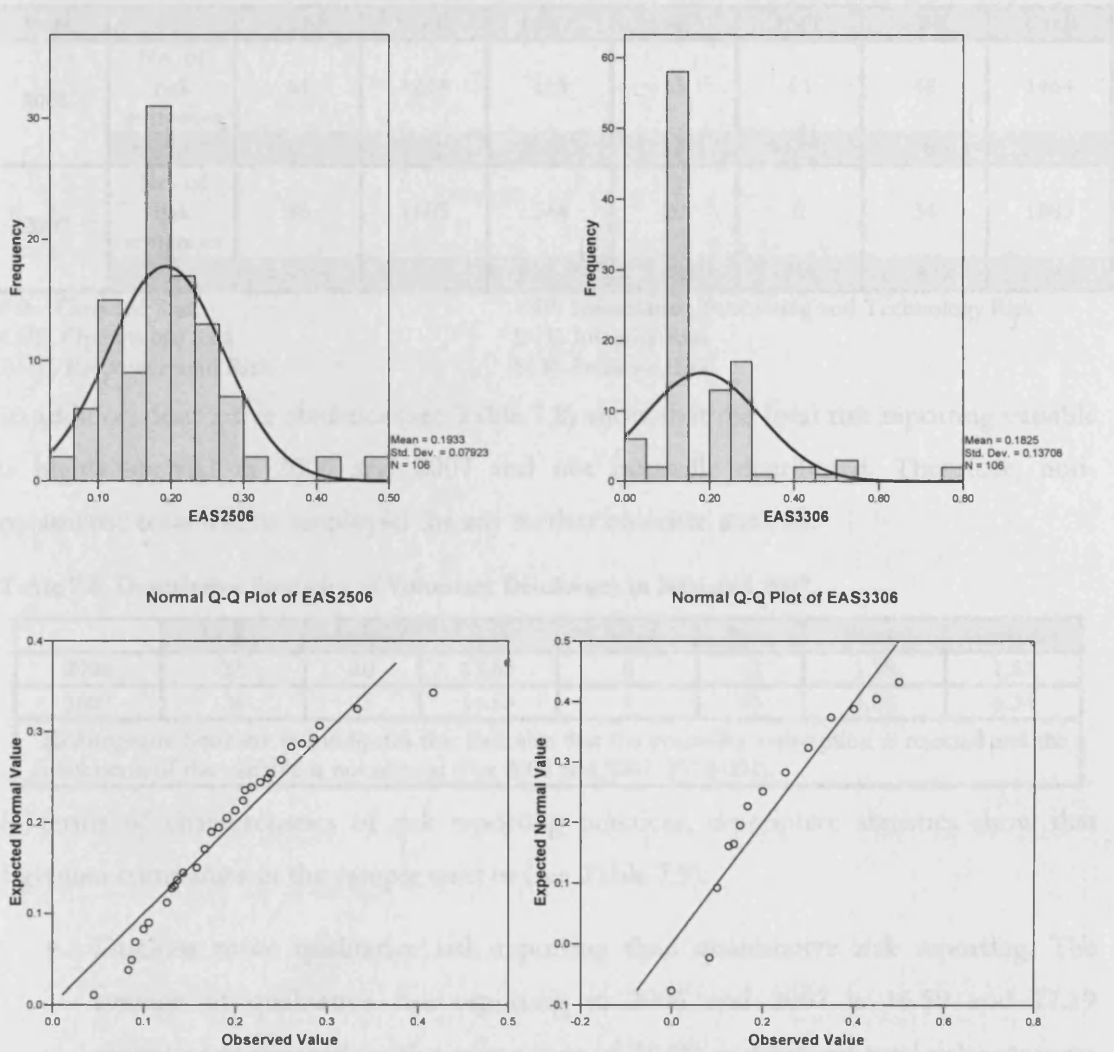
The wide range of compliance level with EAS 25 and 33 indicates inconsistency in disclosure practices among Egyptian companies and potential difficulties in applying the disclosure requirements such as competitive disadvantages, difficulties in producing such information due to technical problems and auditing difficulties (Prencipe, 2004).

The Wilcoxon Signed Ranked Test has been employed to test the differences between the level of compliance with EAS 25 and 33 between 2006 and 2007. The result (see Appendix 8) indicates that the level of compliance with EAS 25 in 2007 is significantly

greater than the level of compliance with EAS 25 in 2006. However, the compliance level is still unsatisfactory. In addition, there is a non-significant difference in the level of compliance with EAS 33 between 2006 and 2007. Consequently, the null hypothesis that there is a non-significant increase in the compliance level with EAS 33 cannot be rejected. Actually, there is a slight decrease in the level of compliance between the two years. However, it is not statistically significant. This result highlights the weak role of the CMA and the EGX in supervising companies' compliance with accounting standards. In addition, it indicates the ineffectiveness of auditors in persuading or enforcing their clients to respond to the requirements of accounting standards.

Descriptive statistics indicate that the levels of compliance with EAS 25 and 33 are highly skewed (1.43 and 2.16 in 2006 and 2.08 and 2.01 in 2007 respectively). A graphical examination of the dependent variable using normal probability plots, Q-Q plots and histograms indicates that the dependent variables deviate significantly from a normal distribution (see Figure 7.2; Appendix 7). Moreover, for more precise results, a K-S test of normality has been employed (see Table 7.5 and 7.6). The test rejects the null hypothesis that the levels of compliance with EAS 25 and 33 are normally distributed in 2006 and 2007 and hence the dependent variables are not normally distributed ($p < 0.001$). This result supports the use of non-parametric tests for any further bivariate analysis.

Figure 7.2: Q-Q Plots and Histograms of Dependent Variables EAS 25 and 33



7.4.2 Dependent Variable - Voluntary Risk Reporting

For 2006, a total number of 1464 risk reporting sentences are identified within the sample of board of directors' reports with an average of 23 sentences. Operational risks category represents the largest risk category that includes 1214 risk reporting sentences which represent 82.92% of the total sentences then empowerment risks and financial risks which include 115 and 61 risk reporting sentences and represent 7.85% and 4.17% of the total risk reporting sentences respectively. For 2007, a total of 1889 risk reporting sentences are recognised with an average of 26 sentences. Consistent with the results for 2006, operation risk category represents 84.97% of total risk reporting sentences while empowerment risk and financial risk categories represent 7.62% and 4.55% respectively (see Table 7.7).

Table 7.7: Number of Risk Reporting Sentences by Risk Category

Year		FIN	OPR	EMP	INF	INT	STR	Total
2006	No. of risk sentences	61	1214	115	13	13	48	1464
	%	4.17%	82.92%	7.85%	0.89%	0.89%	3.28%	100%
2007	No. of risk sentences	86	1605	144	20	0	34	1889
	%	4.55%	84.97%	7.62%	1.06%	0%	1.8%	100%

FIN: Financial Risk
OPR: Operational Risk
EMP: Empowerment Risk
INF: Information Processing and Technology Risk
INT: Integrity Risk
STR: Strategic Risk

In addition descriptive statistics (see Table 7.8) show that the total risk reporting variable is highly skewed in 2006 and 2007 and not normally distributed. Therefore, non-parametric tests will be employed for any further bivariate analysis.

Table 7.8: Descriptive Statistics of Voluntary Disclosure in 2006 and 2007

	Mean	Median	S.D	Min	Max	Skew	Kurtosis
2006	23	20	12.88	6	62	1.38	1.62
2007	26	25	14.53	4	95	1.88	6.34

* Kolmogorov-Smirnov test indicates that indicates that the normality assumption is rejected and the distribution of the variable is not normal (For 2006 and 2007. P< 0.001).

In terms of characteristics of risk reporting practices, descriptive statistics show that Egyptian companies in the sample tend to (see Table 7.9):

- Disclose more qualitative risk reporting than quantitative risk reporting. The average of qualitative risk reporting in 2006 and 2007 is 16.59 and 17.19 sentences respectively with a percentage of 71.4% and 65% of total risk sentences while the average of quantitative risk reporting is 6.65 and 9.05 sentences in 2006 and 2007 respectively with a percentage of 28.6% and 35% of total risk sentences. Empirical studies in different contexts provide similar results. In the UK, Rajab and Handley-Schachler (2009) report a percentage of 90% for qualitative risk disclosure while Woods and Reber (2003) document a percentage of 56.44% and 72.9% in the UK and Germany respectively.
- Disclose more good news risk reporting than bad news risk reporting. The average of good news risk reporting in 2006 and 2007 is 16.92 and 20.06 sentences respectively with a percentage of 73% and 76% of total risk reporting while the average of bad news risk reporting is 5.64 and 5.43 sentences with a percentage of 24% and 21% respectively. In addition, neutral risk reporting represents 3% of total risk reporting in both 2006 and 2007. This result is inconsistent with Woods and Reber (2003) and Linsley and Shrives (2005) who

document the dominance of neutral risk reporting over good and bad news disclosure in the UK and Germany.

- Disclose more past risk reporting than future (forward-looking) risk reporting. The average of past risk reporting in 2006 and 2007 is 20.08 (86.4%) and 22.43 (85.5%) sentences while the average of future risk reporting is 3.15 (13.6%) and 3.81 (14.5%) sentences respectively. This result is consistent with Woods and Reber (2003), Beattie et al. (2004) and Beretta and Bozzolan (2004) who indicate the dominance of past risk disclosure over future risk reporting. In contrast, Linsley and Shrives (2005) report a conflicting result by indicating that future risk reporting comprises about 74% of total risk disclosure.
- Disclose more non-financial risk reporting than financial risk reporting. The average of non-financial risk reporting in 2006 and 2007 is 22.27 and 25.04 sentences with a percentage of 96% and 95.45% of total risk reporting in 2006 and 2007 while the average of financial risk reporting is 0.97 and 1.20 sentences in 2006 and 2007 with a percentage of 4% and 4.55% respectively. This result is consistent with Linsley and Shrives (2005) who report a dominance of non-financial risk disclosure in the UK, the percentage of non-financial risk disclosure to total risk disclosure is about 73.25%.

Table 7.9: Number of Risk Reporting Sentences according to Disclosure Characteristics

	2006							2007						
	risk sentences	%	Mean	Median	Min	Max	S.D	risk sentences	%	Mean	Median	Min	Max	S.D
Quantitative	419	28.6	6.65	5	0	30	5.84	652	35	9.05	7	0	38	7.25
Qualitative	1045	71.4	16.59	15	2	47	9.85	1237	65	17.19	15	2	76	10.7
Good	1066	73	16.92	13	1	60	11.98	1444	76	20.06	18	0	31	5.83
Bad	355	24	5.64	4	0	30	6.56	391	21	5.43	3	1	79	13.21
Neutral	43	3	0.68	0	0	10	1.92	54	3	0.75	0	0	21	2.86
Future	199	13.6	3.15	0	0	31	5.71	294	14.5	3.81	1	0	50	6.89
Past	1265	86.4	20.08	18	4	54	10.31	1615	85.5	22.43	21	4	55	10.64
Financial	61	4	0.97	0	0	6	1.38	86	4.55	1.2	0	0	7	2.02
Non Financial	1403	96	22.27	19	6	60	12.37	1803	95.45	25.04	24.5	4	89	13.77
Total	1464	100	23.24	20	6	62	12.84	1889	100	26.24	25	4	95	14.53

In order to test the differences between the characteristics of voluntary risk reporting in both 2006 and 2007, a Wilcoxon Signed Ranks test has been employed. In line with Linsley and Shrives (2006), the results indicate that there are significant differences between qualitative and quantitative, good and bad news, past and future and non-financial and financial risk reporting ($p < 0.001$) in both 2006 and 2007 (see Table 7.10 and Appendix 9). The result suggests that the amount of qualitative, good news, past risk disclosure and non-financial risk reporting sentences is statistically greater than the amount of quantitative, bad news, future risk disclosure and financial risk reporting sentences in both 2006 and 2007.

Table 7.10: Differences in Voluntary Risk Reporting Characteristics 2006-2007

		Qualitative - Quantitative	Good - Bad	Past - Future	Non-Financial - Financial
2006	Z	-5.915	-5.059	-6.820	-6.904
	Asymp. Sig. (2-tailed)	.000	.000	.000	.000
2007	Z	-5.533	-6.480	-7.350	-7.377
	Asymp. Sig. (2-tailed)	.000	.000	.000	.000

In brief, comparing these result with the result of Linsley and Shrives (2005) for British companies, Egyptian companies tend to disclose qualitative, good news, past and non-financial risk reporting while British companies tend to disclose qualitative, neutral news, future and non-financial risk reporting. The tendency of Egyptian companies to disclose more past risk and the tendency of British companies to disclose future risk may reflect significant differences between Egypt and the UK in terms of Hofstede's (1984) culture dimensions and Gray's (1988) accounting values. Egyptian society has high uncertainty avoidance and is highly uncomfortable with ambiguity both of which are linked to high secrecy. This may explain why Egyptian companies are reluctant to present voluntary future and quantified risk disclosure.

7.4.3 Association between Mandatory and Voluntary Risk Reporting in 2006 and 2007

In order to test the relationship between mandatory and voluntary risk reporting, the Spearman correlation has been employed. Using pooled data of 2006 and 2007, the correlation test indicates that (see Appendix 10):

- There is a significant positive relationship between the level of compliance with EAS 25 and level of compliance with EAS 33 ($r= 0.214$, $p= 0.002$).
- There is a significant positive relationship between the level of compliance with EAS 25 and the amount of voluntary risk reporting ($r= 0.21$, $p= 0.016$).
- There is a significant positive relationship between the level of compliance with EAS 33 and the amount of voluntary risk reporting ($r= 0.39$, $p< 0.001$).

This result suggests a high co-ordination between the board of directors and the management in preparing and writing different parts of the annual reports (Al-Razeen and Karbhari, 2004b). This result is consistent with Abayo et al. (1993) who document a positive association between mandatory and voluntary disclosure in the annual reports of Tanzanian companies. Similarly, El-Sayed and Hoque (2010) reveal a significant positive association between Egyptian companies' perceived influence of the IASs and their level of voluntary disclosure. However, Al-Razeen and Karbhari (2004b) report a non-

significant association between mandatory and voluntary disclosure in the annual reports of Saudi companies. The positive association between mandatory and voluntary risk reporting reflects the complementary relationship between them and hence increasing mandatory disclosure will increase voluntary disclosure (Dye, 1986).

7.4.4 Categorical Independent Variables

The categorical independent variables in this study are industry membership, auditor type and role duality and their related descriptive statistics are presented below.

7.4.4.1 Industry Membership

The sample of listed companies under investigation consists of 106 companies spanning three sectors, namely manufacturing, non-manufacturing and the service sector. A summary of the sample across different economic sectors is presented in Table 7.11.

Table 7.11: Distribution of Sample Firms across Industrial Sectors

	Manufacturing		Non-manufacturing		Service		Total
	N	%	N	%	N	%	
No. of companies in the sample	65	61.3%	18	17%	23	21.7%	106

Descriptive statistics show some differences in mandatory and voluntary risk reporting among the three categories of industry membership in 2006 and 2007 (see Table 7.12). In 2006, manufacturing companies provide the highest level of compliance with EAS 25 and the highest number of total risk sentences while service companies provide the highest level of compliance with EAS 33. In 2007, non-manufacturing companies provide the highest level of compliance with EAS 25 while service companies provide the highest level of compliance with EAS 33 and the highest number of total voluntary risk sentences. Appendix (11) presents risk reporting by industry sectors.

The Kruskal-Wallis test, a non-parametric test, has been used to examine whether there are significant differences in mandatory and voluntary risk reporting among the three categories of industry membership in 2006 and 2007. The result indicates that there are non-significant differences in the level of compliance with EAS 25 and 33 among the three groups of industry membership in 2006 and 2007 ($p>0.10$) while there is significant difference in the amount of total voluntary risk reporting among the three groups of industry membership ($p=0.09$ in 2006 and 0.01 in 2007 respectively) (see Appendix 11).

Table 7.12: Descriptive Statistics of Mandatory/Voluntary Risk Reporting by Industry Membership

	Industry Membership	2006				2007			
		Mean	Median	S.D	Kruskal-Wallis test	Mean	Median	S.D	Kruskal-Wallis test
EAS 25	manufacturing	19.78%	17.39%	8.85%	$\chi2$= 0.23, P>0.10	21.42%	20.83%	9.63%	$\chi2$= 0.21, P>0.10
	non-manufacturing	18.68%	17.42%	8.10%		24%	20.83%	15.18%	
	service	18.54%	19.05%	4.41%		20.20%	18.18%	6.70%	
EAS 33	manufacturing	17.22%	15%	10.48%	$\chi2$= 0.26, P>0.10	16.29%	10%	12.23%	$\chi2$= 2.55, P>0.10
	non-manufacturing	18.06%	15%	17.33%		13.83%	10%	6.97%	
	service	21.30%	15%	18.235		21.30%	20%	16.39%	
Voluntary	manufacturing	25.2	20	14.84	$\chi2$= 4.81, P< 0.10	27.89	25	16.2	$\chi2$= 9.04, P<0.10
	non-manufacturing	16.5	15.5	8.52		16.54	18	8.5	
	service	23.44	23	9.42		28.31	25	7.54	

Therefore, in multivariate analysis, in investigating the association between mandatory risk reporting and other independent variables, industry membership will be investigated through a dummy variable that reflects only two groups of industry membership, namely manufacturing and non-manufacturing because the service group will be combined with the non-manufacturing group. In investigating the association between voluntary risk reporting and other independent variables, industry membership will be examined through a dummy variable that reflects three groups of industry membership, namely manufacturing, non-manufacturing and service.

7.4.4.2 Auditor Type

The sample of listed companies under examination is divided into two groups in terms of the identification of independent auditor(s). The first group is companies audited by audit firms with international affiliations while the second group is companies audited by audit firms without international affiliations. Table 7.13 summarises the number of companies within the two groups.

Table 7.13: Distribution of Sample Firms according to Auditor Type

	With affiliation		Without affiliation		Total
	N	%	N	%	
No. of companies in the sample	54	51%	52	49%	106

Descriptive statistics indicate that companies with different auditor types present different levels and amounts of mandatory and voluntary risk reporting in 2006 and 2007 (see Table 7.14). For 2006, companies audited by audit firms with international affiliations show a higher level of compliance with EAS 25 and 33. In addition, they provide a higher number of voluntary risk sentences. For 2007, companies audited by audit firms with international affiliations provide a higher level of compliance with EAS

25 and 33. However, in contrast to 2006, companies audited with audit firms without international affiliations show higher number of voluntary risk sentences.

Table 7.14: Descriptive Statistics of Mandatory/Voluntary Risk Reporting by Auditor Type

	Auditor Type	2006				2007			
		Mean	Median	S.D	Mann-Whitney U test	Mean	Median	S.D	Mann-Whitney U test
EAS 25	Without affiliation	15.22%	14.29%	5.16%	Z=-6.03, P< 0.001	16.53%	16.67%	5.33%	Z=-6.05, P< 0.001
	With affiliation	23.28%	20.94%	8.14%		26.33%	23.81%	11.35%	
EAS 33	Without affiliation	14.42%	10%	8.11%	Z=-2.65, P< 0.001	13.77%	10%	7.5%	Z=-1.61, P> 0.10
	With affiliation	21.93%	17.5%	16.76%		20.02%	11.25%	15.70%	
Voluntary (sentences)	Without affiliation	22.71	19	13.91	Z=-0.77, P> 0.10	29.65	25	17.16	Z=-2.06, P< 0.05
	With affiliation	23.68	21	11.41		21.97	21	8.90	

The Mann-Whitney U test, a non-parametric test, has been used to examine whether there are any significant differences in mandatory and voluntary risk reporting practices between companies that are audited by auditing firms with international affiliations and that audited by audit firms without international affiliations (see Appendix 11).

For 2006, statistical analysis indicates that there are significant differences in the level of compliance with EAS25 and 33 between listed companies that are audited by audit firms with international affiliations and that audited by audit firms without international affiliations. The result suggests that companies audited by audit firms with international affiliations provide more compliance with disclosure requirements of EAS25 and EAS 33 than companies audited by audit firms without international affiliations. However, there is a non-significant difference in voluntary risk reporting practices between listed companies audited by audit firms with and without international affiliations. The result suggests that the difference between the two groups of companies is not statistically significant.

Statistical analysis of the 2007 data reveals significant differences in the level of compliance with EAS 25 between listed companies audited by audit firms with or without international affiliations while there are non-significant differences in the level of compliance with EAS 33 between the two groups of firms. Moreover, the result indicates significant differences in total voluntary risk reporting between the two groups of listed companies in terms of auditor type. The result suggests that companies audited by audit firms without international affiliations provide more voluntary risk reporting than other companies audited by audit firms with international affiliations.

7.4.4.3 Role Duality

The third categorical independent variable is role duality. Descriptive statistics indicate that listed companies are managed by persons who combine the CEO and chair of the board position. Table 7.15 summarises the number of companies that separate the position of CEO and chair of the board and companies that do not separate between the two positions. More than 73% of the listed companies combine the CEO and chair of the board position. This result is consistent with the result of ROSC (2001) that the chair of the board and the CEO are often the same person in Egyptian companies.

Table 7.15: Distribution of Sample Firms according to Role Duality

	No Separation between CEO and chair of the board position		Separation between CEO and chair of the board position		Total
	N	%	N	%	
No. of companies in the sample	78	73.6%	28	26.4	106

Descriptive statistics indicate that companies with and without role duality present different levels and amounts of mandatory and voluntary risk reporting (see Table 7.16). The result indicates that, except for voluntary risk disclosure in 2007, companies that separate the CEO and chair of the board tend to provide a higher level of compliance with EAS 25 and 33 and report a higher amount of voluntary risk information than companies without separation between the two positions.

Table 7.16: Descriptive Statistics of Mandatory/Voluntary Risk Reporting by Role Duality

	Role Duality	2006				2007			
		Mean	Median	S.D	Mann-Whitney test	Mean	Median	S.D	Mann-Whitney test
EAS 25	Separation	21.12%	20.83%	6.92%	Z=-2.23, P< 0.05	24.97%	21.74%	12.71%	Z=-2.08, P< 0.05
	No separation	18.69%	16.67%	8.205		20.33%	18.18%	8.85%	
EAS 33	Separation	18.69%	12.5%	16.90%	Z=-0.55, P> 0.10	17.56%	10%	16.02%	Z=-0.81, P> 0.10
	No separation	18.09%	15%	12.495		16.78%	10%	11.44%	
Voluntary (sentences)	Separation	24.60	18	14.55	Z=-0.30, P> 0.10	21.73	20	10.12	Z=-1.39, P> 0.10
	No separation	22.81	20	12.68		27.42	25	15.34	

The Mann-Whitney U test, a non-parametric test, has been employed to assess whether there are any significant differences in mandatory and voluntary risk reporting practices between listed companies with or without role duality (see Appendix 11).

In both 2006 and 2007, the statistical result indicates that there is significant difference in the level of compliance with EAS 25 between companies with and companies without separation between the CEO and chair of the board position. The result suggests that

companies with separation of the CEO and chair of the board provide more compliance with EAS 25 than companies without this separation. In addition, in both 2006 and 2007, the result reveals non-significant differences in the level of compliance with EAS 33 and voluntary risk reporting between companies with and companies without separation of the CEO and chair of the board.

7.4.5 Continuous Independent Variables

Table 7.17 indicates descriptive statistics of the continuous independent variables for 2006 and 2007. The table indicates the mean, maximum, minimum, standard deviation, skewness and kurtosis of the independent variables and the K-S test of normality. The skewness and kurtosis statistics indicate that continuous independent variables are not normally distributed. In addition, the K-S test confirms that all continuous independent variables depart from normality ($p < 0.001$). Table 7.17 indicates that, on average, the sample companies have a reasonable liquidity position (1.44 and 1.66 in 2006 and 2007 respectively). In addition, governmental ownership and institutional ownership represent about 50% of the ownership structure in 2006 and 2007 while blockholder ownership as a measure for ownership concentration represents about 3% of total ownership structure in 2006 and 2007.

Table 7.17 shows a high proportion of governmental and managerial ownership in the ownership structure of the Egyptian companies. The average of governmental and managerial ownership is 25.38% (23.29%) and 14.18% (17.39%) in 2006 (2007) while the maximum of governmental and managerial ownership is 99.9% and 98.99% respectively. These patterns of share ownership are a result of the institutional situation in Egypt. The Egyptian government followed three main approaches in the privatisation of state-owned companies. The first is selling shares through initial public offerings in the stock market, the second is selling strategic stakes of shares to anchor-investors through public auctions and the third is selling significant stake of shares to managers/employees (Ben Naceur et al., 2007). According to the CML, any company wishing to be listed in the official list should offer to the public at least 30% of total shares. In addition, the listing and delisting rules of EGX ban any restrictions on share trading. According to the CML, any investor who wishes to acquire more than 10% of total shares of any company offering its shares for public subscription should notify the company at least two weeks before the transaction; therefore there is no restriction on share ownership.

The Egyptian government adopted partial privatisation in which the government sells a minor stake of shares especially in companies operating in certain industries such as pharmaceuticals and mills to highlight to the public its consideration to social aspects during the privatisation (Omran, 2004). Kantor et al. (1995) argue that governmental ownership is dominant in the Middle East region. Ben Naceur et al. (2007) indicate that the Egyptian government held high proportions in the ownership structure even post the privatisation. Several studies report a high percentage of governmental ownership and managerial ownership in the ownership structure of Egyptian companies. For example, Abd-Elsalam et al. (2008) report governmental ownership ranged from 0 to 92% while Omran et al. (2008) report governmental ownership ranged from 0 to 95% and Kholeif (2008) reports managerial ownership ranged from 0 to 66.27% in ownership structure of the 50 most active listed companies.

Table 7.17: Descriptive Statistics of Continuous Independent Variables in 2006 and 2007

Year	Independent Variables	Measures	Mean	Median	Min	Max	S. Deviation	Skewness	Kurtosis
2006	FS	Sales (E£ million)	640	210	0.55	9240	1400	4.39	22
	FL	Acid test ratio	1.40	1.02	0.15	9.67	1.39	3.4	15.12
	FP	Percentage of net profit to total assets	.084	.072	-0.28	0.59	0.102	0.88	6.66
	FL	Percentage of total liabilities to total assets	0.41	.391	0.07	1.30	0.22	1.15	2.25
	BE	Total fixed assets (E£ million)	989	231	1.69	38215	3920	8.49	79
	BS	Number of members on the board	7.6	7	3	15	2.7	.53	-.27
	OC	Percentage of ordinary share held by substantial shareholders (>= 5%)	3.1	0	0	53.46	8.2	3.85	17.39
	GO	Percentage of ordinary shares held by government	25.38	4	0	99.90	33.38	1.03	-.36
	MO	Percentage of ordinary share held by management	14.18	.006	0	98.99	26.75	2.02	3.03
	IO	Percentage of shares held by institutional investors	29.32	16.44	0	98.90	31.63	.96	-.46
2007	FS	Sales (E£ million)	794	244	3.1	9530	1580	3.65	15
	FL	Acid test ratio	1.66	1.13	0.23	14.65	1.89	4.3	23.67
	FP	Percentage of net profit to total assets	.092	.082	-0.18	0.81	0.11	2.77	17.79
	PL	Percentage of total liabilities to total assets	0.38	.335	0.04	1.13	.22	0.91	0.59
	BE	Total fixed assets (E£ million)	1070	252	2.7	39183	4050	8.37	77
	BS	Number of members on the board	7.6	7	3	14	2.64	0.62	-0.12
	OC	Percentage of ordinary share held by substantial shareholders (>= 5%)	2.9	0	0	53.45	7.7	4.2	21.63
	GO	Percentage of ordinary shares held by government	23.29	1.09	0	99.90	32.49	1.15	-0.07
	MO	Percentage of ordinary share held by management	17.39	.02	0	98.99	28.88	1.58	1.17
	IO	Percentage of shares held by institutional investors	27.92	13.37	0	98.90	33.28	1.04	-0.50

* Kolmogorov-Smirnov test indicates that indicates that the normality assumption is rejected and the distributions of all the continuous independent variables are not normal (For 2006 and 2007, P< 0.001).

* Exchange rate of British Pound (£) against Egyptian Pound (E£) is £1 = E£ 11.25 in 2006 and £1 = E£ 11.09 in 2007.

FS Firm Size, **FL** Firm Liquidity, **FP** Firm Profitability, **FV** Firm Leverage, **BE** Barriers to Entry, **BS** Board Size, **OC** Ownership Concentration, **GO** Government Ownership, **MO** Managerial Ownership, **IO** Institutional Ownership

7.4.6 Correlation among Variables and Collinearity

The key objectives of examining the correlation matrix between independent variables and dependent variables are twofold. The first objective is identifying the independent variables that are significantly correlated with the dependent variable (mandatory and voluntary risk reporting) and hence could explain the variation in the dependent variable. The second objective is to use the correlation matrix as a very quick and simple diagnostic tool to detect collinearity between independent variables. A Pearson correlation has been employed to examine the associations between dependent variables and the independent variables and to examine the associations among independent variables (see Table 7.18 and 7.19).

With respect to the first objective, testing the correlation between risk reporting and independent variables, the correlation matrix shows the following findings.

In respect of EAS 25, the correlation matrix reveals, in both 2006 and 2007, significant positive associations between barriers to entry, board size and being audited by audit firms with international affiliations and mandatory risk reporting. In addition, the correlation matrix indicates a marginally significant positive association between mandatory risk reporting and firm size in 2007. Moreover, the findings reveal significant negative associations between ownership concentration, government ownership, role duality and mandatory risk reporting in both 2006 and 2007. This means the companies that provide more compliance with EAS 25 are companies that operate in a high barrier to entry environment, companies with large boards, large size companies and those audited by audits firm with international affiliations while companies that present less compliance with EAS 25 are companies with high ownership concentration, companies with high government ownership and those with role duality.

Table 7.18: Correlation among Dependents Variables and Independent Variables - 2006

	Dependent Variables			Independents Variables												
	EAS2506	EAS3306	VOL06	FS	FL	FP	FV	BE	BS	OC	GO	MI	IO	IM	RD	AT
EAS2506	1															
EAS3306	.310(**)	1														
	.001															
VOL06	.355(**)	.463(**)	1													
	.004	.000														
FS	.115	.263(**)	.492(**)	1												
	.240	.006	.000													
FL	.018	.246(*)	.025	-.029	1											
	.856	.011	.845	.769												
FP	.166	.043	.117	.392(**)	.324(**)	1										
	.090	.665	.360	.000	.001											
FV	-.090	.023	-.030	-.030	-.358(**)	-.369(**)	1									
	.359	.813	.818	.756	.000	.000										
BE	.248(*)	.499(**)	.623(**)	.628(**)	.038	.186	-.122	1								
	.010	.000	.000	.000	.702	.056	.211									
BS	.247(*)	.077	.282(*)	.271(**)	.172	.276(**)	-.237(*)	.241(*)	1							
	.011	.432	.025	.005	.077	.004	.014	.013								
OC	-.188	-.094	-.209	-.074	-.167	-.071	.179	-.187	-.172	1						
	.053	.335	.100	.450	.087	.471	.066	.056	.077							
GO	-.241(*)	-.136	-.054	.087	-.043	.124	-.129	.194(*)	-.070	-.237(*)	1					
	.013	.165	.674	.376	.663	.204	.187	.046	.475	.014						
MI	.071	.043	-.029	-.065	.013	-.166	.126	-.122	-.011	.115	-.608(**)	1				
	.472	.662	.824	.507	.898	.089	.198	.213	.911	.242	.000					
IO	.170	.115	.058	.043	.194(*)	.071	-.079	-.044	.259(**)	-.169	-.318(**)	-.141	1			
	.081	.240	.654	.663	.046	.469	.422	.653	.007	.084	.001	.148				
IM	.040	-.037	.166	.294(**)	-.269(**)	.000	-.176	.194(*)	-.055	-.035	-.020	-.061	.108	1		
	.681	.705	.192	.002	.005	.999	.072	.047	.574	.720	.837	.533	.272			
RD	-.192(*)	.054	-.051	-.034	.000	-.089	.102	.037	.037	-.060	.369(**)	-.300(**)	.026	-.036	1	
	.048	.583	.691	.726	.998	.363	.298	.709	.706	.539	.000	.002	.795	.710		
AT	.565(**)	.255(**)	.082	.088	.157	.109	-.138	.100	.204(*)	-.055	-.451(**)	.297(**)	.208(*)	-.082	-.246(*)	1
	.000	.008	.522	.370	.107	.265	.157	.309	.036	.574	.000	.002	.032	.404	.011	

** Correlation is significant at the 0.01 level (2-tailed).

* Correlation is significant at the 0.05 level (2-tailed).

EAS2506 Compliance level with EAS 25, **EAS3306** Compliance level with EAS 33, **VOL06** Voluntary Risk Reporting, **FS** Firm Size, **FL** Firm Liquidity, **FP** Firm Profitability, **FV** Firm Leverage, **BE** Barriers to Entry, **BS** Board Size, **OC** Ownership Concentration, **GO** Government Ownership, **MO** Managerial Ownership, **IO** Institutional Ownership, **IM** Industry Membership, **RD** Role Duality, **AT** Auditor Type

Table 7.19: Correlation among Dependents Variables and Independent Variables - 2007

	Dependent Variables			Independent Variables												
	EAS2507	EAS3307	VOL07	FS	FL	FP	FV	BE	BS	OC	GO	MO	IO	IM	RD	AT
EAS2507	1															
EAS3307	.205(*)	1														
	.035															
VOL07	.090	.271(*)	1													
	.451	.021														
FS	.185	.309(**)	.219	1												
	.059	.001	.064													
FL	.071	.394(**)	-.056	.005	1											
	.469	.000	.643	.956												
FP	.178	.317(**)	.139	.451(**)	.393(**)	1										
	.069	.001	.244	.000	.000											
FV	-.182	-.095	-.159	-.117	-.330(**)	-.462(**)	1									
	.064	.334	.181	.233	.001	.000										
BE	.245(*)	.400(**)	.415(**)	.646(**)	-.055	.258(**)	-.154	1								
	.012	.000	.000	.000	.581	.008	.117									
BS	.302(**)	.137	.278(*)	.268(**)	.097	.187	-.264(**)	.329(**)	1							
	.002	.162	.018	.006	.323	.057	.006	.001								
OC	-.232(*)	-.134	-.153	-.005	-.137	-.004	.163	-.180	-.155	1						
	.017	.172	.198	.958	.163	.965	.096	.067	.113							
GO	-.260(**)	.001	.279(*)	.111	.017	.035	-.034	.185	-.032	-.160	1					
	.007	.996	.017	.261	.863	.722	.732	.059	.745	.102						
MO	.107	-.116	-.238(*)	-.087	-.041	.030	-.045	-.107	-.117	.080	-.564(**)	1				
	.279	.237	.044	.378	.680	.758	.645	.276	.233	.413	.000					
IO	.154	.141	-.114	.011	.133	-.076	.020	-.001	.125	-.198(*)	-.259(**)	-.291(**)	1			
	.118	.150	.339	.914	.178	.440	.838	.989	.203	.042	.007	.003				
IM	.003	.030	.216	.291(**)	-.122	.055	-.155	.226(*)	-.086	-.010	.042	-.054	.064	1		
	.976	.765	.068	.003	.215	.580	.114	.020	.385	.923	.670	.581	.518			
RD	-.209(*)	.046	.160	-.058	.049	-.140	.071	-.007	.153	-.194(*)	.299(**)	-.240(*)	-.016	-.041	1	
	.032	.638	.179	.556	.618	.155	.473	.944	.118	.046	.002	.013	.871	.676		
AT	.570(**)	.191	-.237(*)	.147	.083	.139	-.119	.119	.117	-.064	-.498(**)	.353(**)	.186	-.114	-.246(*)	1
	.000	.051	.045	.135	.398	.157	.227	.225	.233	.514	.000	.000	.056	.248	.011	

** Correlation is significant at the 0.01 level (2-tailed).

* Correlation is significant at the 0.05 level (2-tailed).

EAS2507 Compliance level with EAS 25, **EAS3307** Compliance level with EAS 33, **VOL07** Voluntary Risk Reporting, **FS** Firm Size, **FL** Firm Liquidity, **FP** Firm Profitability, **FV** Firm Leverage, **BE** Barriers to Entry, **BS** Board Size, **OC** Ownership Concentration, **GO** Government Ownership, **MO** Managerial Ownership, **IO** Institutional Ownership, **IM** Industry Membership, **RD** Role Duality, **AT** Auditor Type

In respect of EAS 33, the correlation findings indicate significant positive associations between firm size, liquidity, barriers to entry and mandatory risk reporting in 2006 and 2007. In addition, the correlation results reveal a significant positive association between mandatory risk reporting and being audited by audit firm with international affiliations in 2006 only and between mandatory risk reporting and profitability in 2007 only. This means that companies that present more compliance with EAS 33 are large firms and companies operating in a high barrier to entry environment, companies with more liquidity and profitability and companies that are audited by audit firms with international affiliations.

In respect of voluntary risk reporting, correlation findings show significant positive associations between voluntary risk reporting, barriers to entry and board size in both 2006 and 2007. In addition, the results indicate a significant positive association between voluntary risk reporting and firm size in 2006 and between voluntary risk reporting and government ownership in 2007 only. However, the findings indicate significant negative associations between voluntary risk reporting, managerial ownership and being audited by audit firms with international affiliations in 2007 only. This means that companies that provide more voluntary risk reporting are companies operating in a high barrier to entry environment, companies with large boards, large in size and those with high government ownership while companies that provide less voluntary risk reporting are companies with high managerial ownership and those are audited by audit firms with international affiliations.

In respect of the second objective, using a correlation coefficient as a diagnostic tool to detect collinearity, correlation findings for the most highly correlated independent variables reveal a significant positive association between firm size and barriers to entry in 2006 and 2007 (The r coefficient is 0.628 and 0.646 respectively). In addition, there is a significant negative association between managerial ownership and government ownership in 2006 and 2007 (The r coefficient is -0.608 and -.564 respectively). Finally, there is a significant negative association between auditor type and government ownership in 2007 only (The r correlation coefficient is -0.498). The findings of the Pearson correlation suggest that collinearity among independent variables will not result in severe problems in multivariate analysis because none of the correlation coefficient exceeds the threshold of 0.80 suggested by several statisticians as an indication of collinearity.

7.5 Data Transformation

Accounting researchers have used the disclosure index and content analysis to quantify accounting narratives and used multiple linear regression to examine the relationship between disclosure level (dependent variable) and firm-specific characteristics (independent variables). However, there are a number of concerns regarding the dependent variable in disclosure research. First, the theoretically correct form of the association between dependent variable and independent variables is unknown (Lang and Lundholm 1993). Second, the use of the disclosure index and content analysis results in a bounded dependent variable (Ahmed and Nicholls 1994). For instance, the use of the disclosure index results in a dependent variable expressed as a ratio and constrained to lie between 0 and 1 while the use of content analysis imposes a lower constraint of zero.

Consequently, it is recommended to transform dependent variable and/or the independent variables to satisfy the assumptions of multiple linear regression (Ahmed and Nicholls, 1994; Wallace et al., 1994). Lang and Lundholm (1993) suggest the use of a rank regression technique in which dependent and continuous independent variables are ordered and ranked from smallest to largest and then the OLS regression could be applied to the ranks. Rank regression is characterised by simplicity, resistance to outliers, efficiency in representing monotonic non-linear relationship and producing distribution free statistical tests (Cooke, 1998). However, despite these advantages, rank regression has several disadvantages. It is very difficult to interpret regression coefficients and test their significance, it is inappropriate to employ the F-test and t-test and it produces regression residuals that are not normally distributed (Cooke, 1998).

Ahmed and Nicholls (1994) suggest transforming the dependent variable to logit form to ensure that the predicted dependent variable using ordinary least squares lies between zero and one. The main advantage of logit transformation is maintaining the lower and upper constraints of the dependent variable (Allison, 1999). However, Cooke (1998) argues that this problem is of little importance because the main purpose of disclosure studies is explaining rather than predicting the relationship between dependent variable and independent variables.

Cooke (1998) suggests the use of normal scores as an extension to rank regression particularly when non-linearity is a cause for concern. The normal scores approach aims to transform actual observations to their equivalent values on normal distribution. Transformation could be applied to dependent and independent variables and then the

OLS regression could be used. The normal scores approach maintains the advantages of rank regression and achieves additional advantages. For instance, regression coefficients derived using normal scores are meaningful, the significance level can be determined and the usefulness of the F-test and t-test could be maintained (Cooke, 1998). Moreover, the normal scores approach eliminates the problem of biased estimates resulting from the censored nature of the dependent variable (Camfferman and Cooke, 2002). Following Cooke (1998), Camfferman and Cooke (2002), Haniffa and Cooke (2002 and 2005), Ghazali and Weetman (2006), Amran et al. (2009), the dependent variable and continuous independent variables in this study will be transformed to normal scores. Normal score transformation leads to an approximately normal shape for most variables.

7.6 Multivariate Regression Models' Findings

This study aims to identify the determinants of risk reporting practices in the annual reports of Egyptian companies. It does this using disclosure theories and empirical research to identify the impact of competition, firm-specific characteristics, corporate governance and ownership structure (as independent variables) on mandatory and voluntary risk reporting (as dependent variable).

The dependent variables and the continuous independent variables are transformed to normal scores to avoid any problems resulting from the violation of regression assumptions. In order to examine simultaneously the association between ownership structure, corporate governance, firm-specific characteristics and mandatory/voluntary risk reporting the following regression model has been employed.

$$Y = a + b_1BE + b_2BS + b_3RD + b_4OC + b_5MO + b_6GO + b_7IO + b_8FS + b_9FL + b_{10}FP + b_{11}FV + b_{12}IM + + b_{13}AT + \varepsilon$$

where:

a = Intercept.

b = The slope of the regression line.

Y = Mandatory (EAS 25 or 33) or Voluntary risk reporting.

BE = Barriers to Entry (measured by total fixed assets).

BS = Board Size (measured by the number of board members).

RD = Role duality (dummy variable 1= CEO is the chairman and 0= otherwise).

OC= Ownership Concentration (measured by the percentage of ordinary share held by substantial shareholders >= 5%).

MO = Managerial Ownership (measured by percentage of ordinary shares held by management).

GO = Governmental Ownership (measured by percentage of ordinary shares held by government).

IO = Institutional Ownership (measured by percentage of ordinary share held by institutional investors).

FS = Firm Size (measured by net sales).

FL = Liquidity (measured by acid test ratio [current assets excluding inventories/current liabilities]).

FP = Profitability (measured by return on total assets [net profit/total assets]).

FV = Leverage (measured by total liabilities/total assets).

IM = Industry Membership (dummy variable):

mandatory risk reporting	A. IM-manufacturing 1= manufacturing and 0= otherwise.
voluntary risk reporting	A. IM-manufacturing 1= manufacturing and 0= otherwise.
	B. IM-non-manufacturing 1= non-manufacturing and 0= otherwise.

AT = Auditor Type (dummy variable 1= the auditor is affiliated with international audit firm and 0= otherwise).

ε = error term.

Six regression models have been constructed for the three dependent variables, mandatory risk reporting of EAS 25, mandatory risk reporting of EAS 33 and voluntary risk reporting, for two years, 2006 and 2007. The six models are as following:

- Mandatory risk reporting EAS 25 - 2006.
- Mandatory risk reporting EAS 25 - 2007.
- Mandatory risk reporting EAS 33 - 2 006.
- Mandatory risk reporting EAS 33 - 2007.
- Voluntary risk reporting - 2006.
- Voluntary risk reporting - 2007.

For each model the following statistics have been reported. The regression coefficient and standard error for each independent variable, measures of goodness-of-fit that represent the proportion of the variance in the dependent variable explained by the independent variables such as R (multiple correlation between the dependent and the independent variables), R^2 (a squared of R and called coefficient of determination) and adjusted R^2 (R^2 adjusted by the number of independent variables in the regression model), t-values and significant level which are used to examine whether the variance explained

by the independent variances is statically significant, the F-test of significance which tests the overall significance of a regression model and the VIF for each independent variable.

7.6.1 Mandatory Risk Reporting EAS 25 - 2006

Regression results indicate that the model is statistically significant ($F_{(13,92)}= 5.59$, $p<0.001$) and explains 36.3% of the variation in the level of compliance with EAS 25 (see Table 7.20). The results indicate a significant negative association between firm size ($p= 0.059$), ownership concentration ($p= 0.07$) and the level of compliance with EAS 25. The results suggest that large companies and companies with high ownership concentration present marginally less compliance with the mandatory disclosure requirements of EAS 25. In addition, the findings reveal a significant positive association between firm profitability ($p= 0.083$), barriers to entry ($p= 0.014$), auditor type ($p< 0.001$) and mandatory risk reporting of EAS 25. The findings suggest that companies which are more profitable, face low competition, and are audited by audit firms with international affiliations are more likely to comply with the mandatory risk reporting of EAS 25.

In brief, this result indicates that companies that comply more with the requirements of EAS 25 are small sized, more profitable companies, companies operating in a high barrier to entry environment, companies with low ownership concentration and those that are audited by audit firms with international affiliations.

Table 7.20: Mandatory Risk Reporting EAS 25 - 2006

R- square: 44.1%	Adjusted R-square: 36.3%			
F= 5.59	Significance level (p) <0.001			
ANOVA				
Source	Sum of squares	df		Mean square
regression	42.703	13		3.285
Residual	54.029	92		0.587
Total	96.732	105		
Independent variables (expected sign)	Coefficient	Standard error	t-value	Sig	VIF
Constant	-0.416	0.227	-1.830	0.071	
FS (+)	-0.224	0.117	-1.916	0.059*	2.296
FL (+/-)	-0.129	0.095	-1.351	0.180	1.519
FP (+/-)	0.174	0.099	1.752	0.083*	1.647
FV (+)	0.093	0.099	.943	0.348	1.632
BE (+)	0.267	0.106	2.512	0.014**	1.890
BS (+/-)	0.111	0.093	1.204	0.232	1.354
OC (-)	-0.228	0.125	-1.831	0.070*	1.273
GO (+/-)	-0.173	0.155	-1.115	0.268	3.092
MO (-)	-0.157	0.129	-1.215	0.227	2.100
IO (+/-)	-0.022	0.105	-.213	0.832	1.724
IM – manufacturing (+/-)	0.130	0.186	.696	0.488	1.486
RD (-)	-0.164	0.192	-.856	0.394	1.291
AT (+ Mandatory and +/- Voluntary)	0.963	0.181	5.318	0.000***	1.479

***Significant at the level 1%
**Significant at the level 5%
*Significant at the level 10%

FS Firm Size, **FL** Firm Liquidity, **FP** Firm Profitability, **FV** Firm Leverage, **BE** Barriers to Entry, **BS** Board Size, **OC** Ownership Concentration, **GO** Government Ownership, **MO** Managerial Ownership, **IO** Institutional Ownership, **IM** Industry Membership, **RD** Role Duality, **AT** Auditor Type

7.6.2 Mandatory Risk Reporting EAS 25 - 2007

For 2007, regression results indicate that the model is statistically significant ($F_{(13,91)}$= 5.74, p<0.001) and explains 37.2% of the variation in mandatory risk reporting of EAS 25 (see Table 7.21). The results indicate a significant positive association between board size (p= 0.02), auditor type (p< 0.001) and the level of compliance with mandatory risk reporting of EAS 25. The result suggests that companies with a large board and companies that are audited by audit firms with international affiliations comply more with the disclosure requirements of EAS 25. In contrast, the findings show a significant negative association between ownership concentration (p= 0.027), role duality (p= 0.071) and the level of compliance with mandatory risk reporting of EAS 25. The results suggest that companies with high ownership concentration and companies with role duality present less compliance with mandatory risk reporting. In summary, this result indicates that companies that comply more with the requirements of EAS 25 are those with large boards, with low ownership concentration, with separation between the CEO and chair of the board and that are audited by audit firms with international affiliations.

Table 7.21: Mandatory Risk Reporting EAS 25 - 2007

R- square: 45.1%	Adjusted R-square: 37.2%			
F= 5.74	Significance level (p) <0.001			
ANOVA				
Source	Sum of squares		df	Mean square
regression	43.523		13	3.348
Residual	53.049		91	.583
Total	96.572		104	
Independent variables (expected sign)	Coefficient	Standard error	t-value	Sig	VIF
Constant	-0.310	0.232	-1.336	0.185	
FS (+)	-0.060	0.119	-0.506	0.614	2.355
FL (+/-)	-0.009	0.091	-0.096	0.924	1.396
FP (+/-)	0.054	0.107	0.501	0.617	1.926
FV (+)	0.014	0.098	0.139	0.890	1.587
BE (+)	0.085	0.110	0.771	0.443	2.009
BS (+/-)	0.227	0.096	2.363	0.020**	1.448
OC (-)	-0.277	0.123	-2.248	0.027**	1.281
GO (+/-)	-0.091	0.150	-0.604	0.547	2.804
MO (-)	-0.144	0.132	-1.091	0.278	2.301
IO (+/-)	-0.086	0.108	-0.795	0.429	1.737
IM – manufacturing (+/-)	0.138	0.175	0.787	0.434	1.319
RD (-)	-0.345	0.189	-1.826	0.071*	1.257
AT (+ Mandatory and +/- Voluntary)	0.991	0.192	5.174	0.000***	1.650

***Significant at the level 1%
**Significant at the level 5%
*Significant at the level 10%

FS Firm Size, **FL** Firm Liquidity, **FP** Firm Profitability, **FV** Firm Leverage, **BE** Barriers to Entry, **BS** Board Size, **OC** Ownership Concentration, **GO** Government Ownership, **MO** Managerial Ownership, **IO** Institutional Ownership, **IM** Industry Membership, **RD** Role Duality, **AT** Auditor Type

7.6.3 Mandatory Risk Reporting EAS 33 - 2006

Regression results indicate that the model is statistically significant ($F_{(13,92)}$= 5.08, p<0.001). The model explains 33.6% of the variation in mandatory risk reporting of EAS 33 (see Table 7.22). The results reveal a significant positive association between firm liquidity (p= 0.014), barriers to entry (p< 0.001) and the level of compliance with mandatory disclosure requirements of EAS 33. This result suggests that firms with high liquidity and companies facing low competition are more compliant with the disclosure requirements of EAS 33. Moreover, the results indicate a significant negative association between governmental ownership and the level of compliance with EAS 33 (p= 0.071). The result suggests that companies with high governmental ownership provide less compliance with the disclosure requirements of EAS 33. In summary, the findings indicate that Egyptian companies which present more compliance with mandatory risk reporting of EAS 33 are more liquid companies, companies operating in a high barrier to entry environment and those with low governmental ownership.

Table 7.22: Mandatory Risk Reporting EAS 33 - 2006

R- square: 41.8%	Adjusted R-square: 33.6%				
F= 5.08	Significance level (p) <0.001				
Durbin-Watson: 2.227					
ANOVA					
Source	Sum of squares		df		Mean square
regression	36.990		13		2.845
Residual	51.507		92		.560
Total	88.497		105		
Independent variables (expected sign)	Coefficient	Standard error	t-value	Sig	VIF
Constant	-0.196	0.222	-.884	0.379	
FS (+)	-0.011	0.114	-.095	0.925	2.296
FL (+/-)	0.233	0.093	2.499	0.014**	1.519
FP (+/-)	-0.050	0.097	-.512	0.610	1.647
FV (+)	0.104	0.096	1.073	0.286	1.632
BE (+)	0.553	0.104	5.331	0.000***	1.890
BS (+/-)	-0.123	0.090	-1.358	0.178	1.354
OC (-)	-0.038	0.122	-.310	0.758	1.273
GO (+/-)	-0.276	0.151	-1.829	0.071*	3.092
MO (-)	-0.075	0.126	-.599	0.551	2.100
IO (+/-)	0.019	0.103	.189	0.850	1.724
IM – manufacturing (+/-)	-0.124	0.182	-.682	0.497	1.486
RD (-)	0.253	0.187	1.350	0.180	1.291
AT (+ Mandatory and +/- Voluntary)	0.238	0.177	1.345	0.182	1.479

***Significant at the level 1%
**Significant at the level 5%
*Significant at the level 10%

FS Firm Size, **FL** Firm Liquidity, **FP** Firm Profitability, **FV** Firm Leverage, **BE** Barriers to Entry, **BS** Board Size, **OC** Ownership Concentration, **GO** Government Ownership, **MO** Managerial Ownership, **IO** Institutional Ownership, **IM** Industry Membership, **RD** Role Duality, **AT** Auditor Type

7.6.4 Mandatory Risk Reporting EAS 33 - 2007

Regression results indicate that the model is statistically significant ($F_{(13,91)}$= 4.6, p<0.001) and explains 31% of the variation in the mandatory risk reporting of EAS 33 (see Table 7.23). The results reveal a significant positive association between firm liquidity (p< 0.001), barriers to entry (p< 0.001) and the level of compliance with the mandatory disclosure requirements of EAS 33. They also indicate that more liquid companies and companies facing less competition present more compliance with the EAS 33.

Table 7.23: Mandatory Risk Reporting EAS 33 - 2007

R- square: 39.6%	Adjusted R-square 31%			
F= 4.6	Significance level (p) <0.001			
ANOVA				
Source	Sum of squares		df	Mean square
regression	33.759		13	2.597
Residual	51.497		91	.566
Total	85.256		104	
Independent variables (expected sign)	Coefficient	Standard error	t-value	Sig	VIF
Constant	-0.189	0.229	-0.825	0.412	
FS (+)	-0.004	0.117	-0.030	0.976	2.355
FL (+/-)	0.373	0.090	4.133	0.000***	1.396
FP (+/-)	0.131	0.106	1.235	0.220	1.926
FV (+)	0.133	0.096	1.381	0.171	1.587
BE (+)	0.407	0.108	3.760	0.000***	2.009
BS (+/-)	-0.088	0.095	-0.926	0.357	1.448
OC (-)	-0.042	0.122	-0.343	0.732	1.281
GO (+/-)	-0.186	0.148	-1.259	0.211	2.804
MO (-)	-0.189	0.130	-1.459	0.148	2.301
IO (+/-)	-0.009	0.106	-0.086	0.931	1.737
IM – manufacturing (+/-)	0.002	0.173	0.009	0.993	1.319
RD (-)	0.170	0.186	0.915	0.363	1.257
AT (+ Mandatory and +/- Voluntary)	0.195	0.189	1.033	0.304	1.650

***Significant at the level 1%
**Significant at the level 5%
*Significant at the level 10%

FS Firm Size, **FL** Firm Liquidity, **FP** Firm Profitability, **FV** Firm Leverage, **BE** Barriers to Entry, **BS** Board Size, **OC** Ownership Concentration, **GO** Government Ownership, **MO** Managerial Ownership, **IO** Institutional Ownership, **IM** Industry Membership, **RD** Role Duality, **AT** Auditor Type

7.6.5 Voluntary Risk Reporting - 2006

Regression results indicate that the model is statistically significant ($F_{(14,48)}$= 3.03, p= 0.002) and explains 31.4% of the variation in voluntary risk reporting (see Table 7.24). Barrier to entry is the only variable that influences voluntary risk reporting in 2006. The result reveals a significant positive association between barriers to entry and the total voluntary risk reporting (p= 0.001). This means that companies operating in an environment with low competition as a result of high barriers to entry provide voluntarily more risk-related information.

Table 7.24: Voluntary Risk Reporting - 2006

R- square46.9%	Adjusted R-square: 31.4%				
F= 3.03	Significance level (p) = 0.002				
ANOVA					
Source	Sum of squares		df		Mean square
regression	26.052		14		1.861
Residual	29.510		48		.615
Total	55.562		62		
Independent variables (expected sign)	Coefficient	Standard error	t-value	Sig	VIF
Constant	0.491	0.355	1.384	0.173	
FS (+)	-0.113	0.196	-0.575	0.568	4.057
FL (+/-)	0.002	0.125	0.013	0.990	1.688
FP (+/-)	-0.003	0.131	-0.024	0.981	1.810
FV (+)	0.063	0.124	0.508	0.614	1.702
BE (+)	0.723	0.203	3.565	0.001***	4.053
BS (+/-)	0.017	0.132	0.127	0.900	1.670
OC (-)	0.089	0.234	0.381	0.705	1.470
GO (+/-)	-0.319	0.222	-1.439	0.157	3.563
MO (-)	-0.144	0.234	-0.617	0.540	2.653
IO (+/-)	-0.008	0.153	-0.054	0.957	2.002
IM – manufacturing (+/-)	-0.140	0.279	-0.503	0.617	1.967
IM - non-manufacturing (+/-)	-0.572	0.353	-1.623	0.111	1.835
RD (-)	-0.311	0.322	-.966	0.339	1.420
AT (+ Mandatory and +/- Voluntary)	-0.090	0.234	-.386	0.701	1.348

***Significant at the level 1%
**Significant at the level 5%
*Significant at the level 10%

FS Firm Size, **FL** Firm Liquidity, **FP** Firm Profitability, **FV** Firm Leverage, **BE** Barriers to Entry, **BS** Board Size, **OC** Ownership Concentration, **GO** Government Ownership, **MO** Managerial Ownership, **IO** Institutional Ownership, **IM** Industry Membership, **RD** Role Duality, **AT** Auditor Type

7.6.6 Voluntary Risk Reporting - 2007

Regression results indicate that the model is statistically significant ($F_{(14,57)}$= 2.95, p= 0.002) and explains 27.8% of the variation in voluntary risk reporting (see Table 7.25). The results indicate a significant positive association between barriers to entry and voluntary risk reporting (p= 0.006). In addition, there is a significant negative association between firm size and the total voluntary risk reporting (p= 0.094). This means that companies that provide more voluntary risk reporting are companies operating in an environment of low product market competition and small size companies.

Table 7.25: Voluntary Risk Reporting - 2007

R- square: 42%	Adjusted R-square 27.8%			
F= 2.95	Significance level (p) = 0.002			
ANOVA				
Source	Sum of squares	df		Mean square
Regression	26.841	14		1.917
Residual	37.069	57		0.650
Total	63.910	71		
Independent variables (expected sign)	Coefficient	Standard error	t-value	Sig	VIF
Constant	-0.029	0.379	-0.077	0.939	
FS (+)	-0.344	0.202	-1.701	0.094*	4.251
FL (+/-)	-0.091	0.117	-0.774	0.442	1.518
FP (+/-)	0.201	0.141	1.421	0.161	2.113
FV (+)	-0.021	0.121	-0.171	0.865	1.599
BE (+)	0.538	0.188	2.866	0.006***	3.397
BS (+/-)	0.193	0.121	1.594	0.116	1.452
OC (-)	-0.045	0.169	-0.266	0.791	1.214
GO (+/-)	-0.055	0.199	-0.274	0.785	2.865
MO (-)	-0.302	0.191	-1.583	0.119	2.386
IO (+/-)	-0.120	0.152	-0.788	0.434	1.711
IM – manufacturing (+/-)	0.148	0.276	0.536	0.594	1.905
IM - non-manufacturing (+/-)	-0.394	0.363	-1.086	0.282	1.889
RD (-)	0.116	0.282	0.411	0.682	1.448
AT (+ Mandatory and +/- Voluntary)	-0.349	0.246	-1.419	0.161	1.657

***Significant at the level 1%
**Significant at the level 5%
*Significant at the level 10%

FS Firm Size, **FL** Firm Liquidity, **FP** Firm Profitability, **FV** Firm Leverage, **BE** Barriers to Entry, **BS** Board Size, **OC** Ownership Concentration, **GO** Government Ownership, **MO** Managerial Ownership, **IO** Institutional Ownership, **IM** Industry Membership, **RD** Role Duality, **AT** Auditor Type

A summary of the six regression models' results is presented in Table 7.26.

Table 7.26: Summary of Findings

Determinants		Expected Sign	EAS 25		EAS 33		Voluntary		Pooling		
			2006	2007	2006	2007	2006	2007	EAS 25	EAS 33	Voluntary
Competition											
Barriers to entry	BE	+	+ (5%)	NS	+ (1%)	+ (1%)	+ (1%)	+ (1%)	+ (5%)	+ (1%)	+ (1%)
Corporate Governance											
Board size	BS	+/-	NS	+ (5%)	NS	NS	NS	NS	+ (5%)	- (10%)	NS
Role duality	RD	-	NS	- (10%)	NS	NS	NS	NS	NS	NS	NS
Auditor type	AT	(+ Mandatory)/ (+/- Voluntary)	+ (1%)	+ (1%)	NS	NS	NS	NS	+ (1%)	NS	- (5%)
Ownership Structure										NS	
Ownership concentration	OC	-	- (10%)	- (5%)	NS	NS	NS	NS	- (1%)	NS	NS
Managerial ownership	MO	-	NS	NS	NS	NS	NS	NS	NS	NS	NS
Governmental ownership	GO	+/-	NS	NS	- (10%)	NS	NS	NS	NS	- (5%)	NS
Institutional ownership	IO	+/-	NS	NS	NS	NS	NS	NS	NS	NS	NS
Company Risk Level											
Leverage	FV	+	NS	NS	NS	NS	NS	NS	NS	NS	NS
Firm Characteristics											
Firm size	FS	+	- (10%)	NS	NS	NS	NS	- (10%)	NS	NS	NS
Profitability	FP	+/-	+ (10%)	NS	NS	NS	NS	NS	+ (10%)	NS	NS
Liquidity	FL	+/-	NS	NS	+ (5%)	+ (1%)	NS	NS	NS	+ (1%)	NS
Industry membership	IM	+/-	NS	NS	NS	NS	NS	NS	NS	- (10%)	NS

NS: Non-Significant

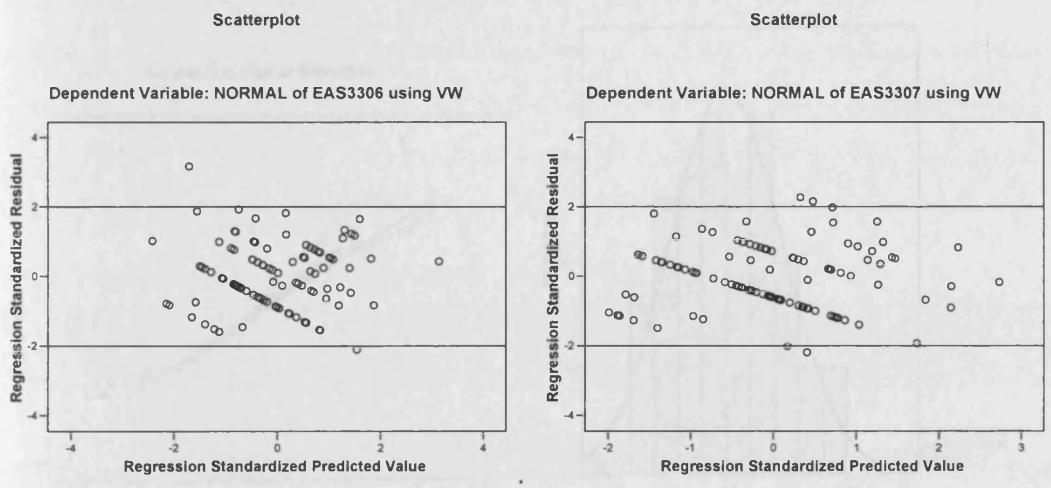
7.7 Testing OLS Regression Assumptions, Outliers, Leverage and Influential Observations

Checking and verifying the assumptions of multiple regression is a crucial step since the validity and generalisability of the results depend on satisfying these assumptions.

7.7.1 Linearity Assumption

Linearity assumption refers to linear relationship between dependent and independent variables. Linearity assumption will be checked and verified by using diagnostics graphs such as standardised residual values against standardised predicted values plots. In addition, linearity assumption will be checked by using Ramsey's RESET Test to test the functional form of the regression model. Standardised residual values against standardised predicted values plots indicate that there is no significant violation for linearity assumption (see Figure 7.3; Appendix 12).

Figure 7.3: Standardised Residual Values against Standardised Predicted Values Plots – Linearity Assumption



Moreover, Ramsey's RESET Test (see Table 7.27) reveals that the null hypothesis of a correct linear specification of the regression models cannot be rejected ($p > 0.10$). Therefore, based on the graphical examination and statistical tests, it could be concluded that the linearity assumption is not violated.

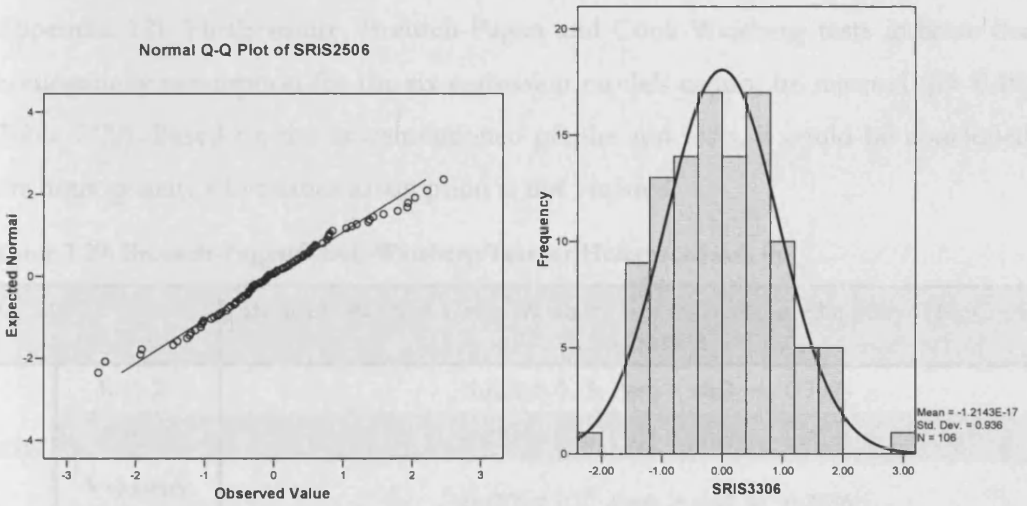
Table 7.27: Ramsey's RESET Test Results

		Ramsey RESET test (Ho: model has no omitted variables)
2006	EAS 25	F(3, 89) = 0.69, Prob > F = 0.5608
	EAS 33	F(3, 89) = 0.53, Prob > F = 0.6616
	Voluntary Disclosure	F(3, 45) = 0.83, Prob > F = 0.4854
2007	EAS 25	F(3, 89) = 0.24, Prob > F = 0.8669
	EAS 33	F(3, 89) = 1.69, Prob > F = 0.1741
	Voluntary Disclosure	F(3, 55) = 2.11, Prob > F = 0.1101

7.7.2 Normality Assumption

Normality assumption refers to normal distribution of regression residuals. Normality assumption will be checked graphically by investigating Q-Q plots, histogram and normal probability plots of the residuals. In addition, the K-S test will be used to test residuals normality. Histogram and normal probability plots of the residuals indicate that the distribution of the residuals is approximately normal (see Figure 7.4; Appendix 13).

Figure 7.4: Residuals Q-Q Plots and Histogram



Moreover, the K-S test indicates that the null hypothesis that the residuals are normally distributed cannot be rejected (p> 0.10) (see Table 7.28).

Table 7.28: K-S Test of Normality

	Kolmogorov-Smirnov		
	Statistic	df	Sig
SRIS2506	.059	106	P > 0.10
SRIS2507	.037	105	P > 0.10
SRIS3306	.060	106	P > 0.10
SRIS3307	.054	105	P > 0.10
SRISVOL06	.058	63	P > 0.10
SRISVOL07	.064	72	P > 0.10

7.7.3 Homoscedasticity Assumption

Homoscedasticity refers to homogeneity of residuals variance at different levels of independent variables. Homoscedasticity could be detected graphically through standardised residuals versus standardised predicted values plots. Moreover, the homoscedasticity assumption will be assessed through the Breusch-Pagan and Cook-Weisberg tests. Standardised residuals versus standardised predicted values plots indicate a random array of dots and the dots do not take 'funnels out' shape (see Figure 7.3; Appendix 12). Furthermore, Breusch-Pagan and Cook-Weisberg tests indicate that the homogeneity assumption for the six regression models cannot be rejected (p> 0.10) (see Table 7.29). Based on the aforementioned graphs and tests, it could be concluded that the homogeneity of variance assumption is not violated.

Table 7.29: Breusch-Pagan/Cook-Weisberg Test for Heteroscedasticity

		Breusch-Pagan / Cook-Weisberg test for heteroscedasticity (Ho: Constant variance)
2006	EAS 25	chi2(1)= 0.15, Prob > chi2 = 0.7004
	EAS 33	chi2(1)= 1.46, Prob > chi2 = 0.2266
	Voluntary disclosure	chi2(1)= 1.17, Prob > chi2 = 0.2786
2007	EAS 25	chi2(1)= 0.93, Prob > chi2 = 0.3338
	EAS 33	chi2(1)= 0.26, Prob > chi2 = 0.6068
	Voluntary disclosure	chi2(1)= 0.75, Prob > chi2 = 0.3869

7.7.4 Outliers, Leverage and Influential Observations

Outliers refer to observations with large residuals that are significantly different from other observations. Outliers will be checked graphically through standardised residuals versus standardised predicted values plots and by identifying observations with standardised residuals larger than 2 (see Figure 7.5; Appendix 14). It is expected and

accepted that 5% of the observations have standardised residuals larger than 2. Table 7.30 indicates the threshold and number of observations with standardised residuals > 2.

Figure 7.5: Standardised Residuals Values against Standardised Predicted Values Plots - outliers

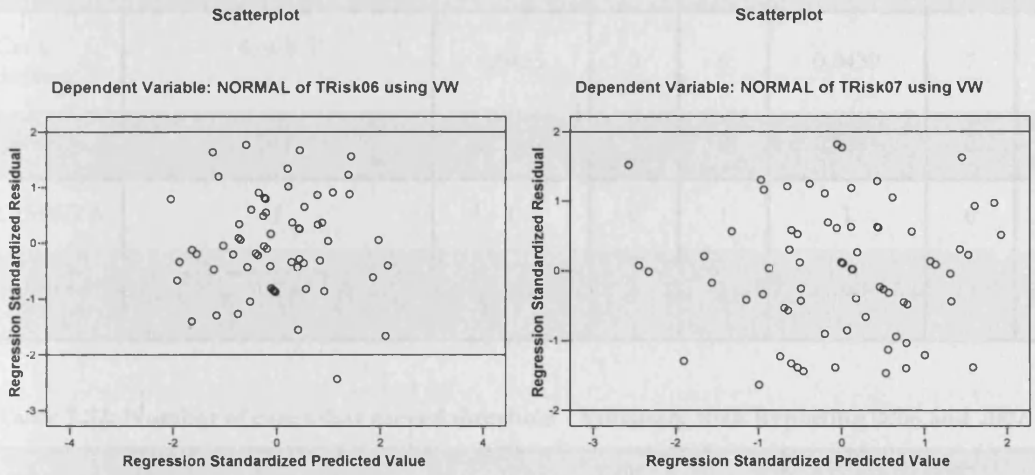


Table 7.30 indicates that the number of outliers is within the acceptable range and the existence of some observations with large residuals will not harm the analysis.

Table 7.30: Number of observations considered as Outliers

	2006			2007		
	EAS-25	EAS-33	Voluntary disclosure	EAS-25	EAS-33	Voluntary disclosure
No. of observation with standardised residuals > 2	5	2	1	2	4	0
Threshold criteria (No. of observations)	5	5	3	5	5	4

Leverage points and influential observations are observations that have undue impact on the regression model. Based on the discussion regarding diagnostics tools of influential observations (see section 6.5.2.7.3), several statistical measures will be used to detect these observations (see Appendix 14). Tables 7.31 and 7.32 summarise these statistical measures, the threshold criteria, calculated threshold and the number of cases that exceed the threshold.

Table 7.31: Number of cases that exceed threshold - Mandatory Risk Reporting 2006 and 2007

Measures	Threshold Criteria	2006			2007		
		Calculated Threshold	EAS-25	EAS-33	Calculated Threshold	EAS-25	EAS-33
Cook distance	4/n-k-1	0.0435	9	6	0.0439	7	6
Leverage	2(K+1)/n	0.2642	2	2	0.2667	2	2
DIFBETA	1	1	0	1	1	0	0
DIFFIT	$2\sqrt{(K+1)/(n-K-1)}$	0.7802	9	6	0.47	7	6

Table 7.32: Number of cases that exceed threshold - Voluntary Risk Reporting 2006 and 2007

Measures	Threshold Criteria	2006		2007	
		Calculated Threshold	No	Calculated Threshold	No
Cook distance	4/n-k-1	0.0833	6	0.0702	2
Leverage	2(K+1)/n	0.4762	0	0.4167	0
DIFBETA	1	1	1	1	0
DIFFIT	$2\sqrt{(K+1)/(n-K-1)}$	1.118	7	1.026	2

After an in-depth examination of outliers, high leverage and influential observations, it was decided to keep these observations since they slightly exceed the cut-off points and provide important information about the population and deleting them might threaten the results' generalisability.

Several procedures have been employed to check the robustness of the regression results and the sensitivity to alternative specifications. This study runs two OLS regression models by using pooled data. The findings are reported in Appendix 15. In general, the results of the pooled data indicate, qualitatively, similar results to that of the individual year data. Another procedure is a re-sampling approach. In this approach, a few observations are deleted to check any major changes in regression's coefficients (Studenmund, 2006). Following this approach, five observations have been selected randomly to be deleted from the analysis and then the regression models were re-run. This procedure has been repeated 10 times for each regression model. The results indicate, qualitatively, similar results to those obtained from a full sample. The results

show non-significant changes in the adjusted R^2 and the regression's coefficients. This confirms that regression models are robust.

Several approaches have been used to check for collinearity. The VIF for each independent variable is calculated to assess any potential collinearity among independent variables. As a rule of thumb, it is suggested that a variable with VIF of 10 or more is a cause for concern. The VIF has been calculated for the independent variables in 2006 and 2007 and the results indicate that the largest VIF in 2006 is 3.56 and 4.06 for firm size and government ownership respectively while the largest VIF in 2007 is 4.25 and 3.40 for firm size and barriers to entry respectively. In addition, condition index has been calculated for each regression model (see Appendix 16). The condition index of all the variables is far below the cut-off point of 15 (Belsley et al., 1980) and none of them has an eigenvalue of zero (Myers and Well, 2003). These measures suggest that collinearity may not be a serious problem for the regression analysis. However, a further sensitivity analysis has been conducted by re-running regression analysis with/without barriers to entry and firm size variables because they have the highest correlation coefficient and comparing the results with that of the full model. On the one hand, when firm size variable has been dropped from while barriers to entry variable has been kept in the regression model the results show minor changes. The results indicate that (see Appendix 17.A):

1- Mandatory risk reporting EAS 25-2006: Barriers to entry variable remained significant but at 10% level while auditor type and ownership concentration variables remained significant at 1% and 10% level respectively. However, profitability variable became non-significant and other variables remained without changes.

2- Mandatory risk reporting EAS 33-2006: No changes happened to the results in this model. Barriers to entry, liquidity, and governmental ownership variables remained significant at 1%, 5% and 10% level respectively and other variables remained without changes.

3- Voluntary risk reporting-2006: No changes happened to the results in this model. Barriers to entry variable remained significant at 1% level and other variables remained without changes.

4- Mandatory risk reporting EAS 25-2007: No changes happened to the results in this model. Auditor type, board size and role duality variables remained significant at 1%, 5% and 10% level respectively. In addition, ownership concentration variable remained significant at 5% level and other variables remained without changes.

5- Mandatory risk reporting EAS 33-2007: No changes happened to the results in this model. Barriers to entry and liquidity variables remained significant at 1% level and other variables remained without changes.

6- Voluntary risk reporting-2007: Barriers to entry variable remained significant but at 5% level while auditor type variable became significant at 10% level. Other variables remained without changes.

On the other hand, when barriers to entry variable has been dropped from and firm size variable has been kept in the regression model the results show some changes. The results indicate that (see Appendix 17.B):

1- Mandatory risk reporting EAS 25-2006: Auditor type remained significant at 1% level while ownership concentration became significant at 5% level. Both firm size and profitability became non-significant while other variables remained without changes.

2- Mandatory risk reporting EAS 33-2006: Liquidity remained significant at 5% level. Both firm size and auditor type became significant at 5% and 10% level respectively while governmental ownership became non-significant. Other variables remained without changes.

3- Voluntary risk reporting-2006: Firm size and industry membership became significant at 5% and 10% level respectively while other variables remained without changes.

4- Mandatory risk reporting EAS 25-2007: No changes happened to the results. Auditor type, board size and role duality remained significant at 1%, 5% and 10% level respectively. Ownership concentration remained significant at 10% level while other variables remained without changes.

5- Mandatory risk reporting EAS 33-2007: liquidity variable remained significant at 1% level and firm size became significant at 5% level while other variables remained without changes.

6- Voluntary risk reporting-2007: Board size and industry membership became significant at 10% while firm size became non-significant. Other variables remained without changes.

These changes in the results may indicate that the barriers to entry variable has a significant contribution to the regression model while the firm size variable has a little one but together they provide better explanation to the variation of the dependent variables. However, the interpretations of the results should be taken with caution. Finally, the results of Ramsey's RESET Test indicate that there are no major specification errors in the regression models (see Table 7.27).

7.8 Summary and Conclusion

This chapter has examined statistically the impact of competition, ownership structure and corporate governance characteristics on risk reporting. Barrier to entry is employed as a proxy for competition. Ownership structure variables are ownership concentration, managerial ownership, governmental ownership and institutional ownership while corporate governance variables are board size and role duality. In addition, the study controls for firm-specific characteristics such as firm size, profitability, liquidity, leverage, industry membership and auditor type. Six regression models have been run to test 39 research hypotheses for 2006 and 2007.

With respect to mandatory risk reporting, descriptive statistics reveal a very low level of compliance with EAS 25 (19.33% and 21.57% in 2006 and 2007 respectively) and EAS 33 (18.25% and 16.99% in 2006 and 2007 respectively). This result reflects the impact of the secretive nature of Egyptian culture on risk reporting and highlights the potential difficulties that Egyptian companies face in applying these two standards. Furthermore, it emphasises the inactive role of the CMA and the EGX in monitoring listed companies compliance with accounting standards. Also, the result indicates that there is a significant increase in the level of compliance with EAS 25 between 2006 and 2007 while there is a non-significant change in the level of compliance with EAS 33 between 2006 and 2007.

With respect to voluntary risk reporting, Egyptian companies tend to disclose more non-financial, qualitative, good news and past risk disclosure than financial, quantitative, bad news and future voluntary risk disclosure. The lack of quantitative and forward-looking voluntary risk reporting in the annual reports of Egyptian companies impairs the usefulness of risk reporting and highlights the impact of the secretive nature of Egyptian culture on voluntary risk reporting practices of Egyptian companies. Finally, the correlation between mandatory and voluntary risk reporting points to a significant coordination between the board of directors and the management in preparing the annual reports of Egyptian companies.

Multivariate analysis indicates positive associations between profitability, liquidity, barriers to entry, auditor type, board size and compliance with mandatory risk disclosure. In contrast, negative associations are revealed between ownership concentration, governmental ownership, firm size, role duality and compliance with mandatory risk disclosure. Furthermore, the analysis indicates positive associations between barriers to entry, firm size and voluntary risk reporting (see Table 7.26). Finally, a graphical

examination of the data and statistical tests confirm that multiple regression assumptions are satisfied. Moreover, collinearity, outliers, leverage and influential observations are not serious problems for regression analysis and this supports the validity and generalisability of the results. The next chapter will explain the low compliance with mandatory and presentation of voluntary risk reporting evident in this chapter through examining the potential factors that may lead to low risk reporting in the annual reports of Egyptian companies.

CHAPTER 8: FACTORS THAT INFLUENCE THE PRESENTATION OF RISK REPORTING

8.1 Introduction

The previous chapter investigated the level of compliance with mandatory risk reporting requirements and identified the voluntary risk reporting practices of Egyptian companies. The results of the quantitative analysis in the previous chapter indicated a low level of compliance with mandatory risk reporting and low presentation of voluntary risk reporting in the annual reports of Egyptian listed companies.

This chapter takes a further step by exploring and investigating the factors that influence presentation of mandatory and voluntary risk reporting. A semi-structured interview method was chosen to elicit respondents' perceptions regarding the impact of these factors on the risk reporting practices of Egyptian companies. Inductive and deductive approaches have been used to identify the categories/themes used in qualitative data analysis.

Factors that influence presentation of mandatory and voluntary risk reporting have been categorised into four groups as follows:

- Factors related to accounting education.
- Factors related to accounting practice.
- Factors related to cost of disclosure
- Other factors.

These factors are discussed in sections 8.2, 8.3, 8.4 and 8.5 respectively. Finally, section 8.6 is a summary and conclusion.

8.2 Factors Related to Accounting Education

Based on prior literature, six factors have been recognised as a potential threat to risk reporting practices of Egyptian companies. The potential impact of these factors on mandatory and voluntary risk reporting has been discussed as follows.

8.2.1 Inadequate Local Accounting Textbooks

Regarding the impact of local accounting textbooks on risk reporting practices, 12 of the interviewees indicated that local accounting textbooks are outdated and do not discuss properly the application of accounting standards or highlight the importance of voluntary disclosure. This result is in line with the AAA's (1976) argument that inadequate local

accounting textbooks are a major problem for accounting education in developing countries. According to two respondents (FM-2 and RG-1), several local textbooks have not updated their contents and the information provided dates back to the 1980s at best. Enthoven (1985) argues that the structure and content of the accounting curricula in developing countries should be updated to meet the fast changing international business environment. Moreover, upgrading the accounting curricula is a key factor for the successful application of IFRS (McGee 2006). A financial manager (FM-1) indicated that local textbooks need to be developed because outdated ones spread a state of deadlock in accounting practices in Egypt. This result confirms the results of Kayed (1990) and ROSC (2002) regarding the inadequate accounting textbooks and lack of learning material and their negative impact on accounting practice in Egypt.

The main problem of local textbooks is the weak presentation and discussion of the IASs/EASs. It is hard to find an Arabic textbook that discusses properly the application of accounting standards not merely summarising the original text of the standards. An external auditor (AD-1) argued that most textbooks do not discuss the application of EASs and the basics of sound accounting practices, based on accounting standards, are not explained adequately in local textbooks.

Two external auditors (AD-2 and AD-3) believed that local textbooks discuss the EASs in their title only but in content they do not. A regulator (RG-2) added that the consequence of very poor local textbooks is producing an accountant without sufficient awareness regarding sound accounting practices. Moreover, an academic (AC-3) indicated that there is no motivation for systematic development of local accounting textbooks and the incentive is merely a personal motivation. Finally, an external auditor (AD-5) pointed out that local textbooks suffer from the absence of a case study approach in presenting the application of accounting standards, their contents depart from real accounting practice and they are not related to accounting standards. Alternatively, three of the interviewees thought that local accounting textbooks are adequate, updated and present accounting standards properly. An academic (AC-2) indicated that local textbooks are up-to-date, keep pace with recent amendments in accounting standards and provide an adequate presentation for the application of accounting standards. Another academic (AC-1) argued that the problem is not the poor local textbooks. The main problem is the education process itself. He stated:

The educational process is characterised by a large number of students, few staff and teaching assistants, no reliance on case study approach to introduce the students how to apply accounting disclosure.

This result is consistent with that of Kayed (1990) and ROSC (2002) regarding the poor student/staff ratio which reaches 1000:1 in large government universities and lack of a case study approach in undergraduate studies.

Table 8.1 summarises the respondents' points of view regarding the potential impact of inadequate local accounting textbooks on risk reporting.

Table 8. 1: The Impact of the Inadequate Local Accounting Textbooks on Risk Reporting Practices

Agree	Disagree
A. Local accounting textbooks are outdated and fail to discuss properly the application of accounting standards or emphasise the importance of voluntary disclosure. B. The contents of local textbooks depart from real accounting practice and they are not related to accounting standards.	A. Local accounting textbooks are adequate, updated and present accounting standards properly but the problem is the educational process itself.

8.2.2 Inadequate Accounting Education of Managers and Decision-makers

Regarding the impact of managers' accounting education on risk reporting, 14 of the interviewees indicated that the inadequate accounting education of managers has a negative impact on mandatory and voluntary risk reporting practices in Egyptian companies. According to a regulator (RG-1), due to the lack of adequate accounting education, managers consider preparing financial statements a routine process to satisfy regulation requirements only. Therefore, there is no need to provide more voluntary disclosure. Moreover, an external auditor (AD-4) thought that managers consider compliance with the EASs an optional decision and the standards could be applied in a selective manner. AAA (1976) recognises the inadequate accounting education of managers as one of the key problems of accounting education in developing countries, Tai et al. (1990) and Al-Mulhem (2003) indicate that managers, especially in developing countries, suffer from difficulties in understanding the requirements of company law and accounting standards. In addition, Akathaporn et al. (1993) argue that managers of Thai companies, especially small and medium sized ones, have very little knowledge about the role and benefits of financial reporting.

The inadequate accounting education of managers and decision makers impaired the importance of compliance with risk-related accounting standards and presentation of voluntary risk reporting. A regulator (RG-2) believed that information such as risk disclosure may not be included in financial reports due to the lack of managers' knowledge regarding the importance of accounting disclosure. An academic (AC-1) remarked:

> *The inadequate accounting background of managers and decision makers may lead to the failure to recognise the important role of mandatory and voluntary risk reporting in supporting the company's image.*

In the same vein, an external auditor (AD-5) added that managers' accounting knowledge is very poor and therefore they believe that adherence to accounting standards or presentation of voluntary reporting, including risk reporting, is useless. Several respondents highlighted that the inadequate accounting education of managers and decision-makers is a stumbling block to the development of the financial reporting practices of Egyptian companies since they resist any attempt to enhance accounting practices including risk reporting. An external auditor (AD-3) remarked:

> *Managers' knowledge concerning financial reporting is very poor and hence they opposed the presentation of voluntary risk reporting within financial reports. In several cases, we put pressure on the managers to accept the compliance with risk-related EASs.*

Similarly, a financial manager (FM-1) indicated that he faced strong confrontation from top management when he proposed some enhancement in the financial reports and related disclosure such as segment reporting. In the same vein, a regulator (RG-2) highlighted that any attempt from the regulatory authorities to develop financial reporting and disclosure practices of Egyptian companies receive very low acceptance from companies. An external auditor (AD-1) commented that the main problem in the application of EASs is low management awareness concerning the necessity to keep pace with the changes that have occurred in accounting standards and practices

A regulator (RG-1) pointed out that the problem of inadequate accounting education for managers and decision-makers is exaggerated in small companies because managers in these companies may suffer from a shortage of accounting knowledge and do not appreciate the role of financial reporting in supporting the market value of companies' shares. Another regulator (RG-4) added that large companies have professional managers

who depend on accounting information in their decisions and appreciate the importance of financial disclosure in annual reports.

It is worth mentioning that an external auditor (AD-6) highlighted the need for special courses for top management in financial reporting as a prerequisite for promotion because he witnessed many cases of managers signing off the financial reports while not understanding their content. This result is consistent with the result of Tai et al. (1990) that managers might sign off financial statements without any knowledge regarding the problems embedded in them.

Alternatively, one of the interviewees (FM-2) argued that managers' lack of accounting background does not mean that the company will not prepare proper financial statements because the external auditor will assist in preparing financial statements through highlighting what the company should report.

Table 8.2 summarises the respondents' views regarding the potential impact of the inadequate accounting education of managers on risk reporting.

Table 8.2: The Impact of the Inadequate Accounting Education of Managers on Risk Reporting Practices

Agree	Disagree
A. Managers consider preparing financial statements as a routine process to meet legal requirements only. B. The application of accounting standards is optional and the standards could be applied selectively. C. Managers understate the importance of risk reporting. D. Managers resist any attempt to enhance financial reporting in annual reports.	A. The assistance a company receive from external auditor may alleviate the impact of inadequate accounting education of managers on risk reporting.

8.2.3 Bookkeeping and Procedures-oriented Accounting Education

Regarding the impact of the emphasis on bookkeeping and accounting procedures on risk reporting, all the interviewees argued that accounting education limits the attention to a procedures-approach to accounting and pays less attention to financial reporting which in turn may impede presentation of mandatory and voluntary risk reporting in the annual reports of Egyptian companies. This result is in line with the conclusion of AAA (1976) that significant focus on bookkeeping and accounting procedures is a major feature of accounting education in developing countries. An external auditor (AD-3) remarked:

> *Accounting education does not discuss accounting disclosure properly. Students in accounting sections do not know the real meaning of the word 'Disclosure'. Therefore, it is*

difficult for them to deal with accounting disclosure-related standards especially those related to highly sensitive topics such as risk reporting.

Moreover, a financial manager (FM-1) indicated that accounting education does not provide illustrations and case studies on how to report certain information such as segment reporting.

The participants identify three main characteristics of accounting education in Egypt that contribute to low presentation of mandatory an d voluntary risk reporting. First, an academic (AC-3) argued that accounting education pays less attention to the application of financial reporting standards and this, without doubt, will lead to a limited accounting knowledge of the graduate. Second, an external auditor (AD-5) believed that there is no clear approach regarding how to train students on the application of financial reporting standards. It is very rare to find a graduate able to deal with the standards and who is aware of the importance of complying with them. Third, accounting education focuses mainly on accounting measurements and ignores accounting disclosure which in turn distorts the accounting knowledge of a graduate. An external auditor (AD-6) indicated that accounting measurement dominates the accounting curricula in Egyptian universities.

It is worth mentioning that a regulator (RG-4) indicated that in an interview with 65 candidates, he found that most candidates did not have sufficient knowledge about accounting disclosure and financial reporting standards. Only three candidates were able to discuss and present a reasonable understanding regarding accounting standards requirements and financial reporting.

Table 8.3 summarises the interviewees' views regarding the potential impact of bookkeeping and procedures-oriented accounting education on risk reporting.

Table 8.3: The Impact of the Bookkeeping and Procedures-oriented Accounting Education on Risk Reporting Practices

Agree
A. Accounting education pays more attention to a procedure-approach of accounting and undermines the importance of financial reporting.
B. Accounting education does not provide educational material regarding the application of financial reporting standards.
C. Accounting education focuses mainly on accounting measurements and understates the importance of accounting disclosure.

8.2.4 Limited Emphasis on Conceptual Framework for the Preparation and Presentation of Financial Statements and Objectives of Financial Reporting

Lin and Deng (1992) highlight the importance of the objectives of financial reporting, qualitative characteristics of accounting information and basic elements of financial reporting in forming a well-established framework for accounting education and practice.

Regarding the impact of limited emphasis on the conceptual framework and objectives of financial reporting on risk reporting practices, all the interviewees indicated that a relatively low importance has been given by accounting education to the conceptual framework and objectives of financial reporting and this is a main reason for low presentation of mandatory and voluntary risk reporting. Kayed (1990) indicates that Egyptian accounting education focuses principally on technical rather than conceptual issues. Moreover, Al-Mulhem (2003) points out that lack of awareness regarding the objectives of financial reporting is a key reason for non-compliance with disclosure requirements in Saudi companies. An academic (AC-2) remarked:

> *This is an important factor for non-compliance with accounting standards and low presentation of voluntary disclosure in the annual reports of Egyptian companies. The relative weight of accounting measurement in the curricula is much larger than the relative weight of accounting disclosure. This in turn led the accountants to focus mainly on accounting measurement and ignore disclosure in annual reports.*

This result is consistent with the finding of Samaha and Stapleton (2008) that Egyptian companies tend to comply more with accounting standards related to measurement aspects than accounting standards related to disclosure aspects. Street and Gray (2002) and Al-Shammari et al. (2008) reach a similar conclusion. They find that compliance with disclosure requirements is lower than compliance with measurement requirements. Moreover, a low emphasis on the conceptual framework results in a distortion of students' knowledge regarding their importance as guidance to accounting practices. A regulator (RG-3) indicated:

> *Accounting education does not pay significant attention to the conceptual framework for the preparation and presentation of financial statements in spite of its importance in highlighting the role of accounting disclosure which in turn influences accountants' awareness regarding the importance of compliance with accounting standards and presentation of voluntary disclosure including risk reporting.*

As a result of the limited emphasis on the conceptual framework, the accountants pay less attention to disclosure in annual reports. An academic (AC-1) indicated:

> *The conceptual framework for the preparation and presentation of financial statements is explained in short paragraphs, if any, without any depth or without making sure that the students understand its basic elements and the objectives of financial statements.*

An external auditor (AD-1) pointed out the failure to present accounting disclosures that satisfy the qualitative characteristics of accounting information as a consequence of limited emphasis on the conceptual framework. A regulator (RG-2) supported this point of view by stating that accountants do not know how to prepare disclosure in accordance with qualitative characteristics of accounting information.

Interestingly, an external auditor (AD-6) added that several accountants and auditors are confused concerning the basic concepts of accounting. He stated:

> *I discovered that a large number of practitioners do not understand the difference between the assumptions, principles, constraints and qualitative characteristics of information. They do not know the difference between these elements because of the neglect of introducing the Conceptual Framework in accounting education. Certainly, this will influence disclosure practices.*

It is worth mentioning that a regulator (RG-2) indicated that to encourage companies to apply corporate governance principles, the EIoD held a competition between the top 30 listed companies for the best website and annual report. The results were disappointing because several companies have only financial statements and have no idea about the annual reports.

Table 8.4 summarises the respondents' point of view regarding the potential impact of limited emphasis on conceptual framework and objectives of financial reporting on risk reporting.

Table 8.4: The Impact of Limited Emphasis on Conceptual Framework and Objectives of Financial Reporting on Risk Reporting Practices

Agree
A. Accounting education focuses mainly on technical rather than conceptual issues.
B. Accountants assign a very small relative weight to disclosure in financial reports.
C. Accountants fail to present accounting disclosures that meet the qualitative characteristics of accounting information.
D. A large number of practitioners misunderstand the basic concepts of the conceptual framework..

8.2.5 Lack of Sufficient Practical Training of Accounting Students

Tipgos (1987), Kayed (1990), Akathaporn et al. (1993) and El-Basteki (2000) highlight the importance of practical training or internship programs for accounting students during their undergraduate education as a key factor to enhance accounting practice. This kind of training will assist them in applying the accounting knowledge they gain in real world situations (Lin and Deng, 1992).

Regarding the impact of practical training of undergraduate students on risk reporting practices, all the interviewees agreed that the lack of relevant practical training of students has a negative impact on risk reporting practices of Egyptian companies. The absence of practical training leads to shortage in graduates' accounting knowledge which in turn undermines the importance of accounting disclosure. An academic (AC-3) emphasised that:

> *Students in accounting sections do not get any training regarding accounting standards. Therefore, the preparation of financial statements in accordance with EASs and the presentation of voluntary disclosure is questionable.*

An academic (AC-1) indicated that the absence of practical training limits graduates' accounting knowledge to procedural aspects only and hinders the application of accounting standards in practice. An external auditor (AD-5) added that the students do not receive any practical training which can contribute to building their accounting skills and knowledge. Consequently, the result is limited disclosures. Moreover, an external auditor (AD-2) highlighted that the absence of relevant practical training as one main reason for non-compliance with accounting standards because students do not practice how to apply them in preparing financial statements. A regulator (RG-3) remarked:

> *The lack of practical training for students leads to low knowledge about the process of preparing financial reports, and low awareness regarding the role of accounting standards in this process and the merits of voluntary disclosure.*

Another external auditor (AD-1) highlighted the fact that the absence of practical training is a major reason that students have no idea about best voluntary disclosure practices.

Respondents identify a number of reasons that hinder the provision of practical training to graduates of accounting sections in Egyptian universities. First, the large number of students accepted by business schools has been given as a major reason for the absence of practical training to students (AC-2 and RG-4). Second, an academic (AC-3) pointed

out that funding problems and lack of companies' awareness towards the importance of their contribution in students' training are key obstacles to offering practical training to undergraduate students.

Table 8.5 summarises the respondents' views regarding the potential impact of lack of sufficient practical training of accounting students on risk.

Table 8.5: The Impact of Lack of Sufficient Practical Training of Accounting Students on Risk Reporting Practices

	Agree
A.	The absence of practical training limits graduates' accounting knowledge and undermines the importance of accounting disclosure.
B.	The absence of practical training limits graduates' accounting knowledge to procedural aspects and hinders the application of accounting standards.
C.	The absence of practical training hinders students from having ideas about sound voluntary disclosure practices.

8.2.6 Lack of Cooperation between the Profession and Universities

Successful implementation of the IASs requires integrating accounting and auditing standards into accounting curricula and coordinating accounting education programmes with professional qualification (UNCTAD, 2008). Enthoven (1985), Tipgos (1987), Jensen and Arrington (1983) and Akathaporn et al. (1993) identify the need for effective cooperation between the profession and universities in accounting education and research in developing countries. Developing countries face several accounting problems that require cooperative efforts to address (El-Basteki, 2000). Professional bodies should highlight accounting skills and the knowledge required for practicing the profession as well as underline the strength and weaknesses of accounting education (El-Basteki, 2000). This cooperation provides essential inputs to university to re-design the accounting curricula to be more dynamic and to fit a country's needs (Akathaporn et al., 1993; El-Basteki, 2000).

Regarding the impact of cooperation between the profession and universities on risk reporting, 10 of the interviewees indicated that non-cooperation between the profession and universities in education and research issues leads to significant problems in the application of accounting standards and presentation of voluntary disclosure related to risk reporting. An academic (AC-1) expressed the following opinion:

> *Due to lack of cooperation between the profession and universities in education aspects, accounting textbooks depart from current accounting practices. Consequently, graduates' accounting knowledge is not commensurate with the requirements of professional practice. Moreover, the lack of cooperation between the profession and universities in accounting*

research results in severe problems in the application of EASs. The profession should guide academic research to potential problems in practice. For example, auditors may identify the lack of relevant risk reporting and accounting research could examine the reasons for this deficiency or non-compliance and propose solutions.

Another academic (AC-3) emphasised the impact of lack of cooperation between the profession and universities on compliance with risk-related accounting standards. He stated:

There is no coordination between the parties interested in the profession on the macro level. Consequently, the graduate is not able to interact with the requirements of accounting standards or prepare financial statements in line with EASs. Furthermore, the concept of joint research between academics and practitioners is not accepted. Hence, problems such as non-compliance with segment reporting and financial instruments are not discussed in a scientific manner and the reasons behind these problems are not identified.

An external auditor (AD-1) indicated that the lack of cooperation between the profession and universities leads to a very small representation of academics on the committee established for the preparation of EASs. The committee consists of seven members only one of which is an academic and the rest are practitioners.

The respondents identify a number of reasons for the absence of cooperation between the profession and universities in education and research. First, an academic (AC-1) indicated that there is no single authority empowered to regulate the profession in Egypt and therefore the multiplicity of the parties claiming to represent the profession hinders cooperation. Second, another academic (AC-3) believed that academics and practitioners suffer from limited awareness regarding the importance of their cooperation in accounting education and research. Third, an external auditor (AD-6) indicated that academics tend to monopolise accounting research and are not willing to cooperate with practitioners for personal reasons.

It is worth mentioning that an external auditor (AD-6) suggested that practical training for a certain number of hours should be one graduation requirement and students should be given some lectures/classes by experienced practitioners.

Alternatively, five of the interviewees could not find a direct impact of the lack of cooperation between the profession and universities on risk reporting practices of Egyptian companies. Table 8.6 summarises the respondents' views regarding the

potential impact of lack of cooperation between the profession and universities on risk reporting.

Table 8.6: The Impact of the Lack of Cooperation between the Profession and Universities on Risk Reporting Practices

Agree	Disagree
A. Non-cooperation between the profession and universities in education and research issues leads to significant problems in risk reporting. B. The profession does not guide academic research to practice problems.	A. There is a relative cooperation between the profession and universities. B. There is no direct impact from the lack of cooperation between the profession and universities on risk reporting.

8.3 Factors Related to Accounting Practice

Based on previous studies, nine problems related to accounting practice in Egypt have been identified as potential obstacles to mandatory and voluntary risk reporting in the annual reports of Egyptian companies. Interviewees were asked to explain their views regarding the potential impact of these factors on risk reporting practices.

8.3.1 Lack of Qualified Accountants

The shortage of experienced accountants is one of the main obstacles to the adequate implementation of accounting standards (UNCTAD, 2008). Regarding the impact of qualified accountants on the presentation of mandatory and voluntary risk disclosure, 12 of the interviewees argued that the lack of qualified accountants has a significant negative impact on compliance levels with the EASs as well as voluntary presentation of risk information. This result is consistent with AAA (1976), Tai et al. (1990) and Al-Mulhem (2003) who agree that a shortage of competent accounting staff is a key reason for non-compliance with disclosure requirements. A regulator (RG-1) commented:

> *Yes, there is a significant shortage of qualified financial accountants in many companies which negatively impacts the quality of financial reports.*

This shortage of qualified financial accountants has significant negative consequences on risk reporting practices. An academic (AC-3) stated:

> *The significant shortage in qualified accountants results in a divergence in Egyptian companies' accounting practices as benchmarked against EASs and IASs.*

Interviewees presented two key reasons for a shortage of qualified financial accountants in Egyptian companies. First, interviewees from the academic group (AC-1) and the external auditors group (AD-1 and AD-2) highlighted the lack of up-to-date accounting knowledge as a major reason for the shortage of qualified accountants. An academic (AC-1) stated:

Most - a large proportion - of the accountants in Egyptian companies do not up-date their knowledge about accounting standards and their amendments, particularly those related to disclosure requirements. This lack of knowledge negatively influences the quality of financial reports particularly the disclosure of risk information.

In the same vein, an external auditor (AD-1) remarked:

From my experience, 90% of the accountants in Egyptian companies do not have sufficient experience in the preparation of financial statements to make them consistent with EASs and IASs and many of them even do not read the EASs.

Second, respondents from the academic group (AC-5 and AC-3) and the external auditors group (AD-3and AD-4) highlighted a lack of sufficient training as a potential reason for lack of qualified accountants. An external auditor (AD-3) indicated that:

Most accountants have the minimum level of accounting knowledge and suffer from a lack of practical training which in turn influences their abilities to prepare financial statements and disclosures in accordance with the Egyptian Accounting Standards. They need more courses to gain experience and enhance their accounting knowledge.

An external auditor (AD-4) confirmed this point of view and added that:

Egyptian Accounting Standards are not properly presented to practitioners. Accountants do not get any adequate training before the application of Egyptian Accounting Standards which leads to a low level of compliance.

This result is consistent with Dahawy et al. (2002) who argue that immediate adoption of the IASs does not allow sufficient time for companies and the accounting profession to prepare. Preparers, users, regulators, professional agencies and educators should be engaged in the planning and implementation of IASs (UNCTAD, 2008).

Moreover, the cost of recruiting highly qualified accountants has been highlighted as a potential reason for the inadequate financial reports of Egyptian companies. A regulator (RG-4) commented:

Highly qualified accountants, holders of CPA or ACCA are few and their salaries are too high. Therefore, only large companies can afford them while small companies may recruit less qualified accountants with low salaries due to a shortage of financial resources. Consequently, small companies are not able to prepare financial statements in accordance with Egyptian Accounting Standards or to present high quality voluntary disclosure.

Alternatively, three of the respondents thought that a lack of qualified accountants may not influence the risk reporting practices of Egyptian companies because of the assistance companies receive from their external auditors in preparing mandatory and voluntary risk reporting and this may alleviate the problem of a lack of qualified accountants. An external auditor (respondent FM-2) remarked:

> *There is cooperation between the company and our experienced external auditor who has a complete, direct or indirect, supervision over the process of preparing financial statements to maintain his reputation.*

A respondent from the regulators group (RG-2) confirmed this point of view by indicating that companies seek the assistance of their external auditors in preparing voluntary disclosure including risk reporting in their board of directors' report.

Table 8.7 summarises the main reasons that are mentioned by the interviewees regarding the potential impact of the lack of qualified accountants on risk reporting.

Table 8.7: The Impact of the Lack of Qualified Accountants on Risk Reporting Practices

Agree	Disagree
A. Lack of updated accounting knowledge. B. Lack of continuing training. C. Poor presentation of accounting standards. D. Lack of practical training at the undergraduate level.	A. Large companies have professional staff. B. External auditor should ensure the relevance of the disclosure in annual reports.

8.3.2 Lack of Well-organised Accounting Information Systems

Regarding the impact of the lack of well-organised accounting information systems on mandatory and voluntary risk reporting, 11 of the interviewees supported a negative impact for the lack of well-organised accounting information systems on the risk reporting practices of Egyptian companies. One of the interviewee from the auditors group (AD-2) commented:

> *Accounting information systems in most Egyptian companies are very weak and obsolete. Companies' management are not keen to develop and up-date their information systems.*

A respondent from the regulators group (RG-2) confirmed this point of view by stating:

> *Accounting information systems in small Egyptian companies are designed to provide basic accounting information needed for the preparation of basic financial statements only. Any further disclosure, mandatory or voluntary, depends on the knowledge and skills of financial reports' preparers.*

Consequently, a lack of a well-organised accounting information system is a significant threat to the risk reporting practices of Egyptian companies. A regulator (RG-1) indicated:

> *Accounting information systems in small Egyptian companies do not assist in satisfying disclosure requirements of accounting standards leading to significant non-compliance with mandatory and low presentation of voluntary disclosure in companies' annual reports; risk reporting is not an exception.*

These major features of accounting information systems in Egyptian companies impaired companies' abilities to provide risk-related information. An external auditor (AD-3) expressed the following opinion:

> *Regarding risk reporting, I think that accounting information systems in many companies may not be able to provide information regarding the different risks companies might face as required by accounting standards and this may impede adherence with accounting standards.*

In the same vein, an external auditor (AD-4) expressed the same point of view by stating:

> *Especially for segment reporting and other risk reporting requirements, small Egyptian companies do not have accounting information systems that assist in preparing such information. Therefore, there are difficulties in compliance with the requirements of Egyptian Accounting Standards related to risk reporting.*

An external auditor (AD-6) argued that the main function of the accounting system is satisfying tax needs rather than financial reporting. He expressed the following opinion:

> *In small and medium sized enterprises, accounting information systems can be described as tax-oriented systems which do not serve or support the financial reporting process.*

This result is consistent with the view of Akathaporn et al. (1993) that small companies feel that the benefits from using accounting information in decision making may not justify the cost of developing an effective accounting information system.

Alternatively, four of the interviewees thought that most Egyptian companies have relevant accounting information systems so this factor has a non-significant influence on risk reporting practices. A financial manager (FM-1) commented that most companies have effective accounting information systems that enable compliance with accounting standards and presentation of voluntary risk disclosure.

The interviewees indicated that management's willingness to report or withhold the information is an important factor for disclosure decision. An academic (AC-3) argued that many companies have sound information systems but the problem is how management uses accounting information. Another academic (AC-3) explained this point more precisely:

> *The management may use accounting information provided by its information system to comply with accounting standards requirements and to provide voluntary disclosure or it may decide to withhold the information.*

Table 8.8 summarises the main reasons that are mentioned by the interviewees regarding the potential impact of lack of a well-organised accounting information system on risk reporting.

Table 8.8: The Impact of Lack of Well-organised Accounting Information System on Risk Reporting Practices

Agree	Disagree
A. Accounting information systems in most Egyptian companies are very weak and obsolete and fail to provide risk-related information. B. Accounting information systems are tax-oriented systems that fail to assist financial reporting	A. Most Egyptian companies, especially large companies, have relevant accounting information systems.

8.3.3 Adequacy of IASs to Egyptian Environment

Regarding the question of whether the application of IASs is appropriate to the Egyptian environment, 11 of the interviewees argued that the application of IASs is adequate for Egypt. The main reason for this point of view is the important role of IASs in attracting more foreign investments to the Egyptian economy especially after the adoption of the privatisation and economic reform program in the early 1990s. An external auditor (AD-2) remarked:

> *Given the economic reform program adopted by the Egyptian government in the 1990's and in line with the objective of attracting foreign investments, it is essential to apply IASs. Many foreign companies have branches in Egypt and hence there is a need for the application of international standards when preparing financial statements.*

A financial manager (FM-1) argued that the IASs are designed to fit all countries. Egypt has become a magnet for foreign investments and thus the application of EASs which are based on the IASs has become a necessity. In the same vein, an academic (AC-1) added:

There is a trend for the application of IASs in the international arena and not keeping pace with this trend will make accounting practices in Egypt lag behind those practices internationally accepted.

It is worth mentioning that two interviewees indicated that there are many Egyptian companies that successfully apply the EASs. These companies are audited by audit firms with international affiliations (RG-3) or have global depositary receipts (RG-4). This argument is consistent with the result of the previous chapter regarding the positive association between auditor type and mandatory risk reporting. In the same vein, several prior studies reveal a positive association between auditor type and accounting disclosure (Ahmed, 1996; Inchausti, 1997; Patton and Zelenka, 1997; Abd-Elsalam and Weetman, 2003).

Alternatively, four of the interviewees argued that the IASs are not adequate for the Egyptian environment. Consequently, Egyptian companies may depart from full compliance with these standards. They mention three main reasons for the inadequacy of IASs. First, there is a need to harmonise the EASs with current accounting practice to make sure that they are suitable for the Egyptian environment and gain wide acceptance from practitioners. An academic (AC-3) stated:

The application of the IASs has occurred without any reconciliation to the very nature of the Egyptian environment. EASs are merely a translation of IASs without any attempt at harmonisation.

Second, a number of accounting standards apply accounting treatments that are unknown to the preparers of financial statements which in turn lead to non-compliance. An external auditor (AD-6) expressed the following opinion:

Several accounting standards such as financial instruments use unfamiliar accounting treatments to existing accounting practices in Egypt. They are not being taught to students at undergraduate/postgraduate level in the university.

Third, a financial manager (FM-2) believed that business transactions in Egypt, in terms of complexity, are completely different from those in the international arena. Therefore, it is not appropriate to apply the IASs in the Egyptian context.

Table 8.9 summarises the main reasons that are mentioned by the interviewees regarding the adequacy of IASs to Egypt and potential influence on risk reporting practices.

Table 8.9: The Adequacy of IASs to Egyptian Environment

Agree	Disagree
A. The application of IASs is adequate for the Egyptian environment especially after the privatisation program adopted by Egyptian government. B. IASs suite all countries. C. Egyptian companies should follow accounting practices internationally accepted.	A. Preparers of financial statements are not familiar with accounting treatments of some standards. B. Local business environment, in terms of complexity, is different from international business environment.

8.3.4 Lack of Effective Accounting and Auditing Profession

Successful implementation of the IASs requires extensive and ongoing support from the accounting profession in building the technical capacity of its members (UNCTAD, 2008). AAA (1976) and Enthoven (1985) argue that the accounting profession in developing countries is very weak and based on an outdated institutional framework. Therefore, there is a need to establish an effective professional agency that could monitor and regulate the profession (El-Basteki, 2000).

Regarding the impact of the accounting profession on the risk reporting practices of Egyptian companies, all the interviewees indicated that a lack of an effective accounting profession led to a low compliance with mandatory risk reporting and low presentation of voluntary risk reporting in the annual reports of Egyptian companies. A regulator (RG-4) highlighted the impact of a powerless accounting profession on accounting practices:

> *The accounting and auditing profession is very weak and does not exercise an effective role in training its members on the application of EASs or in developing their professional skills. Moreover, the profession does not provide relevant continuing education programs for its members. In addition, the profession lacks powerful punishment mechanisms to oversee the professional performance of accountants and auditors.*

Consequently, accountants in Egyptian companies have become less concerned about applying accounting standards in preparing financial statements. A financial manager (FM-1) expressed the following opinion:

> *The accountants' key objective is to prepare financial statements that match management's point of view in order to ensure its approval even at the expense of compliance with accounting standards especially since there are no strict sanctions for non-compliance with accounting standards.*

The interviewees advanced several reasons for the weak status of the accounting and auditing profession in Egypt. A number of interviewees believed that the main reason for such a weak profession is the law. Accounting and auditing practices in Egypt are organised by law 133/1951 and its amendments. This law is outdated and has not kept pace with structural changes in the Egyptian economy. Moreover, the law does not include any strict rules regarding continuing education. Besides, the law's administrative sanctions are not effectively applied and the legal liabilities of accountants and auditors are vague. An academic (AC-3) argued that the legislation that organises the profession is obsolete, does not require the application of IASs/EASs and does not support the legal and professional accountability of accountants and auditors. Moreover, another external auditor (AD-6) highlighted the powerlessness of the law by stating:

> *The law which governs the profession is very outdated and free from strict sanctions for the violation of accounting standards. Consequently, accountants have become indifferent to preparing the financial statements in accordance with the requirements of accounting standards.*

Kothari (2001) indicates that shareholder litigation against auditors is infrequent in developing countries. ROSC (2002) asserts that this is the case in Egypt. An external auditor (AD-6) commented:

> *Apart from the CMA's auditors registry, the monitoring of audit quality is absent. There is no control over the performance of auditors or assessment for their competence in performing the duties entrusted to them in accordance with auditing standards.*

The CMA in August 2006 established a registry for auditors who are entitled to audit the financial statements of listed companies with the aim of ensuring that listed companies are being audited by highly qualified auditors. Moreover, in July 2008, the CMA established a quality control unit to monitor adherence to quality standards, auditing standards and professional and ethical conduct by auditors listed on the CMA auditor registry. However, an external auditor (AD-5) believed that despite the efforts of the CMA in overseeing the professional performance of auditors this effort is questionable because it is limited to auditors listed on the CMA's auditors registry only.

Several interviewees indicated that the accounting and auditing profession in Egypt is weak because professional bodies that organise and regulate the profession do not perform their role in developing and improving accounting practices as anticipated. An academic (AC-2) remarked:

Agencies overseeing the accounting profession lack efficiency in training the accountants/auditors and providing them with the essential skills required for the application of accounting standards.

Two interviewees highlighted the very weak efforts of the SCP to promote adherence to the EASs by practitioners or to monitor the professional performance of accountants. An external auditor (AD-1) expressed the following opinion:

The SCP does not encourage compliance with the EASs through ensuring that its members are adequately applying the standards or impose sanctions in case of standards violation.

Table 8.10 summarises the main reasons given by the interviewees regarding the impact of the lack of an effective accounting and auditing profession on risk reporting.

Table 8.10: The Impact of the Lack of Effective Accounting and Auditing Profession on Risk Reporting Practices

	Agree
A.	The profession neither provides relevant continuing education programs nor develops professional skills of its members.
B.	The lack of strict sanctions for non-compliance with accounting standards.
C.	Law 133/1951 is outdated.
D.	The lack of an effective supervision agency that monitors the professional performance of accountants and auditors.

8.3.5 Precedence of Tax Accounting over Financial Reporting

Regarding the impact of tax accounting on risk reporting practices, nine of the interviewees indicated that the tax accounting practices of Egyptian companies have a negative influence on risk reporting practices. Egyptian companies are more concerned with the tax outcomes of their accounting practices and hence they may not comply with the EASs or provide voluntary disclosure including risk reporting if this is likely to cause any negative tax implications. This result confirms the result of AAA (1976) that tax-oriented accounting practice is one of the key problems of accounting practice in developing countries. Moreover, a financial manager (FM-2) argued that management and external auditors cooperate in planning a company's tax liability and therefore a company may be reluctant to report certain information to avoid any potential tax liability. An external auditor (AD-6) remarked:

Management pays much more attention to tax consequences. For instance, the selection of accounting policies is based entirely on their tax consequences. Some clients terminate our engagement when we ask them to comply with certain disclosure requirements, such as

segment reporting, of the Egyptian Accounting Standards due to a lack of understanding and a fear of tax implications.

This result is consistent with the finding of Dahawy et al. (2002) that Egyptian accountants and managers are well-trained to conceal information to avoid any potential tax consequences. ROSC (2002) indicates that there is cooperation between management and external auditors in the selection of accounting treatments and disclosures in the annual reports of Egyptian companies. This cooperation may take place on mandatory and voluntary disclosure with risk reporting being no exception. In addition, Akathaporn et al. (1993) highlight the fact that companies' managers in Thailand think that accounting is necessary only for tax purposes.

Companies seek to reduce their tax liability as much as possible. Therefore, they are reluctant to provide mandatory or voluntary risk reporting if they think that this disclosure will signal some information to the tax authorities. A financial manager (FM-2) indicated that the main goal of the accounting department is to reduce tax commitments to the minimum level. An external auditor (AD-4) highlighted clearly the impact of tax on risk reporting by stating:

Regarding accounting disclosure, many Egyptian companies may avoid the application of certain disclosures such as segment reporting because of the fear that the tax authority may use this information about segment profitability reported in financial statements as a basis for estimating a company's profits and tax liability.

Tax officers have very little knowledge regarding the EASs and this may cause severe problems for companies as a result of disclosures they provide in their financial reports. An external auditor (AD-1) expressed the following opinion:

Tax officers have not received any training on the application of accounting standards. A company's management may withhold some disclosures to avoid any potential problems with the tax authority.

Interestingly, a regulator (RG-3) indicated that companies may prepare financial reports just for tax and borrowing purposes. He remarked:

A company's management may seek to prepare financial statements according to its needs. Some companies prepare three different versions of financial reports for investors, the tax authority and lending banks.

Alternatively, six of the interviewees play down the impact of tax rules on the risk reporting practices of Egyptian companies. Three interviewees (RG-4; FM-1 and RG-4) believed that the new tax law rebuilds bridges of trust between companies and the tax authority and significantly decreases any potential opportunities for manipulation.

Table 8.11 summarises the main reasons that are mentioned by the interviewees regarding the potential impact of tax-oriented accounting practices on risk reporting.

Table 8.11: The Impact of the Tax-oriented Accounting Practices on Risk Reporting Practices

Agree	Disagree
A. Egyptian companies are more concerned with tax consequences of accounting practices. B. Company management and external auditor cooperate in the selection of accounting treatments in annual reports of Egyptian companies even at the expense of adequate disclosure.	A. The new tax regulation establishes bridges of cooperation between companies and tax authority and eliminates any fraud opportunities.

8.3.6 Procedures-oriented Accounting Practices

Regarding the impact of procedures-oriented accounting practices on the risk reporting of Egyptian companies, 11 of the interviewees considered procedures-oriented accounting practices a key threat to mandatory and voluntary risk reporting because they overlook the importance of accounting disclosure in general and risk reporting in particular. This result is consistent with the findings of AAA (1976) and McGee (2006) that procedures-oriented accounting practice is one of the major problems of accounting practice in developing countries. An academic (AC-2) explained the impact of procedures-oriented accounting practices on mandatory and voluntary risk reporting by stating:

> *Companies tend to be concerned with the accurate recording of economic transactions while accounting disclosure receives low priority. This is reflected in the low level of compliance with accounting standards and low presentation of voluntary disclosure especially risk reporting.*

Interestingly, two external auditors indicated that procedures-oriented accounting is inherent in the accounting practices of many Egyptian companies and any attempt to change this faces significant resistance from management. Moreover, external auditors sometimes prepare the required disclosures instead of their clients. Al-Kalbani (2008) reports a similar conclusion where auditors from the Big-4 audit firms prepare their

clients' annual reports in Oman. An external auditor (AD-2) expressed the following opinion:

> *We observed this trend in many companies and it is very difficult to persuade them of the importance of providing further disclosure regarding the figures in the financial statements.*

In the same vein, another interviewee (AUD-3) commented:

> *Accountants are interested in accounting procedures and bookkeeping only which requires us to exercise pressure on the client for proper disclosures. However, sometimes, we prepare the disclosures ourselves.*

The interviewees mentioned two key reasons for such procedures-oriented accounting practices in Egyptian companies. The first reason is the company's management itself as it does not assign risk reporting a high significance in its disclosure policy. The main concern is bookkeeping and accurate journals and ledgers. This result is consistent with the result of Abd-Elmalek (2006) that Egyptian companies give disclosing risk information a very low priority. A financial manager (FM-2) remarked:

> *Top Management in our company believes that accounting disclosure is not important. Most important is recording company's transactions and preparing basic financial statements while accounting disclosure takes low importance. Sometimes, we seek the assistance of our external auditor in preparing the required disclosures.*

Another interviewee (RG-1) expressed a similar opinion:

> *Because top management is not interested in disclosure, the accounting department is not concerned either. The importance of disclosure comes from the company' management and is imposed on staff members.*

The second reason is the UAS applied in public sector companies. Many managers and heads of the accounting department in several companies had worked in state-owned companies for a long time where training concentrated on bookkeeping while disclosure had little importance. An academic (AC-3) indicated:

> *This may be as a result of applying the UAS for a long time. The UAS supports accounting procedures as the most important accounting practices in Egypt while it gives low weight to disclosures.*

Alternatively, four interviewees argue that procedures-oriented accounting practices are not a general trend and this trend is obvious in non-listed companies due to non-reliance on the capital markets.

Table 8.12 summarises the reasons that are mentioned by the interviewees regarding the impact of procedures-oriented accounting practices on the risk reporting.

Table 8.12: The Impact of Procedures-oriented Accounting Practices on Risk Reporting Practices

Agree	Disagree
A. Egyptian companies are concerned about bookkeeping rather than accounting disclosure. B. Company management assigns risk reporting low importance. C. The UAS applied in centrally planned era still has significant influence on accounting practices.	A. This trend is more apparent in non-listed companies only.

8.3.7 The Lack of an Effective Enforcement Mechanism

Enforcement mechanism is a key element in the effective application of accounting standards because the benefits of a set of financial reporting standards are conditional on consistent enforcement of the standards (UNCTAD, 2008).

Regarding the impact of the absence of an effective enforcement mechanism on mandatory and voluntary risk reporting, 13 of the interviewees argued that the lack of an effective enforcement mechanism is a main hindrance to compliance with mandatory and presentation of voluntary risk reporting. This result is consistent with that found in the Saudi context (Al-Mulhem, 2003). Al-Shammari et al. (2008) reveal a similar conclusion for Gulf Cooperation Council Member States. The weak enforcement mechanism enables companies to violate accounting standards (Kothari, 2001). A number of interviewees indicated that although the CML and listing and delisting rules of the EGX include several administrative sanctions and fines, the application of these sanctions on companies that violate the rules is ineffective. In addition, the penalties are not strictly enforced and do not lead companies to comply with accounting standards. An academic (AC-2) expressed the following opinion:

> *Despite the existence of administrative measures and fines applied by the CMA and the EGX on companies that do not comply with accounting standards and listing rules, their implementation is not effective. For example, a company may be delisted from the Egyptian exchange for reasons other than non-compliance with accounting standards.*

In the same vein, a regulator (RG-1) remarked:

> *Non-strict fines do not have significant impact on companies. The fine for a delay in submitting financial reports is L.E. 5000 and there are no strict fines on non-compliance with disclosure requirements of EASs and listing/de-listing rules of the EGX.*

Moreover, an academic (AC-2) indicated the attention of the CMA is limited to format aspects only and insufficient attention has been given to the content of annual reports. El-Essely (2005) and Abd-Elmalek (2006) came to the same conclusion. Furthermore, the lack of criminal commitments for the violation of accounting standards and listing rules weakens compliance with them. A regulator (RG-3) highlighted this:

> *Although there are several measures to force listed companies to comply with the disclosure requirements, the violation of these requirements has no criminal liabilities. The punishment is limited to blame only without any strict actions. If a company did not comply there is no action against it. Currently, it is very difficult to write-off a company because of non-compliance with disclosure requirements.*

This point of view confirms Akathaporn et al. (1993) and ROSC (2002) who conclude that accounting standards are frequently breached because their violation is not considered a criminal or civil violation. The UNCTAD (2008) argues that the application of the IFRS lacks the necessary legal backing.

In addition, the EFSA and the EGX do not attempt to provide any motivations to listed companies for the presentation of voluntary risk disclosure or to highlight the well-presented risk disclosure reported in some Egyptian companies' annual reports in order to encourage other companies to follow the path of these companies. An academic (AC-1) remarked:

> *It is very important to present incentives for voluntary risk disclosure such as a reduction in annual subscription fees of the Egyptian exchange or highlighting the names of companies that present distinctive risk disclosures.*

It is worth mentioning that an external auditor (AD-1) pointed out the important role of audit firms with international affiliations as an enforcement mechanism. He argued that audit firms with international affiliations can persuade or force their clients to apply properly risk-related accounting standards. Dumontier and Raffournier (1998) argue that big audit firms are motivated to force their clients to apply the IASs to support their

independence and reputation and to maintain their competitive advantage in the application of IASs.

Alternatively, two of the interviewees indicated that enforcement mechanisms are effectively applied and have a positive impact on accounting disclosure and compliance with accounting standards. A regulator (RG-1) stated:

> *Disclosure is mandated through the CML and listing/ delisting rules of the EGX. There are several penalties for the violation of any disclosure rules. I think there is a development in compliance with disclosure requirements.*

Another interviewee (RG-4) confirmed the abovementioned point of view and highlighted the role of the EFSA in enforcing companies to apply accounting standards.

Table 8.13 summarises respondents' views regarding the potential impact of the absence of an effective enforcement mechanism on risk reporting.

Table 8.13: The Impact of the Lack of an Effective Enforcement Mechanism on Risk Reporting Practices

Agree	Disagree
A. The application of administrative sanctions on the violation of accounting standards is non-effective. B. Supervisory agencies are more concerned with the format and procedural aspects rather than the content of annual reports. C. The absence of any motivations for listed companies to present voluntary risk disclosure.	A. Administrative sanctions are effectively applied and have a positive influence on accounting disclosure.

8.3.8 Lack of Sufficient Financial Resources

Regarding the impact of insufficient financial resources on the risk reporting practices of Egyptian companies, eight of the interviewees considered the lack of sufficient financial resources a key reason for non-compliance with and low presentation of mandatory and voluntary risk reporting. They argued that Egyptian companies assign very limited financial resources to the accounting training budget and refrain from investing in their employees. This results in non-compliance with accounting standards and low presentation of voluntary disclosures especially those related to risk reporting because such disclosure requires a high level of professional training. This result is consistent with Al-Mulhem (2003) who found that the lack of sufficient financial resources is an obstacle to compliance with disclosure requirements in Saudi companies. An academic (AC-1) expressed the following opinion:

Because of deficit financial resources, accountants in several companies do not receive any continuing training to update their knowledge regarding the application of IASs/EASs or best practices of voluntary disclosure related to risk reporting.

Similarly, an external auditor (AD-1) remarked:

A large number of companies do not seek to invest in their accounting department employees regardless of the skills available to them. Sometimes, we sent invitations to companies for training courses and the responses were very poor and disappointing. The cost of training is a substantial reason for low responses.

Two external auditors (AD-3 and AD-5) argued that the problem of insufficient financial resources for continuing training is exaggerated in small and medium sized companies while large companies provide distinctive continuing training to their employees.

Moreover, six of the interviewees believed that the problem is not the lack of financial resources. The main problem is management awareness regarding the importance of continuing training in assisting their employees to learn the new amendments of accounting standards, how to apply them and how to present voluntary risk reporting in annual reports. An academic (AC-2) indicated that:

There is a lack of management awareness regarding the importance of continuing training for accounting staff on the latest amendments of the EASs and the presentation of voluntary disclosure related to risk reporting.

More interestingly, two interviewees (FM-2 and RG-3) highlighted the fact that companies might tend to seek the assistance of external auditor to overcome insufficient staff skills or might appoint an auditor from an audit firm to make sure that they have a knowledgeable person as head of their accounting department. An external auditor (AD-1) revealed that he sometimes prepare the disclosures for his clients.

Alternatively, only one interviewee (RG-3) did not agree with the impact of insufficient financial resources as a potential reason for non-compliance and low presentation of mandatory and voluntary risk reporting because several companies assign a relevant training budget for their employees.

Table 8.14 summarises interviewees' views regarding the potential impact of the lack of sufficient financial resources on risk reporting.

Table 8.14: The Impact of the Lack of Sufficient Financial Resources on Risk Reporting Practices

Agree	Disagree
A. Risk reporting requires high quality accounting skills and knowledge while Egyptian companies assign limited budget to accounting training.	A. Egyptian companies assign adequate training budget for their staff especially large companies. B. The main problem is management awareness regarding the importance of continuing training. C. The assistance of external auditors may alleviate the problem of insufficient staff skills.

8.3.9 Inadequate Continuing Education

Continuing education is an important element in the development of accounting practice in developing countries because it ensures that qualified and competent accountants enter the profession and provides the chance to update their accounting knowledge and skills to cope with a rapidly changing business environment (El-Basteki, 2000; Tipgos, 1987). In addition, Jensen and Arrington (1983) highlight the need for overseeing not only the form but also the content of continuing education programs by regulatory agencies.

Regarding the impact of the inadequate continuing education of chartered accountants on risk reporting, all the interviewees indicated that this has a negative impact on mandatory and voluntary risk reporting. Because of the lack of continuing education, auditors do not perform their tasks effectively and fail to establish appropriate professional judgements about clients' compliance with the EASs. The lack of continuing education contributes to auditors' lack of knowledge about the application of auditing/accounting standards. An academic (AC-1) expressed the following opinion:

> *Due to the lack of adequate continuing education, several auditors do not update their accounting skills and knowledge. Therefore, they do not know the latest amendments in accounting disclosure related standards and cannot assess the extent to which the disclosure in the client's financial statements is in accordance with accounting standards requirements.*

This result confirms the finding of ROSC (2002) that the lack of adequate professional continuing education increases the knowledge gap of external auditors in Egypt. The lack of continuing education is a serious problem for auditors in small audit firms. An external auditor (AD-3) indicated:

> *This problem is very visible in small audit firms but big audit firms or audit firms with international affiliations are keen to train their staff continuously and force them to*

complete a certain number of training hours each year as a prerequisite for working in the firm.

Moreover, one of the interviewees (AD-5) highlighted the role of the ESAA in preparing and enforcing general rules of continuing professional training for its members. However, another external auditor (AD-6) criticised the effort of the ESAA in continuing education because of the weak education leaflets and periodicals provided. He stated:

> *There is a significant lack of well-established continuing education programs provided by the ESAA. Their bulletins and studies are very weak and written by unqualified members who do not follow the scientific approach in writing.*

The current effort in continuing education is limited to the members of the ESAA. Therefore, there is a need for an authority that provides continuing education for all the practitioners of the accounting and auditing profession.

Table 8.15 summarises the respondents' point of view regarding the potential impact of an inadequate continuing education on risk reporting.

Table 8.15: The Impact of the Inadequate Continuing Education on Risk Reporting Practices

	Agree
A.	Auditors do not update their knowledge about the application of auditing/accounting standards.
B.	Auditors' knowledge gap is increased.
C.	Auditors fail to assess client's compliance with accounting standards.

8.4 Factors Related to Cost of Disclosure

This subsection aims to identify the impact of disclosure cost, proprietary and non-proprietary cost, on mandatory and voluntary risk reporting in the annual reports of Egyptian companies.

8.4.1 Competitive Disadvantages

Accounting researchers employ proprietary cost perspective to explain why managers may withhold information. Verrecchia (1983) argues that competition in the product market has a negative impact on voluntary disclosure.

Regarding the impact of competitive disadvantages on risk reporting, 12 of the interviewees indicated that competitive disadvantages have a negative impact on risk reporting. Egyptian companies may present a low level of compliance with and presentation of mandatory and voluntary risk reporting if this disclosure threatens their competitive advantages. An academic (AC-1) argued that this belief dominates the

thought of companies' managements in Egypt. In the same vein, Dahawy et al. (2002) report that managers in Egyptian companies perceive disclosure as equivalent to revealing companies' secrets. Competitive disadvantage has been recognised as a main reason for segment reporting non-disclosure (Edwards and Smith, 1996). Confirming this point of view, an external auditor (AD-2) indicated that a large number of Egyptian companies avoid complying with the segment reporting standard because of the fear of revealing important strategic information about their business and geographic segments to competitors. A financial manager remarked (FM-1):

> *Our main belief is if you disclose all the information you have the competitors may read your ideas. Consequently, companies tend to present very limited disclosure. Companies present a minimum level of mandatory risk reporting and refrain from presenting voluntary risk disclosure.*

Similarly, another financial manager (FM-2) stressed:

> *Our company tends to distinguish itself from the competitors. Therefore, we never ever disclose any information we think might worsen our competitive advantage.*

This result is consistent with the result reported in the previous chapter that indicates a significant positive association between barriers to entry and mandatory and voluntary risk reporting. Moreover, Linsley et al. (2006) argue that risk information is commercially sensitive information that is related to a high level of competition disadvantages; therefore managers are reluctant to disclose it.

An academic (AC-1) suggested that the EFSA should work to raise companies' awareness regarding the importance of compliance with and presentation of mandatory and voluntary risk reporting because of their significant impact on investors' confidence in companies' financial reports and cost of capital.

Alternatively, three of the interviewees believed that there is no significant impact for competitive disadvantage on the risk reporting practices of Egyptian companies. They advanced two main reasons for their point of view. First, it is important for a company to report certain information such as segment reporting to support its competitive advantage. An external auditor (AD-1) expressed the following opinion:

> *Companies operate in open markets where there are no secrets. It is important for a company to report its strategic vision, including risk and risk management information to highlight its competitive advantages. Current and potential investors need some information*

about the company's future growth, the risks involved and how the company may address these risks.

Second, a regulator (RG-1) thought that non-compliance with risk-related accounting standards is more closely related to the lack of effective enforcement mechanism rather than competitive disadvantages.

Table 8.16 summarises the interviewees' views regarding the potential impact of competitive disadvantages on risk reporting.

Table 8.16: The Impact of Competitive Disadvantages on Risk Reporting Practices

Agree	Disagree
A. Egyptian companies are reluctant to comply with and present mandatory and voluntary because of the fear of revealing important strategic information to competitors which may threat their competitive advantages.	A. Companies should present risk information in order to support their competitive advantages and confirm their ability to address different risks they face.

8.4.2 Cost of Collecting, Processing and Disseminating Information or the Cost of Developing Accounting Information Systems

Regarding the impact of the non-proprietary cost of disclosure, cost of collecting, processing and disseminating information, on risk reporting practices, nine of the interviewees argued that there is no significant impact for non-proprietary cost of disclosure on risk reporting practices. This result is consistent with Edwards and Smith (1996) who indicate that most information systems of British companies did not need significant changes to generate segment information. The interviewees advanced a number of reasons to support their point of view. First, an academic (AC-1) believed that, regardless of the cost, modern accounting information systems have become an urgent necessity not only for high quality disclosure but also because continuity in the markets requires a very sophisticated information system. Second, another academic (AC-2) argued that due to high technology in the field of information systems the cost of collecting, processing and disseminating information has become relatively low. Third, an academic (AC-3) argued that the management's willingness rather than disclosure cost is the determinative factor regarding the decision to utilise a sophisticated information system to provide relevant risk information. Fourth, an external auditor (AD-6) indicated that presentation of mandatory and voluntary disclosure depends on management's willingness to report accounting information produced by accounting information systems.

Alternatively, six of the interviewees indicated that the cost of disclosure has a negative impact on risk reporting practices. An external auditor (AD-1) argued that the cost of sophisticated information systems is too high which in turn may hinder the presentation of mandatory and voluntary risk reporting. For example, segment reporting needs more detailed information and existing information systems in several Egyptian companies cannot provide such information. Therefore, according to a regulator (RG-3), high disclosure cost may lead to non-compliance with accounting standards. However, another regulator (RG-4) believed that the problem of disclosure cost is more apparent in small companies than in large companies due to a lack of financial resources. Table 8.17 summarises the respondents' views regarding the potential impact of disclosure cost on risk reporting.

Table 8.17: The Impact of Non-proprietary Disclosure Cost on Risk Reporting Practices

Agree	Disagree
A. Risk reporting requires an accounting information system that is able to produce more detailed information. However, several Egyptian companies do not have such accounting systems. B. High disclosure cost is a major reason for non-compliance especially in small companies.	A. Business environment emphasises the importance of accounting information systems not only for high quality disclosure but only for continuous existence in the markets. B. Due to technological innovations, the cost of producing accounting information diminishes. C. The important factor is management willingness to report risk information not the cost of disclosure.

8.5 Other Factors

The interviewees presented four additional reasons as potential obstacles to the presentation of mandatory and voluntary risk reporting in the annual reports of Egyptian companies. These reasons are Egyptian culture, equivalent positions allowed by the profession law, lack of adequate explanations and interpretations and the technical difficulties of risk-related accounting standards.

8.5.1 Culture

Egypt has very distinctive societal values. Egyptian accounting culture is dominated by secrecy which in turn influences the disclosure practices of Egyptian companies. The interviewees argued that Egyptian culture is a key reason that hinders compliance with and presentation of mandatory and voluntary risk reporting and highlighted the secretive nature of Egyptian culture as a stumbling block to the development of risk reporting practices in Egypt. A regulator (RG-2) remarked:

> *Given that disclosure is a product of society's values, Egyptian cultural heritage supports the reluctance of information disclosure. Companies follow the policy of 'do not wear your*

heart on your sleeve'. Therefore, there is a need to change management's thoughts to abandon the policy of reporting a minimum level of disclosure requirement adopted by a large number of Egyptian companies.

In the same vein, an academic (AC-2) highlighted the potential conflict between Egyptian cultural values and the values of IASs. He stated:

IASs have been translated into Arabic without any consideration of the secretive nature of Egyptian society. There are fundamental differences between Egyptian culture and Anglo/Saxon culture that underpins IASs. Therefore, there is a doubt regarding the effectiveness of the application of IASs in Egypt and compliance with standards' requirements.

This result is consistent with the results of Dahawy and Conover (2007) and Dahawy et al. (2002) regarding the conflict between Egyptian and Western culture and its impact on accounting disclosure in the annual reports of Egyptian companies. This conflict results in the selective implementation of accounting standards.

8.5.2 Equivalent Qualification allowed by the Law governing the Profession

Interviewees highlighted the equivalent positions included in auditing and profession law 133/1951 as a potential reason for the low presentation of risk reporting in the annual reports of Egyptian companies. The profession law allows persons in certain positions such as tax officers, teachers of accounting and auditing at college level, custom officers and heads of accounting department from public or private companies to work as external auditors if they have worked in these positions for three consecutive years. A regulator (RG-3) indicated:

Profession law and equivalent positions weaken the profession. For example, tax officers can work as external auditors without any knowledge or training regarding the application of accounting standards.

Those persons do not have any extensive knowledge nor have they received any training regarding the application of accounting/auditing standards and so they cannot advise their clients regarding the application of accounting standards. Consequently, according to an external auditor (AD-5), they cannot judge whether the client's financial statements breach accounting standards and are unlikely to encourage their clients to provide voluntary disclosure.

8.5.3 Lack of Adequate Explanation and Interpretations of the EASs

An external auditor (AD-6) argued that the EASs do not include any explanations or interpretations of standards' requirements. Roberts et al. (2005) indicate that IAS 14, before revision, received significant criticism because it contains relatively little guidance. Moreover, the EASs are verbatim translation of IASs and used terminologies unfamiliar to the accounting practice in Egypt. ROSC (2002) highlights the lack of implementation guidelines of accounting standards and outdated Arabic translation of accounting standards as key factors that hinder compliance with their requirements. In addition, McGee (2006) underlines translation problems as a major factor that impedes the adoption and implementation of IFRS. Similarly, UNCTAD (2008) highlight lack of training material, experts and language barriers as main reasons for non-compliance with IFRS.

8.5.4 Technical Difficulties of Risk-related Accounting Standards

An external auditor (AD-5) highlighted the difficulty of some accounting standards especially those related to risk reporting as a potential obstacle to full compliance with disclosure requirements. He remarked:

> *Certain accounting standards, such as segment reporting and financial instruments, require a high degree of accounting knowledge and skills. A small number of accountants have such knowledge and skills. Consequently, accountants who do not have these skills resist the application of IASs/EASs.*

More interestingly, even for professional auditors some standards such as accounting standards related to financial instruments are difficult to understand. An external auditor (AD-2) indicated that although he attended several workshops about the application of EAS 25 he still could not thoroughly understand its disclosure requirements. This may explain why external auditors may stay silent about the violation of risk-related accounting standards in clients' financial statements.

It is worth mentioning that one academic (AC-1) shed light on the importance of encouraging companies to present voluntary risk disclosure. He argued that the CMA, the EIoD and the EGX should motivate Egyptian companies by providing incentives to companies that present voluntarily risk information. ROSC (2002) highlights the role of the EFSA in enhancing corporate financial reporting through holding workshops, briefing to top management and using case studies in order to explain the application of EASs.

8.6 Summary and Conclusion

This chapter investigated the factors that may lead to the low presentation of mandatory and voluntary risk reporting. These factors were identified and categorised into four groups:

- Factors related to accounting education (group 1).
- Factors related to accounting practice (group 2).
- Factors related to cost of disclosure (group 3).
- Other factors (group 4).

In respect of group 1, the results indicated that there is a consensus between the interviewees that bookkeeping and procedures-oriented accounting education and lack of sufficient practical training for undergraduate students have impaired the ability to apply accounting standards. Moreover, most of the interviewees highlighted the fact that inadequate local accounting textbooks and the inadequate accounting education of managers have a significant negative impact on the risk reporting practices of Egyptian companies.

In respect of group 2, the results indicated that there is a consensus between the interviewees that the lack of an effective profession and lack of adequate continuing education for chartered accountants are major hindrances to the risk reporting practices of Egyptian companies. In addition, the majority of the interviewees argued that the lack of qualified accountants, lack of well-organised accounting information systems, procedures-oriented accounting practices and lack of effective enforcement mechanisms are the main obstacles to compliance with and presentation of mandatory and voluntary risk reporting. Furthermore, a small number of the interviewees indicated that the precedence of tax accounting over financial reporting and lack of sufficient financial resources are reasons for the low presentation of mandatory and voluntary risk reporting.

In respect of group 3, the majority of the interviewees revealed that competitive disadvantage is a significant threat to the risk reporting practices of Egyptian companies. In addition, non-proprietary cost of disclosure has a non-significant impact on the risk reporting practices of Egyptian companies. Finally, in respect of group 4, the interviewees highlighted a number of factors that may hinder compliance with and presentation of mandatory and voluntary risk reporting such as the secretive nature of Egyptian culture, equivalent positions presented in profession law, the lack of

explanations or interpretations of EASs besides translations problems and the technical difficulties of risk-related accounting standards.

The next chapter will provide a discussion of the determinants of risk reporting and the impact of the factors that hinder disclosure of risk-related information in Egyptian companies' annual reports to obtain a better understanding regarding risk reporting practices in Egypt.

CHAPTER 9: DISCUSSION

9.1 Introduction

This chapter presents a discussion of the results of the determinants of risk reporting and factors that influence the presentation of risk reporting in the annual reports of Egyptian companies and places them in the distinctive context of Egypt. Section 9.2 discusses the extent of mandatory and voluntary risk reporting. Section 9.3 discusses the determinants of risk reporting while section 9.4 discusses the factors that influence the presentation of risk reporting. Finally, section 9.5 is a summary and conclusion.

9.2 Extent of Mandatory and Voluntary Risk Reporting

This section presents a discussion of the main characteristics of the mandatory and voluntary risk reporting practices of Egyptian companies.

9.2.1 Mandatory Risk Reporting

The results in chapter 7 indicated a very low level of compliance with EAS 25 and EAS 33. The average compliance level with EAS 25 is 19.33% and 21.57% while the average level of compliance with EAS 33 is 18.25% and 16.99% in 2006 and 2007 respectively.

The relatively low compliance level with EAS 25 and EAS 33 implies that the cost of compliance for Egyptian companies exceeds the cost of non-compliance (Hassan et al., 2006). Non-compliance costs include capital market pressure and sanctions and administration actions imposed by regulatory agencies (Abayo et al., 1993). It is argued that non–compliance costs in developing countries are smaller than compliance costs due to the ineffectiveness of the market for company control since capital markets in developing countries are relatively small, new and less developed (Abayo et al., 1993); Egypt is not an exception. In respect of sanctions and administration actions, it is argued that the Egyptian capital market regulations are insufficient and the application of sanctions imposed by companies act and the CML is ineffective (Abd-Elmalek, 2006; ROSC, 2002). Furthermore, this result reflects the influence of the secretive nature of Egyptian culture and its impact on compliance with the disclosure requirements of IASs/EASs which result in a lower level of compliance than required by accounting standards (Dahawy et al., 2002; Dahawy and Conover, 2007). In the same vein, Cooke (1993) indicates a similar result for the impact of the secretive nature of Japan on the extent of disclosure in corporate annual reports.

This result is consistent with Samaha and Stapleton (2008) who report a low level of compliance, 50%, with a number of EASs excluding EAS 25 and 33. In the same vein, Dahawy and Conover (2007) report a compliance level of 61% with the CMA disclosure requirements in annual reports of the most active listed Egyptian companies. A low level of compliance with mandatory risk disclosure requirements is to be expected since Egyptian companies present a high level of compliance with mandatory disclosure when preparers are familiar with the regulation (Abd-Elsalam and Weetman, 2003) but when mandatory disclosure is enforced through new or amended regulations compliance is expected to be very low (Samaha and Stapleton, 2008). In addition, disclosure studies in developing countries provide similar results. Marston and Robson (1997), Patton and Zelenka (1997) and Akhtaruddin (2005) reveal levels of compliance of 56.5%, 56% and 43.53% in India, the Czech Republic and Bangladesh respectively. Moreover, Wallace (1988) reports a low level of compliance in Nigeria ranging from 37.55% to 43.11% during the period 1982-1986. Besides, Street and Gray (2002), Street and Nichols (2002) and Prather-Kinsey and Meek (2004) reveal significant evidence for non-compliance with the disclosure requirement of IAS 14 (segment reporting) in global samples while Owusu-Ansah (2000), Carlon et al. (2003) and Al-Omari et al. (2007) indicate that Zimbabwean, Australian and Jordanian companies failed to comply with IAS 14. In the same vein, Street and Bryant (2000) find that US companies that apply IASs do not fully comply with IAS 14. Furthermore, Lopes and Rodrigues (2007) report an average compliance level with IAS 32/39 (financial instrument disclosure) of 44% in the annual reports of Portuguese companies.

All these studies support Street et al. (1999) who indicate that compliance with IASs is very mixed and rather selective. A low level of compliance highlights the ineffectiveness in external auditors' and enforcement agencies' functions (Al-Shammari et al., 2008). For example, the IFAC argues that auditors are ineffective in performing their duties because they assert that financial statement are prepared in line with the IASs while, in fact, they violate these standards (Street et al., 1999). In Egypt, the efforts of the CMA and the EGX regarding compliance with accounting standards are questionable (Abd-Elhamed, 2003; ROSC, 2002; Sobehi, 2002). Moreover, there is evidence regarding a lack of auditor independence such as issuance of unqualified audit reports despite material misstatements such as non-compliance with accounting standards (ROSC, 2002).

9.2.2 Voluntary Risk Reporting

Egyptian companies tend to present little voluntary risk reporting in their annual reports. The average risk reporting sentence number is 23 and 26 sentences in 2006 and 2007 respectively with a tendency to report less quantitative and forward-looking risk disclosures.

With respect to quantitative risk reporting, disclosing quantified risk information will assist users of annual reports in their assessment of the potential impact of risks on a company's performance (Linsley and Shrives, 2006). Quantitative risk reporting will provide shareholders with valuable and useful information rather than boilerplate, blurred and subjective disclosures (Linsley and Shrives, 2000). However, risk measurement remains a complicated issue (Schrand and Elliot, 1998). Egyptian companies seem to be reluctant to provide quantitative risk reporting in their annual reports and there are several possible reasons for this phenomenon. Technical problems such as data availability and limited use of risk measurement techniques have a negative impact upon managers' ability to quantify the potential impact of risks. In addition, managers may refrain from disclosing quantitative risk information because of the litigation costs they may face if the estimation of risk size departs significantly from the ultimate risk outcome (Linsley and Shrives, 2006). Furthermore, consistent with proprietary cost perspective, managers may consider quantitative risk information commercially sensitive information that is related to a high level of competitive disadvantages and hence managers are reluctant to disclose such information (Linsley et al., 2006). As a result, risk reporting seems to be predominantly qualitative in nature (Lajili and Zéghal, 2005) and managers tend to describe risks and be reluctant to provide any quantitative risk disclosures (Linsley and Shrives, 2006). The lack of quantified estimation of the size of risk undermines the usefulness of risk reporting in the annual reports of Egyptian companies.

With respect to forward-looking risk reporting, forward-looking information has a significant contribution in reducing information asymmetry between managers and shareholders (Aljifri and Hussainey, 2007). Shareholders and stakeholders have an increased need for information to assist them in identifying the potential impact of risks on a company's prospective performance (Shrives and Linsley, 2003b). Researchers have advanced several reasons for managers' reluctance to disclose forward-looking risk information. Forward-looking information is associated with a high level of uncertainty; therefore it is more difficult to predict forward-looking information without prediction

errors (Aljifri and Hussainey, 2007). Linsley et al. (2008) indicate that it is difficult to discuss a future risk than a past risk. In addition, forward-looking information lacks reliability and it is difficult to verify (Linsley and Shrives, 2006). Consequently, managers may withhold future risk information due to fear of potential legal claims by investors or other stakeholders who may use this information for decision-making purposes (Linsley and Shrives, 2005; Linsley et al., 2008) especially if managers think that the legal regime may fail to distinguish precisely between unexpected forecast errors related to uncertainty and those related to management manipulation (Healy and Palepu, 2001). Moreover, managers may be reluctant to disclose forward-looking risk information because of its commercial sensitivity; therefore reporting such information may harm companies' competitive advantage and impose high proprietary costs on them (Linsley and Shrives, 2005; Linsley et al., 2006). Rahman (2008) indicates that approximately 43% of Egyptian listed companies that comprise the main index of the EGX do not normally include forward-looking information, such as forecasts of the company operations for the next year, in their annual reports. The lack of quantitative and forward-looking risk information in the annual reports of Egyptian companies reduces their relevance to external investors and other stakeholders groups (Beretta and Bozzolan, 2004).

9.3 Determinants of Risk Reporting

This section discusses the determinants of risk reporting. Disclosure theories and the empirical results of prior studies are used to discuss the influence of each independent variable on the risk reporting practices of Egyptian companies.

9.3.1 Competition

Regression results indicate a significant positive association between barriers to entry and mandatory risk reporting of EAS 25 in 2006. In addition, the findings reveal a significant positive association between barriers to entry, mandatory risk reporting of EAS 33 and voluntary risk reporting in 2006 and 2007. The result suggests that Egyptian companies that operate in a low competition environment comply more with the requirements of EAS 25 and EAS 33 and provide voluntarily more risk-related information. This result is consistent with the prediction of proprietary cost perspective that companies may be reluctant to disclose information due to competition in the product market. The companies' concern is the competitive advantage a competitor may gain as a result of disclosing more information. Therefore, Egyptian companies operating in an environment with high barriers to entry disclose more risk-related information to assist investors in identifying their risk/return profile because of the difficulty of entering the

market for any potential competitor. This result supports the significant impact on competition on companies' disclosure policies proposed by proprietary cost perspective (Verrecchia, 1983).

Most of the interviewees agreed that competitive disadvantage has a significant impact on risk reporting. They argued that Egyptian companies refrain from providing risk-related information, such as segment reporting, because it reveals important information that may benefit their competitors.

Empirical evidence reveals mixed results for the relationship between barriers to entry and disclosure extent. Depoers (2000) reveals a positive relationship between barriers to entry and voluntary disclosure. In the same vein, Clarkson et al. (1994) document a positive relationship between barriers to entry and voluntary disclosure in the MD&A section of annual reports. In addition, Laidroo (2009) documents a positive relationship between barriers to entry and disclosure extent. In contrast, Prencipe (2004) finds a non-significant relationship between barriers to entry and voluntary segment disclosure

The study uses another measure of barriers to entry, namely the percentage of fixed assets to total assets. The result indicates a non-significant association between the percentage of fixed assets to total assets and risk reporting. The only significant positive association between the two variables appears in the model EAS 25-2007 (see Appendix 18). This indicates the non-significant influence of the percentage of fixed assets to total assets on the association between competition and risk reporting. The percentage of fixed assets to total assets is used to capture capital intensity (Hagerman and Zmijewski, 1979; Kelly, 1983); therefore this measure may not capture barriers to entry.

9.3.2 Corporate Governance

This subsection discusses the impact of board size, role duality and auditor type on risk reporting.

9.3.2.1 Board Size

Regression results reveal a significant positive association between board size and mandatory risk reporting of EAS 25 in 2007. However, the results indicate a non-significant association between board size, mandatory risk reporting of EAS 33 and voluntary risk reporting in 2006 and 2007.

The result suggests that Egyptian companies with a large board comply more with mandatory risk reporting of EAS 25. However, the influence of board size on voluntary risk reporting and mandatory risk reporting of EAS 33 is non-significant.

Empirical evidence supports the non-significant association between board size and accounting disclosure. Cheng and Courtenay (2006) document a non-significant association between board size and voluntary disclosure in the annual reports of Singaporean companies. In addition, Bassett et al. (2007) find a non-significant association between board size and mandatory and voluntary employee stock option disclosure in the annual reports of Australian listed companies. In the same vein, Donnelly and Mulcahy (2008) indicate a non-significant association between board size and voluntary disclosure in the annual reports of Irish companies.

Companies with a large board have diverse expertise and the ability to alleviate the dominance of the CEO over the board. In addition, this result reflects the increase of board members' awareness regarding their duties to support financial disclosure especially after the release of the Egyptian corporate governance code of practice in October 2005. This code of practice highlights the important role of the board of directors in establishing the required mechanisms to ensure compliance with different regulations and disclosure of all relevant information to stakeholders. In addition, the code emphasises board of directors' responsibility for identifying and managing different types of risks that a company may face and representing clearly all this information to stakeholders.

9.3.2.2 Role Duality

Regression analysis indicates a significant negative association between role duality and mandatory risk reporting of EAS 25 in 2007 only. However, the result documents a non-significant association between role duality, mandatory risk reporting of EAS 33 and voluntary risk reporting in 2006 and 2007. The result suggests that companies with role duality present low compliance with mandatory risk reporting. However, the result does not support the influence of role duality over voluntary risk reporting and mandatory risk reporting of EAS 33.

A negative association between disclosure extent and role duality is consistent with Forker (1992) and Bassett et al. (2007) who find a significant negative association between role duality and executive/employees stock options mandatory disclosure. In contrast, Ho and Wong 2001, Haniffa and Cooke (2002), Barako et al. (2006), Cheng and Courtenay (2006) and Ghazali and Weetman (2006) report a non-significant association between role duality and voluntary disclosure.

In line with agency theory, the result supports the separation between the CEO and chair of the board since the separation will enhance the monitoring role of the board of directors. In addition, separation between the two positions will enhance board of directors' role in the assessment of the CEO performance and the quality of accounting disclosure. The result supports the call of the Egyptian corporate governance code for the separation between the two positions in Egyptian listed companies since role duality is a potential threat to disclosure quality.

9.3.2.3 Auditor Type

Regression findings indicate a positive association between auditor type and mandatory risk reporting of EAS 25 in 2006 and 2007. Ahmed and Nicholls (1994), Wallace and Naser (1995), Patton and Zelenka (1997), Owusu-Ansah (2005) and Ahmed (2006) document a positive association between auditor type and mandatory disclosure. Moreover, Abd-Elsalam and Weetman (2003) reveal a significant positive association between auditor type and mandatory disclosure in Egypt.

In addition, regression results point to a non-significant association between auditor type, mandatory risk reporting of EAS 33 and voluntary risk reporting in 2006 and 2007. This result is consistent with Tai et al. (1990), Malone et al. (1993), Hossain et al. (1994 and 1995), Wallace et al. (1994), Dumontier and Raffournier (1998), Ali et al. (2004), Depoers (2000) and Alsaeed (2006) who find a non-significant association between auditor type and accounting disclosure.

This result suggests that Egyptian companies audited by audit firms with international affiliations comply more with mandatory risk reporting. The result indicates that audit firms with international affiliations convince or force their clients to comply with mandatory disclosure requirements to confirm their independence, protect their reputation and maintain their competitive advantages in applying accounting standards. This is because of their accuracy and expertise in collecting and interpreting audit evidence, having well-trained staff with relevant knowledge and experience in auditing listed companies. However, audit firms with international affiliations have no influence on the voluntary risk reporting practices of Egyptian companies. The possible explanation for this result stems from the requirement of Companies Act. The Companies Act requires independent auditors to indicate in their audit report whether the information in the board of directors' report is consistent with the company's records and legal requirements. Therefore, the independent auditor may expand the audit scope

and verification process in order to collect diverse and additional audit evidence to satisfy Companies Act requirements and this may increase audit costs and decrease audit returns. Consequently, the independent auditors may have less incentive to encourage Egyptian companies to disclose voluntarily more risk-related information in order to satisfy legal requirements with the lowest possible audit costs. Similarly, Huafang and Jianguo (2007) argue that the Big-4 auditors do not encourage Chinese companies to provide disclosure over and above mandatory disclosure.

Low presentation of risk reporting reflects the ineffective role of external auditors in enhancing the disclosure practices of their clients due to a lack of continuing education, a weak profession and profession law (see chapter 2). In addition, there is evidence for lack of auditor independence. According to the interviewees, the lack of continuing education increases the knowledge gap of external auditors and hence they fail to identify non-compliance in clients' financial statements or advise the preparers regarding the proper application of accounting standards. As, the profession is very weak it does not monitor the professional performance of auditors or impose sanctions on those who breach auditing standards. The profession's failure to increase its members' professional skills has resulted in out-dated accounting knowledge and skills of most practitioners. Furthermore, the interviewees indicated that the profession law opens the door to unqualified persons to enter the profession and work as chartered accountants while they lack the necessary accounting knowledge regarding the application of accounting and auditing standards. The interviewees also highlighted some signs of auditors' lack of independence. They argued that auditors sometimes prepare clients' financial statements and assist them in planning their tax liability even at the expense of financial reporting requirements. Egyptian companies are reluctant to provide risk-related information if this negatively impacts their tax commitments. This means that auditors may accept a client's financial statements despite non-compliance with accounting standards' disclosure requirements.

9.3.3 Ownership Structure

This subsection discusses the impact of ownership concentration, managerial ownership, governmental ownership and institutional ownership on risk reporting

9.3.3.1 Ownership Concentration

Regression analysis reveals a significant negative association between ownership concentration and mandatory risk reporting of EAS 25 in 2006 and 2007. Nevertheless,

the results indicate a non-significant association between ownership concentration and mandatory risk reporting of EAS 33 and between ownership concentration and voluntary risk reporting in 2006 and 2007. This result suggests that Egyptian companies with high ownership concentration tend to present less compliance with mandatory risk reporting of EAS 25 because large investors have the ability to collect more information from sources other than annual reports to monitor management and exercise more control over the firm which in turn decreases the incentive for reporting or demanding more risk disclosure.

The result is consistent with Barako et al. (2006), Guan et al. (2007), Tsamenyi et al. (2007) and Laidroo (2009) who document a negative relationship between ownership concentration and voluntary disclosure. However, Craswell and Taylor (1992), Dumontier and Raffournier (1998), Eng and Mak (2003) and Ghazali and Weetman (2006) reveal a non-significant relationship between ownership concentration and disclosure extent.

The negative association between ownership concentration and mandatory risk reporting is consistent with the prediction of agency theory. Agency theory predicted that widely held companies are motivated to disclose more information in their annual reports in order to reduce information asymmetry and monitoring/agency costs. In addition, widely held companies are motivated to present more compliance with mandatory disclosure requirements to satisfy the need of small investors for more disclosure.

9.3.3.2 Managerial Ownership

Agency theory indicates that agency costs are relatively high in firms with low managerial ownership because managers have more incentives to benefit on account of the shareholders and consequently more monitoring activates are needed; one of these activities is increased disclosure in annual reports.

Regression analysis results indicate a non-significant association between managerial ownership and mandatory/voluntary risk reporting in 2006 and 2007. The result suggests a non-significant impact of managerial ownership on the risk reporting practices of Egyptian companies. The result is inconsistent with the prediction of agency theory for a negative association between managerial ownership and accounting disclosure and this may be due to the mere 14.18% and 17.39% of managerial ownership in Egyptian companies in 2006 and 2007 respectively.

Empirical evidence presents inconclusive results regarding the association between disclosure extent and managerial ownership. Gelb (2000), Chau and Gray (2002), Eng and Mak (2003), and Ghazali and Weetman (2003) find a significant negative relationship between disclosure extent and managerial ownership while, in contrast, Forker (1992), Guan et al. (2007), Huafang and Jianguo (2007) and Laidroo (2009) reveal a non-significant relationship between disclosure extent and managerial ownership.

Nagar et al. (2003) argue that stock-based compensation contracts encourage managers to disclose voluntarily more information because these contracts coincide with the long-term reporting performance of managers and investors' need for information and hence reduce agency costs and problems. However, stock-based compensation contracts are not a prevalent managerial practice in Egyptian companies. The lack of stock-based compensation contracts may distort the expected negative association between managerial ownership and accounting disclosure expected by agency theory (Donnelly and Mulcahy 2008). Rahman (2008) indicates that 50% of the top 30 companies do not have a remuneration committee and 46.40% of the companies do not link up managers' compensation to long-term performance. This result reflects the fact that the linkage between shareholders' and managers' interests is less emphasised in Egyptian companies. Therefore, the lack of stock-based compensation contracts in Egyptian companies may explain a non-significant association between managerial ownership and risk reporting.

A further descriptive statistical analysis for the data may explain the non-significant association between the two variables. The sample will be divided into two groups according to the average of managerial ownership (14.18% and 17.39% in 2006 and 2007 respectively). Group 1 are companies with managerial ownership below the average and group 2 are companies with managerial ownership above the average.

A cross-tabulation of managerial ownership, role duality and auditor type may provide more insights into the major characteristics of the two groups of companies and hence the reasons behind a non-significant association between managerial ownership and risk reporting. A cross-tabulation of managerial ownership and role duality for the year 2006 and 2007 indicates that 80.80% and 79.22% of Egyptian companies in group 1, the group that should present more risk reporting according to the prediction of agency theory, are companies with role duality and there is a significant association between the two variables (see Table 9.1).

Table 9.1: Cross-tabulation of Role Duality and Managerial Ownership

Role Duality	2006					2007				
	group (1)		group (2)		Total	group (1)		group (2)		Total
Separation	15	19.2%	13	46.4%	28	16	20.8%	12	41.4%	28
Without separation	63	80.8%	15	53.6%	78	61	79.2%	17	58.6%	78
	78	100%	28	100%	106	77	100%	29	100%	106
χ2 Test	χ2 (df=1) = 7.84, P < .05					χ2 (df=1) = 4.60, P < .05				

In addition, a cross-tabulation of managerial ownership and auditor type indicates that 56.4% and 57% of Egyptian companies in group 1 in 2006 and 2007 are audited by audit firms without international affiliations and there is a significant association between the two variables (see Table 9.2). Consequently, group 1 companies could be described as companies with role duality and audited by small audit firms. Taking into account the negative impact of role duality on risk reporting and the inability of small audit firms to influence the disclosure policy of their clients, these characteristics may explain the non-significant association between managerial ownership and risk reporting.

Table 9.2: Cross-tabulation Auditor Type and Managerial Ownership

Auditor Type	2006					2007				
	group (1)		group (2)		total	group (1)		group (2)		total
Without affiliation	44	56.4%	8	28.6%	52	44	57%	8	27.6%	52
With affiliation	34	43.6%	20	71.4%	54	33	43%	21	72.4%	54
	78	100%	28	100%	106	77	100%	29	100%	106
χ2 Test	χ2 (df=1) = 7.84, P < .05					χ2 (df=1) = 4.60, P < .05				

The interviewees argued that the inadequate accounting education of managers may form a stumbling block to compliance with and presentation of mandatory and voluntary risk reporting. Due to a lack of adequate accounting education, managers thought that an annual report is a means to avoiding sanctions from regulatory agencies and accounting standards could be applied selectively. They understated the role of the annual report as a communication channel between the company and its stakeholders. In addition, they considered financial reporting as a monotonous process and refused any attempts to develop financial reporting practices.

9.3.3.3 Governmental Ownership

Regression analysis indicates a significant negative association between governmental ownership and mandatory risk reporting of EAS 33 in 2006 only. However, there is a non-significant association between governmental ownership and mandatory risk reporting of EAS 25 and between governmental ownership and voluntary risk reporting in 2006 and 2007.

The empirical evidence reveals mixed results for the relationship between governmental ownership and disclosure extent. While Eng and Mak (2003) document a positive

relationship, Ghazali and Weetman (2003), Laidroo (2009) and Makhija and Patton (2004) reveal a non-significant relationship between governmental ownership and voluntary disclosure. Finally, El-Sayed and Hoque (2010) find a significant negative association between voluntary disclosure and governmental ownership in Egypt.

The negative association between governmental ownership and mandatory risk reporting may be a result of the weak role of governmental agencies in forcing or persuading Egyptian companies with governmental ownership to comply with or provide mandatory and voluntary risk reporting. In addition, a slowdown in the privatisation process of the remaining state-owned Egyptian companies, besides government support for these companies to gain funds from different finance sources, has resulted in decreased motivation for presenting more risk disclosure. Moreover, Egyptian companies with governmental ownership operate under complete and sole governmental supervision and the market for company control has a non-significant impact on these companies. Consequently, Egyptian companies with governmental ownership assign very low importance to their disclosure policies including risk reporting.

Furthermore, as mentioned in chapter 2, state-owned companies should have been applying the UAS since the late 1960s. The UAS was a main tool for economic planning purposes during the socialist era. The UAS is a guidebook that focuses mainly on bookkeeping and measurements aspects. The interviewees argue that the UAS has a significant negative impact on the disclosure practices of these companies because it limits users of accounting information to governmental agencies only and hence companies are reluctant to provide risk information to other users.

Based on 2006 data, Egyptian companies with role duality and those audited by audit firms without international affiliations have, on average, a relatively high governmental stake in their ownership structure (31.82% and 40.40% respectively) compared to Egyptian companies without role duality and those audited by audit firms with international affiliations (7.43% and 10.92% respectively). Taking into consideration the negative influence of role duality on risk reporting and the very weak ability of small audit firms to force or persuade their clients to comply with mandatory or present voluntary risk reporting, this may provide more insights into low presentation of mandatory risk reporting provided by Egyptian companies with high governmental ownership.

9.3.3.4 Institutional Ownership

Regression analysis reveals a non-significant relationship between institutional ownership and risk reporting in 2006 and 2007. The result highlights the weak impact of institutional ownership on the mandatory and voluntary risk disclosure practices of Egyptian companies. This result is consistent with Lakhal (2007) who document a non-significant relationship between voluntary earnings disclosure in financial press releases and institutional ownership in French companies. In addition, Haniffa and Cooke (2002) find a non-significant association between institutional ownership and voluntary disclosure in the annual reports of Malaysian companies.

This result reflects the inactive role of institutional investors in demanding more risk disclosures. The result suggests that institutional investors act as owners rather than as traders; therefore they behave as large investors and demand less disclosure because they are able to obtain private information from the companies directly. Furthermore, this result suggests the existence of other communications channels, such as a seat on the board, as a more efficient and timely source of risk-related information compared to annual reports. Moreover, institutional investors have the ability to access different information sources to obtain the risk-related information they need and hence their reliance on annual reports as a basic source of information is diminished. This result is consistent with Gray (1988) who argues that in countries with a preference for secrecy, such as Egypt, companies tend to limit disclosure to very close parties involved with their management and financing.

9.3.4 Company Risk Level

Agency theory predicts a positive association between leverage and disclosure extent because high leveraged companies have greater incentives to provide more information to highlight their ability to meet their obligations.

Regression analysis results indicate a non-significant association between leverage and mandatory/voluntary risk reporting in 2006 and 2007. Contrary to the prediction of agency theory, this result suggests a non-significant impact of leverage on the risk reporting practices of the Egyptian companies. Empirical evidence reveals inconclusive findings regarding the association between leverage and disclosure extent. Malone et al. (1993) report a positive relationship while Ahmed and Nicholls (1994), Wallace et al. (1994), Wallace and Naser (1995) and Alsaeed (2006) document a non-significant association between leverage and disclosure extent. In addition, empirical evidence from

Egyptian context provides mixed results as well. Abd-Elsalam and Weetman (2003) document a negative association between leverage and mandatory disclosure (IAS-CML) and a non-significant association between leverage and mandatory disclosure of (IAS-CA and IAS-NA). In contrast, Hassan et al. (2006) document a positive association between leverage and mandatory disclosure and a negative association between leverage and voluntary disclosure.

Bonds as a major source of finance have a relatively minor importance in the capital structure of Egyptian companies. The annual report of the CMA indicates that the value of bonds issues represents 16.68%, 12.33% and 15.05% of the total securities issues in 2006, 2007 and 2008 respectively (CMA, 2007 and 2008). In addition, the market value of bonds traded in the Egyptian capital market has made relatively little contribution to the market capitalisation. It ranged between 2% to 12% during 1996-1999 (Hewaidy, 2000). This means that banking and lending institutions are the major source of finance for Egyptian companies (El-Sayed, 2001; Hassan et al., 2006). Companies Act 159/1981 grants protection and support for bondholders by authorising the bondholders' association the right to have a legal representative in general annual meeting who can discuss any issue that may impact the interest of bondholders.

The possible explanation for a non-significant association between leverage and risk reporting could stem from the fact that bondholders may have relatively little power to influence a company disclosure policy. In addition, banks may have access, through communication channels other than annual reports, to obtain their information needs from the company directly and promptly. This is consistent with the prediction of stakeholder theory that a company is motivated to satisfy the information needs of more powerful stakeholder groups (Ullmann, 1985). Furthermore, debt covenants may play an important role in mitigating agency costs rather than increased disclosure in companies' annual reports (Jensen, 1986). This may reduce the demand for and supply of risk-related information in Egyptian companies' annual reports.

The non-significant association between leverage and risk reporting highlights that leverage may not be a relevant proxy of a company risk level. Farrelly et al. (1985, p.279) argue that 'what constitutes risk and how it should be measured is extremely elusive'. Risk is a multi-dimensional concept; therefore a single proxy may fail to capture the different aspects of a company risk level.

9.3.5 Firm Characteristics

This subsection presents the impact of firm size, profitability, liquidity and industry membership on risk reporting.

9.3.5.1 Firm Size

Different disclosure theories and empirical studies underpinned and examined the association between firm size and accounting disclosure and a positive association between them has been suggested (Ahmed and Courtis, 1999).

Agency theory and the political cost perspective argue that agency costs and political costs are an increased function of firm size. Moreover, disclosure costs and proprietary costs are a decreased function of firm size. Finally, large firms are more motivated to comply with accounting standards in order to support their legitimacy and because of the availability of financial resources and expertise required to implement accounting standards.

Regression results show a significant negative association between firm size and mandatory risk reporting of EAS 25 in 2006 only, a significant negative association between firm size and voluntary risk reporting in 2007 only and a non-significant association between firm size and mandatory risk reporting of EAS 33 in both 2006 and 2007.

This result regarding mandatory risk reporting of EAS 25 and voluntary risk reporting is inconsistent with the results of several studies which document a positive association between firm size and both mandatory (Ali et al., 2004; Craig and Diga, 1998; Dumontier and Raffournier, 1998; Lopes and Rodrigues, 2007; Marston and Robson, 1997; Owusu-Ansah, 1998 and 2005; Tai et al., 1990; Wallace et al., 1994) and voluntary disclosure (Alsaeed, 2006; Chow and Wong-Boren, 1987; Cooke, 1991 and 1992; Depoers, 2000; Hossain et al., 1994; 1995; Meek et al., 1995; Raffournier, 1995). However, the result of mandatory risk reporting of EAS 33 is consistent with Ahmed and Nicholls (1994), Patton and Zelenka (1997), Murphy (1999), Street and Bryant (2000), Ahmed (2006) and Chavent et al. (2006) who document a non-significant association between firm size and mandatory disclosure.

Empirical evidence from Egypt is mixed. Hassan et al. (2006) reveal a significant negative association between firm size and mandatory disclosure and a significant positive association between firm size and voluntary disclosure. In addition, El-Sayed and Hoque (2010) find a non-significant association between voluntary disclosure and firm size.

Moreover, El-Dahrawy and Abo-Zaid (1995) document a significant negative association between firm size and voluntary disclosure in annual reports of Kuwaiti companies.

The possible explanation for this negative association between firm size and risk disclosure is that firm size may play a different role in developing economics with less mature reporting systems compared to developed economics with well-established reporting systems (Patton and Zelenka, 1997) due to differences in social, regulatory and institutional contexts (Hassan, 2009). Wallace et al. (1994, p.44) and Wallace and Nasser (1995, p.44) argue that the theoretical basis for the relationship between firm size and extent of disclosure is unclear and the direction of the relationship may be either positive or negative. They argue that large firms are vulnerable to political pressures and may minimise the probability of political actions by reducing the amount of disclosure in their annual reports. Furthermore, the interviewees argued that cost of collecting and processing information is no longer a function of firm size or a burden on small companies because accounting information systems already provide different information including risk-related information and modern information systems reduce the cost of producing information. This is consistent with the claim of Edwards and Smith (1996) that the cost of collecting and processing information is not a significant reason for non-presentation of segment information in corporate annual reports.

9.3.5.2 Profitability

Regression findings show a significant positive association between firm profitability and mandatory risk reporting of EAS 25 in 2006 only. The result suggests that Egyptian companies with high profitability provide marginally more compliance with mandatory risk reporting. This result is consistent with the results of Patton and Zelenka (1997) and Owusu-Ansah (1998 and 2005). In addition, in line with the results of Malone et al. (1993), Wallace et al. (1994), Inchausti (1997) and Dumontier and Raffournier (1998), the results indicate a non-significant association between profitability, mandatory risk reporting of EAS 33 and voluntary risk reporting in 2006 and 2007.

Empirical evidence from the Egyptian context presents inconclusive results as well. While Abd-Elsalam and Weetman (2003) document a non-significant association between profitability and mandatory disclosure, Hassan et al. (2006) reveal a significant positive association between profitability and mandatory disclosure and a non-significant association between profitability and voluntary disclosure.

The possible explanation for the positive association between profitability and mandatory risk reporting of EAS 25 stems from different theoretical perspectives. Consistent with signalling theory, more profitable companies have greater incentives to signal their outstanding performance to the capital market and distinguish themselves from less profitable companies. Moreover, based on agency theory, managers of more profitable Egyptian companies tend to comply more with accounting standards to protect and maintain their interest in terms of compensation and position and to explain the risks associated with these high profits and their strategies to mitigate the impact of these risks. In line with legitimacy theory and political cost perspective, Egyptian companies with high profitability present more compliance with accounting standards to confirm complete adherence with societal values and to indicate that their large profits are not a consequences of extortion of other groups in the society and hence avoid any political intervention.

The possible explanation for the non-significant association between mandatory risk reporting of EAS 33, voluntary risk reporting and profitability is the influence of proprietary costs on disclosure. Managers of profitable companies may be reluctant to provide segment reporting in terms of EAS 33 and voluntary risk reporting because they think that providing such information will increase competition in the product market and hence increase the proprietary costs they face.

9.3.5.3 Liquidity

Regression results indicate a positive association between firm liquidity and mandatory risk reporting of EAS 33 in 2006 and 2007. However, there is a non-significant association between firm liquidity, mandatory risk reporting of EAS 25 and voluntary risk reporting in 2006 and 2007. The result suggested that companies with a high liquidity profile comply more with mandatory risk reporting and provide more disclosure related to segmental information. This result is consistent with Owusu-Ansah (2005). However, several studies document a non-significant association between firm liquidity, mandatory reporting (Owusu-Ansah, 1998; Wallace and Naser, 1995) and voluntary reporting (Alsaeed, 2006).

The possible explanation for the positive association between firm liquidity and mandatory risk reporting is that firms with high liquidity are motivated to signal more information to interested parties to distinguish themselves from other companies with a low liquidity profile. This justification is based on the argument of signalling theory. In

addition, firms with high liquidity and hence low insolvency risk are keen to reveal information regarding their business and geographical segments to emphasise their sound financial position and capability to manage adverse circumstances and risks; therefore they tend to disclose more risk-related information to a wide range of users.

9.3.5.4 Industry Membership

Regression analysis reveals a non-significant association between industry membership and mandatory/voluntary risk reporting practices of Egyptian companies in 2006 and 2007. This result is consistent with Tai et al. (1990), Wallace et al. (1994), Herrmann and Thomas (1996), Inchausti (1997) and Patton and Zelenka (1997) who document a non-significant relationship between industry membership and disclosure extent. In contrast, Kelly (1994), Wallace and Naser (1995), Craig and Diga (1998) and Lopes and Rodrigues (2007) document a significant relationship between industry membership and disclosure extent.

Empirical evidence from the Egyptian context gives mixed results. Abd-Elsalam and Weetman (2003) find significant influence of industry membership (being manufacturing company) on mandatory disclosure (IAS-CML and IAS-NA) while Samaha and Stapleton (2008) find a non-significant association between industry membership and extent of mandatory disclosure. In addition, El-Sayed and Hoque (2010) reveal a non-significant association between voluntary disclosure and industry membership. Several possible reasons could be advanced to explain the non-significant influence of industry membership on the risk reporting practices of Egyptian companies. First, Egyptian financial reporting regulations are applied to manufacturing and other companies evenly and hence they adhere consistently to accounting standards. This argument is supported by bivariate analysis which indicates non-significant differences between manufacturing and other companies regarding mandatory and voluntary risk reporting (see section 7.3.5.1). Second, political and special interest groups may obtain their information via communication channels other than annual reports. Third, the nature and the complexity of company operations and products may have a non-significant impact on mandatory and voluntary risk reporting. Fourth, Egyptian companies in different industries may not acknowledge the impact of increased voluntary disclosure on their cost of capital.

9.4 Factors that Influence Presentation of Risk Reporting

In chapter 2, the key features of the Egyptian context have been briefly presented. The presentation identifies several weaknesses in financial reporting related regulations, the

profession and accounting education. In addition, the main characteristics of Egyptian society's cultural dimensions have been discussed. In chapter 8, the interviewees highlighted the factors that influence the risk reporting practices of Egyptian companies. Several interrelated and interdependent factors related to accounting education and practice problems that may influence risk reporting practices of Egyptian companies will be discussed in this section to explain how these factors lead to a low presentation of risk reporting in the annual reports of Egyptian companies.

The interviewees argued that one of the main reasons for low presentation of mandatory and voluntary risk reporting is the lack of qualified accountants who have up-to-date accounting knowledge regarding the application of accounting standards and best practices of voluntary disclosure related to risk reporting. The lack of sufficient financial resources and adequate training have aggravated this problem. Egyptian companies do not acknowledge the importance of assigning a relevant budget for accounting training purposes and developing staff skills. Consequently, the accounting knowledge of most accountants is out-dated and they fail to implement successfully the IASs/EASs disclosure requirements especially those related to risk reporting; a topic that requires a high level of professional training.

The Egyptian accounting education system suffers from several drawbacks that impair the quality of accounting education. The lack of cooperation between the profession and universities in both education and research areas results in inadequate accounting textbooks that fail to discuss the application of IASs/EASs or highlight the conceptual framework and objectives of financial reporting. Generally, accounting education focuses mainly on the bookkeeping and procedures-aspects of accounting and undermines disclosure related topics. For example, segment reporting and financial instruments disclosures are missing in textbooks and have never been taught to undergraduate students; therefore it is not a surprise to find a low level of compliance with these disclosure requirements. Moreover, undergraduate students neither receive any training nor have any classes given by practitioners. This leads to a procedures-oriented accounting practice that undermines risk disclosure because this requires special accounting knowledge and skills that most accountants do not hold.

In chapter 2, the main cultural dimensions of Egyptian society and related accounting values were addressed. According to Gray (1988), Egyptian society prefers secrecy as an accounting value that reflects a preference to disclose information to close parties only.

The interviewees pointed to secrecy as a major reason for the low presentation of mandatory and voluntary risk reporting. The IASs are based on Western culture; therefore a conflict between these standards and Egyptian culture is to be expected. In addition, due to this secrecy, Egyptian companies refrain from providing voluntarily any risk-related information.

In chapter 2, the Companies Act, CML and listing and delisting rules and their potential impact on financial reporting were presented. Financial reporting regulations suffer from several drawbacks such as the ineffective application of administrative sanctions and the focus on the format rather than the content of annual reports. In addition, they do not require explicitly disclosing risk-related information. The interviewees indicated that non-strict administrative measures lead to non-compliance with accounting standards because the companies' main concern is to meet dates specified by the CMA and the EGX to submit annual reports regardless of their contents.

In addition, the interviewees argued that the profession law combined with a weak accounting and auditing profession are key factors for low disclosure of risk-related information. The profession is regulated by law 133 of 1951; the law is out-dated and does not contain any continuing education requirements and hence contributes to a weak profession in Egypt. The profession lacks a powerful professional body with the authority to monitor the professional performance of accountants and auditors and impose sanctions on those who violate accounting and auditing standards. In addition, professional bodies play a very limited role in providing continuing education programs to their members. Consequently, auditors and accountants lack the required knowledge and skills to perform their tasks appropriately.

The interviewees highlighted the technical difficulties of risk-related accounting standards as one of the main reasons for low compliance with accounting standards. Risk reporting requires high quality accounting knowledge and skills that are not provided within the existing accounting education. Also some external auditors cannot provide any advice to their clients because these standards are not easy to understand or apply. In addition, the lack of interpretations and explanations of EASs has exaggerated this problem. Preparers of financial statements are not provided with any guidelines to assist them in preparing financial statements according to the requirements of accounting standards.

9.5 Summary and Conclusion

This chapter has presented a discussion of the results of the secondary data and primary data and explained how these results are integrated to present a comprehensive view regarding risk reporting practices in Egypt. It discussed the extent of risk reporting and the determinants that explain the variation in the extent of risk reporting. In addition, it discussed the factors that have led to the low presentation of risk-related information in the annual reports of Egyptian companies.

Multivariate analysis indicates that Egyptian companies that comply more with mandatory risk disclosure are companies with high profitability and liquidity, companies operate in an environment with high barrier to entry, those that are audited by audit firms with international affiliations and companies with a large board. In contrast, Egyptian companies that comply less with mandatory risk reporting are companies with high ownership concentration and governmental ownership, large companies and those with role duality. Furthermore, Egyptian companies that provide more voluntary risk reporting are companies which operate in an environment with high barriers to entry and small size companies. This result indicates that agency theory, signalling theory, proprietary cost perspective, political cost perspective, legitimacy theory and stakeholder theory can explain the variation in risk reporting practices in the annual reports of Egyptian companies.

The discussion indicated that there are several factors that can lead to low presentation of mandatory and voluntary risk reporting. Culture, proprietary costs and ineffective enforcement mechanisms are the main reasons for a low extent of risk reporting. A lack of cooperation between the profession and universities leads to inadequate accounting education and textbooks that give less attention to accounting disclosure and focus only on bookkeeping. Consequently, there is a shortage of qualified accountants. Moreover, accounting practice tends to give more attention to accounting measurement than to accounting disclosure. In addition, the out-dated profession law and the weakness of the profession itself have increased the knowledge gap of chartered accountants. Other factors include weak accounting information systems, technical problems, lack of interpretations and explanation of the accounting standards and lack of financial resources.

CHAPTER 10: SUMMARY AND CONCLUSION

10.1 Introduction

This chapter presents a summary and conclusion of the main findings of the study and discusses the study's limitations, recommendations and suggestions for possible future research. Section 10.2 provides a summary of the achievement of the research questions. Section 10.3 is devoted to discussing the results regarding the compliance level and amount of mandatory and voluntary risk reporting. The findings regarding the determinants of risk reporting in the annual reports of Egyptian companies are presented in section 10.4. Section 10.5 presents the key findings regarding the interviewees' perception of the factors that impede presentation of mandatory and voluntary risk reporting. Section 10.6 proposes some recommendations for regulators and policy makers. Section 10.7 discusses research the limitations while section 10.8 suggests avenues for future research.

10.2 Research Questions and Contribution Achievement

This study is of interest to accounting regulators, such as the IASB, because it provides a country case study regarding the application of IASs and illustrates a set of practical obstacles faced by companies in their implementation of those standards. This study aimed to answer the following research questions:

1. To what extent do Egyptian listed companies comply with the mandatory disclosure requirements of EAS 25 and EAS 33?
2. What are the impacts of competition, company risk level, company-specific characteristics, corporate governance and ownership structure on compliance with the mandatory risk reporting in financial statements of Egyptian listed companies?
3. Is there any change in compliance levels of mandatory risk reporting between 2006 and 2007?
4. To what extent do Egyptian listed companies provide voluntary risk reporting in their board of directors' reports?
5. What are the impacts of competition, company risk level, company-specific characteristic, corporate governance and ownership structure on the voluntary disclosure of risk-related information in board of directors' reports of Egyptian listed companies?

6. Is there any association between the extent of mandatory risk reporting and the amount of voluntary risk reporting provided in the annual reports of Egyptian listed companies?
7. What are the factors that may impede presentation of mandatory and voluntary risk reporting in the annual reports of Egyptian listed companies?

These research questions have been addressed as follows:

1. An unweighted disclosure index was used to measure compliance with disclosure requirements of EAS 25 and 33. Information items included in the disclosure index are derived entirely from these two standards. A company received a score of 1 if the item is disclosed and 0 if the item if not disclosed. The index is a relative index that considers the inapplicability of any disclosure item.
2. A number of disclosure determinants have been identified such as competition, company risk level, corporate governance and ownership structure. In addition the study controls for several company-specific characteristics. Using regression analysis, these determinants have been regressed against compliance levels with mandatory risk reporting that have been measured using the disclosure index.
3. The study employs a Wilcoxon Signed Ranks Test to examine whether there is a significant change in compliance level between 2006 and 2007.
4. The study employs content analysis to identify and classify risk-related information. A sentence approach has been used for coding and measuring purposes. Risk-related information has been classified according to the risk categories proposed by ICAEW and German Accounting Standard 5 (exposure draft) and followed by several prior studies.
5. A number of disclosure determinants have been identified such as competition, company risk level, corporate governance and ownership structure. In addition the study controls for several company-specific characteristics. Using regression analysis, the impacts of these determinants on voluntary risk reporting have been assessed.
6. In order to test the association between mandatory and voluntary risk reporting, the study uses correlation to examine the association between level of compliance with mandatory disclosure and the amount of voluntary risk reporting.

7. A semi-structured interview has been used as a research method to elicit respondents' perceptions regarding the factors that may hinder presentation of mandatory and voluntary risk reporting. These factors have been classified into four categories, namely factors related to accounting education, factors related to accounting practice, factors related to cost of disclosure and other factors.

This study extends accounting knowledge and literature in several areas. The study addresses risk disclosure practices in one of the developing countries which have received little attention in accounting research. Egypt has different social, economic and institutional contexts and it is important to identify their impacts on risk reporting practices. Recently, accounting research has addressed risk reporting focusing only on developed countries. This study extends our understanding of risk reporting practices through examining these practices in a country with a great preference for secrecy and highlighting the conflict between secrecy and risk reporting. In addition, unlike prior research, the study provides a comprehensive examination of risk reporting not only by addressing both mandatory and voluntary disclosure but also by examining factors that impede the presentation of risk reporting. Furthermore, the determinants of risk reporting have been examined especially the impact of competition, corporate governance and ownership structure on risk reporting. The contribution of this study has been achieved through reviewing and acknowledging a substantial stream of accounting research to identify the determinants of risk reporting and explore factors that influence the presentation of risk reporting, designing and implementing a study that extends accounting knowledge of a topic that receives little attention. In addition, the study applies different research approaches, quantitative and qualitative approaches, and methods, content analysis and semi-structured interview, to better understand the topic under examination and relates the findings to the general knowledge and empirical evidence of disclosure studies.

10.3 Compliance Level and Amount of Mandatory and Voluntary Risk Reporting

This study measures the compliance with mandatory reporting and the amount of voluntary risk reporting in the annual reports of 106 Egyptian listed companies. In addition, the study examines the impact of competition, corporate governance and ownership structure on the risk reporting practices of Egyptian companies. In order to measure the extent of compliance with mandatory risk reporting, a checklist of disclosure items based on EAS 25 and 33 was prepared and an unweighted disclosure index was

employed. A company received a score of 1 if the item was disclosed and 0 if not. However, the company was not penalised for non-applicable information items. To measure the amount of voluntary risk reporting, the study employed content analysis and a sentence approach for coding and counting purposes.

Descriptive statistics regarding compliance with mandatory risk reporting indicate that Egyptian listed companies present a low level of compliance with disclosure requirements of EAS 25 and 33. The average compliance level with EAS 25 is 19.33% and 21.57% in 2006 and 2007 respectively while the average compliance level with disclosure requirements of EAS 33 in the same period is 18.25% and 16.99%. This result is consistent with Dahawy and Conover (2007) and Samaha and Stapleton (2008) who report a low level of compliance with mandatory disclosure requirements in Egypt. In addition, several studies report a low level of compliance with mandatory disclosure in several developing countries (Akhtaruddin, 2005; Marston and Robson, 1997; Wallace, 1988). This low level of compliance with mandatory disclosure requirements of EAS 25 and 33 reflects the impact of the secretive culture of Egyptian society on the disclosure practices of Egyptian listed companies (Dahawy et al., 2002). Furthermore, this result confirms that the CMA and EGX are more concerned with the format rather than the content of financial statements. In addition, it highlights the deficient application of sanctions and administrative actions of the CML for the violation of accounting standards. The EFSA and the EGX should use their authority to promote and monitor the application of EASs/IASs by Egyptian listed companies and work together to impose heavy penalties against companies that violate accounting standards. The result indicates that the introduction of EASs leads to an increase in risk reporting practices of Egyptian companies. However, the compliance level is poor. The positive association between mandatory and voluntary risk reporting highlighted the interaction between mandatory and voluntary risk reporting.

Descriptive statistics regarding voluntary risk reporting reveal that, on average, Egyptian companies present low voluntary risk reporting (23 and 26 sentences in 2006 and 2007 respectively) compared to prior studies such as Konishi and Ali (2007) in Japan, Linsley and Shrives (2006) and Rajab and Handley-Schachler (2009) in the UK. In addition, operational risk category is the largest risk category reported by Egyptian companies. Regarding the characteristics of voluntary risk reporting, Egyptian listed companies tend to disclose more qualitative, good news, past and non-financial risk reporting than quantitative, bad news, forward-looking and financial risk reporting. The lack of

quantified and forward-looking risk reporting impairs the usefulness of risk reporting in Egyptian companies' annual reports. Egyptian companies may be reluctant to provide quantitative risk reporting due to measurement difficulties, fear from litigation costs and the commercially sensitive nature of risk-related information while the reluctance to provide forward-looking information may be caused by fear of litigation costs, difficulties in discussing future risks compared to past risks, high uncertainties associated with future events and the proprietary cost of risk reporting.

10.4 The Determinants of Risk Reporting in Annual Reports of Egyptian companies

This study examined the impact of competition, corporate governance, ownership structure and company risk level on risk reporting practices of Egyptian companies. The level of compliance with mandatory risk reporting and the amount of voluntary risk reporting are regressed against these independent variables. In addition, the study controlled for firm-specific characteristics such as firm size, profitability, liquidity and industry membership.

The findings revealed a significant positive association between barriers to entry and risk reporting practices. The result revealed that barriers to entry as a proxy for competition is a key determinant of risk reporting practices in Egypt. Egyptian listed companies that operate in low competition provide more mandatory and voluntary risk-related information than companies that operate in high competition because any potential competitor will not benefit from this information due to the difficulties of entering the market. This result provides empirical evidence for the impact of competition and proprietary costs on disclosure; a relationship that has not been examined in risk reporting studies.

The result indicated a positive association between board size and mandatory risk reporting. This means that Egyptian listed companies with large board size tend to comply more with mandatory requirements. This result conflicts with the result of Cheng and Courtenay (2006), Bassett et al. (2007) and Donnelly and Mulcahy (2008). This result suggests that large boards have the power to alleviate the dominance of the CEO over the board. In addition, this result reflects the impact of the Egyptian corporate governance code of practice on the disclosure practice of Egyptian companies. The code encourages boards of directors to ensure compliance with disclosure regulation and the effectiveness of risk management strategies.

The findings revealed a negative association between role duality and mandatory risk reporting. This means that Egyptian companies with role duality provide less compliance with mandatory disclosure compared to companies without role duality. This result is consistent with the prediction of agency theory and the results of Forker (1992) and Bassett et al. (2007). The result emphasises the importance of the separation between the CEO and chair of the board position because role duality is a major deterrence to disclosure and a significant threat to disclosure quality.

The findings pointed to a significant positive association between auditor type and mandatory risk reporting. Companies that are audited by auditors with international affiliations provide more compliance with mandatory disclosure. This result is consistent with Ahmed and Nicholls (1994) and Ahmed (2006). In Egypt, Abd-Elsalam and Weetman (2003) reach a similar conclusion. Audit firms with international affiliations have the power to convince or force their clients to comply with accounting standards because they have the required expertise and well-trained staff needed for the application of accounting standards and they also aim to assert their independence and protect their reputation. Moreover, the result indicated a non-significant association between auditor type and voluntary risk reporting. This result is consistent with Malone et al. (1993) and Hossain et al. (1994 and 1995). Audit firms with international affiliations have no impact on voluntary risk disclosure because Companies Act requires independent auditors to check whether the information included in a board of directors' report is in line with company records and this may increase audit cost. Therefore, audit firms with international affiliations discourage their clients from providing voluntary risk reporting.

The results indicated a significant negative association between ownership concentration and mandatory risk reporting. This means that Egyptian companies with low ownership concentration tend to provide high compliance with mandatory disclosure. This result is consistent with Barako et al. (2006) and Guan et al. (2007) and supports the agency theory prediction that widely held companies tend to provide more disclosure to reduce information asymmetry and agency costs.

The results revealed a non-significant association between managerial ownership and risk reporting. In contrast to the prediction of agency theory, the result suggests that managerial ownership has no impact on mandatory and voluntary risk reporting practices of Egyptian companies. This result supports the result of Forker (1992), Guan et al. (2007) and Laidroo (2009). The possible explanation for this result is the lack of stock-

based compensation contracts that motivate managers to disclose their private information. Stock-based compensation is not a common practice in Egyptian companies.

The findings revealed a negative association between governmental ownership and mandatory risk reporting. Egyptian companies with high governmental ownership provide less compliance with mandatory disclosure than companies with low governmental ownership. This result highlights the poor ability of governmental agencies to force companies with governmental ownership to comply with mandatory disclosure requirements. Governmental support for these companies to gain easy access to financial resources and the lack of the market for company control discourages them for providing more disclosure in their annual reports. The result reflects the impact of the UAS on disclosure. These companies have been applying the UAS which is designed to satisfy only government needs for information and ignore the needs of other users.

The results pointed to a non-significant association between institutional ownership and the risk reporting practices of Egyptian listed companies. This result is consistent with Lakhal (2007). The result suggests that institutional investors behave as traders and not as owners; therefore they demand less disclosure because of their ability to obtain their information needs directly and promptly. In addition, the result suggests that they have the ability to access information from different sources and hence the importance of annual reports as a main source of information has declined.

The results revealed a non-significant association between leverage and risk reporting. This result is consistent with Ahmed and Nicholls (1994), Wallace et al. (1994) and Alsaeed (2006). Empirical evidence from Egypt provides mixed results. Abd-Elsalam and Weetman (2003) found a negative association between leverage and mandatory disclosure while Hassan et al. (2006) revealed a positive association. In Egypt, bonds are a minor source of finance for companies while banks and other financial institutions are the main source of finance. The non-significant impact of leverage on risk reporting may be explained by the little power bondholders have to influence companies' disclosure practices or the fact that banks and other financial institutions use other communication channels to satisfy their information needs. Measuring a company risk level is not an easy task due to the difficulties of risk operationalisation (Linsley and Shrives, 2006).

The findings revealed a significant negative association between firm size and compliance with mandatory risk reporting. This means that small companies tend to comply more with mandatory disclosure requirements. This result is consistent with the results of a

number disclosure studies in developing countries (El-Dahrawy and Abo-Zaid, 1995; Hassan et al., 2006). This result contradicts the expectation of agency, legitimacy and stakeholder theory. The possible explanation for this result is that large companies are politically visible and they try to evade any potential political intervention through reducing disclosure in their annual reports (Wallace et al., 1994; Wallace and Nasser, 1995). In addition, the cost of collecting and processing information, due to enhancement in the field of information systems, is no longer an increased function in firm size. Interviewees provided support for this point of view. They indicated that the cost of collecting and processing information had a non-significant impact on the risk reporting practices of Egyptian companies because even small companies could afford the cost of modern accounting systems.

The findings indicated a significant positive association with profitability and mandatory risk reporting. Companies with high profitability tend to comply with mandatory disclosure requirements more than companies with low profitability. This result agrees with the results of Abd-Elsalam and Weetman (2003) and Hassan et al. (2006). This result supports the expectation of legitimacy and stakeholder theory that companies with high profitability wish to signal their superior performance to capital markets and to confirm their compliance with accounting standards to highlight their adherence to societal values and norms.

The findings indicated a positive association between liquidity and mandatory risk reporting. Companies with a high liquidity comply with mandatory disclosure more than companies with low liquidity. This result is consistent with the result of Owusu-Ansah (2005). However, it contradicts Wallace and Nasser (1995) and Alsaeed (2006). Based on signalling theory, Egyptian listed companies with high liquidity are more motivated to signal their superior performance to the capital market and discuss their efficiency in managing uncertainties and risks related to their business and geographic segments.

The findings indicated a non-significant association between industry membership and risk reporting. Industry membership has no impact on risk reporting practices of Egyptian companies. This result is in line with Wallace et al. (1994), Herrmann and Thomas (1996) and Inchausti (1997). This result showed that manufacturing companies and other companies apply mandatory requirements evenly. In addition, political groups have channels to obtain their information needs other than annual reports. In addition, manufacturing and other companies do not appreciate the merits of voluntary disclosure.

These results confirm the claim of Meek et al. (1995) and Leuz (2003) that disclosure determinants may vary according to the nature of reported information.

10.5 Factors that Influence Presentation of Mandatory and Voluntary Risk Reporting

This study aimed to identify the factors that influence the presentation of risk reporting and found that they could lead to low compliance with mandatory and presentation of voluntary risk reporting. These factors have been categorised into four groups:

1. Factors related to accounting education (group 1).
2. Factors related to accounting practice (group 2).
3. Factors related to cost of disclosure (group 3).
4. Other factors (group 4).

With respect to group 1, the results indicated that there is a consensus between the interviewees that:

- Bookkeeping and procedures-oriented accounting education impaired the importance of accounting disclosure in general and risk reporting in particular. The focus on bookkeeping and accounting procedures limits graduates' accounting knowledge regarding accounting disclosure which in turn results in low presentation of mandatory and voluntary risk reporting.
- Limited emphasis on a conceptual framework and the objectives of financial reporting is a key reason for low compliance with and presentation of mandatory and voluntary risk reporting. Egyptian accounting education pays much more attention to accounting measurement compared to accounting disclosure which in turn results in inadequate risk disclosure in the annual reports of Egyptian companies.
- Lack of sufficient practical training of undergraduate students impaired their ability to apply accounting standards and resulted in low awareness regarding best voluntary disclosure practices.

Moreover, most of the interviewees pointed out that:

- Inadequate local accounting textbooks contribute to low compliance with and presentation of mandatory and voluntary risk reporting because local textbooks are outdated and fail to discuss the application of EASs and emphasise the importance of voluntary risk disclosure. Local textbooks discuss the application of accounting standards in title only but not in content.

- Inadequate accounting education of managers has a significant negative impact on the risk reporting practices of Egyptian companies. Due to an inadequate accounting background, managers think that preparation of annual reports is a routine process and accounting standards could be applied selectively. Moreover, they do not appreciate the importance of voluntary disclosure including risk reporting and resist any attempt to enhance the quality of financial reporting.

Furthermore, a considerable number of the interviewees highlighted the fact that:

- Lack of cooperation between the profession and universities regarding education and research aspects result in low presentation of risk reporting in annual reports of Egyptian companies. The universities do not receive any feedback from the profession to enhance and re-design the accounting curricula. Moreover, the profession does not guide accounting research to potential problems related to the application of the EASs.

With respect to group 2, the results indicated that there is a consensus between the interviewees that:

- Lack of an effective profession limits the risk reporting practices of Egyptian companies due to the insufficient role of the profession in monitoring the professional performance of auditors and enhancing accounting skills and knowledge of its members.
- Lack of adequate continuing education is a significant reason for low compliance with and presentation of mandatory and voluntary risk reporting since continuing education is not a requirement for practising the profession. Therefore, most auditors lack the required knowledge to make judgments regarding the adequacy of disclosures in clients' financial statements. Moreover, due to lack of continuing education, chartered accountants are not able to advise their clients regarding best voluntary disclosure practices including risk reporting.

In addition, the majority of the interviewees highlighted that:

- Lack of qualified accountants results in preparation of financial statements that diverge from accounting standards' requirements related to risk reporting since most accountants do not attempt to update their accounting knowledge and do not receive professional training regarding the application of accounting standards and best voluntary disclosure practices.

- Lack of well-organised accounting information systems hinder Egyptian companies from providing mandatory risk reporting that satisfies the requirements of accounting standards or providing voluntary risk disclosure. Accounting information systems in most Egyptian companies are tax-oriented and do not support financial reporting.
- Procedures-oriented accounting practices negatively impact risk reporting because they overlook the importance of accounting disclosure. Egyptian companies tend to give low priority to accounting disclosure including risk reporting. The application of the UAS in state-owned companies during the 1960s still has a significant impact on the disclosure practices of Egyptian companies.
- Lack of effective enforcement mechanisms hinders compliance with and presentation of mandatory and voluntary risk reporting because administration measures and sanctions are not effectively applied by regulatory agencies such as the CMA and EGX. Moreover, there is no attempt to provide incentives to encourage companies to provide voluntary disclosure including risk reporting.

Furthermore, a small number of the interviewees indicated that:

- The precedence of tax accounting over financial reporting leads to inadequate risk reporting practices. Egyptian companies do not comply with or present mandatory and voluntary risk reporting if this disclosure has any potential tax consequences.
- Lack of sufficient financial resources is a reason for low presentation of mandatory and voluntary risk reporting because it hinders accounting staff in Egyptian companies from updating their accounting knowledge. Moreover, several interviewees highlighted management awareness regarding the importance of practical training to their staff as a major problem.

Finally, the majority of the interviewees argued that the application of IASs is adequate for Egypt especially after the economic reform policy adopted by the Egyptian government and the need to attract more foreign investments.

With respect to group 3, the majority of the interviewees revealed that:

- Competitive disadvantage is a significant threat to the risk reporting practices of Egyptian companies. Egyptian companies refrain from complying with or presenting mandatory and voluntary risk reporting because they think that

risk disclosure is a very sensitive topic and reporting such information may damage their competitive advantages.

A considerable number of the interviewees indicated that:

- Non-proprietary costs of disclosure, such as cost collecting, processing and disseminating information or the cost of developing accounting information systems, has no impact on the risk reporting practices of Egyptian companies since such costs have become relatively low due to technological enhancement in the field of information systems.

Moreover, the interviewees shed light on a number of factors that may hinder presentation of mandatory and voluntary risk reporting (group 4). They pointed out that:

- The secretive nature of Egyptian culture impaired the risk reporting practices of Egyptian companies. Potential conflict between Egyptian culture and Anglo-Saxon culture of IASs represent an obstacle to compliance with mandatory risk reporting. Moreover, the secretive nature of Egyptian culture impedes the presentation of voluntary risk reporting as well.
- Equivalent positions presented in the profession law allow some unqualified individuals to work as external auditors while they lack the knowledge and expertise about the application of accounting and auditing standards. This is a key reason for non-compliance with the EASs related to risk reporting because those individuals are not able to advise their clients about the application of accounting standards or the presentation of voluntary disclosure.
- Lack of explanations and interpretations of the EASs besides translation problems have a negative impact on the risk reporting practices of Egyptian companies.
- Technical difficulties of risk-related accounting standards are a potential factor for non-compliance. Risk-related accounting standards are not only difficult for accountants but also for some professional auditors.

10.6 Recommendations

Based on the findings discussed in sections 10.3, 10.4 and 10.5, this section provides some recommendations to regulators and policy makers that may assist in enhancing financial reporting practices in Egypt:

- A low level of compliance with accounting standards points to a major problem in the application of these standards and emphasises the urgent need to activate the role of the EFSA and EGX in monitoring compliance with accounting standards and the importance of the strict application of administrative sanctions regarding violation of disclosure requirements.
- The findings of this study highlight the determinants of risk reporting practices and indicate companies' characteristics that are associated with low presentation of risk reporting and hence the EFSA and EGX should focus and direct their efforts to these companies to assist them in enhancing the quality of their disclosures.
- The registry of auditors managed by the EFSA cannot ensure high quality professional performance of auditors. More scrutiny of auditor performance should be exerted. The association between risk reporting and auditor type should stimulate the EFSA to support audit firms with international affiliations to force/persuade their clients to provide a high level of compliance with disclosure requirements. In addition, the EFSA and the EGX should monitor professional performance of audit firms without international affiliations since their clients provide low compliance with accounting standards.
- The EFSA, the EIoD and the EGX should encourage listed companies to separate the position of the CEO and the chair of the board since role duality deters risk reporting.
- There is an imperative need for a professional body with the power and authority to monitor professional performance of accountants and auditors, impose sanctions on violators and provide continuing education for its members.
- The EFSA and EGX should provide explanations and interpretations of accounting standards to assist the preparers of annual reports to comply with disclosure requirements since the lack of qualified accountants hinders companies from complying with accounting standards.

- There is an imperative need to develop accounting curricula and textbooks through focusing on the objectives of financial reporting, importance of disclosure, best practices of voluntary disclosure and application of accounting standards and undergraduate students should be provided with practical training during their studies.
- The EFSA and EGX should provide incentives to listed companies that provide voluntary disclosure over and above mandatory requirements to encourage other companies to follow their path.
- Cooperation between the profession and universities should be strengthened regarding accounting education and research which may contribute to preparing modern accounting curricula that discuss adequately different aspects of accounting practices and directing accounting research to potential accounting problems.
- A new profession law has become a necessity which should allow qualified persons only to practise the profession and emphasise the importance of continuing education.

10.7 Research Limitations

Although this research provides a number of insights regarding the risk disclosure practices of Egyptian companies, it has its own limitations. First, despite the measures that have been followed to thoroughly understand companies' annual reports, the scoring and classification process suffer from inherent judgement limitations and subjectivity which cannot be entirely eradicated. Second, the sample consists of Egyptian companies that are listed on the EGX only and hence the results cannot be generalised to unlisted companies. Unlisted companies were excluded from the sample due to the difficulties of obtaining their annual reports. Third, like other disclosure studies, this study is a time-specific research. The study applies a cross-sectional approach and examines risk reporting practice and its determinants at two points in time, 2006 and 2007. However, a longitudinal research may provide a better understanding of risk reporting practices of Egyptian companies especially as financial reporting practices change over time. Fourth, to identify the potential factors that may impede presentation of mandatory and voluntary risk reporting, the study uses semi-structured interviews to elicit interviewees' perception regarding the impact of these factors on risk reporting practices. Due to the conservative nature of Egyptian society and the fear of participating in academic research, only 15 interviewees were willing to participate in the research. However, because of their

expertise in the field of financial reporting, they were able to provide valuable information and insights regarding the research questions. Sixth, like other disclosure studies, this study aims to examine the impact of competition, corporate governance and ownership structure on the risk reporting practices of Egyptian companies. However, due to data unavailability, there are several determinants that have been excluded in the regression model. Seventh, the study uses a sample that represents 30.3% and 36.8% of the total listed companies in 2006 and 2007 respectively. However, using a larger sample may provide a more in-depth understanding of the risk reporting practices of Egyptian companies. Eighth, this study focuses only on non-financial companies. Due to the different characteristics of financial and non-financial companies, the results of this study cannot be generalised to financial companies. Ninth, the study used leverage as a proxy of company risk level. However, risk is a multifaceted concept that cannot be measured easily; therefore leverage may not be able to reflect different risks a company may face; therefore there is an imperative need to develop and use a more relevant proxy of a company risk level such as earning variability, dividend payout ratio, earning co-variability (Abdelghany, 2005; Beaver et al., 1970; Farrelly et al., 1985) and share price volatility (Madura, 2006). Finally, in studying the association between competition and risk reporting, the study employs only one proxy of competition in the market, namely barriers to entry. The use of only one proxy is one of the limitations of this study.

10.8 Future Research

The study highlights several avenues for future research. It is suggested that future research could examine the impact of two important corporate governance mechanisms, namely the existence/percentage of independent directors on the board of directors and audit committees on the risk reporting practices of Egyptian companies. The Egyptian corporate governance code was issued in 2005 and listed companies have been advised to follow it. Therefore, the impact of corporate governance on financial reporting is a fertile ground for research in Egypt. Future research could investigate the impact of family ownership and the existence of family members on the board on the risk reporting practices of Egyptian companies. Due to close social relationships and cultural values, family companies are a common type of business and have made a considerable contribution to the Egyptian economy.

As a result of economic reforms and the privatisation program adopted by the Egyptian government, Egypt attracts significant foreign investment. Foreign investors have made a considerable contribution to the activity and market capitalisation of the Egyptian stock

market. Foreign investors may influence the disclosure practices of Egyptian companies because they may demand more information to be presented in corporate annual reports especially risk-related information to assist them in evaluating companies' risk profiles. Therefore, future research could examine the impact of foreign ownership on risk reporting practices.

Several Egyptian companies have begun to be listed on the international stock exchange and this may require them to provide more information in their annul reports as a necessary condition for listing. The impact of dual or multiple listing on risk reporting practices of Egyptian companies could be examined. Future research could also examine risk reporting practices for a long period through a longitudinal research in order to assess the improvement in compliance with mandatory risk reporting and identify the pattern of voluntary risk reporting. Another recommendation is to examine the consequences of risk reporting. In other words, it is important to investigate the association between voluntary risk reporting and the cost of capital. Several studies have examined the impact of general voluntary disclosure on the cost of capital. A negative association between voluntary disclosure and cost of capital supports the importance of providing voluntary disclosure. Another area for research would be to examine risk reporting practices and their determinants in financial companies. Financial companies have unique features in terms of the risks and uncertainties they face. These unique features may lead to different risk reporting practices compared to non-financial companies. This study depended on semi-structured interviews to identify factors that may impede compliance with and presentation of mandatory and voluntary risk reporting. However, a questionnaire survey, based on the results of the study, would enable access to a large number of different respondents and would allow the use of further statistical analysis.

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APPENDECIES

Appendix 1: Risk Disclosure Categories and Decision Rules

1. A Risk Disclosure Categories

Financial Risk	
	Interest rate Exchange rate Commodity Liquidity Credit Going concern Cost of capital
Operational Risk	
	Customer satisfaction Product development Efficiency and performance Sourcing Stock obsolescence Product and service failure Environmental Health and safety Brand name erosion Management Process
Empowerment Risk	
	Leadership and management Outsourcing Performance incentives Change readiness Communications
Information Processing and Technology Risk	
	Integrity Access Availability Infrastructure
Integrity Risk	
	Management and employee fraud Illegal acts Reputation
Strategic Risk	
	Environmental scan Industry Business portfolio Competitors Pricing Valuation Planning Life cycle Performance measurement Regulatory Sovereign and political

1. B Decision Rules

- To identify risk disclosures a broad definition of risk is to be adopted as explained below.
- Sentences are to be coded as risk disclosures if the reader is informed of any opportunity or prospect, or of any hazard, danger, harm, threat or exposure, that has already impacted upon the company or may impact upon the company in the future or of the management of any such opportunity, prospect, hazard, harm, threat or exposure.
- The risk definition just stated shall be interpreted such that 'good' and 'bad' 'risks' and 'uncertainties' will be deemed to be contained within the definition. Although the definition of risk is broad, disclosures must be specifically stated; they cannot be implied.
- The risk disclosures shall be classified according to the Appendix 1.A risk categories.
- Quantitative risk disclosures are those risk disclosures that either disclose directly the financial impact of a risk or disclose sufficient information to enable the reader to calculate the financial impact of a risk.
- If a sentence has more than one possible classification, the information will be classified into the category that is most emphasised within the sentence.
- Tables (quantitative and qualitative) that provide risk information should be interpreted as one line equals one sentence and classified accordingly.
- Any disclosure that is repeated shall be recorded as a risk disclosure sentence each time it is discussed.
- If a disclosure is too vague in its reference to risk, then it shall not be recorded as a risk disclosure.

Appendix 2: Disclosure Indices

2.A Disclosure Index of EAS 25

Category	Disclosure Items
Risk Management Policies	
	- Description of financial risk management objectives - Description of financial risk management policies - An explanation of the extent to which financial instruments are used and the associated risks
Terms, Conditions and Accounting policies	
	- For each class of financial asset, financial liability and equity instrument, disclose information about the extent and nature of the financial instruments, including significant terms and conditions that may affect the amount, timing and certainty of future cash flows. - Accounting policies and methods adopted including the criteria for recognition and the basis of measurement applied
Interest Rate Risk	
• Assets	- Contractual repricing or maturity dates, whichever dates are earlier. - Effective interest rates. - Exposure to fair value interest rate risk, such as financial assets and financial liabilities with a fixed interest rate. - Exposure to cash flow interest rate risk, such as financial assets and financial liabilities with a floating interest rate that is reset as market rates change. - No direct exposure to interest rate risk, such as some investments in equity instruments.
• Liabilities	- Contractual repricing or maturity dates, whichever dates are earlier. - Effective interest rates. - Information about exposure to the effects of future changes in the prevailing level of interest rates. - Exposed to fair value interest rate risk, such as financial assets and financial liabilities with a fixed interest rate; - Exposed to cash flow interest rate risk, such as financial assets and financial liabilities with a floating interest rate that is reset as market rates change.
Credit risk	
	- The amount that best represents the maximum credit risk exposure at the balance sheet date in the event of other parties failing to perform their obligations under financial instruments. - Significant concentrations of credit risk. - Disclosure of concentrations of credit risk when they are not apparent from other disclosures about the nature of the business and financial positions. - A description of shared characteristic that identifies each concentration. - The amount of the maximum credit risk exposure associated with all financial assets sharing that characteristic.
Liquidity Risk	
	- An analysis of assets into relevant maturity groupings based on the remaining period between the balance sheet date and the contractual maturity date. - An analysis of liabilities into relevant maturity groupings based on the remaining period between the balance sheet date and the contractual maturity date.
Foreign Currency Risk	
	- Gains mines losses that arise from dealing in foreign currencies. - The amount of significant net foreign currency exposures.

2.B Disclosure Index of EAS 33

Category	Disclosure Items
Primary Segment Format	
	- Segment revenue. - Segment result presenting the result from continuing operations separately from the result from discontinued operations. - Segment assets. - Segment liabilities. - Capital expenditure on property, plant and equipment and on intangible assets. - Depreciation and amortisation expense. - Total amount of significant non-cash expenses other than depreciation and amortisation.
Secondary Segment Format	
• Primary format is business segments	- Segment revenue from external customers by geographical area based on geographical location of customers. - Total of segment assets by geographical location of assets. - Capital expenditure on property, plant and equipment and on intangible assets by geographical location of assets
• Or Primary format is geographical segments	- Segment revenue from external customers. - Total of segment assets. - Capital expenditure on property, plant and equipment and on intangible assets.
Additional Disclosures	
• If the primary segment format is geographical segments by location of assets	- The revenue from sales to external customers for each customer-based geographical segment
• Or if the primary segment format is geographical segments by location of customers	- Total of segment assets by geographical location of the assets. - Capital expenditure on property, plant and equipment and on intangible assets by location of the assets

Appendix 3: Illustration of Coding Process

3.1 Content Analysis

General Silos & Storage Company

Risk Category	Risk Reporting Example	Sentence characteristics
Operational Risk	During 2006, the company re-opened five warehouses in Alexandria and other three warehouses are under refurbishment this increased storage capacity by 50,000 tones and reduced the time of discharge … The company started a program to establish a new warehouse in El-Dekhila port with a capacity of 45,000 tons which increased our competitive advantages in discharging … A new system of sieves has been installed in all the silos which contributed in reducing the laytime, costs and problems associated with discharging … As a result of long negotiations with Alexandria Port Authority, the company started its operations in the extension of the maritime berth 85/1 which added 150,000 tons to storage capacity that never used for 10 years; this enhanced our capacity to receive giant ships.	Qualitative/good news/past
	The metal silo project (82) is considered unprofitable project due to the increase in interest and long-term loans charged to the project; the management discussed several alternatives for the optimal use of the project … The cost of outsourcing increased significantly and unexpectedly due to the increase in transportation prices; the management discusses possible solutions to this problem.	Qualitative/bad news/past
Financial Risk	Due to fluctuations in currency exchange rates long-term loans and interest payments increased by £E6.87 and £E5.502 millions respectively.	Quantitative/bad news/past

Misr Chemical Industries

Risk Category	Risk Reporting Example	Sentence characteristics
Operational Risk	The company faces increased competition in the domestic market. The company future plans to deal with these circumstances are to reduce product prices to main customers, allow for credit sales for main customers and continue providing free transportations and after-sales service. The company is planning to participate in all tenders related to our business, to export production surplus to Arabic countries such as Saudi Arabia, Syria, Palestine, Tunisia and Italy in a competitive prices to international prices.	Qualitative/neutral/future
	Due to increased competition, the company used only 87% of planned capacity and 79% of available capacity. Consequently, the total production decreased from £E172.10 in 2005 to £E141.30 million in 2006. In addition, domestic sales and export decreased from £E157.40 to £E122.8 and from £E16.70 to £E16.6 million respectively. Furthermore, total revenues decreased from £E175.60 to 140.90 million and average production/employee decreased from £E171860 to £E144668.	Quantitative/bad news/past
	The company maintained the operational efficiency of equipment and production capacity through re-coating metal electrodes. The total number of electrodes re-coated in this year and the previous two years are 84 and 139 respectively. in addition, the company make sure to rehabilitated old equipments and building and to store spare parts to ensure the continued operations... the company used and applied the newest technology in the production process to maintain the quality of products and to be able to face competition in product market. As a result, the company is qualified for ISO 9001 from Moody international Certification ... the company used environmentally technology in the production process. This assisted the company to comply with the requirements of Environment Law 4/1994. The company owned a new network of sewage and sewage treatment unit. In addition, the company had an environmental monitoring system to record any emissions that may affect the environment or employees in the form of gases, liquids, dust or noise. All this effort helped the company to be qualified for ISO 14001.	Qualitative/good news/past
	The company faced increased competition in domestic market which forced the company to reduce selling prices to maintain major customers. However, the policies adopted by the competitors to reduce selling prices below the cost attracted some major customers and resulted in a decline in current year's sales ... the competition is extended to foreign markets. The competitors offered very low selling prices even lower than variable cost. This forced the company to offer competitive prices to cover al least variable cost and to use efficiently the available capacity and to reduce the fixed cost of production per ton.	Qualitative/bad news/past
Financial Risk	The negotiation with Housing Construction Bank of Germany led to reduction of interest rate of borrowing from 8% to 2.25% ... the policies adopted by the company to encourage cash sales result in a reduction in debtors and reduced the average settlement period of trade receivables from 67 to 65 days.	Qualitative/good news/past
	The agreement with Housing Construction Bank of Germany resulted in reducing interest payment by 12.035 million during the current year.	Quantitative/good news/past
	The company suffered from shortage of liquidity due to financial distress of major customers; therefore the company review its credit policy.	Qualitative/bad news/past

3.2 Disclosure Index

3.2.1 EAS 25

Lord Precision Industries

Risk Management Policies	Example of Disclosure	Score
- Description of financial risk management objectives	The company faces different financial risks a result of different activities a company perform. Risk management policies aim to identify uncertainties in markets and to reduce their expected negative impacts on the performance of the company.	1
- Description of financial risk management policies	The company monitor fluctuations in exchange rates and tries to reduce uncovered currency positions to the minimum levels ... the company deals only with customers with very good credit history ... the company maintains adequate level of liquidity which is well-matched with current activities also the company has secured and flexible sourced of credit.	1
- An explanation of the extent to which financial instruments are used and the associated risks		0
Terms, Conditions and Accounting policies		
- For each class of financial asset, financial liability and equity instrument, disclose information about the extent and nature of the financial instruments, including significant terms and conditions that may affect the amount, timing and certainty of future cash flows.		0
- Accounting policies and methods adopted including the criteria for recognition and the basis of measurement applied	Trade receivables recognised initially at fair value and reduced by appropriate allowances for estimated irrecoverable amounts. The allowance is created if there is objective evidence that the company cannot collect the contractual amount ... the investments that the company will hold for un-specified period will be classified as long-term investments. These investments will be valued according to the cost other short-term investment will recorded according to the fair value... .	1
Interest Rate Risk		
• Assets		
- Contractual repricing or maturity dates, whichever dates are earlier.		0
- Effective interest rates.	The average effective interest rate is 5%.	1
- Exposure to fair value interest rate risk, such as financial assets and financial liabilities with a fixed interest rate.	Financial assets exposure to interest risk rate is £E402335.	1
- Exposure to cash flow interest rate risk, such as financial assets and financial liabilities with a floating interest rate that is reset as market rates change.		0
- No direct exposure to interest rate risk, such as some investments in equity instruments.		0
• Liabilities		
- Contractual repricing or maturity dates, whichever dates are earlier.		0
- Effective interest rates.	The average effective interest rate is 12%.	1
- Information about exposure to the effects of future changes in the prevailing level of interest rates.		0
- Exposed to fair value interest rate risk, such as financial assets and financial liabilities with a fixed interest rate;	Financial liabilities exposure to interest risk rate is £E 6197300.	1
- Exposed to cash flow interest rate risk, such as financial assets and financial		0

liabilities with a floating interest rate that is reset as market rates change.		
Credit risk		
- The amount that best represents the maximum credit risk exposure at the balance sheet date in the event of other parties failing to perform their obligations under financial instruments.	The credit risk exposure is at the minimum level because the major customers are related party customers.	1
- Significant concentrations of credit risk.	The company faces significant concentrations of credit risk because 92% of sales are sales to three main customers.	1
- Disclosure of concentrations of credit risk when they are not apparent from other disclosures about the nature of the business and financial positions.	The company deals with related party companies. The company received the approval of the GM before commencing any transaction with these related party companies. Related party companies are Lord for trade and industry, Lord International and Sotraco.	1
- A description of shared characteristic that identifies each concentration.		0
- The amount of the maximum credit risk exposure associated with all financial assets sharing that characteristic.		0
Liquidity Risk		
- An analysis of assets into relevant maturity groupings based on the remaining period between the balance sheet date and the contractual maturity date.		0
- An analysis of liabilities into relevant maturity groupings based on the remaining period between the balance sheet date and the contractual maturity date.		0
Foreign Currency Risk		
- Gains mines losses that arise from dealing in foreign currencies.	The net loss as result of revaluating foreign currency is 29215.	1
- The amount of significant net foreign currency exposures.	The net foreign currency exposures are £E570529 and € 2195.	1
Total Disclosed Items		12
Total Applicable Disclosure Items		24
Company Score		50%

Middle & West Delta Flour Mills

Risk Management Policies	Example of Disclosure	Score
- Description of financial risk management objectives		0
- Description of financial risk management policies		0
- An explanation of the extent to which financial instruments are used and the associated risks		0
Terms, Conditions and Accounting policies		
- For each class of financial asset, financial liability and equity instrument, disclose information about the extent and nature of the financial instruments, including significant terms and conditions that may affect the amount, timing and certainty of future cash flows.		0
- Accounting policies and methods adopted including the criteria for recognition and the basis of measurement applied		0
Interest Rate Risk		
• Assets		
- Contractual repricing or maturity dates, whichever dates are earlier.		0
- Effective interest rates.		0
- Exposure to fair value interest rate risk, such as financial assets and financial liabilities with a fixed interest rate.		0
- Exposure to cash flow interest rate risk, such as financial assets and financial liabilities with a floating interest rate that is reset as market rates change.		0
- No direct exposure to interest rate risk, such as some investments in equity instruments.		0
• Liabilities		
- Contractual repricing or maturity dates, whichever dates are earlier.		0
- Effective interest rates.		0
- Information about exposure to the effects of future changes in the prevailing level of interest rates.		0
- Exposed to fair value interest rate risk, such as financial assets and financial liabilities with a fixed interest rate;		0
- Exposed to cash flow interest rate risk, such as financial assets and financial liabilities with a floating interest rate that is reset as market rates change.		0
Credit risk		
- The amount that best represents the maximum credit risk exposure at the balance sheet date in the event of other parties failing to perform their obligations under financial instruments.	The allowance for estimated irrecoverable debts is £E651074.	1
- Significant concentrations of credit risk.		0
- Disclosure of concentrations of credit risk when they are not apparent from other disclosures about the nature of the business and financial positions.		0
- A description of shared characteristic that identifies each concentration.		0
- The amount of the maximum credit risk exposure associated with all financial assets sharing that characteristic.		0
Liquidity Risk		
- An analysis of assets into relevant maturity groupings based on the remaining period between the balance sheet date and the contractual maturity date.		0
- An analysis of liabilities into relevant maturity groupings based on the remaining period between the balance sheet date and the contractual maturity date.		0
Foreign Currency Risk		
- Gains mines losses that arise from dealing in foreign currencies.		N/A
- The amount of significant net foreign currency exposures.		N/A
Total Disclosed Items		1
Non-Applicable Items		2
Total Applicable Disclosure Items		22
Company Score		4.5%

3.2.2 EAS 33

EL-Swedy Cables

Primary Segment Format		Example of Disclosure	Score
	- Segment revenue.	The sales of raw materials, power and special cables, turn key projects and electric products and accessories are £E 2109198059, 2626910033, 617444259, 266349700 and 126369267 respectively.	1
	- Segment result presenting the result from continuing operations separately from the result from discontinued operations.	Gross margins of raw materials, power and special cables, turn key projects and electric products and accessories are £E 177872042, 351606633, 82393298, 92159191 and 39179715 respectively.	1
	- Segment assets.	Assets of raw materials, power and special cables, turn key projects and electric products and accessories are £E 1432731543, 412511334, 695930752, 524781880 and 211555230 respectively.	1
	- Segment liabilities.		0
	- Capital expenditure on property, plant and equipment and on intangible assets.		0
	- Depreciation and amortisation expense.		0
	- Total amount of significant non-cash expenses other than depreciation and amortisation.		0
Secondary Segment Format			
• Primary format is business segments	- Segment revenue from external customers by geographical area based on geographical location of customers.	Total revenues from Egypt, Syria, Sudan are £E 7724113767, 336248007, 242626679 and 105584123 respectively.	1
	- Total of segment assets by geographical location of assets.	Total assets in Egypt, Syria, Sudan are £E 4067093516, 413238920, 290334587, 83035682 and 24962162 respectively.	1
	- Capital expenditure on property, plant and equipment and on intangible assets by geographical location of assets		0
• Or Primary format is geographical segments	- Segment revenue from external customers.		N/A
	- Total of segment assets.		N/A
	- Capital expenditure on property, plant and equipment and on intangible assets.		N/A
Additional Disclosures			
• If the primary segment format is geographical segments by location of assets	- The revenue from sales to external customers for each customer-based geographical segment		N/A
• Or if the primary segment format is geographical segments by location of customers	- Total of segment assets by geographical location of the assets.		N/A
	- Capital expenditure on property, plant and equipment and on intangible assets by location of the assets		N/A
Total Disclosed Items			5
Non-Applicable Items			6
Total Applicable Disclosure items			10
Company Score			50%

Middle & West Delta Flour Mills

Primary Segment Format		Example of Disclosure	Score
	- Segment revenue.	The total profit of grinding activities, baking activities, packing activities and transport activities and storage activities is £E 9.801, (3.025), 2.913, 7.196 and 9.64 million respectively.	0
	- Segment result presenting the result from continuing operations separately from the result from discontinued operations.		
	- Segment assets.		0
	- Segment liabilities.		0
	- Capital expenditure on property, plant and equipment and on intangible assets.		0
	- Depreciation and amortisation expense.		0
	- Total amount of significant non-cash expenses other than depreciation and amortisation.		0
Secondary Segment Format			
• Primary format is business segments	- Segment revenue from external customers by geographical area based on geographical location of customers.		0
	- Total of segment assets by geographical location of assets.		0
	- Capital expenditure on property, plant and equipment and on intangible assets by geographical location of assets		0
• Or Primary format is geographical segments	- Segment revenue from external customers.		N/A
	- Total of segment assets.		N/A
	- Capital expenditure on property, plant and equipment and on intangible assets.		N/A
Additional Disclosures			
• If the primary segment format is geographical segments by location of assets	- The revenue from sales to external customers for each customer-based geographical segment		N/A
• Or if the primary segment format is geographical segments by location of customers	- Total of segment assets by geographical location of the assets.		N/A
	- Capital expenditure on property, plant and equipment and on intangible assets by location of the assets		N/A
Total Disclosed Items			1
Non-Applicable Items			6
Total Applicable Disclosure Items			10
Company Score			10%

Appendix 4: Sample

Company Name	Company Name
- 10th of Ramdan for Development & Educational Services	- Industrial Gases
- General Silos & Storage	- Canal Shipping Agencies
- Olympic Stores Trade and Distribution	- Egyptian Electrical Cables
- Contact	- Egyptian Transport (EGYTRANS)
- Misr Duty Free Shops	- National Navigation
- Asek Company for Mining	- El Nasr Transformers (El MACO)
- Arab Aluminium	- National Glass & Crystal Co.
- Egyptian Iron & Steel	- Port Said Containers
- EL Ezz Aldekhela Steel - Alexandria	- GB auto
- Paper Middle East (Simo)	- Damietta Containers & Cargo
- Egypt Aluminium	- Raya Holding For Technology And Communications
- Alexandria Spinning & Weaving (SPINALEX)	- Alexandria Real Estate
- Eastern Tobacco	- Six of October Development & Investment (SODIC)
- Ceramic & Porcelain	- El Shams Housing & Urbanization
- Arab Cotton Ginning	- El Arabia for Land Reclamation
- Arab Polvara Spinning & Weaving Co.	- El Kahera Housing
- Oriental Weavers	- Egyptian Real Estate Group
- El Nasr Clothes & Textiles (KABO)	- Medinet Nasr Housing
- Olympic Group	- Heliopolis Housing
- Lord Precision Industries	- Mena Touristic & Real Estate Investment
- Natural Gas & Mining Project	- Wadi Kom Ombo Land Reclamation
- Abou Kir Fertilizers	- Ameriyah Cement
- Egyptian Chemical Industries (KIMA)	- Beni Suef Cement
- Egyptian Financial & Industrial	- Torah Cement
- Samad Misr -EGYFERT	- Alexandria Cement
- Sidi Kerir Petrochemicals	- Paint & Chemicals Industries (Pachin)
- Misr Chemical Industries	- Giza General Contracting
- Alexandria Mineral Oils Company	- Upper Egypt Contracting
- MIDOR	- El Ezz Porcelain (Gemma)
- Tourism Urbanization	- Egyptian Contracting (Mokhtar Ibrahim)
- Egyptian for Tourism Resorts	- Orascom Construction Industries (OCI)
- Orascom Hotel Holdings (OHH)	- South Valley Cement
- Pyramisa Hotels	- Sornaga Ceramics
- Remco for Touristic Villages Construction	- Pharaoh Ceramics
- Rowad Tourism (Al ROWAD)	- Ceramica Cleopatra Group
- Semiramis Hotels	- Lecico Egypt
- Sharm Dreams Co. for Tourism Investment	- Misr Beni Suef Cement

- Misr Hotels	- Misr Cement (Qena)
- Alexandria Medical Services	- Telecom Egypt
- Alexandria Pharmaceuticals	- Orascom Telecom Holding (OT)
- Arab Pharmaceuticals	- The Arab Dairy Products Co.
- Cairo Pharmaceuticals	- Extracted Oils
- Egyptian International Pharmaceuticals	- Cairo Oils & Soap
- Medical Union Pharmaceuticals	- Egyptian Starch & Glucose
- Amoun	- Bisco Misr
- Glaxo Smith Kline	- Egypt for Poultry
- Memphis Pharmaceuticals	- El Wadi for Exporting Agricultural Products
- Minapharm Pharmaceuticals	- Misr Oils & Soap
- Alexandria Containers and goods	- East Delta Flour Mills
- EL-Swedy Cables	- Upper Egypt Flour Mills
- Suez Bags	- Middle Egypt Flour Mills
- Engineering Industries (ICON)	- Middle & West Delta Flour Mills
- United Arab Shipping	- South Cairo & Giza Mills & Bakeries

Appendix 5: Interview Guide and Ethical Forms

5.1 Interview Guide

Section 1: Introduction

- Introducing the researcher.
- Thanking the interviewee for his/her participation.
- Explain research objectives and importance.
- Explain ethical procedures that the researcher has to follow.

Section 2: Background information

- Interviewee current position.
- Interviewee experience.
- Interviewee education.

Section 3: Factors that may impede Compliance with Mandatory Risk Reporting and Provision of Voluntary Risk-related Information.

In your opinion, do you think that the following factors (accounting practices, accounting education and disclosure cost factors) may impede Egyptian Companies from compliance with risk reporting requirements according to Egyptian Accounting Standard.25 and 33 and providing voluntary risk reporting in their board of directors' reports?

A- Accounting Education Factors

- Local accounting textbooks.
- Accounting education of managers and decision-makers.
- Accounting education in universities.
- The conceptual framework and the objective of financial reporting in accounting education.
- Practical training to accounting students during their undergraduate education.
- Cooperation between the profession and the university regarding teaching issues and accounting research.

B- Accounting Practices Factors

- Qualified professional accountants in the area of financial accounting and reporting.
- Accounting information systems.
- International financial reporting standards and the Egyptian environment.
- Accounting and auditing profession.

- Companies' managers view regarding accounting practices.
- Accounting practices.
- Enforcement mechanism.
- Sufficient financial resources for accounting training.
- Continuing education of chartered accountants.

C- Disclosure Cost Factors

- Competitive disadvantages.
- The cost of collecting, processing and disseminating information or the cost of developing accounting information systems to produce relevant accounting information.

2- Do you want to add any factors that may impede compliance with mandatory risk reporting requirements and providing voluntary risk reporting?

Section 4: Conclusion of interview

a- Would you like to see the result?

b- Can I contact you again for clarification?

5.2 Consent Form - Anonymous Data

CARDIFF BUSINESS SCHOOL
RESEARCH ETHICS

Consent Form - Anonymous data

I understand that my participation in this project will involve providing my opinion regarding the factors that may impede the complete compliance with mandatory risk reporting and providing voluntary risk reporting in Egypt. Also, provide my opinion regarding a proposed guideline of management discussion and analysis risk reporting. The interview may require approximately 90 minutes of my time.

I understand that participation in this study is entirely voluntary and that I can withdraw from the study at any time without giving a reason.

I understand that I am free to ask any questions at any time. If for any reason I experience discomfort during participation in this project, I am free to withdraw or discuss my concerns with Professor Howard Mellett (Mellett@cardiff.ac.uk).

I understand that the information provided by me will be held totally anonymously, so that it is impossible to trace this information back to me individually. I understand that, in accordance with the Data Protection Act, this information may be retained indefinitely.

I also understand that at the end of the study I may request some additional information and feedback about the purpose and results of the study by applying to the University.

Name of student conducting the research: Ekramy Said Mokhtar

Name of student's supervisor: Professor Howard Mellett

Signed:

Date:

5.3 Consent Form - Confidential Data

CARDIFF BUSINESS SCHOOL
RESEARCH ETHICS

Consent Form - Confidential data

I understand that my participation in this project will involve providing my opinion regarding the factors that may impede the complete compliance with mandatory risk reporting and providing voluntary risk reporting in Egypt. Also, provide my opinion regarding a proposed guideline of management discussion and analysis risk reporting. The interview may require approximately 90 minutes of my time

I understand that participation in this study is entirely voluntary and that I can withdraw from the study at any time without giving a reason.

I understand that I am free to ask any questions at any time. If for any reason I experience discomfort during participation in this project, I am free to withdraw or discuss my concerns with Professor Howard Mellett.

I understand that the information provided by me will be held confidentially, such that only the Experimenter – Ekramy Said Mokhtar- can trace this information back to me individually. The information will be retained for up to 2 years (or until finishing the research) and will then be deleted/destroyed. I understand that I can ask for the information I provide to be deleted/destroyed at any time and, in accordance with the Data Protection Act, I can have access to the information at any time.

I also understand that at the end of the study I will be provided with additional information and feedback about the purpose of the study.

I, _____(*NAME*) consent to participate in the study conducted by Ekramy Said Mokhtar of Cardiff Business School, Cardiff University, under the supervision of Professor Howard Mellett.

Signed:

Date:

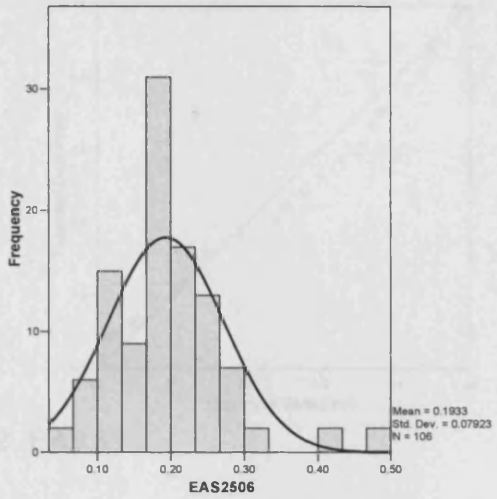
Appendix 6: Interviews Coding and Data Matrix

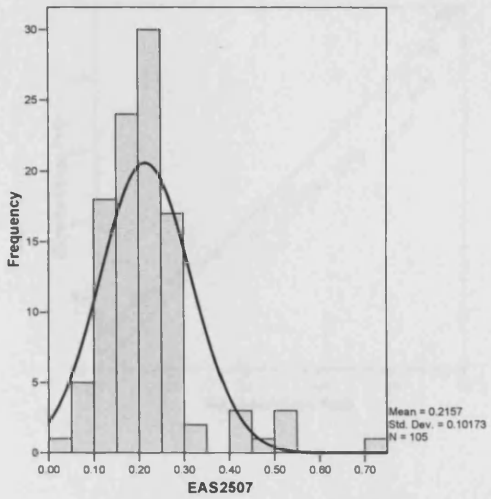
	Local Accounting Textbooks	Qualified Accountants
AC1	Educational process is characterised by a large number of students, few staff and teaching assistants, no reliance on case study approach to introduce the students how to apply accounting disclosure.	Most - a large proportion - of the accountants in Egyptian companies do not up-date their knowledge about accounting standards and their amendments, particularly those related to disclosure requirements. This lack of knowledge negatively influences the quality of financial reports particularly the disclosure of risk information.
AC2	I do not think that this is a reason that hinders presentation of risk reporting in the annual reports. Accounting textbooks are updated and provide an adequate presentation of accounting standards.	Most accountants are unqualified for application of the accounting standards and did not receive sufficient training on their application, for example they do not know the differences between different versions of standards and therefore the preparation of financial statements and disclosure according to standards requirements is in doubt.
AC3	There is no incentive for a systematic updating of accounting textbooks. It is a personal motivation. Accounting textbooks do not discuss properly the application of accounting standards and the incentives of voluntary disclosure.	The significant shortage in qualified accountants results in a divergence in Egyptian companies' accounting practices as benchmarked against EASs and IASs.
AD1	Most textbooks do not discuss the application of Egyptian accounting standards. Therefore, how a graduate works in the profession. The basics of sound accounting practices, based on accounting standards, are not explained adequately in local textbooks.	From my experience, 90% of the accountants in Egyptian companies do not have sufficient experience in the preparation of financial statements to make them consistent with EASs and IASs and many of them even do not read the EASs.
AD2	Of course, accounting textbooks are very old, do not contain any new ideas and do not provide any relevant information on the application of International/ Egyptian Accounting Standards except in title only but not in content.	Most accountants in companies have no idea about the appropriate application of accounting standards. they do not attempt to read about the standards or update their accounting knowledge.
AD3	Accounting textbooks are not linked to actual accounting practice and do not include any real case studies. Textbooks discuss accounting standards in title not in content.	Most accountants have the minimum level of accounting knowledge and suffer from a lack of practical training which in turn influences their abilities to prepare financial statements and disclosures in accordance with the Egyptian Accounting Standards. They need more courses to gain experience and enhance their accounting knowledge.
AD4	I think this cannot influence the presentation of risk reporting because there are several textbooks that discuss the application of accounting standards.	Egyptian Accounting Standards are not properly presented to practitioners. Accountants do not get any adequate training before the application of Egyptian Accounting Standards which leads to a low level of compliance.
AD5	I think that accounting textbooks cannot help in this aspects because textbooks are out-dated and ignore accounting practice problems and fail to discuss properly the application of accounting standards.	We are dealing with large companies which have qualified accountants with adequate awareness regarding the application of accounting standards, but in small and medium-sized companies there may be a shortage of qualified accountants
AD6	Accounting textbooks do not refer to accounting standards except in title only and still present very old accounting treatments which are no longer exist in the standards.	Lack of qualified financial accountants in reflects the lack of awareness regarding the importance of the compliance accounting standards and disclosure requirements. This results in low compliance with accounting standards and failure to appreciate the

		importance of providing voluntary disclosure.
RG1	Accounting Education at university level provides the minimum accounting knowledge to students and several textbooks do not update their content; therefore accountants are not able to prepare financial statements in line with accounting standards requirements.	Yes, there is a significant shortage of qualified financial accountants in many companies which negatively impacts the quality of financial reports.
RG2	Actually, accounting curricula are out-dated. For example, accounting standards are not adequately taught at the university which means that accountants are not aware about best accounting practices.	Many companies seek the assistance of the External Auditor to prepare the annual reports including risk reporting in management report to overcome the problem of the lack of qualified accountants.
RG3	Accounting standards is not an important part in any accounting textbooks. Consequently, graduate's account ting knowledge is limited and out-dated.	Due to lack of qualification, some accountants cannot prepare adequate disclosure because they do not know what the accounting standards are and how to apply them.
RG4	The quality of accounting textbooks is very poor. Accounting textbooks present only basic concepts and focus on accounting measurement while accounting disclosure received less weight. The result is an accountant with limit knowledge And skills.	Highly qualified accountants, holders of CPA or ACCA are few and their salaries are too high. Therefore, only large companies can afford them while small companies may recruit less qualified accountants with low salaries due to a shortage of financial resources. Consequently, small companies are not able to prepare financial statements in accordance with Egyptian Accounting Standards or to present high quality voluntary disclosure.
FM1	The quality of the graduates reflects the quality of the educational process. Textbooks present the minimum accounting knowledge of and therefore they need to be developed. They don not kept pace with the developments in accounting standards. Out-dated textbooks spread a state of deadlock in accounting practice.	A significant lack of qualified accountants, due to lack of awareness of the standards, results in low compliance with accounting standards
FM2	Accounting textbooks present accounting knowledge that date back to 30 year ago. Consequently, they do not discuss accounting disclosure properly.	There is cooperation between the company and our experienced external auditor who has a complete, direct or indirect, supervision over the process of preparing financial statements to maintain his reputation.

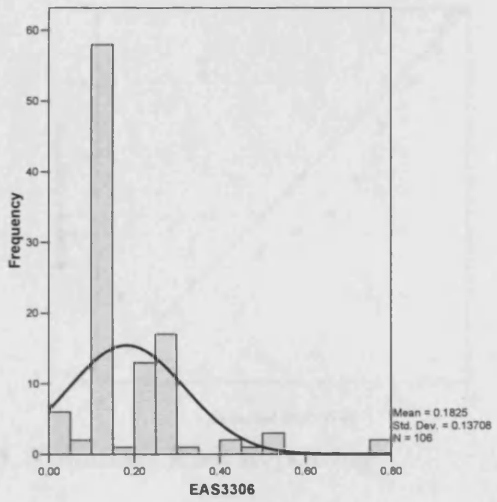
Appendix 7: Histograms, Normal Probability Plots and Q-Q Plots of Dependent Variables

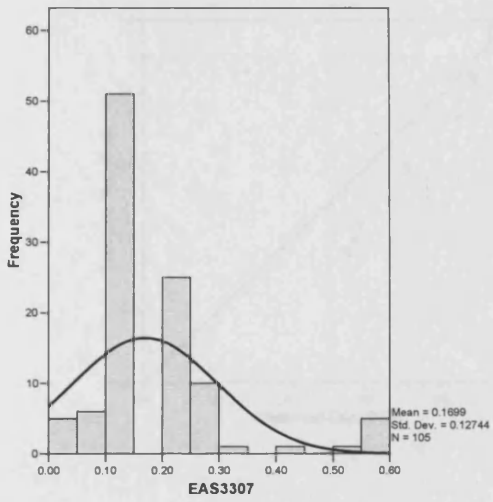
1. EAS 25



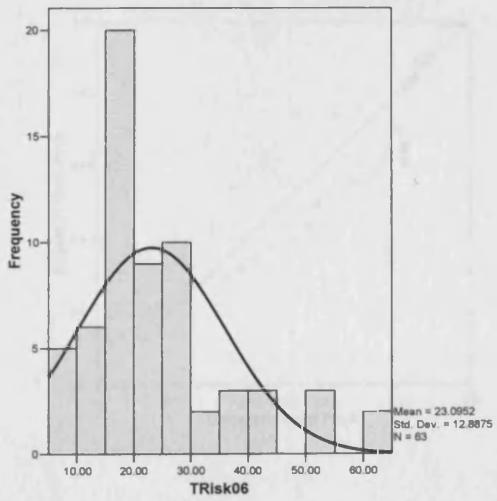


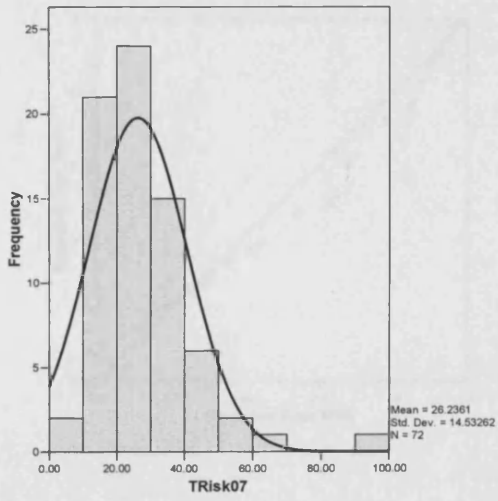
2. EAS 33



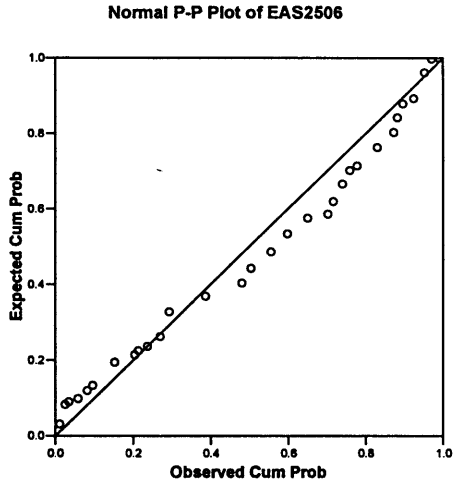


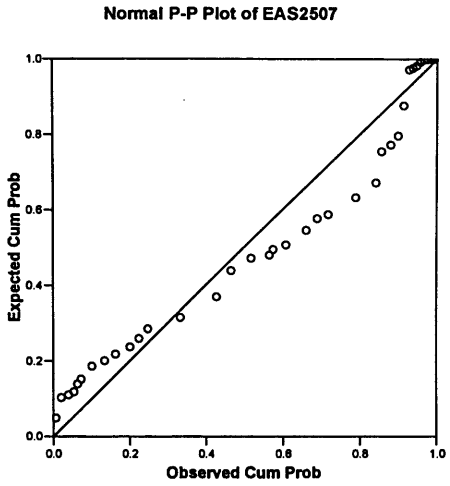
3. Voluntary Risk Reporting



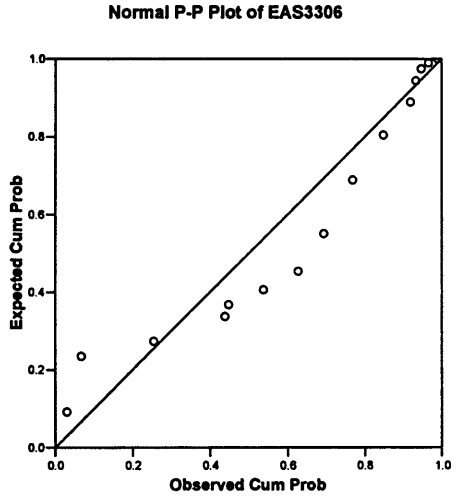


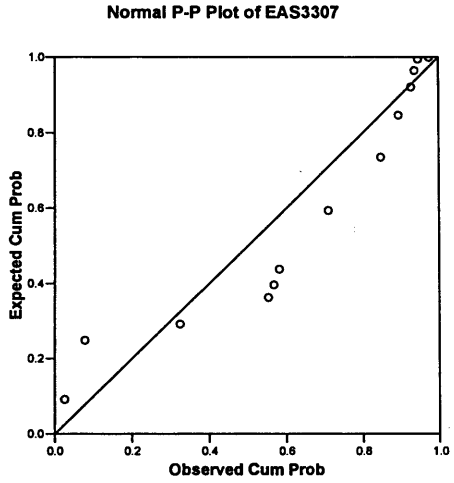
1. EAS 25



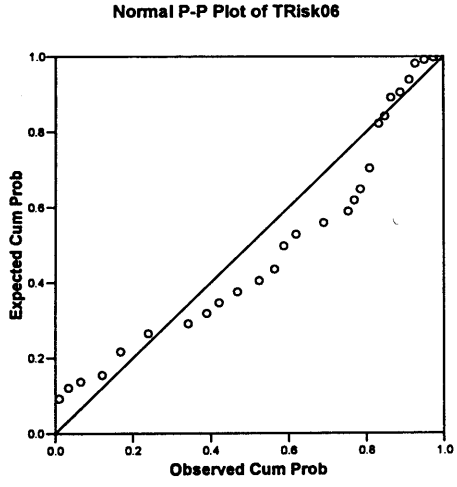


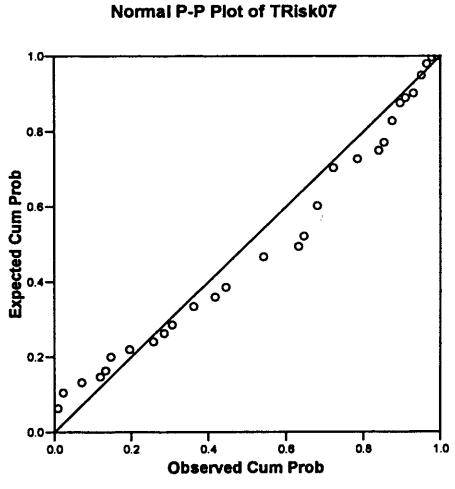
2. EAS 33



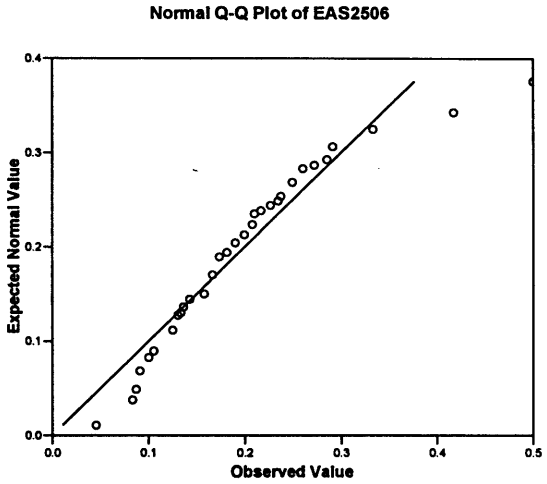


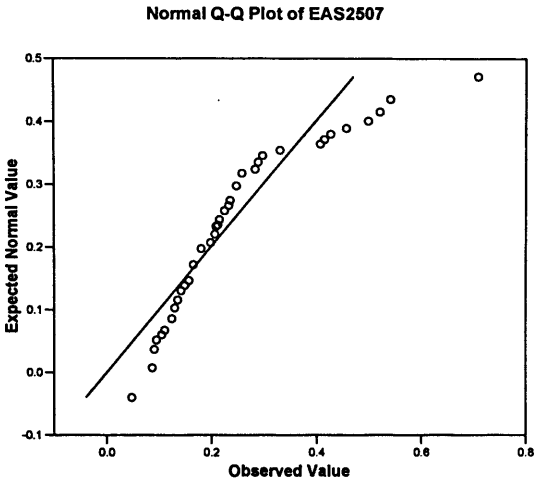
3. Voluntary Risk Reporting



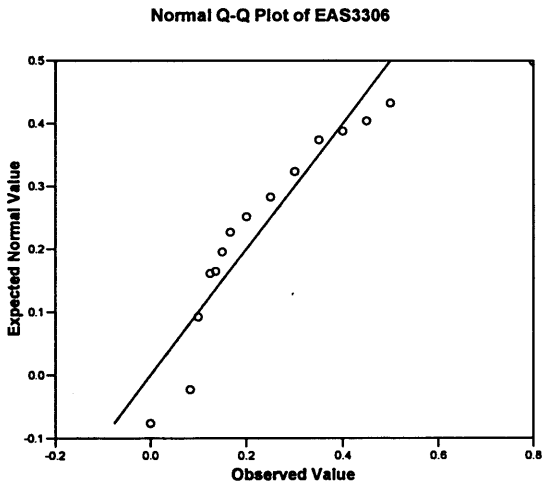


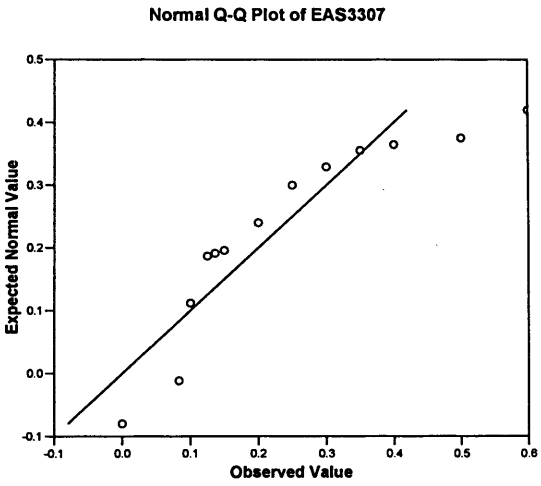
1. EAS 25



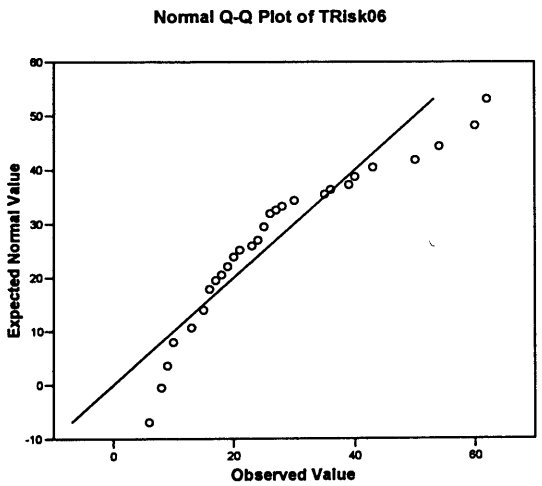


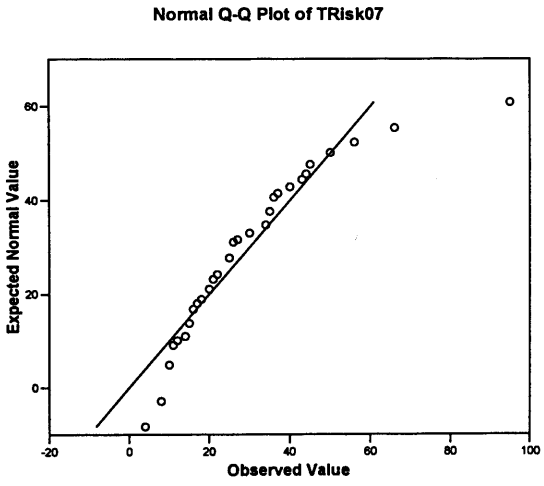
2. EAS 33





3. Voluntary Risk Reporting





Appendix 8: Changes in Compliance Level between 2006 and 2007

Wilcoxon Signed Ranks Test

Ranks

		N	Mean Rank	Sum of Ranks
EAS2507 - EAS2506	Negative Ranks	13[a]	21.19	275.50
	Positive Ranks	42[b]	30.11	1264.50
	Ties	50[c]		
	Total	105		
EAS3307 - EAS3306	Negative Ranks	35[d]	27.14	950.00
	Positive Ranks	22[e]	31.95	703.00
	Ties	48[f]		
	Total	105		

a. EAS2507 < EAS2506

b. EAS2507 > EAS2506

c. EAS2507 = EAS2506

d. EAS3307 < EAS3306

e. EAS3307 > EAS3306

f. EAS3307 = EAS3306

Test Statistics[c]

	EAS2507 - EAS2506	EAS3307 - EAS3306
Z	-4.144[a]	-.992[b]
Asymp. Sig. (2-tailed)	.000	.321

a. Based on negative ranks.

b. Based on positive ranks.

c. Wilcoxon Signed Ranks Test

Appendix 9: Differences in Voluntary Risk Reporting Characteristics

Wilcoxon Singed Ranks - 2006

Ranks

		N	Mean Rank	Sum of Ranks
Qualitative - Quantitative	Negative Ranks	6(a)	24.08	144.50
	Positive Ranks	57(b)	32.83	1871.50
	Ties	0(c)		
	Total	63		
Good - Bad	Negative Ranks	13(d)	17.54	228.00
	Positive Ranks	47(e)	34.09	1602.00
	Ties	3(f)		
	Total	63		
Past - Future	Negative Ranks	2(g)	2.00	4.00
	Positive Ranks	60(h)	32.48	1949.00
	Ties	1(i)		
	Total	63		
Non-Financial - fin Qualitative ancial	Negative Ranks	0(j)	.00	.00
	Positive Ranks	63(k)	32.00	2016.00
	Ties	0(l)		
	Total	63		

a Qualitative < Quantitative
b Qualitative > Quantitative
c Qualitative = Quantitative
d Good < Bad
e Good > Bad
f Good = Bad
g Past < Future
h Past > Future
i Past = Future
j Non-Financial < financial
k Non-Financial > financial
l Non-Financial = financial

Test Statistics(b)

	Qualitative - Quantitative	Good - Bad	Past - Future	Non-Financial - financial
Z	-5.915(a)	-5.059(a)	-6.820(a)	-6.904(a)
Asymp. Sig. (2-tailed)	.000	.000	.000	.000

a Based on negative ranks.
b Wilcoxon Signed Ranks Test

Wilcoxon Singed Ranks - 2007

Ranks

		N	Mean Rank	Sum of Ranks
Qualitative- Quantitative	Negative Ranks	12(a)	24.79	297.50
	Positive Ranks	58(b)	37.72	2187.50
	Ties	2(c)		
	Total	72		
Good - Bad	Negative Ranks	9(d)	17.72	159.50
	Positive Ranks	63(e)	39.18	2468.50
	Ties	0(f)		
	Total	72		
Past - Future	Negative Ranks	1(g)	5.00	5.00
	Positive Ranks	71(h)	36.94	2623.00
	Ties	0(i)		
	Total	72		
Non-Financial - Financial	Negative Ranks	0(j)	.00	.00
	Positive Ranks	72(k)	36.50	2628.00
	Ties	0(l)		
	Total	72		

a Qualitative < Quantitative
b Qualitative > Quantitative
c Qualitative = Quantitative
d Good < Bad
e Good > Bad
f Good = Bad
g Past < Future
h Past > Future
i Past = Future
j Non-Financial < Financial
k Non-Financial > Financial
l Non-Financial = Financial

Test Statistics(b)

	Qualitative - Quantitative	Good - Bad	Past - Future	Non-Financial - Financial
Z	-5.533(a)	-6.480(a)	-7.350(a)	-7.377(a)
Asymp. Sig. (2-tailed)	.000	.000	.000	.000

a Based on negative ranks.
b Wilcoxon Signed Ranks Test

Appendix 10: Correlation between Mandatory and Voluntary Risk Reporting

Correlations

			EAS25	EAS33	VOL
Spearman's rho	EAS25	Correlation Coefficient	1.000	.214(**)	.206(*)
		Sig. (2-tailed)	.	.002	.016
		N	211	211	135
	EAS33	Correlation Coefficient	.214(**)	1.000	.390(**)
		Sig. (2-tailed)	.002	.	.000
		N	211	211	135
	VOL	Correlation Coefficient	.206(*)	.390(**)	1.000
		Sig. (2-tailed)	.016	.000	.
		N	135	135	135

** Correlation is significant at the 0.01 level (2-tailed).

* Correlation is significant at the 0.05 level (2-tailed).

Appendix 11: Differences in Mandatory and Voluntary Risk Reporting by Categorical Independent Variables and Risk Reporting by Industry Sectors

1- Auditor Type - 2006
Mann -Whitney Test

Ranks

	Auditor	N	Mean Rank	Sum of Ranks
EAS2506	Without international affiliations	52	35.23	1832.00
	With international affiliations	54	71.09	3839.00
	Total	106		

Test Statistics(a)

	EAS2506
Mann-Whitney U	454.000
Wilcoxon W	1832.000
Z	-6.027
Asymp. Sig. (2-tailed)	.000

a Grouping Variable: Auditor Type

Ranks

	Auditor	N	Mean Rank	Sum of Ranks
EAS3306	Without international affiliations	52	45.66	2374.50
	With international affiliations	54	61.05	3296.50
	Total	106		

Test Statistics(a)

	EAS3306
Mann-Whitney U	996.500
Wilcoxon W	2374.500
Z	-2.650
Asymp. Sig. (2-tailed)	.008

a Grouping Variable: Auditor Type

Ranks

	Auditor	N	Mean Rank	Sum of Ranks
VOL06	Without international affiliations	38	30.57	1161.50
	With international affiliations	25	34.18	854.50
	Total	63		

Test Statistics(a)

	TRisk06
Mann-Whitney U	420.500
Wilcoxon W	1161.500
Z	-.768
Asymp. Sig. (2-tailed)	.443

a Grouping Variable: Auditor Type

2- Industry Membership- 2006
Kruskal-Wallis Test

Ranks

	Industry Membership	N	Mean Rank
EAS2506	Manufacturing	65	54.38
	Non-manufacturing	18	50.44
	Service	23	53.39
	Total	106	

Test Statistics(a,b)

	EAS2506
Chi-Square	.234
df	2
Asymp. Sig.	.890

a Kruskal Wallis Test
b Grouping Variable: Industry Membership

Ranks

	Industry Membership	N	Mean Rank
EAS3306	Manufacturing	65	52.65
	Non-manufacturing	18	53.00
	Service	23	56.30
	Total	106	

Test Statistics(a,b)

	EAS3306
Chi-Square	.261
df	2
Asymp. Sig.	.878

a Kruskal Wallis Test
b Grouping Variable: Industry Membership

Ranks

	Industry Membership	N	Mean Rank
VOL06	Manufacturing	35	34.36
	Non-manufacturing	12	21.58
	Service	16	34.66
	Total	63	

Test Statistics(a,b)

	TRisk06
Chi-Square	4.814
df	2
Asymp. Sig.	.090

a Kruskal Wallis Test
b Grouping Variable: Industry Membership

3- Role Duality - 2006
Mann-Whitney Test

Ranks

	Role Duality	N	Mean Rank	Sum of Ranks
EAS2506	Separation	28	64.55	1807.50
	No Separation	78	49.53	3863.50
	Total	106		

Test Statistics(a)

	EAS2506
Mann-Whitney U	782.500
Wilcoxon W	3863.500
Z	-2.226
Asymp. Sig. (2-tailed)	.026

a Grouping Variable: Role Duality

Ranks

	Role Duality	N	Mean Rank	Sum of Ranks
EAS3306	Separation	28	50.82	1423.00
	No Separation	78	54.46	4248.00
	Total	106		

Test Statistics(a)

	EAS3306
Mann-Whitney U	1017.000
Wilcoxon W	1423.000
Z	-.553
Asymp. Sig. (2-tailed)	.580

a Grouping Variable: Role Duality

Ranks

	Role Duality	N	Mean Rank	Sum of Ranks
VOL06	Separation	10	33.60	336.00
	No Separation	53	31.70	1680.00
	Total	63		

Test Statistics(a)

	TRisk06
Mann-Whitney U	249.000
Wilcoxon W	1680.000
Z	-.302
Asymp. Sig. (2-tailed)	.763

a Grouping Variable: Role Duality

4- Auditor Type - 2007
Mann-Whitney Test

Ranks

	Auditor	N	Mean Rank	Sum of Ranks
EAS2507	Without international affiliations	51	34.54	1761.50
	With international affiliations	54	70.44	3803.50
	Total	105		

Test Statistics(a)

	EAS2507
Mann-Whitney U	435.500
Wilcoxon W	1761.500
Z	-6.051
Asymp. Sig. (2-tailed)	.000

a Grouping Variable: Auditor Type

Ranks

	Auditor	N	Mean Rank	Sum of Ranks
EAS3307	Without international affiliations	51	48.32	2464.50
	With international affiliations	54	57.42	3100.50
	Total	105		

Test Statistics(a)

	EAS3307
Mann-Whitney U	1138.500
Wilcoxon W	2464.500
Z	-1.610
Asymp. Sig. (2-tailed)	.107

a Grouping Variable: Auditor Type

Ranks

	Auditor	N	Mean Rank	Sum of Ranks
VOL07	Without international affiliations	40	41.04	1641.50
	With international affiliations	32	30.83	986.50
	Total	72		

Test Statistics(a)

	TRisk07
Mann-Whitney U	458.500
Wilcoxon W	986.500
Z	-2.065
Asymp. Sig. (2-tailed)	.039

a Grouping Variable: Auditor Type

5- Industry Membership- 2007
Kruskal-Wallis Test

Ranks

	Industry	N	Mean Rank
EAS2507	Manufacturing	65	53.32
	Non-manufacturing	17	54.94
	Service	23	50.67
	Total	105	

Test Statistics(a,b)

	EAS2507
Chi-Square	.211
df	2
Asymp. Sig.	.900

a Kruskal Wallis Test
b Grouping Variable: Industry Membership

Ranks

	Industry	N	Mean Rank
EAS3307	Manufacturing	65	50.87
	Non-manufacturing	17	49.68
	Service	23	61.48
	Total	105	

Test Statistics(a,b)

	EAS3307
Chi-Square	2.554
df	2
Asymp. Sig.	.279

a Kruskal Wallis Test
b Grouping Variable: Industry Membership

Ranks

	Industry	N	Mean Rank
VOL07	Manufacturing	48	38.28
	Non-manufacturing	11	19.86
	Service	13	44.00
	Total	72	

Test Statistics(a,b)

	TRisk07
Chi-Square	9.036
df	2
Asymp. Sig.	.011

a Kruskal Wallis Test
b Grouping Variable: Industry Membership

6- Role Duality - 2007
Mann-Whitney Test

Ranks

	Role Duality	N	Mean Rank	Sum of Ranks
EAS2507	Separation	28	63.25	1771.00
	No Separation	77	49.27	3794.00
	Total	105		

Test Statistics(a)

	EAS2507
Mann-Whitney U	791.000
Wilcoxon W	3794.000
Z	-2.085
Asymp. Sig. (2-tailed)	.037

a Grouping Variable: Role Duality

Ranks

	Role Duality	N	Mean Rank	Sum of Ranks
EAS3307	Separation	28	49.20	1377.50
	No Separation	77	54.38	4187.50
	Total	105		

Test Statistics(a)

	EAS3307
Mann-Whitney U	971.500
Wilcoxon W	1377.500
Z	-.813
Asymp. Sig. (2-tailed)	.416

a Grouping Variable: Role Duality

Ranks

	Role Duality	N	Mean Rank	Sum of Ranks
VOL07	Separation	15	29.83	447.50
	No Separation	57	38.25	2180.50
	Total	72		

Test Statistics(a)

	TRisk07
Mann-Whitney U	327.500
Wilcoxon W	447.500
Z	-1.392
Asymp. Sig. (2-tailed)	.164

a Grouping Variable: Role Duality

7- Risk Reporting by Industry Sectors

7.1 EAS 25

Industry Groups	2006				2007			
	Mean	Median	Max	Min	Mean	Median	Max	Min
Retail	20.75%	18.18%	425	9%	20.60%	18.18%	41%	0%
Basic Resources	24.55%	17.03%	50%	9%	25.13%	16.67%	50%	9%
Personal and Household Products	25.20%	25%	50%	13%	28.46%	25%	54%	17%
Chemicals	18.73%	19.94%	25%	10%	19.02%	18.75%	25%	15%
Oil , Gas and Utilities	20.44%	23.81%	255	13%	21.83%	23.81%	25%	17%
Travel & Leisure	20.31%	19.05%	29%	11%	20.29%	18.18%	29%	11%
Healthcare and Pharmaceuticals	16.63%	15.48%	29%	13%	18.89%	16.67%	305	13%
Industrial Goods and Services and Automobiles	18.67%	16.67%	33%	13%	21.08%	16.67%	52%	13%
Real Estate	18.61%	18.18%	25%	13%	22.52%	20.83%	435	14%
Construction and Materials	19.63%	20.835	29%	8%	22.40%	21.74%	71%	9%
Communication and Technology	21%	21%	21%	21%	27.78%	20.83%	42%	21%
Food and Beverage	14.29%	13.64%	24%	5%	16.98%	20%	25%	5%

7.2 EAS 33

Industry Groups	2006				2007			
	Mean	Median	Max	Min	Mean	Median	Max	Min
Retail	12%	10%	20%	0%	16.98%	205	25%	5%
Basic Resources	21.67%	15%	50%	10%	21.67%	15%	60%	0%
Personal and Household Products	16.52%	15%	25%	10%	18%	20%	30%	8%
Chemicals	19.17%	22.50%	305	0%	17.5%	15%	30%	10%
Oil , Gas and Utilities	16.67%	10%	30%	10%	15%	10%	25%	10%
Travel & Leisure	20.56%	25%	40%	0%	25%	20%	60%	0%
Healthcare and Pharmaceuticals	16%	12.50%	45%	0%	18.08%	20%	35%	0%
Industrial Goods and Services and Automobiles	20.33%	15%	50%	10%	19.33%	10%	60%	0%
Real Estate	17.50%	15%	30%	10%	14.44%	10%	30%	10%
Construction and Materials	18.04%	15%	80%	0%	11.86%	10%	30%	8%
Communication and Technology	43.33%	12.30%	80%	10%	36.67%	40%	60%	10%
Food and Beverage	13.01%	10%	35%	0%	9.94%	10%	20%	0%

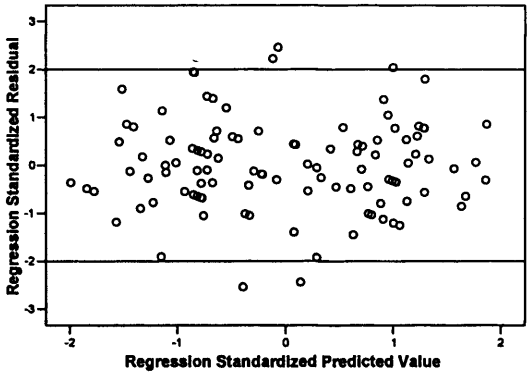
7.3 Voluntary Risk Reporting

Industry Groups	2006				2007			
	Mean	Median	Max	Min	Mean	Median	Max	Min
Retail	17.50	17.50	20	15	22.5	22.5	35	10
Basic Resources	24.40	25	43	8	34.20	34.55	50	12
Personal and Household Products	34.67	30	60	16	36.43	30	95	15
Chemicals	40.50	42	62	16	48.80	44	66	35
Oil , Gas and Utilities	35.50	35.50	50	21	32.50	32.50	40	25
Travel & Leisure	16.33	15	24	10	30	30	35	25
Healthcare and Pharmaceuticals	21.17	19	40	9	28.89	30	45	10
Industrial Goods and Services and Automobiles	22.91	23	40	15	22.27	22	35	10
Real Estate	18.71	16	36	10	19.33	19	25	15
Construction and Materials	13.57	10	28	6	16.08	14.50	34	4
Communication and Technology	26.33	27	39	13	25	25	30	20
Food and Beverage	17.71	19	25	10	19.37	19	25	11

Appendix 12: Standardised Residuals versus Standardised Predicted Values

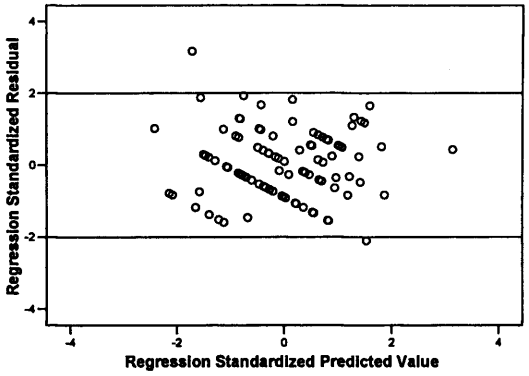
Scatterplot

Dependent Variable: NORMAL of EAS2506 using VW



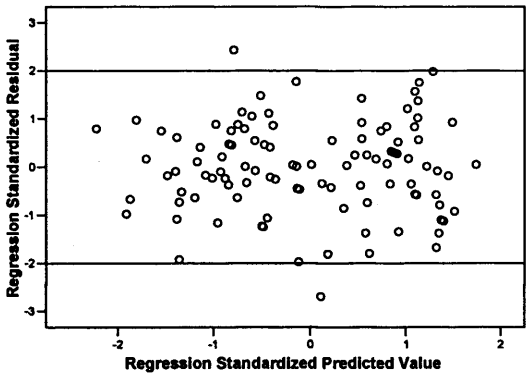
Scatterplot

Dependent Variable: NORMAL of EAS3306 using VW



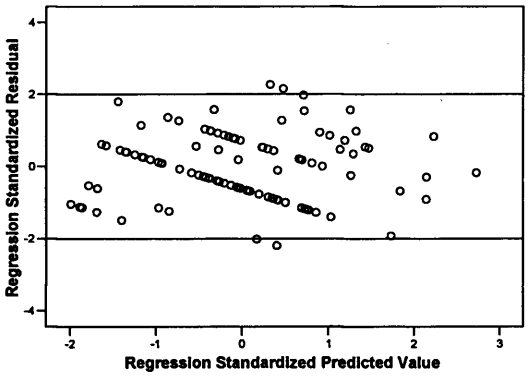
Scatterplot

Dependent Variable: NORMAL of EAS2507 using VW



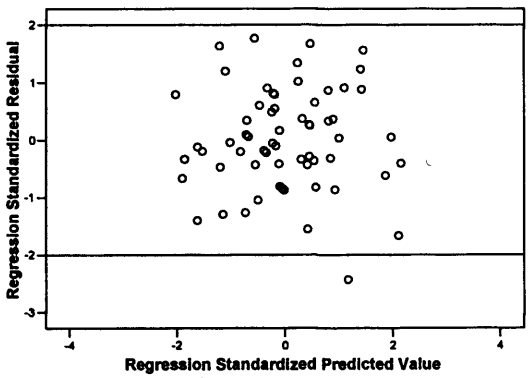
Scatterplot

Dependent Variable: NORMAL of EAS3307 using VW



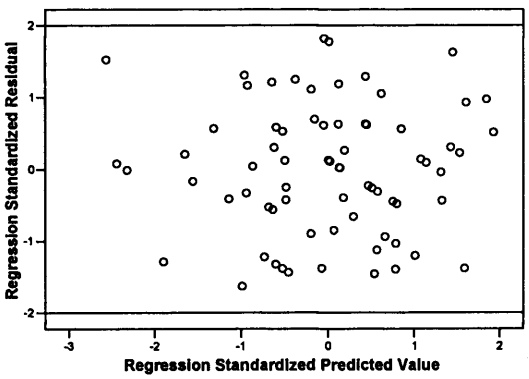
Scatterplot

Dependent Variable: NORMAL of TRisk06 using VW

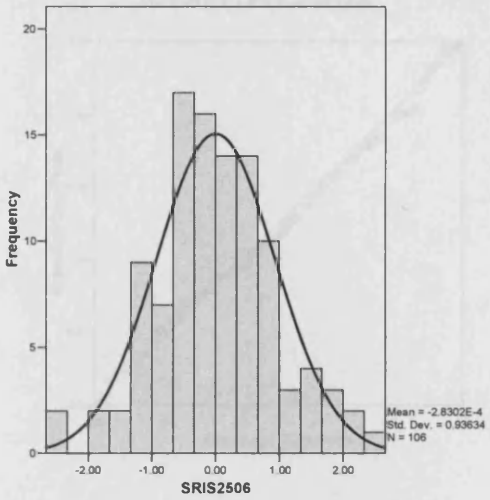


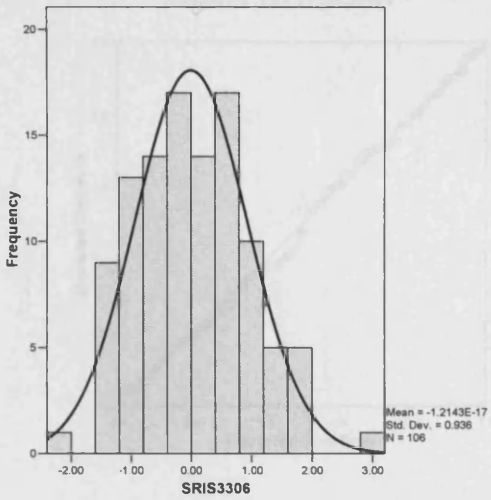
Scatterplot

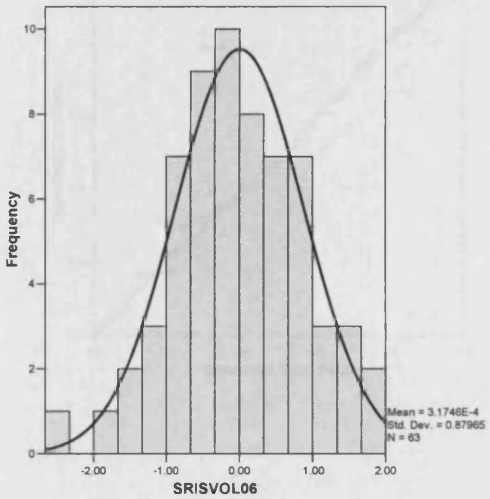
Dependent Variable: NORMAL of TRisk07 using VW

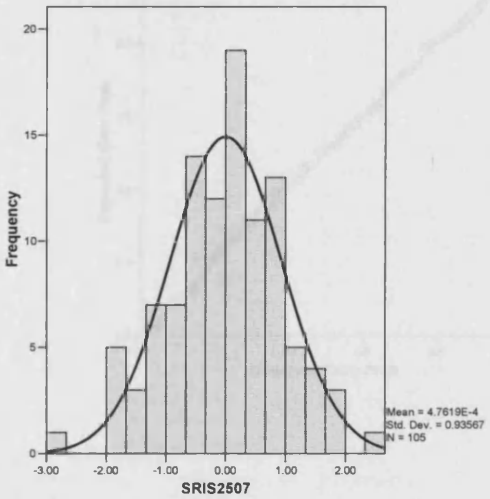


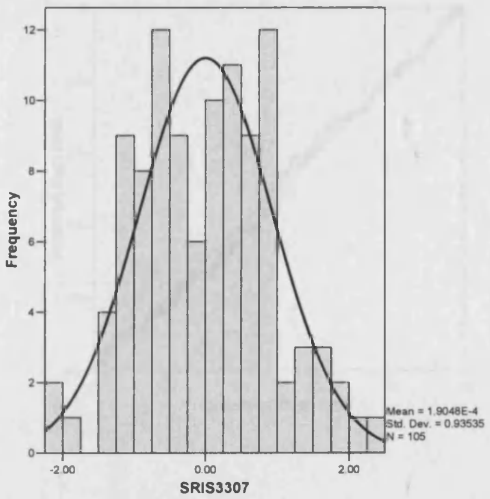
Appendix 13: Histograms, Normal P-P plots and Q-Q Plots of Regression Residuals

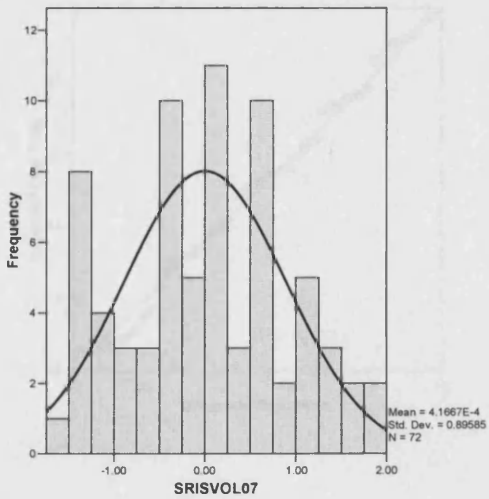




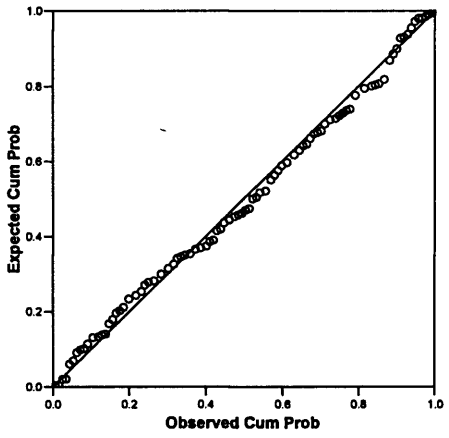




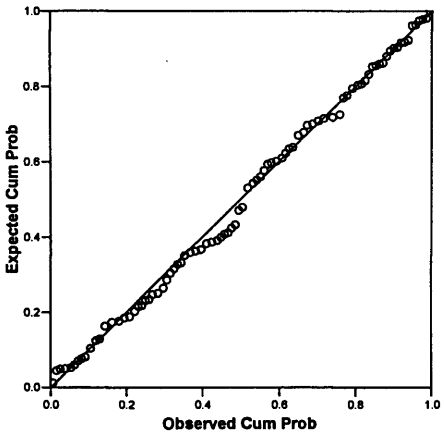




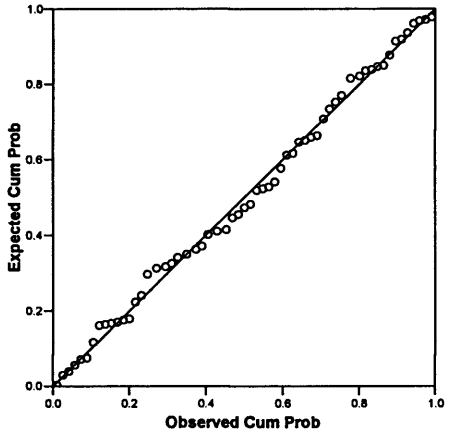
Normal P-P Plot of SRIS2506



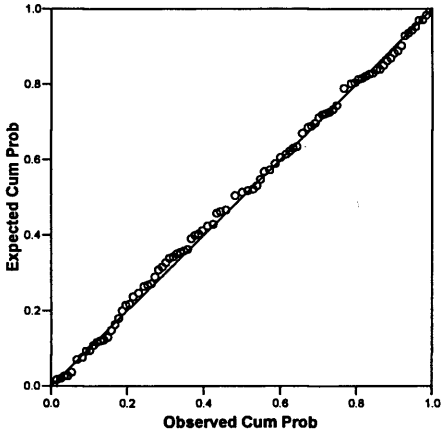
Normal P-P Plot of SRIS3306



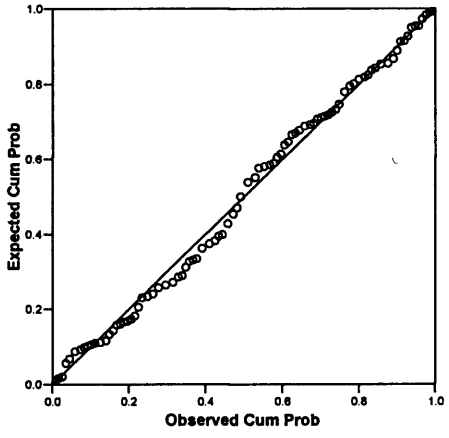
Normal P-P Plot of SRISVOL06



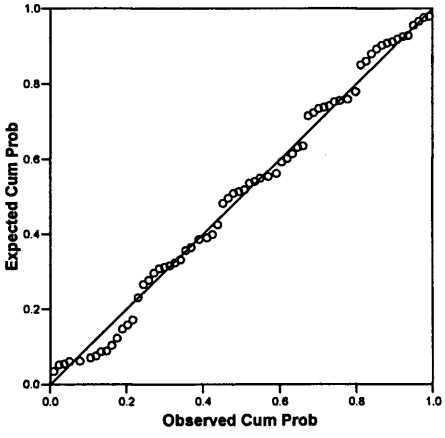
Normal P-P Plot of SRIS2507



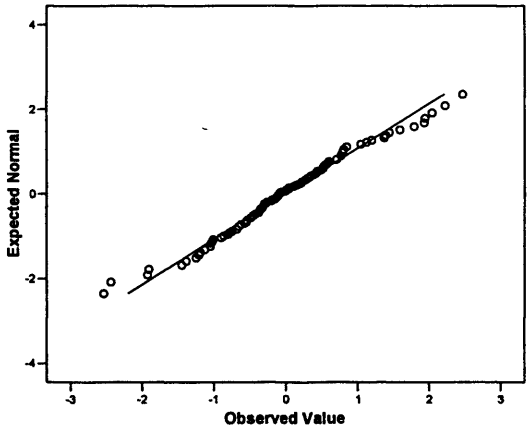
Normal P-P Plot of SRIS3307



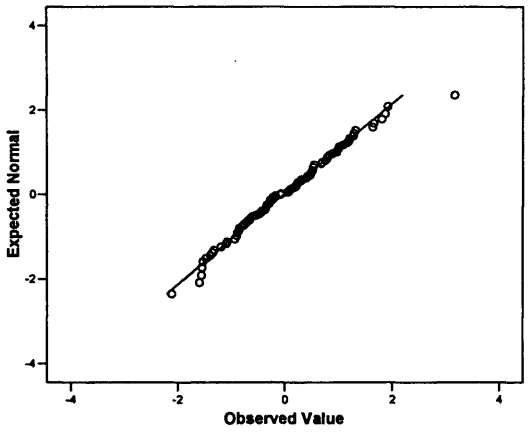
Normal P-P Plot of SRISVOL07



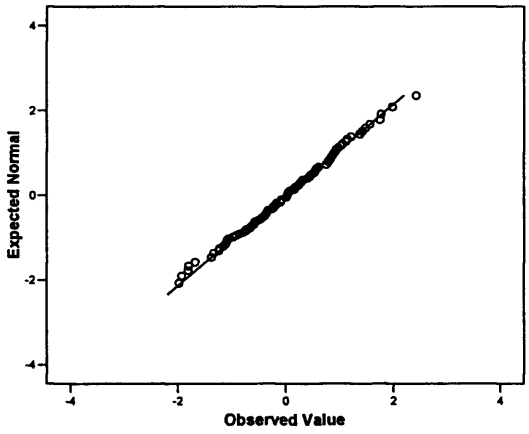
Normal Q-Q Plot of SRIS2506



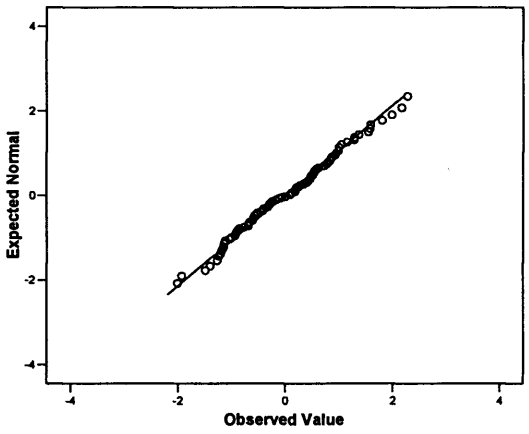
Normal Q-Q Plot of SRIS3306



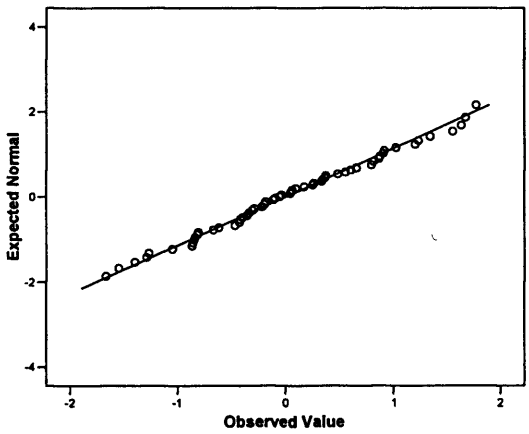
Normal Q-Q Plot of SRIS2507



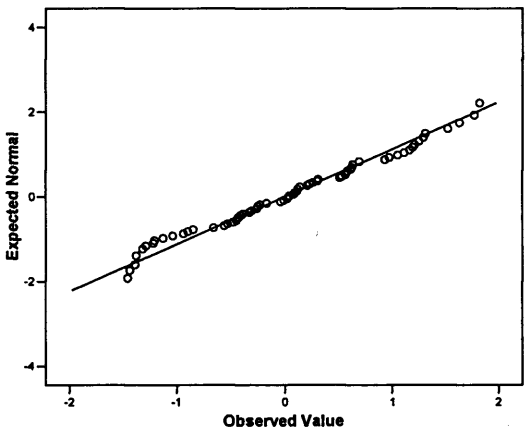
Normal Q-Q Plot of SRIS3307



Normal Q-Q Plot of SRISVOL06



Normal Q-Q Plot of SRISVOL07



Appendix 14: Residuals, Cooke Distance, Leverage, DIFFIT and DIFBETA
Appendix 14.1: EAS 25-2006

ST RESID	COOK	LEV	COV	DIFFIT	DIFB0	DIFB1	DIFB2	DIFB3	DIFB4	DIFB5	DIFB6	DIFB7	DIFB8	DIFB9	DIFB10	DIFB11	DIFB12	DIFB13
0.5653	0.0147	0.2988	1.5700	0.4524	0.1674	-0.1328	0.0432	0.1317	0.0021	0.0656	0.0822	0.1933	-0.1624	-0.1871	-0.1557	-0.0387	-0.1111	-0.1203
-0.6474	0.0026	0.0641	1.1740	-0.1889	-0.0824	-0.0108	-0.0268	-0.0204	-0.0536	-0.0452	0.0776	0.0274	-0.0152	0.0145	-0.0357	0.0802	-0.0004	0.0475
1.4373	0.0424	0.1795	0.9698	0.7768	-0.0949	0.3811	-0.0683	-0.0837	-0.0241	-0.4304	0.0344	0.2261	0.0082	0.1305	-0.1960	-0.1806	0.2341	0.2108
2.4576	0.1134	0.1682	0.4421	1.3061	0.5497	0.7190	-0.2323	-0.1892	-0.2347	-0.8451	-0.2817	-0.2407	0.1490	0.1559	0.3782	-0.5469	-0.3861	0.1501
-2.4399	0.0945	0.1483	0.4518	-1.1907	-0.0624	-0.4071	0.0932	-0.3247	0.2617	0.4272	0.6391	0.2433	0.2217	-0.0281	-0.3327	0.4915	-0.4016	-0.1124
1.7910	0.0295	0.0941	0.7460	0.6520	-0.2008	-0.0517	0.0567	0.1663	0.2825	-0.1422	0.0877	-0.1369	-0.1896	-0.2776	0.0225	0.2378	0.1414	0.1909
-0.4528	0.0029	0.1352	1.3136	-0.2005	0.0791	-0.0272	0.0353	-0.0157	-0.0225	0.0731	0.0265	0.0774	0.0426	-0.0212	0.0939	-0.0491	-0.0807	-0.0632
-1.3948	0.0462	0.1988	1.0075	-0.8103	-0.0824	-0.1273	-0.1533	0.2816	-0.2522	-0.1212	-0.3953	0.1528	0.3160	0.3624	0.3765	-0.1366	-0.0183	0.1900
0.8521	0.0078	0.1072	1.1634	0.3291	-0.0250	0.0400	-0.1389	0.0561	0.0252	0.1029	0.0413	-0.0100	-0.0160	-0.0438	0.0730	-0.0119	0.0556	0.0707
-0.9004	0.0081	0.1016	1.1402	-0.3373	-0.0174	0.0307	0.0849	0.1221	0.1122	-0.0118	0.0372	-0.1795	-0.0296	0.0348	-0.0947	-0.0180	-0.0208	0.0360
-0.1875	0.0009	0.2008	1.4655	-0.1083	0.0115	0.0276	-0.0376	-0.0630	-0.0571	-0.0343	0.0235	-0.0003	-0.0270	-0.0125	0.0016	-0.0386	0.0001	0.0038
0.8115	0.0043	0.0682	1.1328	0.2447	-0.0637	-0.0375	-0.1010	-0.0399	-0.0772	0.0366	0.0348	0.0002	0.0432	-0.0356	0.0021	0.0314	0.0406	0.1237
2.2225	0.0487	0.1000	0.5479	0.8471	0.1878	0.2068	-0.4827	0.1183	-0.1719	0.2497	-0.2513	-0.1930	-0.1999	-0.1200	-0.0298	-0.1759	0.1582	-0.2411
0.5205	0.0039	0.1372	1.3011	0.2327	-0.0135	-0.0277	0.0765	-0.0891	0.1062	0.0025	-0.0555	-0.0315	0.0296	-0.0426	0.0058	0.0819	-0.0184	0.0116
-0.1287	0.0002	0.1305	1.3510	-0.0557	0.0010	-0.0034	-0.0316	0.0153	0.0212	0.0015	0.0072	0.0056	0.0104	-0.0031	0.0135	-0.0130	-0.0118	0.0186
0.7854	0.0052	0.0862	1.1611	0.2682	-0.0875	0.0307	0.1048	-0.1553	-0.0528	-0.0240	0.1001	0.0095	0.0404	0.0124	-0.0593	0.0916	0.0460	0.0951
-0.7959	0.0059	0.0951	1.1681	-0.2870	-0.0872	-0.1083	0.0540	0.1003	0.1302	0.0715	-0.0884	0.0283	-0.0061	-0.0527	-0.0089	0.0024	0.1001	-0.0084
-1.0361	0.0078	0.0755	1.0641	-0.3304	0.0922	0.0665	0.0974	0.1036	0.1359	-0.0158	-0.0511	-0.0079	-0.0832	-0.0882	-0.0863	-0.0550	-0.0748	-0.1178
0.5326	0.0058	0.1787	1.3609	0.2835	0.0510	0.0258	-0.0406	0.0123	-0.0668	0.0565	-0.0217	0.1332	-0.0897	-0.1334	-0.0654	-0.0045	-0.0653	0.0365
2.0363	0.0531	0.1250	0.6368	0.8811	-0.3198	-0.2452	-0.1061	0.3524	-0.0529	-0.1562	0.3570	-0.0925	0.0110	0.3450	-0.0218	0.3006	0.3092	0.1126
0.0429	0.0000	0.1261	1.3476	0.0182	-0.0028	-0.0054	-0.0006	0.0110	0.0074	-0.0007	0.0009	-0.0012	0.0051	-0.0010	-0.0025	-0.0005	0.0016	0.0087
-0.1952	0.0002	0.0669	1.2538	-0.0581	-0.0147	-0.0075	-0.0046	0.0012	0.0090	-0.0186	-0.0107	0.0032	0.0155	0.0096	-0.0099	-0.0019	-0.0074	0.0313
0.5480	0.0051	0.1567	1.3228	0.2669	0.0071	-0.0364	-0.1786	0.1271	-0.0378	0.0123	-0.1342	-0.0546	0.0212	0.0184	0.0307	-0.0134	0.0412	-0.0103
0.2267	0.0002	0.0475	1.2254	0.0570	-0.0233	-0.0089	-0.0185	0.0115	0.0119	0.0069	0.0091	-0.0010	0.0226	0.0152	0.0112	0.0180	0.0125	0.0317
-0.7762	0.0090	0.1419	1.2320	-0.3553	0.0292	-0.0683	-0.0060	-0.0073	-0.0251	0.2249	-0.0565	0.1470	0.1408	0.0396	0.1459	-0.0924	-0.0969	0.0884
0.4234	0.0022	0.1189	1.2956	0.1732	0.0194	-0.0074	0.0441	0.0298	0.0198	0.0367	0.0998	-0.0032	-0.0344	-0.0281	-0.0195	0.0398	0.0117	-0.0720
0.7071	0.0031	0.0643	1.1586	0.2067	0.0043	-0.0915	0.0143	0.0142	0.0954	0.1061	-0.0402	-0.0304	0.0022	-0.0310	0.0176	0.0698	0.0006	-0.0334
-1.0512	0.0111	0.1020	1.0839	-0.3953	-0.0339	-0.0675	-0.1829	-0.0847	-0.0871	-0.0347	-0.1014	0.0097	0.0435	0.0456	0.0101	-0.0989	-0.0286	0.1495
1.9307	0.0234	0.0657	0.6730	0.5820	0.0207	0.1239	0.1834	-0.1169	0.0149	0.0324	0.0610	0.0507	0.2808	0.0714	-0.0259	0.1509	-0.0384	-0.0457

-1.9261	0.1427	0.2700	0.7222	-1.4465	0.1748	0.2930	-0.2399	0.2550	0.2055	0.2643	-0.6167	-0.2269	-0.7700	-0.1136	0.2252	-0.0622	0.0972	-0.6244
0.6028	0.0038	0.1064	1.2379	0.2312	0.1135	0.0141	0.0521	0.0827	0.0148	-0.0215	0.0254	-0.0345	-0.0525	-0.0544	-0.0025	-0.0603	-0.0868	-0.0075
0.0545	0.0001	0.2545	1.5823	0.0379	0.0019	-0.0257	-0.0085	0.0028	0.0072	0.0229	0.0031	0.0012	0.0035	0.0072	0.0183	-0.0050	0.0019	0.0032
-0.7538	0.0110	0.1723	1.2808	-0.3920	0.0005	0.1663	0.1367	-0.0657	-0.0034	-0.1867	-0.1450	-0.1954	-0.0243	-0.1048	-0.0690	0.0888	-0.0746	-0.0388
0.4371	0.0017	0.0933	1.2572	0.1554	-0.0147	-0.0257	0.0172	0.0066	0.0331	0.0349	-0.0497	0.0760	0.0257	0.0486	0.0577	-0.0338	0.0380	0.0443
-0.6501	0.0114	0.2160	1.3843	-0.3976	-0.1263	0.0816	0.0276	0.0343	-0.0129	-0.0205	-0.0729	0.1282	0.2111	0.2762	0.2468	0.0615	0.1071	-0.0477
-0.4509	0.0025	0.1190	1.2904	-0.1847	-0.0763	0.0411	-0.0090	-0.0423	0.0205	-0.0306	0.0372	-0.0191	-0.0950	-0.0782	-0.0878	0.0482	0.0884	-0.0307
-0.1287	0.0003	0.1484	1.3796	-0.0604	-0.0206	0.0268	0.0126	-0.0203	0.0128	-0.0285	-0.0002	0.0093	0.0185	-0.0160	-0.0132	0.0210	-0.0147	0.0344
1.1347	0.0137	0.1069	1.0546	0.4391	0.1448	-0.0840	0.0226	0.0336	-0.2109	0.1006	-0.0313	0.0102	0.0826	0.2022	0.0929	-0.1604	0.0619	-0.1760
0.3462	0.0027	0.1912	1.4249	0.1931	0.1041	-0.0297	-0.0250	-0.0209	-0.0367	-0.0029	0.1109	0.0407	-0.0283	0.0098	-0.0520	-0.0407	-0.0630	-0.0780
-0.1137	0.0000	0.0345	1.2164	-0.0248	0.0015	-0.0010	-0.0036	-0.0054	-0.0024	0.0080	0.0023	0.0067	-0.0001	0.0054	0.0072	-0.0102	-0.0038	0.0043
-0.5503	0.0021	0.0730	1.2077	-0.1716	0.0128	0.0269	0.0716	-0.0584	-0.0260	0.0172	0.0215	-0.0672	-0.0430	0.0002	-0.0254	-0.0366	-0.0142	-0.0010
-0.6187	0.0037	0.0979	1.2228	-0.2264	-0.0974	-0.0217	-0.0960	0.0256	-0.0496	0.0473	0.0259	0.0200	-0.0568	0.0389	0.0045	-0.0707	0.1571	0.0328
0.7133	0.0024	0.0498	1.1405	0.1840	0.0085	0.0271	0.0343	0.0049	-0.0024	-0.0027	0.0829	-0.0174	0.0129	0.0441	-0.0353	0.0537	0.0294	-0.0758
-0.6766	0.0040	0.0894	1.1967	-0.2354	-0.0232	-0.0288	-0.0623	0.0023	0.0228	0.0278	-0.0994	0.0010	-0.0042	-0.0679	-0.0623	-0.0502	-0.0324	0.1172
0.7734	0.0117	0.1731	1.2747	0.4035	-0.0509	-0.0302	0.0466	0.1109	-0.1521	0.0486	-0.1504	-0.0126	-0.1177	-0.0661	0.1184	0.0192	0.1195	0.0072
0.3399	0.0010	0.0881	1.2663	0.1171	-0.0181	0.0556	0.0222	-0.0449	-0.0400	-0.0353	-0.0096	-0.0057	-0.0151	-0.0049	0.0380	0.0064	0.0336	0.0162
-0.2684	0.0004	0.0532	1.2288	-0.0713	0.0075	0.0073	-0.0108	-0.0078	-0.0048	0.0033	0.0143	-0.0423	-0.0284	-0.0033	-0.0129	-0.0254	-0.0029	0.0018
0.8015	0.0067	0.1053	1.1783	0.3063	-0.0201	-0.0238	0.0188	0.0778	-0.0368	0.0276	-0.0322	0.1812	-0.0442	0.0768	0.0349	0.0566	0.0942	-0.1134
0.2780	0.0007	0.0876	1.2739	0.0954	0.0307	0.0052	-0.0204	0.0400	-0.0078	0.0069	-0.0356	-0.0188	0.0061	-0.0031	-0.0186	-0.0423	0.0112	-0.0144
0.7681	0.0165	0.2216	1.3478	0.4794	0.0252	-0.2720	0.0907	-0.0667	-0.0622	0.2649	-0.0530	-0.0260	-0.0220	0.0617	-0.0712	0.1254	-0.1132	0.0354
0.1243	0.0002	0.1028	1.3092	0.0466	0.0089	-0.0043	-0.0021	0.0134	0.0027	-0.0089	-0.0098	-0.0101	-0.0107	-0.0206	0.0048	0.0091	-0.0181	0.0088
-0.1002	0.0001	0.1318	1.3546	-0.0436	-0.0119	0.0045	-0.0073	-0.0058	-0.0101	0.0104	-0.0010	0.0176	0.0132	0.0020	0.0210	-0.0148	0.0138	0.0143
0.2299	0.0008	0.1418	1.3600	0.1048	0.0278	-0.0196	-0.0405	-0.0178	0.0233	0.0103	-0.0183	-0.0241	0.0084	-0.0166	-0.0022	-0.0313	-0.0047	0.0015
0.1756	0.0006	0.1622	1.3988	0.0873	-0.0116	-0.0108	0.0047	0.0039	0.0016	-0.0089	-0.0045	-0.0260	-0.0116	0.0422	-0.0230	0.0240	0.0272	-0.0255
0.4880	0.0022	0.0959	1.2508	0.1764	0.0402	0.0086	0.0312	0.0085	-0.0187	-0.0307	-0.0996	-0.0269	0.0347	-0.0063	-0.0114	-0.0504	0.0090	-0.0070
1.3706	0.0208	0.1106	0.9533	0.5430	-0.1586	0.0300	0.0686	-0.2962	0.1966	-0.0176	0.2315	-0.0197	0.1203	-0.0115	-0.0582	0.1884	0.0197	0.2428
0.3076	0.0013	0.1289	1.3300	0.1321	-0.0101	0.0457	0.0264	-0.0607	-0.0155	-0.0565	0.0031	0.0697	0.0224	0.0196	0.0202	-0.0294	0.0258	0.0393
0.0141	0.0000	0.1507	1.3875	0.0067	0.0009	0.0033	0.0006	-0.0034	-0.0032	-0.0002	-0.0011	0.0005	0.0014	-0.0006	-0.0001	-0.0031	0.0005	0.0020
-0.4223	0.0015	0.0884	1.2534	-0.1458	-0.0245	-0.0155	0.0815	-0.0312	-0.0016	0.0335	-0.0199	0.0277	0.0088	0.0084	-0.0557	0.0009	-0.0154	0.0434
-1.4516	0.0628	0.2312	0.9995	-0.9469	0.3008	0.2432	-0.6865	0.1587	-0.5584	-0.1168	-0.0571	-0.0981	-0.2844	-0.0614	-0.1911	-0.4949	0.0403	-0.3009
-0.6846	0.0042	0.0909	1.1964	-0.2405	-0.0778	0.0026	0.0500	-0.0406	0.0464	-0.0015	-0.0428	0.0027	-0.0923	-0.0305	0.0320	0.0890	0.0039	0.0252
0.2150	0.0015	0.2460	1.5503	0.1452	-0.0069	0.0032	0.0059	0.0430	0.0806	0.0018	0.0188	0.0683	0.0181	0.0067	-0.0255	0.0420	-0.0380	0.0376

0.0502	0.0000	0.0786	1.2773	0.0163	0.0058	0.0014	0.0001	0.0022	-0.0054	0.0014	-0.0063	-0.0029	-0.0007	-0.0021	-0.0047	-0.0075	0.0022	-0.0035
-0.3242	0.0006	0.0549	1.2244	-0.0875	0.0010	0.0328	-0.0025	-0.0079	-0.0047	-0.0203	-0.0231	0.0186	0.0246	-0.0046	0.0082	0.0223	-0.0319	-0.0119
-0.8579	0.0110	0.1417	1.2024	-0.3926	-0.0241	0.1021	0.1963	-0.1154	-0.0564	-0.0963	-0.1750	0.0523	0.0249	-0.1090	-0.0434	0.1139	-0.0927	-0.0162
0.2802	0.0007	0.0850	1.2699	0.0946	0.0561	0.0321	0.0245	-0.0124	-0.0324	-0.0104	-0.0047	-0.0147	-0.0199	-0.0070	-0.0070	-0.0423	-0.0344	-0.0056
1.9408	0.0273	0.0756	0.6710	0.6295	0.1807	-0.1455	0.2325	0.0056	0.2846	-0.1037	0.2292	-0.0710	0.0568	-0.1108	0.0412	-0.0398	-0.0513	-0.1406
-0.0011	0.0000	0.1338	1.3602	-0.0005	-0.0002	-0.0001	0.0000	0.0001	0.0001	-0.0001	0.0002	0.0001	0.0001	0.0000	-0.0002	0.0003	-0.0001	0.0002
-0.2599	0.0005	0.0697	1.2515	-0.0790	0.0149	0.0191	-0.0181	0.0046	-0.0145	0.0243	-0.0072	0.0160	-0.0064	0.0007	0.0182	0.0026	-0.0174	-0.0366
1.1955	0.0243	0.1564	1.0738	0.5860	0.3566	-0.2082	0.0855	-0.0331	0.2391	0.0921	0.0861	-0.0861	0.0263	0.0816	0.1600	-0.0601	-0.3079	-0.2241
-0.4886	0.0021	0.0887	1.2411	-0.1690	0.0247	0.0430	-0.0325	-0.0168	-0.0874	-0.0038	-0.0145	-0.0619	-0.0261	0.0510	0.0077	0.0058	-0.0098	-0.0911
-1.0174	0.0127	0.1207	1.1164	-0.4223	-0.1868	0.0556	0.2749	-0.0818	0.1362	-0.1725	0.1652	0.0602	0.0055	-0.0086	-0.0914	0.2625	-0.0425	0.1039
-0.5444	0.0019	0.0669	1.2014	-0.1622	0.0039	-0.0416	0.0017	0.0043	0.0096	0.0879	0.0048	0.0444	0.0204	-0.0173	-0.0115	0.0545	-0.0595	-0.0366
-1.2053	0.0418	0.2260	1.1380	-0.7686	-0.0019	-0.0151	0.0166	0.0534	0.0099	-0.0362	0.2355	0.3003	0.5222	0.5125	0.4705	0.1804	-0.2119	-0.1369
0.5215	0.0034	0.1237	1.2816	0.2187	0.0235	0.0121	-0.0030	0.0225	-0.0401	0.0412	-0.0730	-0.0459	-0.0095	0.0908	-0.0517	0.0231	-0.0340	0.0123
-0.3456	0.0018	0.1422	1.3445	-0.1579	-0.0334	-0.0006	0.0516	-0.0047	0.0695	-0.0527	0.0634	0.0220	0.0004	-0.0716	-0.0102	0.0138	0.0238	-0.0001
0.7742	0.0054	0.0925	1.1718	0.2747	0.0727	0.0000	-0.0032	-0.0113	-0.0003	0.0400	0.0567	0.0456	0.1516	0.0891	0.1334	0.0439	-0.1643	0.0592
-0.3532	0.0015	0.1196	1.3091	-0.1449	-0.0309	-0.0162	0.0371	0.0418	-0.0083	-0.0322	0.0345	0.0256	-0.0164	-0.0464	-0.0139	-0.0039	0.0493	-0.0237
-0.3050	0.0012	0.1257	1.3256	-0.1290	0.0532	-0.0065	-0.0552	0.0059	0.0247	0.0404	0.0146	-0.0526	-0.0198	0.0241	0.0190	-0.0468	-0.0236	-0.0601
-0.3634	0.0016	0.1166	1.3030	-0.1469	-0.0325	-0.0385	-0.0303	0.0464	-0.0420	0.0383	-0.0198	-0.0731	-0.0626	-0.0482	-0.0495	0.0299	0.0060	0.0182
-0.4877	0.0027	0.1140	1.2755	-0.1947	-0.0394	-0.0140	-0.0223	0.0185	-0.0398	0.0571	-0.0303	-0.0945	0.0092	-0.0090	-0.0335	0.0371	-0.0224	0.0515
0.4299	0.0012	0.0700	1.2278	0.1310	-0.0374	0.0217	0.0270	-0.0400	0.0149	0.0101	-0.0578	-0.0255	-0.0272	-0.0125	0.0192	0.0262	0.0408	0.0393
0.8542	0.0082	0.1125	1.1689	0.3394	0.1096	0.1788	0.0362	-0.1082	0.0759	-0.0876	0.0000	-0.0183	0.1509	0.0944	0.0422	-0.1174	-0.0231	-0.0315
1.0464	0.0130	0.1176	1.1015	0.4279	0.1853	0.1301	0.1408	-0.0058	0.1228	0.0261	0.0289	-0.0863	-0.0541	0.0244	-0.1206	-0.1045	-0.1467	0.0039
-1.1258	0.0194	0.1442	1.0943	-0.5228	-0.0680	-0.1172	0.1704	-0.1619	0.0045	0.3198	-0.0545	0.1064	-0.0330	-0.0394	-0.0689	-0.0615	0.1437	-0.0837
1.3906	0.0284	0.1396	0.9649	0.6354	-0.1161	-0.2718	-0.0650	0.2425	0.0781	-0.1279	0.1327	-0.0397	0.2469	0.0603	-0.1320	0.2661	-0.0005	0.0672
-0.0561	0.0000	0.1238	1.3438	-0.0235	0.0002	0.0039	0.0021	0.0019	0.0006	-0.0027	0.0083	-0.0061	-0.0040	-0.0073	0.0024	-0.0053	0.0063	-0.0071
-1.1861	0.0220	0.1465	1.0689	-0.5570	0.0255	-0.0782	-0.1075	0.0465	0.0727	-0.1154	0.2024	-0.0792	0.1316	-0.1896	0.1149	-0.0571	-0.1892	0.1943
-0.0715	0.0000	0.0877	1.2896	-0.0245	0.0053	-0.0009	0.0012	0.0016	-0.0047	-0.0009	-0.0060	0.0070	0.0144	0.0160	0.0085	-0.0052	-0.0067	-0.0057
-1.0110	0.0149	0.1384	1.1379	-0.4566	-0.0257	0.0826	-0.0458	-0.1214	-0.0830	-0.1226	0.0262	-0.2995	-0.2333	-0.1732	-0.1695	-0.1174	0.1936	-0.1174
-0.3149	0.0008	0.0852	1.2659	-0.1065	0.0232	0.0231	0.0465	-0.0584	0.0025	-0.0228	-0.0136	0.0155	0.0292	0.0284	0.0010	-0.0127	-0.0330	-0.0239
-0.0856	0.0002	0.2175	1.5052	-0.0525	-0.0084	-0.0280	0.0024	0.0253	0.0182	-0.0022	-0.0036	0.0016	0.0022	0.0126	0.0163	0.0236	-0.0050	-0.0111
-0.2969	0.0019	0.1887	1.4291	-0.1640	0.0015	-0.0342	-0.0559	-0.0288	-0.0552	-0.0405	0.0208	0.0319	0.0473	-0.0084	0.0502	0.0281	-0.0459	-0.0044
-1.2541	0.0120	0.0794	0.9811	-0.4120	-0.0737	-0.0258	0.0677	-0.1366	-0.0935	0.1219	0.0483	0.0713	-0.0677	-0.0731	-0.1500	-0.0893	0.1794	-0.0843
0.5912	0.0047	0.1294	1.2720	0.2550	0.1364	0.0278	-0.0332	-0.1319	0.0126	-0.0175	0.0434	-0.0217	0.0489	-0.0488	0.0355	0.0165	-0.1710	-0.0407

1.5861	0.0524	0.1815	0.8900	0.8666	0.0973	0.1080	-0.1532	-0.3225	-0.3593	0.0283	-0.1385	0.4473	-0.2418	-0.2383	0.1571	-0.0752	0.1325	-0.2016
-0.5710	0.0039	0.1188	1.2626	-0.2337	-0.0692	0.0155	-0.0149	0.0396	0.0212	-0.0513	0.0905	0.0195	0.0371	0.0856	-0.0777	-0.0131	0.1011	-0.0294
0.3949	0.0010	0.0698	1.2334	0.1202	-0.0450	-0.0057	0.0383	-0.0111	-0.0279	-0.0350	0.0157	-0.0058	-0.0085	-0.0398	-0.0142	0.0460	0.0287	0.0479
-0.3794	0.0022	0.1445	1.3421	-0.1751	0.0022	0.0521	0.0173	0.0255	0.0850	0.0191	-0.0226	0.0354	0.0513	0.0540	0.0670	-0.0319	-0.0292	0.0313
-0.1495	0.0004	0.1565	1.3915	-0.0726	-0.0548	-0.0207	-0.0103	0.0307	0.0101	0.0245	-0.0126	0.0056	-0.0022	0.0162	-0.0181	0.0253	0.0417	0.0249
-0.3662	0.0011	0.0861	1.2597	-0.1246	-0.0069	-0.0027	0.0670	0.0026	0.0003	0.0210	-0.0378	0.0076	-0.0572	-0.0531	-0.0333	-0.0132	-0.0029	0.0148
-1.0537	0.0037	0.0335	1.0194	-0.2282	-0.0158	-0.0532	-0.0042	0.0026	-0.0356	0.0539	-0.0744	0.0416	-0.0297	-0.0628	-0.0235	-0.0684	-0.0355	0.0956
0.1463	0.0001	0.0459	1.2294	0.0363	0.0065	0.0162	-0.0132	-0.0011	-0.0100	-0.0114	0.0020	-0.0115	-0.0104	-0.0110	-0.0070	-0.0004	0.0080	-0.0127
-1.9076	0.0197	0.0567	0.6808	-0.5339	-0.0649	-0.2000	0.1314	0.1167	0.1705	0.0151	0.0151	-0.2361	0.1015	0.0129	-0.0221	0.0168	-0.1377	0.2009
-2.5387	0.0511	0.0822	0.4171	-0.8759	-0.5531	-0.1617	0.1344	0.1273	-0.0429	0.0534	-0.2338	0.0578	-0.2660	-0.1362	-0.1911	-0.0670	0.6167	0.3070
-0.5440	0.0028	0.0961	1.2387	-0.1968	0.0034	-0.0544	-0.0268	0.0398	0.0338	0.0177	0.1061	-0.1040	-0.0411	0.0074	-0.0335	-0.0182	-0.0166	0.0047

Appendix 14.2: EAS 25-2007

ST RESID	COOK	LEV	COV	DIFF	DIFB0	DIFB1	DIFB2	DIFB3	DIFB4	DIFB5	DIFB6	DIFB7	DIFB8	DIFB9	DIFB10	DIFB11	DIFB12	DIFB13
0.4750	0.0097	0.2878	1.5810	0.3672	0.1259	-0.1308	-0.0032	0.1028	-0.0081	0.0685	0.0284	0.1475	-0.1442	-0.1764	-0.1272	-0.0507	-0.0798	-0.0675
-0.6394	0.0032	0.0812	1.1977	-0.2111	-0.0985	-0.0337	0.0461	0.0248	0.0488	-0.0577	0.1177	0.0239	-0.0032	0.0199	-0.0440	0.1387	-0.0276	0.0636
1.0494	0.0490	0.2933	1.3103	0.8310	-0.0181	0.5900	-0.0813	-0.2164	0.0202	-0.4725	0.0343	0.1711	0.0378	0.1441	-0.1014	-0.2083	0.1642	0.1195
1.4228	0.0358	0.1608	0.9616	0.7133	0.3137	0.4082	-0.1069	-0.1043	-0.0499	-0.4977	-0.0189	-0.2008	0.0812	0.0970	0.1562	-0.2383	-0.2689	0.0297
-2.6960	0.1481	0.1785	0.3373	-1.5081	-0.0631	-0.3211	0.1514	-0.5952	0.3299	0.4874	0.6660	0.1732	0.2141	0.0736	-0.4934	0.5369	-0.4992	-0.0387
1.3686	0.0143	0.0793	0.9304	0.4503	-0.1356	0.0000	0.0599	0.0300	-0.0139	-0.1240	0.0366	-0.0795	-0.1888	-0.2573	-0.0736	0.1641	0.1083	0.1433
-0.8602	0.0100	0.1303	1.1881	-0.3736	0.1322	-0.0242	0.1415	-0.0912	-0.0603	0.1455	0.0408	0.1220	0.0346	-0.0334	0.1244	-0.1137	-0.1140	-0.1148
-1.8109	0.0607	0.1665	0.7575	-0.9378	-0.1544	-0.1471	-0.2323	0.2325	-0.3474	-0.2299	-0.2912	0.2141	0.3937	0.3312	0.4474	-0.1592	0.0392	0.2395
0.9257	0.0099	0.1143	1.1453	0.3717	-0.0711	0.0354	-0.1586	0.1374	0.0926	0.0468	0.0601	-0.0169	0.0085	-0.0459	0.0786	0.0421	0.0802	0.0898
-0.6709	0.0066	0.1396	1.2643	-0.3036	0.0460	0.0780	0.0930	-0.0021	0.0855	-0.0335	0.0601	-0.2106	-0.0204	0.0270	-0.0860	-0.0374	-0.0823	0.0089
0.2119	0.0004	0.0939	1.2919	0.0756	0.0086	0.0239	0.0027	-0.0105	-0.0080	0.0211	-0.0367	-0.0062	0.0138	-0.0025	-0.0033	-0.0045	0.0082	-0.0094
0.8307	0.0099	0.1367	1.2067	0.3716	-0.0905	-0.0285	0.0343	-0.1627	-0.2398	0.0395	-0.0090	0.0512	0.0593	-0.0728	-0.0197	0.0546	0.0447	0.1579
2.4271	0.0949	0.1499	0.4523	1.1934	0.1827	0.2457	-0.7310	0.1745	-0.2198	0.2830	-0.5877	-0.2497	-0.2748	-0.2887	-0.0336	-0.1948	0.2616	-0.2881
0.6118	0.0063	0.1550	1.3039	0.2961	-0.0240	-0.0718	0.1398	0.0002	0.1546	0.0464	-0.1028	-0.0491	-0.0119	-0.0556	-0.0322	0.0981	0.0120	-0.0017
0.4091	0.0014	0.0838	1.2514	0.1372	0.0017	-0.0677	0.0541	0.0142	-0.0111	0.0327	0.0299	-0.0089	-0.0257	0.0039	-0.0183	0.0524	0.0143	-0.0452
0.3062	0.0016	0.1553	1.3737	0.1481	-0.0285	0.0169	0.0533	-0.1101	-0.0785	0.0063	0.0089	0.0166	0.0224	0.0076	-0.0121	0.0245	0.0122	0.0460
-0.7905	0.0055	0.0898	1.1643	-0.2761	-0.0873	-0.1267	0.0546	0.1031	0.0885	0.0992	-0.0598	0.0680	-0.0087	-0.0444	0.0012	-0.0272	0.1326	-0.0174
-0.1835	0.0005	0.1305	1.3492	-0.0794	-0.0087	0.0134	0.0286	0.0199	0.0077	0.0102	-0.0283	0.0058	-0.0284	-0.0048	-0.0126	-0.0210	0.0416	-0.0281
0.5185	0.0053	0.1736	1.3583	0.2706	0.0176	0.0038	0.0516	-0.0254	-0.0083	0.0603	-0.0020	0.1337	-0.0887	-0.1459	-0.0934	0.0390	-0.0622	0.0567
1.7510	0.0478	0.1462	0.7818	0.8307	-0.2954	-0.2486	-0.2180	0.3428	0.1734	-0.2612	0.4844	-0.0180	0.2339	0.3639	0.2049	0.3637	0.1448	0.1995
0.2461	0.0005	0.0914	1.2850	0.0865	-0.0050	0.0254	0.0068	-0.0153	-0.0014	-0.0251	-0.0086	-0.0083	0.0290	-0.0194	-0.0201	-0.0260	0.0061	0.0511
-0.4704	0.0018	0.0819	1.2375	-0.1559	-0.0371	-0.0013	-0.0091	-0.0298	-0.0050	-0.0591	-0.0154	0.0095	0.0510	0.0195	-0.0410	-0.0083	-0.0230	0.0840
-0.1004	0.0001	0.0651	1.2593	-0.0295	0.0026	0.0070	-0.0008	-0.0121	0.0016	0.0019	0.0096	0.0040	-0.0059	0.0045	0.0018	-0.0083	-0.0042	0.0004
0.1711	0.0002	0.0670	1.2578	0.0510	-0.0237	-0.0125	-0.0220	0.0163	0.0146	-0.0019	0.0150	0.0001	0.0241	0.0102	0.0111	0.0205	0.0104	0.0293
-0.2407	0.0011	0.1690	1.4056	-0.1231	-0.0051	-0.0252	-0.0233	-0.0144	0.0203	0.0711	-0.0024	0.0378	0.0472	0.0184	0.0347	-0.0284	-0.0176	0.0367
0.0444	0.0000	0.1491	1.3868	0.0209	0.0018	-0.0007	0.0048	0.0046	0.0034	0.0028	0.0108	0.0002	0.0039	0.0106	0.0019	0.0044	0.0009	-0.0076
0.8858	0.0069	0.0906	1.1337	0.3113	-0.0124	-0.1693	-0.0949	0.1087	0.0864	0.1606	-0.0755	-0.0144	0.0579	0.0744	0.0987	0.0663	0.0545	-0.0552
-0.4498	0.0019	0.0962	1.2606	-0.1628	-0.0255	-0.0191	-0.0701	-0.0407	-0.0397	-0.0255	-0.0305	0.0101	0.0184	0.0075	-0.0189	-0.0264	-0.0110	0.0646
1.4772	0.0151	0.0720	0.8775	0.4627	-0.0019	0.0380	0.0790	0.0657	0.1592	0.0328	0.0607	-0.0243	0.2305	0.0627	-0.0092	0.1141	-0.0141	-0.0042
-1.3769	0.0219	0.1144	0.9512	-0.5568	0.0305	0.1888	-0.0596	0.0034	0.1916	-0.0709	0.0652	0.0638	0.1161	-0.0041	0.2168	0.1029	-0.1516	-0.1052

0.9191	0.0128	0.1427	1.1802	0.4230	0.0397	0.1232	0.0774	0.0711	-0.1625	-0.0535	-0.1417	-0.0649	-0.1259	-0.0047	-0.0768	-0.1668	0.1425	-0.0123
0.8396	0.0219	0.2375	1.3413	0.5541	-0.0247	-0.3681	-0.0939	0.0467	0.1040	0.2960	0.0649	0.0767	0.0709	0.1114	0.2576	-0.0513	0.0698	0.0748
-1.3769	0.0231	0.1196	0.9550	-0.5719	0.0092	0.2131	0.0537	-0.0772	-0.1558	-0.1849	-0.2396	0.0814	0.1009	-0.0262	0.2372	0.0612	-0.0864	-0.0963
-0.3439	0.0008	0.0692	1.2423	-0.1042	-0.0032	0.0014	-0.0328	0.0159	-0.0128	-0.0212	0.0476	0.0116	0.0147	-0.0137	-0.0152	0.0378	-0.0342	-0.0151
-0.3518	0.0018	0.1365	1.3367	-0.1566	0.0184	0.0905	0.0590	-0.0251	-0.0320	-0.0273	-0.0457	0.0174	-0.0030	-0.0222	0.0234	0.0059	-0.0251	-0.0438
0.1647	0.0004	0.1270	1.3454	0.0701	0.0243	-0.0168	0.0064	0.0180	-0.0036	0.0097	-0.0175	0.0003	0.0329	0.0222	0.0286	-0.0208	-0.0269	0.0128
0.0082	0.0000	0.1098	1.3255	0.0032	0.0015	-0.0005	-0.0003	-0.0003	-0.0008	0.0010	0.0004	-0.0001	-0.0008	0.0009	0.0011	-0.0014	0.0005	-0.0020
-1.1629	0.0150	0.1106	1.0452	-0.4596	-0.1613	0.0681	-0.1225	0.0378	0.1920	-0.1075	0.0300	-0.0513	-0.1272	-0.1907	-0.1535	0.1858	-0.0371	0.1628
-0.2127	0.0009	0.1771	1.4228	-0.1123	-0.0609	0.0176	0.0078	0.0085	0.0066	0.0108	-0.0639	-0.0225	0.0108	-0.0059	0.0258	0.0170	0.0509	0.0364
-0.2331	0.0003	0.0534	1.2346	-0.0620	0.0031	0.0032	-0.0112	-0.0137	0.0011	0.0132	0.0037	0.0044	-0.0287	-0.0278	-0.0139	-0.0198	-0.0081	0.0115
-0.5216	0.0015	0.0573	1.1959	-0.1439	0.0306	0.0289	-0.0062	-0.0349	-0.0010	0.0298	0.0014	-0.0729	-0.0372	0.0146	-0.0114	-0.0542	-0.0289	-0.0044
-1.2439	0.0136	0.0900	0.9927	-0.4376	-0.2209	-0.0444	-0.1236	0.0438	-0.0257	0.0851	0.0544	0.1265	-0.0579	0.0897	0.0496	-0.0893	0.3025	0.0759
0.4585	0.0017	0.0850	1.2439	0.1550	0.0205	0.0194	0.0097	0.0150	0.0214	0.0010	0.0625	-0.0061	0.0330	0.1008	0.0540	0.0283	0.0158	-0.0747
1.7710	0.0235	0.0778	0.7461	0.5811	0.1040	0.0821	0.1391	0.0201	0.0020	-0.1003	0.2491	-0.0545	-0.1158	-0.0569	0.1262	0.1299	0.0242	-0.2591
0.7489	0.0114	0.1778	1.2911	0.3981	-0.0715	0.0163	0.2460	-0.0231	0.1547	0.0341	-0.0422	-0.0066	-0.0679	-0.0690	0.0865	0.1037	0.0580	0.0545
0.0663	0.0000	0.0866	1.2905	0.0226	-0.0037	0.0085	0.0045	-0.0076	-0.0079	-0.0055	-0.0005	0.0005	-0.0020	0.0005	0.0093	0.0029	0.0059	0.0026
-0.1798	0.0002	0.0509	1.2358	-0.0468	0.0061	0.0042	0.0011	-0.0019	0.0097	-0.0004	0.0164	-0.0244	-0.0082	0.0055	-0.0087	-0.0100	-0.0128	0.0028
0.9723	0.0102	0.1083	1.1210	0.3784	-0.0141	0.0111	-0.0191	0.0103	-0.0490	0.0436	-0.0530	0.2501	-0.0561	0.0921	0.1214	0.0330	0.1430	-0.1463
0.5434	0.0028	0.0966	1.2411	0.1974	0.0529	-0.0168	-0.0631	0.0993	0.0294	-0.0061	0.0067	-0.0396	0.0381	-0.0276	-0.0464	-0.0676	0.0058	-0.0125
1.5649	0.0324	0.1283	0.8685	0.6806	0.1454	-0.1252	-0.0264	-0.0268	-0.3449	0.2771	-0.2831	-0.0959	-0.1337	0.0137	-0.1129	0.0219	-0.1527	0.0088
-0.0850	0.0001	0.1396	1.3701	-0.0384	-0.0041	0.0064	0.0060	-0.0185	-0.0035	0.0101	0.0038	0.0106	0.0088	0.0179	-0.0003	-0.0099	0.0123	-0.0074
0.1061	0.0001	0.1047	1.3153	0.0403	0.0137	-0.0042	0.0071	-0.0028	0.0015	-0.0035	0.0007	0.0091	-0.0105	-0.0030	-0.0149	0.0115	-0.0165	-0.0125
0.7495	0.0082	0.1383	1.2373	0.3376	0.0591	-0.0673	-0.0625	-0.0540	0.0992	0.0351	-0.0814	-0.0657	0.0626	0.0051	-0.0351	-0.0723	-0.0010	0.0067
-0.0928	0.0001	0.1490	1.3850	-0.0437	0.0004	0.0011	0.0010	0.0027	-0.0048	0.0074	-0.0002	0.0109	0.0018	-0.0224	0.0046	-0.0113	-0.0072	0.0138
-0.3760	0.0011	0.0813	1.2535	-0.1240	-0.0316	0.0109	-0.0319	0.0063	0.0073	0.0236	-0.0039	0.0226	-0.0203	0.0311	0.0541	0.0292	0.0083	-0.0017
0.5585	0.0029	0.0943	1.2345	0.2001	-0.0674	-0.0147	0.0077	-0.0971	0.0319	0.0031	0.0838	-0.0044	0.0410	-0.0051	-0.0342	0.0804	0.0070	0.1033
-0.0809	0.0001	0.1320	1.3581	-0.0353	0.0053	-0.0083	-0.0051	0.0063	0.0023	0.0139	-0.0021	-0.0219	-0.0074	-0.0091	-0.0096	0.0072	-0.0103	-0.0093
-0.5776	0.0066	0.1747	1.3435	-0.3029	-0.0037	-0.0676	-0.0937	0.0994	0.0066	0.0092	-0.1365	-0.0227	-0.1376	-0.0772	0.0571	0.0555	0.0130	-0.0998
-0.3290	0.0009	0.0887	1.2707	-0.1138	-0.0091	-0.0174	0.0682	-0.0391	-0.0114	0.0465	-0.0111	0.0284	0.0074	0.0116	-0.0333	-0.0164	-0.0152	0.0299
-1.8016	0.0731	0.1916	0.7709	-1.0291	0.2897	0.2173	-0.7166	0.3289	-0.4085	-0.2079	-0.0918	-0.1041	-0.2284	-0.1238	-0.1684	-0.3991	-0.0318	-0.3323
-1.2320	0.0164	0.1083	1.0129	-0.4814	-0.1078	0.0602	0.1024	-0.2037	-0.0348	0.0255	-0.0837	0.0424	-0.2026	-0.0085	0.0631	0.1390	0.0132	-0.0024
0.2458	0.0011	0.1622	1.3936	0.1224	-0.0023	0.0151	-0.0007	0.0229	0.0415	-0.0003	0.0137	0.0600	-0.0030	-0.0041	-0.0316	0.0262	-0.0238	0.0270
1.1099	0.0091	0.0771	1.0369	0.3582	0.1129	-0.0795	0.0018	0.0968	0.0049	0.0555	0.0478	-0.0458	0.0563	-0.0671	-0.1240	-0.1190	-0.0078	-0.0328

-0.3870	0.0016	0.1077	1.2882	-0.1494	0.0262	0.0776	-0.0051	-0.0501	-0.0502	-0.0532	-0.0441	-0.0794	0.0032	-0.0036	-0.0041	0.0134	-0.0428	-0.0403
-1.1020	0.0333	0.2191	1.1852	-0.6852	-0.1266	-0.0578	0.3771	0.0749	0.3547	-0.1208	-0.0662	-0.0393	0.0833	0.0058	-0.2367	0.3163	-0.1329	0.0332
1.2088	0.0147	0.1018	1.0176	0.4554	0.2070	0.0704	0.1811	-0.0380	-0.0231	-0.0267	0.1519	0.1704	0.0149	0.0242	0.0173	-0.1345	-0.1984	0.0170
0.7512	0.0059	0.1059	1.1958	0.2879	0.0921	-0.0145	0.1196	-0.1497	0.0464	-0.0206	0.0928	-0.0172	0.0379	-0.0094	0.0129	-0.0486	-0.0452	-0.0408
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-0.7419	0.0053	0.0973	1.1884	-0.2709	0.0388	0.0625	-0.0086	-0.0197	-0.0711	0.0891	-0.0212	0.0492	0.0026	0.1131	0.0493	0.0107	-0.0245	-0.1425
0.4530	0.0038	0.1647	1.3606	0.2281	0.1606	-0.0410	0.0451	-0.0228	0.0640	0.0780	-0.0333	-0.0466	-0.0364	0.0303	0.0541	-0.0675	-0.1027	-0.1144
-0.4248	0.0025	0.1343	1.3199	-0.1873	-0.0321	0.0668	-0.0030	-0.0485	-0.0722	-0.0218	0.0065	-0.0773	-0.0847	-0.0217	-0.0595	0.0249	0.0697	-0.0693
-0.6393	0.0037	0.0920	1.2112	-0.2260	-0.0970	0.0003	0.1166	-0.0360	0.0833	-0.0622	0.0736	0.0269	0.0066	0.0380	-0.0088	0.1402	-0.0321	0.0621
0.5850	0.0028	0.0847	1.2159	0.1976	-0.0044	0.0453	0.0209	-0.0007	0.0677	-0.1170	0.0643	-0.0376	0.0159	0.0349	0.0260	-0.0270	0.0278	0.0465
0.2716	0.0020	0.2164	1.4861	0.1659	0.0033	-0.0096	-0.0012	-0.0145	0.0053	0.0184	-0.0399	-0.0518	-0.1061	-0.1274	-0.1210	-0.0288	0.0252	0.0383
-0.3563	0.0012	0.0981	1.2797	-0.1304	-0.0273	0.0007	0.0180	-0.0086	0.0110	-0.0295	0.0393	0.0418	0.0219	-0.0148	0.0460	-0.0157	0.0390	-0.0083
0.3240	-0.0017	0.1521	1.3657	0.1546	0.0321	-0.0015	-0.0678	-0.0131	-0.0461	0.0417	-0.0417	-0.0208	0.0143	0.0643	0.0203	-0.0035	-0.0329	-0.0005
0.0456	0.0000	0.0971	1.3062	0.0166	0.0025	-0.0024	0.0000	0.0041	0.0025	0.0000	0.0074	0.0001	0.0083	0.0048	0.0058	0.0048	-0.0090	0.0040
-1.3437	0.0157	0.0891	0.9483	-0.4707	-0.1004	0.0235	-0.1483	0.0067	-0.0876	-0.1567	0.1208	0.0908	-0.0112	-0.1644	-0.0013	-0.0953	0.1744	-0.0135
-0.2576	0.0011	0.1476	1.3683	-0.1205	0.0516	0.0142	-0.0122	-0.0121	0.0382	0.0058	0.0549	-0.0531	-0.0399	-0.0136	-0.0316	-0.0222	-0.0415	-0.0526
0.1680	0.0002	0.0892	1.2889	0.0582	0.0152	0.0166	0.0087	-0.0172	0.0174	-0.0140	0.0101	0.0197	0.0163	0.0219	0.0122	-0.0178	0.0037	-0.0131
-1.0856	0.0139	0.1168	1.0840	-0.4425	-0.1526	-0.1009	0.0211	-0.0330	-0.1055	0.1773	0.0846	0.1880	0.1920	0.0652	0.0629	0.1261	-0.0601	0.1737
0.5520	0.0031	0.1026	1.2469	0.2074	0.0345	0.0641	-0.0325	-0.0571	-0.0490	0.0402	-0.1273	-0.0320	-0.0748	-0.0393	0.0220	-0.1181	0.0693	0.0097
0.4051	0.0018	0.1074	1.2846	0.1562	0.0638	0.0949	0.0017	-0.0475	0.0193	-0.0338	-0.0296	-0.0339	0.0257	-0.0059	-0.0076	-0.0771	-0.0043	-0.0253
1.9814	0.0623	0.1481	0.6638	0.9536	0.4748	0.0925	0.2722	0.2224	-0.0640	0.2463	-0.2485	-0.2215	-0.2878	-0.0711	-0.2530	-0.3703	-0.2562	-0.1220
-1.6782	0.0214	0.0790	0.7896	-0.5542	-0.1381	0.0002	0.1615	-0.2829	0.0481	0.0397	0.0759	0.1329	0.0438	-0.0090	-0.1276	-0.0710	0.1870	-0.0146
1.1357	0.0294	0.1931	1.1388	0.6432	-0.1389	-0.2565	-0.1414	0.1964	0.0085	-0.1885	0.1540	-0.0202	0.3621	0.0394	-0.0616	0.2407	-0.0318	0.1794
0.0065	0.0000	0.1367	1.3671	0.0029	-0.0003	-0.0004	0.0001	-0.0003	0.0007	-0.0002	-0.0005	0.0005	0.0005	0.0007	-0.0006	0.0010	-0.0008	0.0010
-0.9798	0.0181	0.1689	1.1856	-0.5042	-0.0268	-0.0797	-0.1114	0.1349	0.0153	-0.1656	0.2110	-0.0864	0.1236	-0.1636	0.0515	-0.0098	-0.1481	0.1988
-0.9225	0.0089	0.1047	1.1358	-0.3519	0.0988	0.0959	0.0208	-0.1516	-0.1347	-0.0500	-0.0564	0.0691	0.1645	0.1972	0.0936	-0.1267	-0.0815	-0.0927
0.0325	0.0000	0.1074	1.3217	0.0125	0.0053	0.0007	0.0008	-0.0003	-0.0003	0.0043	-0.0016	0.0073	0.0007	0.0018	0.0035	-0.0057	-0.0034	0.0003
0.0094	0.0000	0.0926	1.3000	0.0033	0.0006	0.0002	0.0002	0.0007	-0.0008	0.0007	0.0003	0.0001	-0.0007	0.0001	0.0009	-0.0015	0.0010	-0.0003
-1.1247	0.0296	0.1968	1.1485	-0.6459	0.0704	-0.2578	-0.0979	0.3484	0.1954	-0.0737	0.0034	0.0182	-0.0059	0.1823	0.2921	-0.0148	-0.0348	-0.2206
1.0151	0.0225	0.1873	1.1913	0.5615	-0.1005	0.0121	0.0628	0.1649	0.3581	0.1807	-0.0053	-0.1114	-0.1379	0.0140	-0.1524	0.1189	0.1260	0.0467
-0.5853	0.0035	0.1024	1.2386	-0.2198	-0.0322	-0.0179	0.0877	-0.0543	-0.0813	0.0842	-0.0425	0.0641	-0.0382	-0.0409	-0.0557	-0.0614	0.0956	-0.0393
0.0386	0.0000	0.1348	1.3638	0.0171	0.0087	0.0030	0.0061	-0.0102	-0.0042	-0.0012	0.0008	-0.0038	-0.0015	-0.0052	-0.0053	0.0022	-0.0109	-0.0035
0.7902	0.0078	0.1224	1.2033	0.3301	0.0670	0.0605	-0.0745	-0.1279	-0.0948	-0.0331	-0.0136	-0.0659	-0.1597	-0.1055	0.0381	0.0132	0.0367	-0.1282

-0.5701	0.0038	0.1156	1.2601	-0.2297	-0.0602	-0.0015	0.0432	0.0279	0.0349	-0.0352	0.0913	0.0452	0.0641	0.0993	-0.0421	-0.0095	0.0797	-0.0262
0.2888	0.0005	0.0677	1.2475	0.0865	-0.0312	-0.0028	0.0136	-0.0094	-0.0282	-0.0199	0.0171	-0.0075	-0.0056	0.0167	-0.0151	0.0334	0.0266	0.0227
0.8804	0.0162	0.1820	1.2449	0.4765	0.0366	-0.0392	-0.0290	-0.1757	-0.2739	-0.0459	-0.0289	-0.0970	-0.2244	-0.1378	-0.1787	0.0645	0.0567	-0.1152
0.8615	0.0130	0.1598	1.2239	0.4264	0.3169	0.1330	0.0656	-0.1506	0.0054	-0.1529	0.1099	-0.0885	0.0205	-0.0223	0.0903	-0.1300	-0.2664	-0.1482
-0.1733	0.0003	0.1082	1.3162	-0.0670	0.0066	0.0021	0.0393	-0.0042	0.0098	0.0107	-0.0181	-0.0337	-0.0122	0.0031	-0.0094	-0.0108	-0.0108	0.0013
-0.7322	0.0033	0.0645	1.1529	-0.2147	0.0190	-0.0209	0.0139	-0.0001	-0.0230	0.0161	-0.0504	-0.1447	-0.0679	-0.0818	-0.0801	-0.0501	-0.0482	0.0457
-1.0635	0.0080	0.0739	1.0519	-0.3355	-0.0209	-0.0669	0.1251	-0.1372	-0.1072	0.1016	-0.0319	0.1304	0.0744	0.1163	0.0977	-0.0729	-0.0353	0.0652
-1.9252	0.0286	0.0800	0.6756	-0.6439	-0.0078	-0.1679	0.0798	0.1794	0.1869	-0.0553	0.0914	-0.3944	0.0835	0.1362	-0.0261	-0.0149	-0.1673	0.1289
-1.9758	0.0388	0.1007	0.6569	-0.7516	-0.4516	-0.2554	0.1067	0.1319	0.0072	0.2036	-0.2467	0.1625	-0.2116	-0.1984	-0.1704	-0.0593	0.5015	0.2786
0.7956	0.0080	0.1233	1.2026	0.3339	-0.0268	0.0494	0.0127	-0.0326	-0.0700	0.0176	-0.1803	0.1550	0.1256	0.1419	0.1315	0.0067	0.0931	-0.0412

Appendix 14.3: EAS 33-2006

ST RESID	COOK	LEV	COV	DIFF	DIFB0	DIFB1	DIFB2	DIFB3	DIFB4	DIFB5	DIFB6	DIFB7	DIFB8	DIFB9	DIFB10	DIFB11	DIFB12	DIFB13
-0.28183	0.00365	0.29883	1.65545	-0.22512	-0.08332	0.06607	-0.02148	-0.06553	-0.00107	-0.03265	-0.04089	-0.09619	0.08083	0.09312	0.07748	0.01927	0.05527	0.05988
0.07327	0.00003	0.06411	1.25673	0.02133	0.0093	0.00122	0.00302	0.00231	0.00606	0.00511	-0.00877	-0.00309	0.00171	-0.00164	0.00403	-0.00905	0.00005	-0.00537
-1.59424	0.05213	0.17947	0.88446	-0.86447	0.10556	-0.42408	0.07598	0.0931	0.02682	0.47899	-0.03829	-0.25156	-0.00909	-0.14524	0.21809	0.20098	-0.26055	-0.23457
1.87541	0.06601	0.16824	0.72771	0.9791	0.41207	0.53898	-0.17413	-0.14184	-0.1759	-0.63354	-0.21121	-0.18046	0.11169	0.11684	0.28349	-0.40996	-0.28942	0.11254
-0.91666	0.01334	0.14827	1.18767	-0.43217	-0.02266	-0.14777	0.03382	-0.11785	0.09498	0.15505	0.23196	0.0883	0.08046	-0.01021	-0.12076	0.1784	-0.14577	-0.04081
-1.06209	0.01038	0.09407	1.07194	-0.38169	0.11756	0.03025	-0.03318	-0.09737	-0.16536	0.08325	-0.05136	0.08016	0.11098	0.16252	-0.01319	-0.13921	-0.08279	-0.11174
-0.342	0.00165	0.13522	1.33433	-0.15135	0.05973	-0.02053	0.02667	-0.01185	-0.01701	0.05521	0.02001	0.05846	0.03215	-0.01603	0.07088	-0.03709	-0.06089	-0.04774
0.23536	0.00131	0.19876	1.45615	0.13494	0.01372	0.02121	0.02554	-0.0469	0.04199	0.02018	0.06584	-0.02544	-0.05262	-0.06036	-0.06271	0.02275	0.00304	-0.03164
1.17436	0.01472	0.1072	1.03812	0.45544	-0.03463	0.05536	-0.19215	0.07766	0.03488	0.14242	0.05709	-0.01388	-0.02219	-0.06057	0.10107	-0.01641	0.07698	0.09785
-0.04644	0.00002	0.10158	1.31038	-0.01731	-0.00089	0.00158	0.00436	0.00627	0.00576	-0.00061	0.00191	-0.00921	-0.00152	0.00178	-0.00486	-0.00092	-0.00107	0.00185
-0.31695	0.00242	0.20077	1.44718	-0.18311	0.01951	0.04674	-0.06352	-0.10656	-0.09661	-0.05807	0.03966	-0.0005	-0.04559	-0.02113	0.00269	-0.06528	0.00008	0.00634
-0.26881	0.00047	0.06818	1.24842	-0.08078	0.02101	0.01239	0.03334	0.01316	0.02549	-0.01208	-0.01148	-0.00007	-0.01424	0.01174	-0.0007	-0.01036	-0.01339	-0.04082
0.53405	0.00281	0.10001	1.2462	0.19766	0.04382	0.04825	-0.11264	0.02761	-0.04011	0.05827	-0.05865	-0.04503	-0.04664	-0.02799	-0.00695	-0.04105	0.03692	-0.05625
0.09651	0.00013	0.13722	1.36334	0.04308	-0.0025	-0.00513	0.01416	-0.01649	0.01966	0.00046	-0.01028	-0.00582	0.00548	-0.00789	0.00108	0.01516	-0.0034	0.00215
-1.18091	0.01885	0.13054	1.05638	-0.51548	0.00901	-0.03141	-0.29261	0.14138	0.19595	0.01353	0.06679	0.05174	0.09652	-0.02835	0.12454	-0.1203	-0.10923	0.1726
-0.41414	0.00143	0.08624	1.25192	-0.14102	0.04599	-0.01612	-0.05512	0.08167	0.02775	0.0126	-0.05266	-0.00499	-0.02125	-0.00649	0.03118	-0.04817	-0.02416	-0.05003
-0.59434	0.00329	0.09514	1.22545	-0.21394	-0.065	-0.08071	0.04023	0.07475	0.09709	0.05329	-0.06586	0.02108	-0.00455	-0.0393	-0.00663	0.00178	0.07464	-0.00629
0.80315	0.00468	0.07554	1.14353	0.25545	-0.07126	-0.05139	-0.0753	-0.08009	-0.10505	0.01224	0.03947	0.00608	0.06433	0.06821	0.06672	0.04253	0.05779	0.09105
0.07149	0.0001	0.17867	1.43394	0.03798	0.00684	0.00345	-0.00544	0.00165	-0.00895	0.00757	-0.00291	0.01785	-0.01202	-0.01787	-0.00877	-0.0006	-0.00875	0.00489
1.28641	0.02121	0.12499	1.00337	0.54764	-0.19878	-0.15239	-0.06593	0.21901	-0.03291	-0.0971	0.22188	-0.05749	0.00684	0.21445	-0.01353	0.18682	0.19217	0.06997
-0.73454	0.00699	0.12607	1.22547	-0.31213	0.04735	0.09256	0.01064	-0.18912	-0.12646	0.01233	-0.01454	0.02105	-0.08727	0.01643	0.04219	0.00873	-0.02662	-0.14997
0.54081	0.00187	0.06692	1.20222	0.16119	0.04068	0.02088	0.01264	-0.00335	-0.02494	0.05173	0.02957	-0.0088	-0.04296	-0.02654	0.02755	0.00533	0.0204	-0.08676
0.26145	0.00117	0.15669	1.38016	0.12715	0.00339	-0.01735	-0.08507	0.06053	-0.01802	0.00586	-0.06393	-0.02601	0.0101	0.00878	0.0146	-0.00637	0.01961	-0.00488
0.41331	0.00078	0.04745	1.20199	0.10405	-0.04246	-0.01625	-0.0337	0.02095	0.02162	0.01258	0.01667	-0.00183	0.0413	0.02764	0.02043	0.03277	0.02278	0.05778
-0.82907	0.01032	0.14192	1.21327	-0.37967	0.03124	-0.07304	-0.00641	-0.00785	-0.02678	0.24039	-0.06042	0.1571	0.15051	0.04234	0.15588	-0.09876	-0.1035	0.09443
0.24417	0.00072	0.11886	1.323	0.09982	0.01116	-0.00424	0.02539	0.01715	0.01142	0.02117	0.0575	-0.00183	-0.01984	-0.01621	-0.01126	0.02292	0.00672	-0.04151
0.83543	0.00428	0.06428	1.12125	0.24454	0.00503	-0.1082	0.01696	0.01673	0.11285	0.12546	-0.04752	-0.036	0.00258	-0.03661	0.02077	0.08261	0.00074	-0.03946
0.48757	0.0024	0.10196	1.25903	0.1824	0.01564	0.03114	0.0844	0.03907	0.0402	0.01602	0.04677	-0.00447	-0.02007	-0.02103	-0.00466	0.04561	0.01319	-0.06898
-1.07812	0.00729	0.06571	1.03931	-0.32	-0.0114	-0.06814	-0.10085	0.06425	-0.00818	-0.01782	-0.03355	-0.02787	-0.15439	-0.03927	0.01422	-0.08295	0.02111	0.02514

-1.37866	0.07309	0.27004	1.07626	-1.02077	0.12332	0.20676	-0.1693	0.17996	0.14499	0.18652	-0.43519	-0.16012	-0.54337	-0.08018	0.15888	-0.04388	0.06858	-0.4406
0.55594	0.00327	0.10637	1.24955	0.2132	0.10462	0.01298	0.04801	0.07623	0.01367	-0.01985	0.02344	-0.03182	-0.04844	-0.05018	-0.00234	-0.05558	-0.08005	-0.00695
-2.10994	0.15494	0.25453	0.61105	-1.51543	-0.07591	1.02916	0.34024	-0.11123	-0.28817	-0.91829	-0.12319	-0.04914	-0.13882	-0.28615	-0.73273	0.19934	-0.07393	-0.12732
0.68599	0.00912	0.17225	1.30439	0.35649	-0.00042	-0.15123	-0.12431	0.05973	0.00307	0.16975	0.13188	0.17775	0.02214	0.09528	0.06279	-0.08079	0.06782	0.03526
0.53924	0.00265	0.09326	1.2361	0.19187	-0.01808	-0.03168	0.02121	0.0082	0.04081	0.04313	-0.06139	0.0938	0.03167	0.05998	0.07117	-0.04173	0.04689	0.05465
-0.87421	0.02051	0.21602	1.29373	-0.53588	-0.17027	0.11	0.03718	0.04624	-0.01734	-0.02757	-0.09822	0.1728	0.28452	0.37222	0.33269	0.08287	0.14441	-0.06433
1.82084	0.04005	0.11902	0.7403	0.76058	0.31417	-0.16946	0.03696	0.17424	-0.08437	0.12587	-0.15324	0.07849	0.39117	0.32204	0.36144	-0.19869	-0.36391	0.12633
0.90013	0.01288	0.14842	1.19438	0.42457	0.14474	-0.18839	-0.0887	0.14266	-0.08994	0.20005	0.00126	-0.06501	-0.13016	0.11274	0.09284	-0.14748	0.10353	-0.24188
-0.86627	0.00799	0.10691	1.1582	-0.3341	-0.11015	0.0639	-0.01721	-0.02557	0.16045	-0.07653	0.02381	-0.00777	-0.06287	-0.15384	-0.07071	0.12203	-0.0471	0.13393
-1.17583	0.03101	0.19121	1.11767	-0.66155	-0.35654	0.10185	0.08548	0.07149	0.12566	0.01	-0.37982	-0.1395	0.09692	-0.03352	0.17817	0.13947	0.2159	0.26718
-0.2393	0.0002	0.03452	1.20785	-0.05221	0.00309	-0.00215	-0.00755	-0.01145	-0.00501	0.01688	0.00479	0.01416	-0.00027	0.01128	0.01505	-0.02138	-0.00794	0.00905
0.2937	0.0006	0.07299	1.25196	0.09144	-0.00681	-0.01436	-0.03818	0.03115	0.01386	-0.00915	-0.01146	0.03581	0.02294	-0.00008	0.01355	0.01952	0.00756	0.00055
-0.26454	0.00067	0.0979	1.28996	-0.0966	-0.04156	-0.00926	-0.04096	0.01094	-0.02118	0.02018	0.01107	0.00853	-0.02426	0.01659	0.0019	-0.03016	0.06704	0.01399
-0.87534	0.00366	0.04978	1.09369	-0.22619	-0.01046	-0.03328	-0.04217	-0.00597	0.00289	0.0033	-0.10186	0.02137	-0.01581	-0.0542	0.04334	-0.06605	-0.03617	0.09312
0.18192	0.00029	0.08937	1.28589	0.06312	0.00622	0.00773	0.0167	-0.00062	-0.00612	-0.00746	0.02666	-0.00026	0.00112	0.01822	0.01672	0.01347	0.00869	-0.03142
1.0995	0.02358	0.17305	1.13614	0.57604	-0.07261	-0.04315	0.06658	0.15836	-0.2171	0.06938	-0.21463	-0.01792	-0.16804	-0.09433	0.16904	0.02743	0.17063	0.01025
-0.45077	0.00174	0.08808	1.24771	-0.15532	0.02396	-0.07371	-0.02942	0.05959	0.05307	0.04681	0.01273	0.00755	0.0201	0.00646	-0.05046	-0.00846	-0.04452	-0.02147
1.92833	0.01895	0.05324	0.67075	0.52363	-0.05501	-0.05369	0.07955	0.05743	0.0349	-0.02438	-0.10458	0.31045	0.20845	0.02437	0.09474	0.18645	0.02123	-0.01335
0.31928	0.00107	0.10534	1.29355	0.12161	-0.00799	-0.00946	0.00745	0.03088	-0.01462	0.01095	-0.0128	0.07195	-0.01754	0.0305	0.01387	0.02247	0.0374	-0.04504
-0.68851	0.00403	0.08764	1.19125	-0.23697	-0.07631	-0.01302	0.0506	-0.09931	0.01946	-0.01713	0.08848	0.04678	-0.01523	0.00761	0.04618	0.10508	-0.02781	0.03585
1.22469	0.04185	0.22157	1.12264	0.76948	0.04036	-0.43661	0.14562	-0.10708	-0.09986	0.42513	-0.08512	-0.04164	-0.03529	0.09909	-0.1143	0.20119	-0.18161	0.05688
0.48676	0.00241	0.1028	1.26034	0.18295	0.0347	-0.01677	-0.00803	0.05255	0.01048	-0.03485	-0.03839	-0.03972	-0.04186	-0.08073	0.01868	0.03586	-0.07103	0.03451
0.21751	0.00065	0.13184	1.34571	0.09471	0.02594	-0.00975	0.01578	0.01248	0.02182	-0.02251	0.00216	-0.03819	-0.02856	-0.00439	-0.0455	0.03217	-0.02994	-0.03113
0.76723	0.00883	0.14179	1.23495	0.35092	0.09314	-0.06551	-0.1355	-0.05972	0.07801	0.03441	-0.06128	-0.08062	0.02826	-0.05552	-0.00741	-0.10494	-0.01574	0.00505
0.81068	0.01174	0.16218	1.24611	0.40495	-0.05368	-0.05011	0.02163	0.018	0.00747	-0.04144	-0.02098	-0.12033	-0.05372	0.19572	-0.10653	0.1111	0.12626	-0.11821
-0.33421	0.00105	0.09594	1.27806	-0.12069	-0.02752	-0.00585	-0.02137	-0.00583	0.0128	0.02102	0.06819	0.01843	-0.02371	0.00434	0.0078	0.03448	-0.00618	0.00478
0.14367	0.00023	0.11059	1.31956	0.05626	-0.01643	0.00311	0.0071	-0.03069	0.02037	-0.00182	0.02398	-0.00205	0.01247	-0.00119	-0.00603	0.01952	0.00204	0.02516
0.98388	0.01288	0.12888	1.13868	0.42494	-0.0324	0.14708	0.0848	-0.19514	-0.04977	-0.18179	0.0098	0.22406	0.07197	0.06315	0.06508	-0.09458	0.08303	0.12644
1.33072	0.02872	0.15074	1.00297	0.63804	0.08799	0.31641	0.05469	-0.32424	-0.30123	-0.01673	-0.10293	0.0456	0.13284	-0.05238	-0.00591	-0.29819	0.04841	0.1925
0.12267	0.00013	0.08843	1.28847	0.04231	0.0071	0.0045	-0.02366	0.00906	0.00046	-0.00973	0.00578	-0.00805	-0.00256	-0.00244	0.01615	-0.00027	0.00446	-0.01258
-0.83321	0.02069	0.23117	1.33432	-0.53794	0.17089	0.13815	-0.39	0.09017	-0.31722	-0.06637	-0.03243	-0.05571	-0.16155	-0.03486	-0.10854	-0.28117	0.02288	-0.17092

1.30023	0.01498	0.09094	0.9703	0.46013	0.14879	-0.00504	-0.09568	0.07773	-0.08869	0.00277	0.08179	-0.0052	0.17652	0.05841	-0.06127	-0.17037	-0.00745	-0.04826
1.20567	0.04783	0.24596	1.15908	0.8226	-0.03935	0.01785	0.03356	0.24344	0.45658	0.01039	0.10643	0.38715	0.10281	0.03788	-0.14441	0.23815	-0.21524	0.21279
-0.88263	0.00589	0.07864	1.12142	-0.28701	-0.10226	-0.02398	-0.00121	-0.03954	0.09464	-0.02519	0.1117	0.05184	0.01173	0.03634	0.0838	0.13289	-0.0394	0.06138
-1.54142	0.01248	0.05492	0.8417	-0.42151	0.00496	0.15781	-0.01187	-0.03821	-0.02258	-0.09773	-0.11112	0.08953	0.11844	-0.02228	0.0393	0.10747	-0.15347	-0.05733
-0.27046	0.0011	0.14169	1.3549	-0.12324	-0.00757	0.03206	0.06162	-0.03623	-0.01771	-0.03024	-0.05493	0.01643	0.0078	-0.03421	-0.01363	0.03577	-0.0291	-0.0051
0.77231	0.0049	0.08496	1.16366	0.26153	0.15522	0.08874	0.06773	-0.03438	-0.08958	-0.02874	-0.01296	-0.04076	-0.0551	-0.01923	-0.01932	-0.11687	-0.09518	-0.01541
-0.42004	0.00128	0.07561	1.23678	-0.13329	-0.03827	0.03081	-0.04924	-0.00119	-0.06027	0.02197	-0.04854	0.01504	-0.01203	0.02346	-0.00873	0.00842	0.01086	0.02978
-0.64366	0.00577	0.1338	1.26341	-0.28352	-0.12826	-0.05185	0.00605	0.03998	0.0487	-0.0422	0.12481	0.05247	0.0817	-0.02065	-0.12952	0.148	-0.04978	0.14173
1.00856	0.00678	0.06974	1.06863	0.30836	-0.05801	-0.07456	0.07075	-0.0179	0.05644	-0.09488	0.02793	-0.06245	0.02479	-0.00287	-0.07094	-0.01018	0.06781	0.14296
0.40621	0.00281	0.15642	1.35557	0.19746	0.12017	-0.07016	0.02882	-0.01114	0.08058	0.03102	0.02903	-0.02902	0.00888	0.02749	0.05391	-0.02024	-0.10375	-0.07553
-0.17687	0.00027	0.08871	1.28534	-0.06112	0.00893	0.01554	-0.01176	-0.00606	-0.03161	-0.00137	-0.00523	-0.02239	-0.00942	0.01843	0.00277	0.00211	-0.00355	-0.03293
-0.92022	-0.0104	0.12065	1.15424	-0.38147	-0.16879	0.05024	0.24829	-0.07391	0.12307	-0.15582	0.14922	0.05438	0.00494	-0.00778	-0.08254	0.23715	-0.0384	0.09387
1.67085	0.01785	0.06692	0.79038	0.5055	-0.01222	0.12962	-0.0052	-0.01348	-0.03003	-0.27392	-0.01503	-0.13822	-0.06361	0.05384	0.03569	-0.16973	0.18539	0.11394
-0.83743	0.02017	0.22596	1.32463	-0.53114	-0.00131	-0.01041	0.01149	0.03687	0.00684	-0.02501	0.16271	0.2075	0.36086	0.35419	0.32511	0.12467	-0.14646	-0.09457
-1.55045	0.03043	0.12372	0.87582	-0.65912	-0.07088	-0.03655	0.009	-0.06787	0.12069	-0.1243	0.21996	0.13822	0.0286	-0.27365	0.15585	-0.06972	0.10255	-0.03705
-1.53796	0.03559	0.14219	0.8928	-0.71293	-0.15062	-0.00281	0.23314	-0.02105	0.31397	-0.23779	0.2864	0.09935	0.00164	-0.3233	-0.04614	0.06214	0.10744	-0.00048
-0.21369	0.00041	0.09249	1.28758	-0.07557	-0.02	0	0.00089	0.00311	0.00009	-0.011	-0.01559	-0.01255	-0.0417	-0.0245	-0.03669	-0.01208	0.04519	-0.01629
0.71443	0.0062	0.11956	1.22343	0.29393	0.06265	0.03283	-0.07516	-0.08466	0.01678	0.06532	-0.07003	-0.05187	0.03318	0.09409	0.02819	0.00788	-0.09987	0.04806
-0.62633	0.00506	0.12573	1.25738	-0.26546	0.10949	-0.01345	-0.11354	0.01212	0.05072	0.08303	0.02996	-0.1082	-0.04069	0.04961	0.03901	-0.09628	-0.04862	-0.1237
-0.33679	0.00134	0.11655	1.30722	-0.13612	-0.03016	-0.03564	-0.0281	0.04298	-0.03893	0.03553	-0.0183	-0.06774	-0.05804	-0.04463	-0.04584	0.02769	0.00555	0.01688
0.9942	0.01134	0.11396	1.11858	0.39868	0.0806	0.02876	0.04571	-0.03787	0.08145	-0.11692	0.06212	0.19363	-0.0188	0.01836	0.06853	-0.07604	0.04578	-0.1055
-0.47683	0.00152	0.06999	1.21912	-0.14538	0.04145	-0.02408	-0.02998	0.04442	-0.01656	-0.01115	0.06409	0.02824	0.03017	0.01391	-0.02126	-0.02906	-0.04525	-0.04356
0.22624	0.00058	0.11253	1.31548	0.08952	0.0289	0.04716	0.00955	-0.02853	0.02003	-0.02311	-0.00001	-0.00482	0.0398	0.02489	0.01113	-0.03097	-0.00609	-0.00829
1.65103	0.03246	0.11761	0.8232	0.68214	0.29545	0.20737	0.22454	-0.00928	0.1958	0.04164	0.04603	-0.13763	-0.0862	0.03888	-0.19224	-0.16663	-0.23384	0.00619
-0.78273	0.00939	0.14422	1.23274	-0.36197	-0.04707	-0.08113	0.11794	-0.11211	0.00314	0.22138	-0.03773	0.07368	-0.02281	-0.02728	-0.04768	-0.04257	0.09946	-0.05791
1.02241	0.01537	0.13962	1.13453	0.46445	-0.08489	-0.19866	-0.0475	0.17729	0.05709	-0.09351	0.09703	-0.02905	0.18051	0.04407	-0.09647	0.19452	-0.00037	0.04915
0.33127	0.00139	0.12383	1.31883	0.13886	-0.00095	-0.02305	-0.01236	-0.01121	-0.00361	0.0157	-0.04927	0.03625	0.02342	0.04291	-0.01397	0.03123	-0.03696	0.04206
-0.35861	0.00201	0.14653	1.34899	-0.16702	0.00764	-0.02344	-0.03224	0.01393	0.0218	-0.03462	0.06069	-0.02373	0.03946	-0.05686	0.03445	-0.01712	-0.05673	0.05826
0.54262	0.00251	0.08768	1.22808	0.1866	-0.04055	0.00646	-0.00903	-0.01245	0.03577	0.00671	0.04587	-0.05291	-0.10917	-0.12156	-0.0648	0.03965	0.0511	0.04329
-1.31432	0.02511	0.13836	1.00103	-0.59628	-0.03361	0.10781	-0.05974	-0.1586	-0.10844	-0.16014	0.03421	-0.39111	-0.30465	-0.22622	-0.22131	-0.15326	0.2528	-0.15336
-1.33515	0.0147	0.0852	0.9508	-0.4561	0.09915	0.09896	0.1993	-0.2503	0.01059	-0.09774	-0.05808	0.06655	0.12497	0.12182	0.00436	-0.05447	-0.14128	-0.10217

0.51205	0.00711	0.2175	1.43146	0.3144	0.05008	0.16754	-0.01452	-0.15141	-0.10875	0.01342	0.0218	-0.00965	-0.01308	-0.07529	-0.09776	-0.14151	0.03012	0.06645
0.42924	0.00405	0.18868	1.40325	0.23726	-0.00215	0.04951	0.08093	0.04159	0.0799	0.0586	-0.03004	-0.04622	-0.0685	0.01221	-0.07258	-0.04066	0.06642	0.00637
-1.46087	0.01632	0.07944	0.89139	-0.48156	-0.0861	-0.03011	0.07911	-0.15965	-0.10926	0.14245	0.05643	0.08334	-0.07908	-0.08542	-0.17536	-0.10433	0.2097	-0.09854
-0.06741	0.00006	0.12942	1.35215	-0.02901	-0.01552	-0.00316	0.00378	0.015	-0.00144	0.00199	-0.00494	0.00246	-0.00556	0.00555	-0.00404	-0.00188	0.01945	0.00463
-0.53066	0.00587	0.18146	1.36584	-0.28553	-0.03206	-0.03557	0.05048	0.10625	0.11838	-0.00933	0.04564	-0.14739	0.07968	0.07852	-0.05178	0.02476	-0.04364	0.06643
0.52614	0.00334	0.11876	1.27353	0.21527	0.06369	-0.01424	0.01372	-0.03645	-0.01951	0.04726	-0.08335	-0.01798	-0.03413	-0.07881	0.07158	0.0121	-0.09309	0.02704
-0.16142	0.00017	0.0698	1.26018	-0.04909	0.0184	0.00231	-0.01563	0.00455	0.01141	0.01429	-0.00639	0.00236	0.00348	0.01624	0.00579	-0.0188	-0.01173	-0.01955
3.16928	0.15422	0.14445	0.19908	1.56589	-0.01928	-0.46578	-0.15472	-0.22833	-0.75992	-0.17059	0.20226	-0.31699	-0.45915	-0.4826	-0.59917	0.28543	0.26096	-0.28025
-1.51916	0.03932	0.15649	0.91112	-0.74922	-0.56524	-0.21307	-0.10601	0.31652	0.10418	0.25288	-0.12984	0.05785	-0.02236	0.16736	-0.1864	0.26116	0.42984	0.25645
-0.743	0.00461	0.08611	1.17379	-0.25338	-0.01405	-0.00546	0.13626	0.00528	0.00063	0.04271	-0.07685	0.01537	-0.1164	-0.10807	-0.06763	-0.02674	-0.00586	0.03005
0.48	0.00077	0.03346	1.1737	0.10343	0.00717	0.02412	0.00191	-0.00115	0.01613	-0.02444	0.03371	-0.01884	0.01347	0.02846	0.01064	0.03102	0.0161	-0.04334
-0.31661	0.00044	0.04594	1.21387	-0.07849	-0.01401	-0.03508	0.0285	0.00241	0.02155	0.02471	-0.00428	0.02488	0.0224	0.0239	0.01524	0.00089	-0.01722	0.02746
-0.67949	0.0025	0.05672	1.15721	-0.18662	-0.02269	-0.0699	0.04592	0.04079	0.0596	0.00529	0.00527	-0.08253	0.03548	0.00452	-0.00772	0.00585	-0.04812	0.07023
-0.22236	0.00039	0.08221	1.27231	-0.07372	-0.04656	-0.01361	0.01132	0.01072	-0.00361	0.0045	-0.01968	0.00487	-0.02239	-0.01146	-0.01609	-0.00564	0.05191	0.02584
-0.6307	0.00375	0.09608	1.21735	-0.22834	0.00392	-0.06314	-0.0311	0.04614	0.03916	0.0205	0.12305	-0.1206	-0.04766	0.00859	-0.0389	-0.02107	-0.01922	0.00548

Appendix 14.4: EAS 33-2007

ST.RESID	COOK	LEV	COV	DIFFIT	DIFBETA0	DIFB1	DIFB2	DIFB3	DIFB4	DIFB5	DIFB6	DIFB7	DIFB8	DIFB9	DIFB10	DIFB11	DIFB12	DIFB13
0.4595	0.0091	0.2878	1.5861	0.3552	0.1218	-0.1265	-0.0031	0.0994	-0.0078	0.0663	0.0274	0.1427	-0.1395	-0.1707	-0.1230	-0.0491	-0.0772	-0.0653
0.7244	0.0041	0.0812	1.1743	0.2393	0.1117	0.0382	-0.0523	-0.0281	-0.0553	0.0654	-0.1335	-0.0271	0.0036	-0.0226	0.0498	-0.1572	0.0313	-0.0721
-1.2703	0.0718	0.2933	1.1673	-1.0101	0.0220	-0.7171	0.0988	0.2630	-0.0245	0.5743	-0.0417	-0.2080	-0.0460	-0.1752	0.1232	0.2532	-0.1996	-0.1452
1.8018	0.0574	0.1608	0.7604	0.9109	0.4005	0.5213	-0.1365	-0.1332	-0.0638	-0.6355	-0.0241	-0.2564	0.1037	0.1238	0.1995	-0.3043	-0.3434	0.0379
0.1998	0.0008	0.1785	1.4268	0.1062	0.0044	0.0226	-0.0107	0.0419	-0.0232	-0.0343	-0.0469	-0.0122	-0.0151	-0.0052	0.0347	-0.0378	0.0351	0.0027
-1.1720	0.0105	0.0793	1.0140	-0.3845	0.1158	0.0000	-0.0511	-0.0256	0.0119	0.1058	-0.0312	0.0678	0.1612	0.2196	0.0628	-0.1401	-0.0925	-0.1224
0.4092	0.0023	0.1303	1.3170	0.1771	-0.0627	0.0115	-0.0671	0.0432	0.0286	-0.0690	-0.0193	-0.0578	-0.0164	0.0158	-0.0590	0.0539	0.0540	0.0544
0.7218	0.0097	0.1665	1.2850	0.3668	0.0604	0.0575	0.0909	-0.0909	0.1359	0.0899	0.1139	-0.0837	-0.1540	-0.1296	-0.1750	0.0623	-0.0153	-0.0937
1.5690	0.0284	0.1143	0.8589	0.6366	-0.1217	0.0607	-0.2715	0.2352	0.1585	0.0801	0.1029	-0.0289	0.0146	-0.0786	0.1345	0.0720	0.1374	0.1538
-1.4903	0.0327	0.1396	0.9128	-0.6824	0.1033	0.1754	0.2091	-0.0047	0.1922	-0.0752	0.1350	-0.4733	-0.0457	0.0606	-0.1934	-0.0841	-0.1849	0.0200
0.0027	0.0000	0.0939	1.3019	0.0010	0.0001	0.0003	0.0000	-0.0001	-0.0001	0.0003	-0.0005	-0.0001	0.0002	0.0000	0.0000	-0.0001	0.0001	-0.0001
-0.1086	0.0002	0.1367	1.3642	-0.0484	0.0118	0.0037	-0.0045	0.0212	0.0312	-0.0051	0.0012	-0.0067	-0.0077	0.0095	0.0026	-0.0071	-0.0058	-0.0206
0.8675	0.0121	0.1499	1.2092	0.4118	0.0630	0.0848	-0.2522	0.0602	-0.0759	0.0976	-0.2028	-0.0862	-0.0948	-0.0996	-0.0116	-0.0672	0.0903	-0.0994
0.0946	0.0002	0.1550	1.3949	0.0457	-0.0037	-0.0111	0.0216	0.0000	0.0239	0.0072	-0.0159	-0.0076	-0.0018	-0.0086	-0.0050	0.0151	0.0019	-0.0003
1.2754	0.0132	0.0838	0.9742	0.4316	0.0053	-0.2130	0.1703	0.0445	-0.0349	0.1028	0.0942	-0.0281	-0.0808	0.0122	-0.0574	0.1647	0.0449	-0.1421
0.5246	0.0047	0.1553	1.3284	0.2541	-0.0488	0.0290	0.0915	-0.1889	-0.1346	0.0108	0.0152	0.0284	0.0385	0.0130	-0.0208	0.0420	0.0209	0.0790
-1.2401	0.0135	0.0898	0.9941	-0.4356	-0.1377	-0.1999	0.0861	0.1627	0.1397	0.1565	-0.0943	0.1073	-0.0138	-0.0700	0.0019	-0.0430	0.2092	-0.0275
0.5804	0.0046	0.1305	1.2778	0.2517	0.0274	-0.0424	-0.0906	-0.0631	-0.0243	-0.0323	0.0897	-0.0185	0.0900	0.0150	0.0401	0.0665	-0.1317	0.0890
-0.2484	0.0012	0.1736	1.4124	-0.1295	-0.0084	-0.0018	-0.0247	0.0122	0.0040	-0.0288	0.0009	-0.0640	0.0424	0.0698	0.0447	-0.0187	0.0298	-0.0271
1.3633	0.0290	0.1462	0.9813	0.6415	-0.2281	-0.1919	-0.1683	0.2647	0.1339	-0.2017	0.3741	-0.0139	0.1806	0.2811	0.1583	0.2809	0.1118	0.1541
-0.8831	0.0070	0.0914	1.1355	-0.3119	0.0179	-0.0916	-0.0246	0.0550	0.0051	0.0906	0.0310	0.0297	-0.1045	0.0698	0.0723	0.0936	-0.0218	-0.1840
0.5104	0.0021	0.0819	1.2293	0.1692	0.0403	0.0015	0.0099	0.0323	0.0054	0.0642	0.0167	-0.0103	-0.0553	-0.0211	0.0445	0.0090	0.0249	-0.0912
-0.7692	0.0037	0.0651	1.1429	-0.2266	0.0202	0.0539	-0.0059	-0.0927	0.0123	0.0145	0.0736	0.0310	-0.0454	0.0343	0.0136	-0.0637	-0.0321	0.0034
-0.5713	0.0021	0.0670	1.1970	-0.1705	0.0794	0.0418	0.0736	-0.0545	-0.0488	0.0065	-0.0502	-0.0003	-0.0806	-0.0341	-0.0370	-0.0687	-0.0349	-0.0980
-0.0692	0.0001	0.1690	1.4196	-0.0354	-0.0015	-0.0072	-0.0067	-0.0042	0.0059	0.0204	-0.0007	0.0109	0.0136	0.0053	0.0100	-0.0082	-0.0051	0.0105
0.4668	0.0035	0.1491	1.3331	0.2200	0.0186	-0.0075	0.0503	0.0486	0.0356	0.0295	0.1139	0.0020	0.0409	0.1109	0.0202	0.0459	0.0097	-0.0799
0.8272	0.0061	0.0906	1.1535	0.2906	-0.0116	-0.1580	-0.0885	0.1014	0.0806	0.1499	-0.0705	-0.0134	0.0540	0.0694	0.0921	0.0619	0.0508	-0.0515
-0.2955	0.0008	0.0962	1.2858	-0.1069	-0.0168	-0.0126	-0.0460	-0.0267	-0.0261	-0.0168	-0.0200	0.0066	0.0121	0.0049	-0.0124	-0.0174	-0.0072	0.0424
-1.2720	0.0112	0.0720	0.9666	-0.3971	0.0017	-0.0326	-0.0678	-0.0564	-0.1366	-0.0282	-0.0521	0.0209	-0.1978	-0.0538	0.0079	-0.0979	0.0121	0.0036
-0.5217	0.0031	0.1144	1.2701	-0.2088	0.0114	0.0708	-0.0224	0.0013	0.0719	-0.0266	0.0245	0.0239	0.0435	-0.0015	0.0813	0.0386	-0.0568	-0.0395
0.3519	0.0019	0.1427	1.3463	0.1612	0.0151	0.0469	0.0295	0.0271	-0.0619	-0.0204	-0.0540	-0.0247	-0.0480	-0.0018	-0.0293	-0.0636	0.0543	-0.0047

-0.6764	0.0142	0.2375	1.4115	-0.4455	0.0198	0.2960	0.0755	-0.0375	-0.0836	-0.2380	-0.0522	-0.0617	-0.0570	-0.0896	-0.2072	0.0413	-0.0561	-0.0601
0.5316	0.0034	0.1196	1.2750	0.2186	-0.0035	-0.0814	-0.0205	0.0295	0.0595	0.0707	0.0916	-0.0311	-0.0386	0.0100	-0.0906	-0.0234	0.0330	0.0368
1.5424	0.0158	0.0692	0.8468	0.4740	0.0145	-0.0063	0.1489	-0.0721	0.0580	0.0963	-0.2164	-0.0528	-0.0669	0.0625	0.0691	-0.1719	0.1554	0.0684
0.3986	0.0023	0.1365	1.3282	0.1775	-0.0208	-0.1025	-0.0669	0.0285	0.0363	0.0310	0.0518	-0.0197	0.0034	0.0252	-0.0266	-0.0067	0.0285	0.0497
1.9778	0.0512	0.1270	0.6614	0.8635	0.2991	-0.2068	0.0792	0.2213	-0.0444	0.1188	-0.2152	0.0038	0.4046	0.2734	0.3523	-0.2565	-0.3316	0.1575
0.9893	0.0108	0.1098	1.1160	0.3883	0.1843	-0.0576	-0.0357	-0.0352	-0.0923	0.1237	0.0450	-0.0174	-0.0916	0.1103	0.1301	-0.1701	0.0545	-0.2420
0.4311	0.0021	0.1106	1.2843	0.1691	0.0594	-0.0251	0.0451	-0.0139	-0.0707	0.0396	-0.0110	0.0189	0.0468	0.0702	0.0565	-0.0684	0.0137	-0.0599
-1.0432	0.0219	0.1771	1.1663	-0.5550	-0.3006	0.0870	0.0383	0.0421	0.0324	0.0535	-0.3156	-0.1112	0.0535	-0.0292	0.1274	0.0841	0.2516	0.1799
0.7873	0.0032	0.0534	1.1247	0.2103	-0.0105	-0.0109	0.0381	0.0465	-0.0039	-0.0447	-0.0125	-0.0150	0.0972	0.0941	0.0471	0.0671	0.0275	-0.0389
1.0353	0.0059	0.0573	1.0471	0.2869	-0.0609	-0.0577	0.0123	0.0695	0.0020	-0.0595	-0.0028	0.1454	0.0742	-0.0291	0.0228	0.1081	0.0575	0.0088
0.7683	0.0052	0.0900	1.1715	0.2687	0.1356	0.0273	0.0759	-0.0269	0.0158	-0.0523	-0.0334	-0.0777	0.0356	-0.0551	-0.0305	0.0549	-0.1857	-0.0466
-2.0137	0.0334	0.0850	0.6361	-0.6974	-0.0922	-0.0870	-0.0438	-0.0676	-0.0963	-0.0047	-0.2813	0.0276	-0.1486	-0.4535	-0.2427	-0.1273	-0.0709	0.3358
0.2081	0.0003	0.0778	1.2696	0.0670	0.0120	0.0095	0.0160	0.0023	0.0002	-0.0116	0.0287	-0.0063	-0.0134	-0.0066	0.0146	0.0150	0.0028	-0.0299
-0.1746	0.0006	0.1778	1.4280	-0.0925	0.0166	-0.0038	-0.0572	0.0054	-0.0360	-0.0079	0.0098	0.0015	0.0158	0.0160	-0.0201	-0.0241	-0.0135	-0.0127
0.1812	0.0003	0.0866	1.2843	0.0618	-0.0100	0.0233	0.0123	-0.0209	-0.0217	-0.0150	-0.0012	0.0014	-0.0055	0.0013	0.0254	0.0080	0.0162	0.0071
1.5756	0.0121	0.0509	0.8225	0.4161	-0.0541	-0.0374	-0.0097	0.0166	-0.0860	0.0034	-0.1459	0.2172	0.0731	-0.0490	0.0773	0.0885	0.1134	-0.0247
0.5604	0.0034	0.1083	1.2525	0.2172	-0.0081	0.0064	-0.0110	0.0059	-0.0281	0.0250	-0.0304	0.1436	-0.0322	0.0529	0.0697	0.0190	0.0821	-0.0840
-0.5692	0.0031	0.0966	1.2350	-0.2068	-0.0554	0.0176	0.0661	-0.1040	-0.0307	0.0064	-0.0070	0.0414	-0.0399	0.0290	0.0486	0.0708	-0.0060	0.0131
2.1556	0.0615	0.1283	0.5760	0.9514	0.2032	-0.1750	-0.0368	-0.0375	-0.4821	0.3873	-0.3958	-0.1340	-0.1869	0.0192	-0.1579	0.0306	-0.2134	0.0123
-0.8502	0.0106	0.1396	1.2031	-0.3855	-0.0408	0.0640	0.0599	-0.1858	-0.0349	0.1014	0.0384	0.1067	0.0882	0.1798	-0.0026	-0.0996	0.1237	-0.0748
0.3273	0.0011	0.1047	1.2935	0.1243	0.0424	-0.0130	0.0220	-0.0087	0.0047	-0.0109	0.0022	0.0282	-0.0323	-0.0091	-0.0460	0.0355	-0.0509	-0.0385
0.6196	0.0056	0.1383	1.2779	0.2787	0.0488	-0.0555	-0.0516	-0.0446	0.0819	0.0290	-0.0672	-0.0542	0.0517	0.0042	-0.0290	-0.0597	-0.0008	0.0055
-1.1229	0.0202	0.1490	1.0995	-0.5328	0.0047	0.0136	0.0127	0.0334	-0.0581	0.0906	-0.0020	0.1324	0.0223	-0.2734	0.0560	-0.1383	-0.0877	0.1682
0.9226	0.0067	0.0813	1.1108	0.3056	0.0780	-0.0269	0.0787	-0.0156	-0.0179	-0.0581	0.0097	-0.0558	0.0499	-0.0766	-0.1332	-0.0719	-0.0204	0.0041
-0.4057	0.0015	0.0943	1.2662	-0.1452	0.0489	0.0107	-0.0056	0.0705	-0.0232	-0.0023	-0.0608	0.0032	-0.0298	0.0037	0.0248	-0.0584	-0.0051	-0.0750
1.2665	0.0220	0.1320	1.0170	0.5577	-0.0838	0.1319	0.0810	-0.0990	-0.0363	-0.2196	0.0329	0.3470	0.1164	0.1435	0.1511	-0.1132	0.1625	0.1470
0.8541	0.0144	0.1747	1.2462	0.4491	0.0054	0.1002	0.1389	-0.1474	-0.0099	-0.0137	0.2024	0.0336	0.2040	0.1145	-0.0847	-0.0823	-0.0193	0.1479
0.2498	0.0005	0.0887	1.2807	0.0863	0.0069	0.0132	-0.0518	0.0297	0.0087	-0.0353	0.0084	-0.0216	-0.0056	-0.0088	0.0253	0.0125	0.0115	-0.0227
-0.6822	0.0105	0.1916	1.3356	-0.3821	0.1076	0.0807	-0.2661	0.1221	-0.1517	-0.0772	-0.0341	-0.0387	-0.0848	-0.0460	-0.0626	-0.1482	-0.0118	-0.1234
-0.5914	0.0038	0.1083	1.2448	-0.2294	-0.0514	0.0287	0.0488	-0.0971	-0.0166	0.0122	-0.0399	0.0202	-0.0965	-0.0041	0.0301	0.0662	0.0063	-0.0012
2.2697	0.0921	0.1622	0.5231	1.1700	-0.0216	0.1444	-0.0069	0.2193	0.3969	-0.0029	0.1305	0.5739	-0.0290	-0.0391	-0.3023	0.2507	-0.2273	0.2577
-0.8967	0.0060	0.0771	1.1154	-0.2887	-0.0910	0.0641	-0.0015	-0.0780	-0.0040	-0.0447	-0.0385	0.0369	-0.0454	0.0541	0.0999	0.0959	0.0063	0.0264
-1.1447	0.0141	0.1077	1.0503	-0.4451	0.0780	0.2312	-0.0152	-0.1494	-0.1497	-0.1584	-0.1314	-0.2366	0.0095	-0.0106	-0.0121	0.0399	-0.1274	-0.1202
0.9825	0.0265	0.2191	1.2466	0.6098	0.1127	0.0514	-0.3356	-0.0666	-0.3157	0.1075	0.0589	0.0349	-0.0741	-0.0052	0.2106	-0.2815	0.1183	-0.0295

0.9417	0.0089	0.1018	1.1256	0.3535	0.1607	0.0547	0.1406	-0.0295	-0.0180	-0.0207	0.1179	0.1323	0.0116	0.0188	0.0134	-0.1044	-0.1540	0.0132
-0.2376	0.0006	0.1059	1.3066	-0.0908	-0.0290	0.0046	-0.0377	0.0472	-0.0146	0.0065	-0.0293	0.0054	-0.0120	0.0030	-0.0041	0.0153	0.0142	0.0129
.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
0.9857	0.0093	0.0973	1.1045	0.3609	-0.0517	-0.0833	0.0115	0.0262	0.0947	-0.1187	0.0283	-0.0655	-0.0034	-0.1506	-0.0657	-0.0142	0.0326	0.1898
-0.5882	0.0063	0.1647	1.3252	-0.2964	-0.2087	0.0533	-0.0586	0.0297	-0.0832	-0.1014	0.0433	0.0606	0.0473	-0.0394	-0.0703	0.0877	0.1334	0.1487
-0.6603	0.0061	0.1343	1.2604	-0.2917	-0.0500	0.1041	-0.0047	-0.0755	-0.1124	-0.0339	0.0102	-0.1204	-0.1318	-0.0339	-0.0927	0.0388	0.1085	-0.1078
-0.4207	0.0016	0.0920	1.2604	-0.1486	-0.0637	0.0002	0.0767	-0.0236	0.0547	-0.0409	0.0484	0.0177	0.0043	0.0250	-0.0058	0.0921	-0.0211	0.0408
-0.3003	0.0007	0.0847	1.2692	-0.1013	0.0022	-0.0232	-0.0107	0.0004	-0.0347	0.0600	-0.0330	0.0193	-0.0082	-0.0179	-0.0133	0.0138	-0.0143	-0.0238
-0.9384	0.0237	0.2164	1.2645	-0.5767	-0.0116	0.0333	0.0043	0.0505	-0.0183	-0.0640	0.1385	0.1800	0.3686	0.4429	0.4207	0.1000	-0.0875	-0.1333
-0.6896	0.0046	0.0981	1.2048	-0.2529	-0.0530	0.0014	0.0348	-0.0167	0.0212	-0.0573	0.0762	0.0810	0.0424	-0.0287	0.0891	-0.0304	0.0755	-0.0161
0.0865	0.0001	0.1521	1.3904	0.0413	0.0086	-0.0004	-0.0181	-0.0035	-0.0123	0.0111	-0.0111	-0.0056	0.0038	0.0172	0.0054	-0.0009	-0.0088	-0.0001
-1.2093	0.0140	0.0971	1.0134	-0.4436	-0.0677	0.0653	-0.0005	-0.1101	-0.0672	0.0012	-0.1973	-0.0014	-0.2216	-0.1291	-0.1539	-0.1285	0.2414	-0.1077
-1.4016	0.0170	0.0891	0.9223	-0.4915	-0.1049	0.0246	-0.1548	0.0070	-0.0915	-0.1636	0.1261	0.0948	-0.0117	-0.1716	-0.0014	-0.0995	0.1821	-0.0141
-0.9272	0.0136	0.1476	1.1828	-0.4361	0.1867	0.0513	-0.0440	-0.0436	0.1382	0.0211	0.1986	-0.1920	-0.1443	-0.0491	-0.1143	-0.0804	-0.1502	-0.1904
0.1902	0.0003	0.0892	1.2871	0.0660	0.0172	0.0187	0.0098	-0.0195	0.0197	-0.0158	0.0115	0.0223	0.0185	0.0248	0.0138	-0.0201	0.0042	-0.0149
1.1428	0.0154	0.1168	1.0596	0.4662	0.1608	0.1063	-0.0223	0.0348	0.1111	-0.1868	-0.0891	-0.1981	-0.2023	-0.0687	-0.0663	-0.1329	0.0633	-0.1830
-2.1917	0.0488	0.1026	0.5574	-0.8474	-0.1411	-0.2619	0.1326	0.2332	0.2002	-0.1643	0.5202	0.1306	0.3058	0.1606	-0.0897	0.4827	-0.2834	-0.0394
-0.4630	0.0023	0.1074	1.2733	-0.1785	-0.0730	-0.1085	-0.0019	0.0544	-0.0221	0.0387	0.0338	0.0387	-0.0294	0.0067	0.0086	0.0882	0.0049	0.0289
-0.9128	0.0132	0.1481	1.1892	-0.4302	-0.2142	-0.0417	-0.1228	-0.1003	0.0289	-0.1111	0.1121	0.0999	0.1298	0.0321	0.1142	0.1671	0.1156	0.0551
-1.0015	0.0076	0.0790	1.0801	-0.3271	-0.0815	0.0001	0.0953	-0.1669	0.0284	0.0234	0.0448	0.0784	0.0258	-0.0053	-0.0753	-0.0419	0.1104	-0.0086
-0.6083	0.0084	0.1931	1.3627	-0.3423	0.0739	0.1365	0.0752	-0.1045	-0.0045	0.1003	-0.0820	0.0107	-0.1927	-0.0210	0.0328	-0.1281	0.0169	-0.0955
0.4563	0.0030	0.1367	1.3167	0.2035	-0.0174	-0.0302	0.0033	-0.0182	0.0487	-0.0160	-0.0361	0.0373	0.0361	0.0480	-0.0397	0.0703	-0.0534	0.0695
-0.6060	0.0069	0.1689	1.3262	-0.3106	-0.0165	-0.0491	-0.0686	0.0831	0.0094	-0.1020	0.1300	-0.0532	0.0762	-0.1008	0.0317	-0.0061	-0.0912	0.1224
0.5413	0.0031	0.1047	1.2523	0.2057	-0.0578	-0.0561	-0.0122	0.0887	0.0788	0.0293	0.0330	-0.0404	-0.0962	-0.1153	-0.0547	0.0741	0.0476	0.0542
-1.1923	0.0152	0.1074	1.0296	-0.4633	-0.1962	-0.0264	-0.0286	0.0126	0.0100	-0.1609	0.0585	-0.2693	-0.0253	-0.0664	-0.1304	0.2091	0.1254	-0.0095
-1.9310	0.0337	0.0926	0.6760	-0.6995	-0.1194	-0.0429	-0.0478	-0.1550	0.1608	-0.1352	-0.0580	-0.0170	0.1547	-0.0112	-0.1907	0.3152	-0.2026	0.0516
0.9830	0.0226	0.1968	1.2181	0.5633	-0.0614	0.2249	0.0854	-0.3039	-0.1704	0.0643	-0.0030	-0.0159	0.0051	-0.1590	-0.2548	0.0129	0.0304	0.1924
0.8294	0.0150	0.1873	1.2731	0.4577	-0.0819	0.0099	0.0512	0.1345	0.2919	0.1473	-0.0043	-0.0908	-0.1124	0.0114	-0.1242	0.0969	0.1027	0.0381
-1.1480	0.0134	0.1024	1.0442	-0.4337	-0.0635	-0.0353	0.1730	-0.1071	-0.1605	0.1661	-0.0839	0.1266	-0.0754	-0.0807	-0.1099	-0.1211	0.1887	-0.0775
-0.3335	0.0016	0.1348	1.3372	-0.1473	-0.0754	-0.0262	-0.0530	0.0877	0.0365	0.0105	-0.0071	0.0330	0.0133	0.0451	0.0454	-0.0190	0.0938	0.0300
0.2652	0.0009	0.1224	1.3280	0.1104	0.0224	0.0202	-0.0249	-0.0428	-0.0317	-0.0111	-0.0045	-0.0221	-0.0534	-0.0353	0.0127	0.0044	0.0123	-0.0429
0.4815	0.0027	0.1156	1.2809	0.1939	0.0509	0.0013	-0.0365	-0.0236	-0.0294	0.0297	-0.0770	-0.0381	-0.0542	-0.0839	0.0355	0.0080	-0.0673	0.0221
0.1882	0.0002	0.0677	1.2575	0.0564	-0.0203	-0.0018	0.0088	-0.0061	-0.0184	-0.0130	0.0111	-0.0049	-0.0036	0.0109	-0.0098	0.0218	0.0173	0.0148
-1.1422	0.0273	0.1820	1.1239	-0.6205	-0.0477	0.0511	0.0377	0.2288	0.3567	0.0598	0.0377	0.1263	0.2921	0.1794	0.2327	-0.0840	-0.0739	0.1499

0.1192	0.0003	0.1598	1.4015	0.0587	0.0436	0.0183	0.0090	-0.0207	0.0007	-0.0211	0.0151	-0.0122	0.0028	-0.0031	0.0124	-0.0179	-0.0367	-0.0204
-0.5296	0.0030	0.1082	1.2598	-0.2052	0.0202	0.0065	0.1203	-0.0130	0.0301	0.0329	-0.0554	-0.1030	-0.0373	0.0096	-0.0289	-0.0330	-0.0330	0.0038
-0.1748	0.0002	0.0645	1.2543	-0.0511	0.0045	-0.0050	0.0033	0.0000	-0.0055	0.0038	-0.0120	-0.0344	-0.0162	-0.0195	-0.0191	-0.0119	-0.0115	0.0109
-0.3953	0.0011	0.0739	1.2405	-0.1240	-0.0077	-0.0247	0.0462	-0.0507	-0.0396	0.0376	-0.0118	0.0482	0.0275	0.0430	0.0361	-0.0269	-0.0131	0.0241
-0.3256	0.0008	0.0800	1.2594	-0.1065	-0.0013	-0.0278	0.0132	0.0297	0.0309	-0.0091	0.0151	-0.0652	0.0138	0.0225	-0.0043	-0.0025	-0.0277	0.0213
0.0933	0.0001	0.1007	1.3100	0.0346	0.0208	0.0118	-0.0049	-0.0061	-0.0003	-0.0094	0.0114	-0.0075	0.0098	0.0091	0.0079	0.0027	-0.0231	-0.0128
-0.2775	0.0010	0.1233	1.3278	-0.1161	0.0093	-0.0172	-0.0044	0.0113	0.0244	-0.0061	0.0627	-0.0539	-0.0437	-0.0493	-0.0457	-0.0023	-0.0324	0.0143

Appendix 14.5: Voluntary Risk Reporting-2006

ST RESID	COOK	LEV	COV	DIFF	DIFB0	DIFB1	DIFB2	DIFB3	DIFB4	DIFB5	DIFB6	DIFB7	DIFB8	DIFB9	DIFB10	DIFB11	DIFB12	DIFB13	DIFB14
.	.	0.5462	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
-0.3614	0.0016	0.1186	1.5114	-0.1517	-0.0795	-0.0140	-0.0252	-0.0018	-0.0495	-0.0098	0.0487	0.0085	-0.0055	0.0182	-0.0411	0.0855	0.0134	0.0264	0.0799
.	.	0.3351	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
.	.	0.3138	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
0.7903	0.0304	0.3131	1.5236	0.6750	-0.0774	0.3105	-0.0600	0.0731	-0.1374	-0.3607	-0.1720	-0.2298	-0.0107	0.0508	0.1568	-0.1192	0.1705	0.1045	0.1691
0.7924	0.0174	0.2241	1.3907	0.5098	0.0157	0.0296	-0.0208	0.1404	0.2244	-0.1904	0.1334	-0.1386	-0.1844	-0.2417	0.0314	-0.0298	0.0200	0.1709	-0.1577
-1.2934	0.1018	0.3506	0.9263	-1.2581	0.3621	-0.3296	0.2456	0.0087	-0.0485	0.4750	0.1744	0.4029	0.1090	-0.4742	0.3753	-0.2433	-0.4699	-0.2823	0.0575
-1.6653	0.1261	0.3018	0.5331	-1.4226	0.0324	-0.1423	-0.2579	0.4282	-0.3682	-0.0708	-0.6759	0.1978	0.6442	0.6430	0.7443	-0.1315	-0.2174	0.4213	-0.0104
0.0508	0.0001	0.1880	1.7207	0.0285	0.0007	-0.0016	-0.0153	0.0078	0.0060	0.0073	0.0055	0.0030	0.0012	-0.0015	0.0097	-0.0035	-0.0001	0.0108	-0.0015
.	.	0.1745	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
0.0359	0.0001	0.3156	2.0501	0.0306	-0.0001	-0.0077	0.0111	0.0143	0.0114	0.0115	-0.0094	0.0097	0.0085	0.0047	-0.0007	0.0129	-0.0061	-0.0011	0.0020
0.2628	0.0008	0.1117	1.5334	0.1065	-0.0235	-0.0357	-0.0463	-0.0092	-0.0282	0.0351	0.0101	0.0054	0.0189	0.0014	0.0140	0.0217	0.0037	0.0557	0.0209
1.2253	0.0207	0.1336	0.9192	0.5617	0.0560	0.1021	-0.2601	0.0204	-0.1192	0.1382	-0.1765	0.0206	-0.0429	0.0316	-0.0101	-0.0016	0.0504	-0.1268	0.0455
-0.2203	0.0014	0.2261	1.7733	-0.1415	0.0038	0.0023	-0.0537	0.0710	-0.0349	-0.0038	0.0544	0.0220	-0.0155	0.0074	-0.0086	-0.0387	0.0043	0.0029	0.0150
.	.	0.2484	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
1.0164	0.0157	0.1443	1.1062	0.4857	-0.2141	0.0200	0.1540	-0.2740	-0.1615	0.0127	0.0506	-0.0452	0.0804	0.1317	-0.0775	0.2132	0.1500	0.0950	0.1133
1.6682	0.0588	0.1861	0.5543	0.9652	0.2804	0.2447	-0.2244	-0.1310	-0.3429	-0.1658	-0.0258	-0.0914	0.0637	0.2651	0.0694	0.0826	-0.3459	0.2048	-0.0111
-0.1027	0.0002	0.1714	1.6804	-0.0541	0.0171	0.0154	0.0185	0.0136	0.0197	-0.0116	0.0002	0.0043	-0.0163	-0.0269	-0.0192	-0.0114	-0.0143	-0.0181	-0.0074
.	.	0.4445	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
.	.	0.2146	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
0.5988	0.0114	0.2447	1.5925	0.4111	0.0742	-0.0825	-0.0689	0.2619	0.2225	-0.0464	0.0993	-0.0009	0.0396	-0.0712	0.0028	-0.1235	-0.0535	0.2077	-0.1338
0.8750	0.0068	0.0910	1.1718	0.3197	0.0277	0.0109	0.0506	-0.0281	-0.0671	0.0791	0.0423	0.0066	-0.0747	-0.0619	0.0342	0.0284	0.0467	-0.1689	0.0135
0.0895	0.0002	0.2037	1.7516	0.0532	0.0019	-0.0025	-0.0314	0.0191	-0.0072	0.0017	-0.0251	-0.0014	0.0108	0.0136	0.0095	0.0048	0.0001	0.0030	0.0021
.	.	0.0925	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
.	.	0.2791	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
1.5543	0.0489	0.1802	0.6468	0.8750	-0.0186	-0.0792	0.2035	0.1768	0.0867	0.1001	0.5220	0.0317	-0.2295	-0.2575	-0.1852	0.1531	0.1109	-0.3666	0.0798
0.3649	0.0015	0.1153	1.5044	0.1507	0.0085	-0.0808	0.0156	-0.0033	0.0409	0.0961	-0.0444	0.0169	0.0046	-0.0002	0.0172	0.0489	-0.0157	-0.0158	-0.0049
0.9077	0.0131	0.1496	1.2032	0.4425	0.0055	0.1129	0.2212	0.0644	0.0649	-0.0503	0.0993	0.0106	-0.0575	-0.1021	-0.0557	0.0944	0.0356	-0.1851	0.0080
.	.	0.1153	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
-0.1953	0.0024	0.3543	2.1365	-0.1869	0.0267	0.0366	-0.0204	0.0205	0.0165	0.0205	-0.0847	0.0030	-0.0759	-0.0026	0.0152	0.0021	-0.0036	-0.0645	-0.0152

.	.	0.2632	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
.	.	0.4343	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
.	.	0.3748	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
.	.	0.2395	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
.	.	0.3802	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
.	.	0.2451	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
-0.3141	0.0052	0.3269	1.9909	-0.2773	-0.0704	0.1525	0.0655	-0.0791	0.0282	-0.1326	-0.0132	0.0102	0.0684	-0.0796	-0.0631	0.0963	-0.0614	0.0947	0.0804
-0.8094	0.0151	0.1980	1.3414	-0.4752	-0.0642	0.1210	-0.0384	0.0149	0.2094	-0.1408	0.0750	-0.0097	-0.1004	-0.2510	-0.1138	0.1001	-0.1085	0.1777	0.0489
1.3365	0.1449	0.3997	0.8746	1.5074	0.8207	-0.4837	-0.2487	0.3314	-0.0245	0.2990	0.5345	0.6107	-0.4304	-0.0644	-0.4622	-0.3149	-0.4838	-0.3195	-0.3787
-1.2677	0.0106	0.0672	0.8561	-0.4017	0.0497	-0.1429	-0.1246	0.0049	0.0182	0.2031	0.0413	0.1067	0.0186	0.0730	0.1397	-0.1616	-0.0619	0.1097	-0.0294
0.3400	0.0020	0.1581	1.5890	0.1701	0.0130	-0.0153	-0.0543	0.0649	0.0316	0.0061	-0.0228	0.1093	0.0344	0.0095	0.0146	0.0338	-0.0174	0.0119	-0.0103
.	.	0.1959	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
0.3689	0.0013	0.0972	1.4737	0.1387	-0.0407	0.0333	0.0239	-0.0134	-0.0194	-0.0183	0.0375	-0.0131	0.0229	0.0547	-0.0296	0.0548	0.0555	-0.0628	0.0340
-0.8528	0.0119	0.1531	1.2522	-0.4212	0.0749	-0.1120	-0.0848	0.0439	0.0650	0.1292	-0.1349	0.0873	-0.0389	-0.1380	-0.0892	-0.0685	-0.1747	0.2013	-0.0177
-0.2894	0.0039	0.3041	1.9405	-0.2386	-0.0243	0.0386	-0.0446	-0.0498	0.0847	-0.0358	0.0879	-0.0061	0.0749	0.0553	-0.0574	-0.0128	0.0084	-0.0195	0.0297
.	.	0.1452	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
.	.	0.1253	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
.	.	0.2593	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
-0.8393	0.0079	0.1124	1.2194	-0.3441	-0.1411	-0.0531	0.0322	-0.1151	-0.0075	0.0253	0.0944	0.0094	-0.0089	0.0198	0.0553	0.1556	0.0100	0.0558	0.1011
.	.	0.4600	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
.	.	0.2570	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
0.0559	0.0001	0.2969	1.9927	0.0450	0.0149	0.0005	0.0089	0.0060	0.0040	-0.0084	-0.0085	-0.0087	-0.0148	-0.0002	-0.0220	0.0135	-0.0152	-0.0086	-0.0061
0.9034	0.0252	0.2402	1.3032	0.6150	0.1875	-0.0947	-0.2309	-0.1030	0.1900	0.0364	-0.0363	-0.1346	0.0156	-0.0490	0.0761	-0.2852	-0.0023	0.0470	-0.2284
.	.	0.3319	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
1.6339	0.0478	0.1645	0.5831	0.8676	0.2625	0.2112	0.3031	-0.1247	-0.1029	-0.2440	-0.4693	-0.1481	0.0883	-0.0513	-0.0283	-0.2368	-0.0252	-0.1140	-0.2709
0.6492	0.0081	0.1739	1.4374	0.3473	-0.1169	0.0089	-0.0260	-0.1613	0.1039	-0.0024	0.1001	-0.0544	0.0915	0.0792	0.0186	0.0761	0.0773	0.1448	0.0114
1.1967	0.0630	0.2963	1.0252	0.9835	0.1391	0.2928	0.0508	-0.1931	0.0339	-0.2965	-0.0921	0.4133	0.0820	0.1883	0.1727	-0.3261	0.1526	0.2383	-0.4273
0.8621	0.0190	0.2121	1.3108	0.5330	0.0763	0.2292	0.0807	-0.2906	-0.2245	-0.0329	-0.1413	-0.0010	0.1185	-0.0163	0.0577	-0.2070	0.0142	0.1190	-0.0613
-0.4320	0.0041	0.1897	1.6037	-0.2445	-0.0155	-0.0773	0.1244	-0.0364	-0.0341	0.1227	-0.0728	0.0808	0.0030	0.0182	-0.0887	0.0516	-0.0496	0.0287	0.0389
0.2531	0.0037	0.3429	2.0728	0.2341	-0.0347	-0.0689	0.1379	-0.0408	0.1007	0.0567	-0.0320	0.0162	0.0633	0.0305	0.0677	0.0843	-0.0169	0.0704	-0.0264
0.4849	0.0029	0.1228	1.4616	0.2081	0.0410	0.0128	-0.0376	0.0313	-0.0132	-0.0200	0.0606	-0.0016	0.0716	0.0189	-0.0142	-0.0777	0.0142	-0.0313	-0.0138
.	.	0.4732	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
-0.8743	0.0086	0.1118	1.1924	-0.3576	-0.1349	-0.0395	-0.0809	0.0019	0.1110	-0.0100	0.1359	0.0146	0.0457	0.0578	0.1105	0.1254	-0.0025	0.1114	0.0797

-1.5530	0.0474	0.1764	0.6479	-0.8616	-0.1341	0.3563	0.1511	-0.1567	-0.1529	-0.1719	-0.2278	0.1553	0.2518	-0.0757	-0.0597	0.3726	-0.2095	-0.1722	0.3788
.	.	0.3120	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
-0.4154	0.0048	0.2234	1.6790	-0.2649	-0.0762	-0.0294	-0.0482	-0.0007	0.0909	0.0025	0.0349	0.0161	0.0292	0.0235	0.0379	-0.0103	0.1151	-0.0275	-0.1215
-0.1219	0.0004	0.2156	1.7736	-0.0755	0.0136	0.0031	-0.0149	0.0032	-0.0177	0.0195	-0.0383	0.0224	-0.0046	0.0179	0.0022	-0.0032	-0.0126	0.0133	-0.0368
-0.1861	0.0010	0.2355	1.8054	-0.1234	0.0021	-0.0176	0.0008	0.0379	0.0367	-0.0065	0.0395	0.0327	0.0037	-0.0285	-0.0487	0.0221	-0.0381	0.0466	-0.0427
.	.	0.1611	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
1.7655	0.1125	0.2645	0.4613	1.3478	0.4708	-0.6127	-0.0051	0.0689	0.3711	0.3910	0.1137	-0.1454	0.1275	0.1915	0.3198	0.0494	-0.5794	-0.1584	0.3578

Appendix 14.6: Voluntary Risk Reporting-2007

ST RESID	COOK	LEV	COV	DIFF	DIFB0	DIFB1	DIFB2	DIFB3	DIFB4	DIFB5	DIFB6	DIFB7	DIFB8	DIFB9	DIFB10	DIFB11	DIFB12	DIFB13	DIFB14
.	.	0.4021	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
0.6289	0.0058	0.1419	1.3649	0.2927	0.1710	0.0518	-0.0322	-0.0508	-0.0485	0.0348	-0.1447	-0.0451	0.0040	-0.0183	0.0814	-0.2199	-0.0145	-0.0765	-0.1250
.	.	0.4134	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
.	.	0.2748	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
0.0795	0.0003	0.3129	1.9325	0.0669	-0.0061	0.0151	-0.0086	0.0188	-0.0191	-0.0222	-0.0194	-0.0096	-0.0040	0.0033	0.0197	-0.0119	0.0210	0.0084	0.0142
.	.	0.1243	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
-0.1688	0.0010	0.2682	1.7975	-0.1238	0.0288	-0.0310	0.0272	-0.0171	-0.0178	0.0614	0.0121	0.0326	0.0099	-0.0319	0.0398	-0.0216	-0.0407	-0.0331	0.0161
0.5125	0.0071	0.2233	1.5609	0.3253	0.0392	0.0066	0.0811	-0.0653	0.1085	0.0806	0.0852	-0.0322	-0.1461	-0.1296	-0.1594	0.0627	-0.0273	-0.0894	0.0041
0.3064	0.0022	0.2015	1.6105	0.1799	-0.0481	-0.0170	-0.0978	0.0735	0.0328	0.0312	0.0524	0.0057	0.0168	-0.0258	0.0579	0.0151	0.0451	0.0683	0.0127
0.6284	0.0098	0.2108	1.4702	0.3825	-0.0605	-0.1233	-0.1140	0.0290	-0.0771	0.0853	-0.0148	0.2878	-0.0140	-0.0773	0.0590	0.0494	0.0818	0.0177	0.0318
0.0909	0.0001	0.1321	1.5230	0.0403	0.0030	0.0117	0.0040	-0.0086	-0.0056	0.0075	-0.0201	-0.0052	0.0080	0.0011	-0.0023	0.0006	-0.0001	-0.0085	0.0029
-0.4813	0.0049	0.1869	1.5116	-0.2682	0.0788	0.0469	0.0044	0.0691	0.1646	-0.0543	-0.0119	-0.0402	-0.0258	0.0696	-0.0046	-0.0469	-0.0429	-0.1134	-0.0500
1.6259	0.0550	0.1859	0.6655	0.9274	0.0620	0.0983	-0.5324	0.1015	-0.1939	0.2289	-0.3813	-0.1559	-0.1545	-0.1739	0.0195	-0.0542	0.1206	-0.2028	0.0780
1.2485	0.0459	0.2350	0.9954	0.8374	0.0863	-0.1630	0.4528	-0.0358	0.4416	0.1178	-0.3169	-0.1627	-0.0867	-0.1256	-0.1360	0.1813	-0.1174	-0.0848	-0.1152
-1.2052	0.0211	0.1416	0.9752	-0.5663	0.0491	0.3146	-0.1935	-0.1295	0.0145	-0.2020	-0.1010	0.0179	0.1531	0.0307	0.1363	-0.2243	-0.0661	0.1659	-0.0866
1.1095	0.0265	0.1905	1.0847	0.6335	-0.1251	0.0969	0.1963	-0.4345	-0.3394	-0.0087	0.0013	0.0410	0.0673	0.0535	-0.0276	0.0923	0.0888	0.1636	0.0601
1.3081	0.0322	0.1729	0.9122	0.7021	0.2776	0.4166	-0.0895	-0.3032	-0.2049	-0.3822	0.0396	-0.2310	0.0095	0.1180	0.0283	-0.0267	-0.3211	-0.0068	-0.1114
-0.9013	0.0214	0.2187	1.2828	-0.5667	-0.0894	0.0995	0.2328	0.0931	0.0122	0.0171	-0.1956	0.0653	-0.1879	-0.0060	-0.1789	-0.1012	0.2975	-0.1716	-0.0327
.	.	0.2644	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
.	.	0.2053	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
0.5263	0.0058	0.1869	1.4891	0.2934	0.0626	0.1292	0.0296	-0.0504	-0.0027	-0.1396	-0.0304	-0.0303	0.0585	-0.0484	-0.0364	-0.1556	0.0097	0.1421	-0.1516
0.9730	0.0114	0.1211	1.1272	0.4137	0.0434	-0.0897	-0.0182	0.1007	-0.0043	0.1887	0.0611	-0.0121	-0.1227	-0.1006	0.1096	0.0341	0.0347	-0.1685	0.0398
1.0504	0.0092	0.0875	1.0468	0.3729	-0.0234	-0.0715	0.0401	0.1529	-0.0145	-0.0135	-0.1022	-0.0670	0.0414	-0.0666	-0.0657	0.1061	0.0156	-0.0180	0.0076
1.2870	0.0205	0.1241	0.9045	0.5593	-0.2795	-0.1774	-0.3075	0.2253	0.1576	0.0420	0.2247	0.0178	0.2635	0.1227	0.1840	0.1813	0.1711	0.3515	0.0816
.	.	0.2687	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
0.9282	0.0206	0.2047	1.2450	0.5558	-0.0766	-0.0601	0.0743	0.1469	0.0763	0.0786	0.2546	-0.0044	0.1079	0.2709	0.0059	0.1552	0.1078	-0.1717	0.1031
0.1383	0.0004	0.1747	1.5972	0.0734	-0.0120	-0.0498	-0.0227	0.0277	0.0233	0.0486	-0.0076	-0.0021	0.0161	0.0181	0.0242	0.0208	0.0085	-0.0080	0.0172
0.2270	0.0006	0.1195	1.4813	0.0949	0.0111	0.0038	0.0367	0.0242	0.0165	0.0120	0.0154	-0.0079	-0.0151	-0.0166	0.0033	0.0122	0.0021	-0.0341	-0.0024
.	.	0.0853	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
.	.	0.1819	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.

.	.	0.2436	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
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.	.	0.1857	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
.	.	0.1474	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
0.6122	0.0149	0.2820	1.6089	0.4710	-0.0428	-0.2645	-0.1718	0.1393	0.1362	0.1179	0.1447	0.0048	0.0006	0.0762	-0.0090	-0.0605	0.1191	0.1562	-0.0693
.	.	0.1912	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
-0.2637	0.0015	0.1917	1.6041	-0.1493	-0.0647	0.0278	0.0158	0.0061	0.0217	-0.0398	-0.0115	0.0092	0.0301	-0.0359	-0.0538	0.0763	-0.0183	0.0683	0.0386
0.6180	0.0071	0.1705	1.4127	0.3238	0.1209	-0.0332	0.0813	-0.0173	-0.1070	0.0524	-0.0414	-0.0016	0.0655	0.1154	0.0977	-0.1627	0.0239	-0.1045	-0.0800
1.7731	0.1573	0.3195	0.5356	1.5896	0.9214	-0.1105	0.0219	-0.0680	0.0295	-0.2134	0.6583	0.3870	-0.3809	-0.1706	-0.4871	-0.4223	-0.6550	-0.4539	-0.4782
1.8156	0.0262	0.0833	0.5351	0.6425	-0.0295	0.0849	0.1409	0.0778	-0.0084	-0.2035	-0.0717	-0.1444	0.2605	0.3202	0.0618	0.1641	0.0703	-0.1380	-0.0015
1.1865	0.0113	0.0841	0.9533	0.4138	-0.0594	-0.0483	0.0335	0.1024	0.0126	-0.0814	0.0306	0.2197	0.0338	-0.0938	-0.0579	0.1204	0.0581	0.0250	-0.0180
0.6919	0.0114	0.2039	1.4179	0.4114	0.2537	0.0971	0.1481	-0.0857	0.0177	-0.1097	-0.0930	-0.1449	0.0020	-0.1001	-0.0615	0.0233	-0.3257	-0.1226	-0.0771
-1.1274	0.0157	0.1236	1.0207	-0.4866	0.0123	-0.0736	0.0046	-0.0204	-0.0532	0.0418	-0.1565	0.0659	-0.1341	-0.3429	-0.1502	-0.0876	-0.0936	0.2000	-0.0438
0.5614	0.0034	0.1098	1.3533	0.2240	0.0413	0.0349	0.0365	0.0064	-0.0135	-0.0514	0.0910	-0.0304	-0.0505	-0.0477	0.0412	0.0236	-0.0033	-0.0788	-0.0201
-0.5298	0.0094	0.2554	1.6125	-0.3742	-0.0100	-0.0223	-0.2025	0.0285	-0.1278	0.0037	0.0525	0.0291	0.0797	0.0811	-0.0822	-0.0136	-0.0145	-0.0599	0.0889
.	.	0.1330	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
0.0207	0.0000	0.0644	1.4146	0.0062	-0.0004	-0.0003	0.0003	0.0002	-0.0011	0.0000	-0.0017	0.0035	0.0002	-0.0014	0.0000	0.0011	0.0010	-0.0003	-0.0001
-1.4370	0.0376	0.1687	0.8082	-0.7618	0.0395	-0.0456	0.0062	0.0160	0.0792	-0.0186	0.0838	-0.5045	0.1742	-0.1388	-0.0622	-0.0391	-0.2752	0.2202	0.0274
-0.0413	0.0000	0.1544	1.5670	-0.0202	-0.0062	0.0012	0.0048	-0.0098	-0.0034	0.0015	-0.0017	0.0025	-0.0024	0.0036	0.0044	0.0088	-0.0002	0.0000	0.0069
0.0276	0.0000	0.2085	1.6766	0.0166	0.0031	-0.0040	0.0006	0.0001	-0.0068	0.0067	-0.0074	-0.0026	-0.0044	-0.0002	-0.0034	0.0018	-0.0042	-0.0013	0.0017
-1.3836	0.0710	0.2709	0.8862	-1.0481	-0.3157	0.0811	0.0944	-0.4046	-0.0806	0.2531	0.0596	0.2745	0.3039	0.5524	0.0057	-0.0620	0.4465	-0.1924	0.2377
.	.	0.1966	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
0.1211	0.0004	0.2271	1.7095	0.0777	0.0269	-0.0084	-0.0051	-0.0137	0.0289	0.0038	-0.0182	-0.0145	0.0129	0.0098	-0.0002	-0.0274	-0.0090	-0.0024	-0.0267
.	.	0.2451	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
-0.6597	0.0069	0.1511	1.3607	-0.3195	-0.1389	-0.0292	-0.1111	0.0124	0.0016	0.0937	0.0112	0.0507	0.0035	0.0848	0.1389	0.1316	0.0432	0.0145	0.1481
0.2646	0.0009	0.1291	1.4892	0.1158	-0.0410	-0.0174	-0.0120	-0.0387	0.0231	0.0086	0.0522	0.0041	0.0251	0.0033	-0.0019	0.0402	0.0139	0.0614	0.0125
.	.	0.2550	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
-0.3115	0.0031	0.2463	1.7029	-0.2131	-0.0094	-0.0617	-0.0479	0.0553	0.0042	0.0400	-0.0764	-0.0144	-0.0845	-0.0541	0.0277	0.0702	-0.0221	-0.0692	0.0503
-0.3947	0.0022	0.1364	1.4623	-0.1788	-0.0208	-0.0433	0.1010	-0.0418	-0.0113	0.0829	-0.0333	0.0491	-0.0009	0.0113	-0.0601	-0.0055	-0.0075	0.0239	0.0233
-0.5645	0.0111	0.2607	1.6006	-0.4057	0.0659	0.0999	-0.2386	0.1024	-0.1740	-0.0915	-0.0143	-0.0152	-0.0746	-0.0482	-0.0863	-0.1000	-0.0016	-0.1173	0.0157
.	.	0.1412	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
0.5826	0.0160	0.3095	1.6881	0.4875	0.0350	0.0741	0.0279	0.0592	0.1391	-0.0586	0.0295	0.2554	-0.0853	-0.0693	-0.2032	0.0549	-0.0768	0.0882	-0.0660
-1.3824	0.0255	0.1321	0.8374	-0.6254	-0.2037	0.1539	-0.0268	-0.2135	-0.0389	-0.0996	-0.0860	0.0225	-0.0180	0.1712	0.2060	0.2474	0.0177	0.0354	0.1825

.	.	0.2102	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
.	.	0.3518	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
0.5686	0.0074	0.1995	1.4874	0.3322	0.0539	0.0014	0.0742	-0.0108	-0.0389	0.0084	0.0930	0.1265	-0.0081	-0.0229	-0.0112	-0.0015	-0.1029	0.0163	0.1426
0.0401	0.0000	0.2130	1.6858	0.0245	0.0006	-0.0047	0.0054	-0.0090	0.0024	0.0032	0.0076	-0.0005	0.0047	0.0008	0.0036	0.0031	-0.0035	-0.0033	0.0126
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.	.	0.1584	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
.	.	0.2659	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
0.2088	0.0018	0.2900	1.8428	0.1640	-0.0030	-0.0786	-0.0170	0.0444	0.0529	0.0536	0.0137	0.0634	0.0598	0.0058	0.0471	0.0179	-0.0506	0.0526	0.0705
-0.4486	0.0065	0.2480	1.6441	-0.3090	0.0340	0.0912	0.1427	-0.0618	0.0959	-0.1418	0.0187	-0.0056	-0.0317	0.0195	-0.0377	0.0018	-0.0418	0.0427	-0.2073
1.5221	0.0531	0.1989	0.7480	0.9079	-0.1809	0.2017	-0.0362	-0.0261	0.1661	-0.4400	0.2779	-0.1340	0.1557	0.2785	0.1707	0.0333	0.2059	0.2450	0.2871
-0.2537	0.0043	0.3701	2.0596	-0.2532	0.0381	0.0633	-0.0008	-0.0114	0.0013	-0.0646	0.0280	0.0155	0.1493	0.1640	0.1604	-0.0265	-0.0359	-0.0547	-0.0869
.	.	0.1424	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
-0.4276	0.0058	0.2474	1.6539	-0.2940	-0.0421	0.0075	0.1087	0.0324	0.0625	-0.0640	0.0875	0.0583	-0.0381	-0.1425	-0.0526	-0.0133	0.0577	0.0159	-0.0334
-0.2618	0.0011	0.1491	1.5249	-0.1253	-0.0194	0.0252	0.0176	-0.0354	-0.0196	-0.0071	-0.0509	0.0112	-0.0563	-0.0173	-0.0513	-0.0253	0.0651	-0.0313	-0.0067
-1.2234	0.0260	0.1626	0.9740	-0.6288	-0.1831	0.0020	-0.2145	0.0529	-0.1233	-0.1137	0.2428	0.1756	0.0188	-0.2140	0.0272	-0.0776	0.2486	0.0571	0.0436
-0.4120	0.0037	0.1933	1.5546	-0.2349	0.0811	0.0039	-0.0244	-0.0266	0.0682	0.0265	0.0943	-0.0916	-0.0528	-0.0242	-0.0343	-0.0243	-0.0859	-0.1080	0.0089
-1.2881	0.0377	0.1977	0.9408	-0.7590	0.0363	-0.1619	-0.0445	0.2312	-0.1351	0.1374	-0.1278	-0.2296	-0.2343	-0.3306	-0.1117	-0.0102	-0.0823	0.1240	-0.3314
-0.0118	0.0000	0.2072	1.6741	-0.0070	-0.0012	-0.0020	-0.0002	0.0004	-0.0009	0.0029	0.0011	0.0025	0.0021	-0.0004	0.0010	0.0004	-0.0005	0.0024	-0.0017
1.1649	0.0346	0.2142	1.0560	0.7257	0.2662	0.2460	-0.0500	-0.2073	-0.1250	-0.0435	-0.3761	-0.1117	-0.2167	-0.0570	0.1375	-0.5109	0.1343	0.0597	-0.3613
-1.6291	0.0661	0.2106	0.6643	-1.0176	-0.1202	-0.5117	0.0021	0.3828	0.0100	0.2352	0.1391	0.1912	-0.2832	-0.1469	-0.0422	0.1363	0.0625	0.1805	-0.4022
1.2122	0.0569	0.2777	1.0557	0.9331	0.1819	-0.0678	0.2306	0.1921	-0.1197	0.2623	-0.2402	-0.1448	-0.2527	-0.0654	-0.2713	-0.0242	-0.2011	-0.1365	0.3758
.	.	0.1123	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
-1.0354	0.0398	0.2708	1.2225	-0.7758	0.2106	0.2803	0.1808	-0.3032	-0.0549	0.1190	-0.2535	0.0237	-0.3936	-0.0377	0.0874	-0.3124	0.0049	-0.2097	-0.1190
.	.	0.2088	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
.	.	0.2491	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
.	.	0.1596	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
-1.3242	0.0479	0.2240	0.9223	-0.8576	-0.4751	-0.0461	-0.0601	0.0400	-0.0280	-0.1356	0.1338	-0.4196	0.0800	0.0397	-0.1490	0.5028	0.2487	-0.0388	0.3655
-1.4619	0.0472	0.1939	0.7955	-0.8543	-0.1784	-0.0097	0.0296	-0.2145	0.1634	-0.0533	-0.0742	-0.0222	0.1933	0.0676	-0.2322	0.4915	-0.2542	-0.0857	0.3161
-0.4373	0.0068	0.2649	1.6861	-0.3180	0.0486	-0.1150	-0.0410	0.1521	0.1109	-0.0079	0.0100	-0.0112	0.0094	0.0877	0.1340	-0.0207	-0.0293	-0.0893	-0.0252
-0.9400	0.0318	0.2660	1.3065	-0.6919	0.1564	0.0573	-0.0642	-0.2118	-0.4163	-0.1850	0.0194	0.0707	0.1583	-0.0682	0.2052	-0.1409	-0.2045	-0.0871	0.0103
.	.	0.1613	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
.	.	0.2057	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
0.1244	0.0003	0.1842	1.6179	0.0684	0.0188	0.0143	-0.0130	-0.0278	-0.0192	-0.0106	-0.0014	-0.0142	-0.0299	-0.0200	0.0124	-0.0032	-0.0027	-0.0229	-0.0075

.	.	0.1858	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
0.3022	0.0011	0.1246	1.4720	0.1295	-0.0421	0.0124	0.0149	-0.0045	-0.0353	-0.0414	0.0170	-0.0129	-0.0160	0.0312	-0.0286	0.0343	0.0538	0.0335	-0.0014
-1.3830	0.0676	0.2631	0.8842	-1.0220	-0.0889	0.0138	-0.0536	0.3204	0.5293	0.1139	0.0898	0.1687	0.5532	0.2647	0.4493	-0.1570	-0.0752	0.2878	-0.0123
.	.	0.2459	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
.	.	0.1464	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
0.1103	0.0001	0.0955	1.4589	0.0406	-0.0052	0.0060	-0.0039	-0.0017	0.0044	-0.0062	0.0106	0.0271	0.0100	0.0130	0.0082	0.0070	0.0103	-0.0053	0.0004
-1.3946	0.0198	0.1049	0.8184	-0.5515	-0.0461	-0.1505	0.1570	-0.1799	-0.1415	0.2225	-0.0776	0.1771	0.1232	0.1761	0.1822	-0.0887	-0.0188	0.0770	0.0734
-0.2295	0.0007	0.1302	1.4992	-0.1010	-0.0011	-0.0229	0.0078	0.0273	0.0282	-0.0013	0.0073	-0.0669	0.0225	0.0299	0.0113	-0.0016	-0.0180	0.0153	0.0013
-0.8510	0.0159	0.1929	1.2904	-0.4874	-0.2899	-0.2105	0.0392	0.1455	0.0140	0.1832	-0.0779	0.1623	-0.1248	-0.0977	-0.1121	0.0041	0.3449	0.1933	0.0466
-0.3327	0.0022	0.1824	1.5647	-0.1820	0.0055	-0.0541	-0.0230	0.0423	0.0332	0.0204	0.0995	-0.0610	-0.0588	-0.0889	-0.0415	0.0014	-0.0384	0.0309	0.0061

Appendix 15: Regression Results of Pooling Data

1- EAS 25

```
regress EAS25 FS FL FP FV BE BS OC GO MO IO IM-man RD AT
```

Source	SS	df	MS		
Model	84.616107	13	6.50893131	Number of obs	211
Residual	114.006564	197	.578713524	F(13, 197)	11.25
Total	198.622671	210	.945822244	Prob > F	0.0000
				R-squared	0.4260
				Adj R-squared	0.3881
				Root MSE	.76073

neas25	Coef.	Std. Err.	t	P>|t|	[95% Conf.	Interval]
FS	-.1273747	.0809276	-1.57	0.117	-.2869702	.0322209
FL	-.0488852	.0634764	-0.77	0.442	-.1740656	.0762952
FP	.1244235	.0704504	1.77	0.079*	-.0145103	.2633572
FV	.0483724	.067447	0.72	0.474	-.0846384	.1813833
BE	.1837234	.0738594	2.49	0.014**	.0380668	.3293801
BS	.1539867	.0643566	2.39	0.018**	.0270704	.280903
OC	-.2390587	.085111	-2.81	0.005***	-.4069043	-.0712131
GO	-.149156	.1045947	-1.43	0.155	-.355425	.057113
MO	-.1389228	.0903109	-1.54	0.126	-.3170231	.0391775
IO	-.064824	.073732	-0.88	0.380	-.2102294	.0805814
IM-man	.1237979	.1260126	0.98	0.327	-.124709	.3723047
RD	-.2148451	.1319634	-1.63	0.105	-.4750874	.0453972
AT	.9536776	.1297787	7.35	0.000***	.6977437	1.209611
_cons	-.3708919	.1606243	-2.31	0.022	.6876557	-.0541281

```
***Significant at the level 1%
**Significant at the level 5%
*Significant at the level 10%
. estat hettest
Breusch-Pagan / Cook-Weisberg test for heteroskedasticity
         Ho: Constant variance
         Variables: fitted values of neas2506

         chi2(1)      =     0.21
         Prob > chi2  =   0.6470
. estat ovtest
Ramsey RESET test using powers of the fitted values of neas2506
       Ho:  model has no omitted variables
                 F(3, 194) =      0.60
                  Prob > F =      0.6133
```

2- EAS 33

```
. regress EAS33 FS FL FP FV BE BS OC GO MO IO IM-man RD AT
```

Source	SS	df	MS		
Model	65.966327	13	5.07433284	Number of obs	211
Residual	114.84807	197	.582985127	F(13, 197)	8.70
Total	180.814397	210	.861020938	Prob > F	0.0000
				R-squared	0.3648
				Adj R-squared	0.3229
				Root MSE	.76353

neas33	Coef.	Std. Err.	t	P>|t|	[95% Conf.	Interval]
FS	.0001145	.0812257	0.00	0.999	-.1600689	.160298
FL	.3054278	.0637102	4.79	0.000***	.1797862	.4310694
FP	.0366326	.0707099	0.52	0.605	-.102813	.1760781
FV	.1324231	.0676955	1.96	0.052*	-.0010778	.2659239
BE	.4727664	.0741315	6.38	0.000***	.3265732	.6189596
BS	-.1119992	.0645937	-1.73	0.084*	-.239383	.0153846
OC	-.035613	.0854245	-0.42	0.677	-.2040769	.1328509
GO	-.2390479	.10498	-2.28	0.024**	-.4460767	-.032019
MO	-.1428376	.0906436	-1.58	0.117	-.321594	.0359188
IO	-.002036	.0740037	-0.03	0.978	-.1479771	.143905
IM-man	-.0400908	.1264768	-0.32	0.752	-.2895131	.2093315
RD	.2077725	.1324496	1.57	0.118	-.0534285	.4689736
AT	.21063	.1302568	1.62	0.107	-.0462467	.4675067
_cons	-.1942958	.161216	-1.21	0.230	-.5122265	.1236348

```
***Significant at the level 1%
**Significant at the level 5%
*Significant at the level 10%
. estat hettest
Breusch-Pagan / Cook-Weisberg test for heteroskedasticity
```

```
        Ho: Constant variance
        Variables: fitted values of neas3306

        chi2(1)      =     0.26
        Prob > chi2  =   0.6084

. estat ovtest
Ramsey RESET test using powers of the fitted values of neas3306
       Ho:  model has no omitted variables
                F(3, 194) =      0.53
                 Prob > F =      0.6622
```

3- Voluntary Risk Reporting

```
. regress VOL IM-nonman FS FL FP FV BE BS OC GO MO IO IM-man RD AT

      Source |       SS       df       MS              Number of obs =     135
-------------+------------------------------           F( 14,   120) =    4.62
       Model |  43.9195027    14  3.13710734           Prob > F      =  0.0000
    Residual |  81.4698768   120   .67891564           R-squared     =  0.3503
-------------+------------------------------           Adj R-squared =  0.2745
       Total |   125.38938   134  .935741639           Root MSE      =  .82396

------------------------------------------------------------------------------
    Ntrisk   |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
   IM-nonman |  -.4244392   .2567854    -1.65   0.101    -.9328564     .083978
      FS     |  -.1048837   .1374997    -0.76   0.447    -.3771235    .1673561
      FL     |   .0169056   .0839861     0.20   0.841     -.149381    .1831921
      FP     |   .0059121   .0939699     0.06   0.950    -.1801417     .191966
      FV     |  -.0273576    .087843    -0.31   0.756    -.2012807    .1465654
      BE     |   .5500106   .1338239     4.11   0.000***  .2850486    .8149726
      BS     |   .1117325   .0869036     1.29   0.201    -.0603305    .2837955
      OC     |  -.0303716    .134382    -0.23   0.822    -.2964385    .2356954
      GO     |  -.2434277   .1497266    -1.63   0.107     -.539876    .0530206
      MO     |  -.2065201   .1505151    -1.37   0.173    -.5045296    .0914894
      IO     |  -.1011993   .1098791    -0.92   0.359    -.3187523    .1163537
     IM-man  |  -.0062892   .1968487    -0.03   0.975    -.3960359    .3834575
      RD     |   -.001803   .2063517    -0.01   0.993     -.410365    .4067589
      AT     |  -.3695583   .1694523    -2.18   0.031**   -.705062   -.0340546
       _cons |   .2045378   .2566885     0.80   0.427    -.3036876    .7127632
------------------------------------------------------------------------------
***Significant at the level 1%
**Significant at the level 5%
*Significant at the level 10%

. estat hettest

Breusch-Pagan / Cook-Weisberg test for heteroskedasticity
        Ho: Constant variance
        Variables: fitted values of ntrisk06

        chi2(1)      =     0.07
        Prob > chi2  =   0.7983

. estat ovtest

Ramsey RESET test using powers of the fitted values of ntrisk06
       Ho:  model has no omitted variables
                F(3, 117) =      0.20
                 Prob > F =      0.8949
```

Appendix 16: Condition Index

1- EAS 25-2006

Dimension	Eigenvalue	Condition Index
1	3.094	1.000
2	2.472	1.119
3	1.871	1.286
4	1.462	1.455
5	1.102	1.676
6	.922	1.832
7	.706	2.094
8	.696	2.109
9	.587	2.296
10	.384	2.839
11	.253	3.494
12	.223	3.727
13	.156	4.453
14	.073	6.511

2- EAS 33-2006

Dimension	Eigenvalue	Condition Index
1	3.094	1.000
2	2.472	1.119
3	1.871	1.286
4	1.462	1.455
5	1.102	1.676
6	.922	1.832
7	.706	2.094
8	.696	2.109
9	.587	2.296
10	.384	2.839
11	.253	3.494
12	.223	3.727
13	.156	4.453
14	.073	6.511

3- Voluntary Risk Reporting 2006

Dimension	Eigenvalue	Condition Index
1	3.767	1.000
2	2.624	1.198
3	2.117	1.334
4	1.355	1.667
5	1.093	1.857
6	.952	1.989
7	.771	2.211
8	.584	2.540
9	.491	2.770
10	.463	2.854
11	.298	3.553
12	.174	4.655
13	.155	4.924
14	.108	5.904
15	.049	8.752

4- EAS 25-2007

Dimension	Eigenvalue	Condition Index
1	3.095	1.000
2	2.443	1.125
3	1.793	1.314
4	1.442	1.465
5	1.331	1.525
6	.952	1.803
7	.797	1.970
8	.638	2.203
9	.425	2.699
10	.355	2.955
11	.262	3.435
12	.220	3.750
13	.177	4.185
14	.070	6.647

5- EAS 33-2007

Dimension	Eigenvalue	Condition Index
1	3.095	1.000
2	2.443	1.125
3	1.793	1.314
4	1.442	1.465
5	1.331	1.525
6	.952	1.803
7	.797	1.970
8	.638	2.203
9	.425	2.699
10	.355	2.955
11	.262	3.435
12	.220	3.750
13	.177	4.185
14	.070	6.647

6- Voluntary Risk Reporting 2007

Dimension	Eigenvalue	Condition Index
1	3.441	1.000
2	2.525	1.167
3	1.785	1.388
4	1.458	1.536
5	1.204	1.691
6	1.097	1.771
7	1.014	1.842
8	.741	2.154
9	.504	2.614
10	.407	2.906
11	.290	3.446
12	.196	4.189
13	.166	4.549
14	.129	5.157
15	.042	9.034

Appendix 17: Regression Analysis With/without Firm Size and Barriers to Entry Variables

17.A Regression Analysis with Barriers to Entry and without Firm Size

1- Mandatory Risk Reporting EAS 25-2006

Model Summary

R	R Square	Adjusted R Square	Std. Error of the Estimate
.647	.419	.344	.7772568

ANOVA

	Sum of Squares	df	Mean Square	F	Sig.
Regression	40.548	12	3.379	5.593	.000(a)
Residual	56.184	93	.604		
Total	96.732	105			

Coefficients

	Unstandardized Coefficients		Standardized Coefficients	t	Sig.
	B	Std. Error	Beta		
(Constant)	-.359	.229		-1.571	.120
FL	-.118	.097	-.119	-1.224	.224
FP	.094	.091	.095	1.033	.304
FV	.044	.097	.044	.455	.650
BE	.150	.088	.151	1.699	.093*
BS	.084	.093	.083	.910	.365
OC	-.244	.126	-.172	-1.931	.057*
GO	-.194	.157	-.171	-1.236	.219
MO	-.177	.130	-.155	-1.357	.178
IO	-.035	.107	-.034	-.326	.745
IM-man	.029	.181	.015	.158	.875
RD	-.145	.194	-.067	-.746	.457
AT	.952	.184	.498	5.186	.000***

***Significant at the level 1%
**Significant at the level 5%
*Significant at the level 10%
Dependent Variable: EAS2506
Independent variables **FL** Firm Liquidity, **FP** Firm Profitability, **FV** Firm Leverage, **BE** Barriers to Entry, **BS** Board Size, **OC** Ownership Concentration, **GO** Government Ownership, **MO** Managerial Ownership, **IO** Institutional Ownership, **IM-man** Industry Membership-Manufacturing companies, **RD** Role Duality, **AT** Auditor Type

2- Mandatory Risk Reporting EAS 33-2006

Model Summary

R	R Square	Adjusted R Square	Std. Error of the Estimate
.646	.418	.343	.7442405

ANOVA

	Sum of Squares	df	Mean Square	F	Sig.
Regression	36.985	12	3.082	5.564	.000(a)
Residual	51.512	93	.554		
Total	88.497	105			

Coefficients

	Unstandardized Coefficients		Standardized Coefficients	t	Sig.
	B	Std. Error	Beta		
(Constant)	-.194	.219		-.884	.379
FL	.233	.092	.245	2.522	.013**
FP	-.053	.088	-.056	-.610	.543
FV	.101	.093	.107	1.092	.278
BE	.548	.084	.577	6.487	.000***
BS	-.124	.089	-.127	-1.397	.166
OC	-.038	.121	-.028	-.318	.751
GO	-.277	.150	-.257	-1.850	.068*
MO	-.076	.125	-.070	-.612	.542
IO	.019	.102	.019	.185	.854
IM-man	-.129	.174	-.069	-.743	.460
RD	.254	.186	.122	1.364	.176
AT	.237	.176	.130	1.349	.180

***Significant at the level 1%
**Significant at the level 5%
*Significant at the level 10%
Dependent Variable: EAS3306
Independent variables **FL** Firm Liquidity, **FP** Firm Profitability, **FV** Firm Leverage, **BE** Barriers to Entry, **BS** Board Size, **OC** Ownership Concentration, **GO** Government Ownership, **MO** Managerial Ownership, **IO** Institutional Ownership, **IM-man** Industry Membership-Manufacturing companies, **RD** Role Duality, **AT** Auditor Type

3- Voluntary Risk Reporting-2006

Model Summary

R	R Square	Adjusted R Square	Std. Error of the Estimate
.682	.465	.323	.7787150

ANOVA

	Sum of Squares	df	Mean Square	F	Sig.
Regression	25.849	13	1.988	3.279	.001(a)
Residual	29.713	49	.606		
Total	55.562	62			

Coefficients

	Unstandardized Coefficients		Standardized Coefficients	t	Sig.
	B	Std. Error	Beta		
(Constant)	.488	.352		1.386	.172
FL	.010	.123	.011	.083	.934
FP	-.034	.118	-.036	-.283	.778
FV	.050	.121	.056	.416	.680
BE	.634	.130	.662	4.881	.000***
BS	.007	.130	.008	.057	.955
OC	.056	.225	.030	.248	.805
GO	-.316	.220	-.283	-1.434	.158
MO	-.151	.232	-.110	-.649	.519
IO	-.014	.152	-.014	-.093	.926
IM-man	-.171	.272	-.090	-.627	.534
RD	-.280	.315	-.109	-.888	.379
AT	-.105	.232	-.055	-.452	.653
IM-nonman	-.580	.350	-.234	-1.658	.104

***Significant at the level 1%
**Significant at the level 5%
*Significant at the level 10%
Dependent Variable: VOL06
Independent variables **FL** Firm Liquidity, **FP** Firm Profitability, **FV** Firm Leverage, **BE** Barriers to Entry, **BS** Board Size, **OC** Ownership Concentration, **GO** Government Ownership, **MO** Managerial Ownership, **IO** Institutional Ownership, , **IM-man** Industry Membership-Manufacturing companies, **RD** Role Duality, **AT** Auditor Type, **IM-nonman** Industry Membership-non-manufacturing companies

4- Mandatory Risk Reporting EAS 25-2007

Model Summary

R	R Square	Adjusted R Square	Std. Error of the Estimate
.670	.449	.377	.7604237

ANOVA

	Sum of Squares	df	Mean Square	F	Sig.
Regression	43.373	12	3.614	6.251	.000(a)
Residual	53.198	92	.578		
Total	96.572	104			

Coefficients

	Unstandardized Coefficients		Standardized Coefficients	t	Sig.
	B	Std. Error	Beta		
(Constant)	-.287	.227		-1.266	.209
FL	-.006	.091	-.006	-.065	.949
FP	.031	.097	.031	.319	.750
FV	.003	.095	.003	.030	.976
BE	.056	.094	.056	.598	.552
BS	.220	.095	.214	2.324	.022**
OC	-.285	.122	-.204	-2.344	.021**
GO	-.098	.149	-.085	-.656	.513
MO	-.144	.131	-.129	-1.095	.276
IO	-.088	.107	-.083	-.818	.416
IM-man	.114	.168	.058	.677	.500
RD	-.345	.188	-.159	-1.832	.070*
AT	.977	.189	.509	5.177	.000***

***Significant at the level 1%
**Significant at the level 5%
*Significant at the level 10%
Dependent Variable: EAS2507
Independent variables **FL** Firm Liquidity, **FP** Firm Profitability, **FV** Firm Leverage, **BE** Barriers to Entry, **BS** Board Size, **OC** Ownership Concentration, **GO** Government Ownership, **MO** Managerial Ownership, **IO** Institutional Ownership, **IM-man** Industry Membership-Manufacturing companies, **RD** Role Duality, **AT** Auditor Type

5- Mandatory Risk Reporting EAS33-2007

Model Summary

R	R Square	Adjusted R Square	Std. Error of the Estimate
.629	.396	.317	.7481709

ANOVA

	Sum of Squares	df	Mean Square	F	Sig.
Regression	33.758	12	2.813	5.026	.000(a)
Residual	51.498	92	.560		
Total	85.256	104			

Coefficients

	Unstandardized Coefficients		Standardized Coefficients	t	Sig.
	B	Std. Error	Beta		
(Constant)	-.187	.223		-.839	.403
FL	.373	.089	.398	4.166	.000***
FP	.129	.096	.138	1.355	.179
FV	.132	.093	.141	1.416	.160
BE	.405	.092	.432	4.387	.000***
BS	-.088	.093	-.091	-.946	.347
OC	-.042	.120	-.032	-.352	.726
GO	-.187	.147	-.172	-1.274	.206
MO	-.189	.129	-.180	-1.466	.146
IO	-.009	.105	-.009	-.088	.930
IM-man	.000	.165	.000	.001	.999
RD	.170	.185	.084	.920	.360
AT	.194	.186	.108	1.046	.298

***Significant at the level 1%
**Significant at the level 5%
*Significant at the level 10%
Dependent Variable: EAS3307
Independent variables **FL** Firm Liquidity, **FP** Firm Profitability, **FV** Firm Leverage, **BE** Barriers to Entry, **BS** Board Size, **OC** Ownership Concentration, **GO** Government Ownership, **MO** Managerial Ownership, **IO** Institutional Ownership, **IM-man** Industry Membership-Manufacturing companies, **RD** Role Duality, **AT** Auditor Type

6- Voluntary Risk Reporting-2007

Model Summary

R	R Square	Adjusted R Square	Std. Error of the Estimate
.625	.391	.254	.8194881

ANOVA

	Sum of Squares	df	Mean Square	F	Sig.
Regression	24.960	13	1.920	2.859	.003(a)
Residual	38.951	58	.672		
Total	63.910	71			

Coefficients

	Unstandardized Coefficients		Standardized Coefficients	t	Sig.
	B	Std. Error	Beta		
(Constant)	.147	.370		.396	.693
FL	-.062	.118	-.066	-.530	.598
FP	.076	.123	.079	.619	.538
FV	-.074	.119	-.078	-.621	.537
BE	.306	.131	.303	2.334	.023**
BS	.148	.120	.148	1.229	.224
OC	-.101	.169	-.066	-.600	.551
GO	-.069	.202	-.059	-.341	.735
MO	-.272	.193	-.223	-1.412	.163
IO	-.134	.155	-.116	-.868	.389
IM-man	.002	.266	.001	.006	.995
RD	.093	.286	.040	.324	.747
AT	-.417	.247	-.220	-1.687	.097*
IM-nonman	-.559	.356	-.214	-1.573	.121

***Significant at the level 1%
**Significant at the level 5%
*Significant at the level 10%
Dependent Variable: VOL07
Independent variables **FL** Firm Liquidity, **FP** Firm Profitability, **FV** Firm Leverage, **BE** Barriers to Entry, **BS** Board Size, **OC** Ownership Concentration, **GO** Government Ownership, **MO** Managerial Ownership, **IO** Institutional Ownership, , **IM-man** Industry Membership-Manufacturing companies, **RD** Role Duality, **AT** Auditor Type, **IM-nonman** Industry Membership-non-manufacturing companies

17.B Regression Analysis with Firm Size and without Barriers to Entry

1- Mandatory Risk Reporting EAS 25-2006

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.635(a)	.403	.326	.7879046

ANOVA

	Sum of Squares	df	Mean Square	F	Sig.
Regression	38.998	12	3.250	5.235	.000(a)
Residual	57.734	93	.621		
Total	96.732	105			

Coefficients

	Unstandardized Coefficients		Standardized Coefficients	t	Sig.
	B	Std. Error	Beta		
(Constant)	-.464	.233		-1.993	.049
FS	-.055	.099	-.056	-.559	.577
FL	-.108	.098	-.108	-1.103	.273
FP	.128	.100	.129	1.279	.204
FV	.076	.101	.076	.747	.457
BS	.136	.095	.133	1.433	.155
OC	-.262	.127	-.185	-2.060	.042**
GO	-.140	.159	-.124	-.884	.379
MO	-.179	.132	-.157	-1.352	.180
IO	-.057	.108	-.055	-.527	.599
IM-man	.151	.191	.077	.788	.432
RD	-.156	.197	-.072	-.791	.431
AT	1.025	.184	.536	5.556	.000***

***Significant at the level 1%
**Significant at the level 5%
*Significant at the level 10%
Dependent Variable: EAS2506
Independent variables **FS** Firm Size, **FL** Firm Liquidity, **FP** Firm Profitability, **FV** Firm Leverage, **BS** Board Size, **OC** Ownership Concentration, **GO** Government Ownership, **MO** Managerial Ownership, **IO** Institutional Ownership, **IM-man** Industry Membership-Manufacturing companies, **RD** Role Duality, **AT** Auditor Type

2- Mandatory Risk Reporting EAS 33-2006

Model Summary

R	R Square	Adjusted R Square	Std. Error of the Estimate
.488(a)	.238	.140	.8514251

ANOVA

	Sum of Squares	df	Mean Square	F	Sig.
Regression	21.079	12	1.757	2.423	.009(a)
Residual	67.418	93	.725		
Total	88.497	105			

Coefficients

	Unstandardized Coefficients		Standardized Coefficients	t	Sig.
	B	Std. Error	Beta		
(Constant)	-.296	.252		-1.177	.242
FS	.340	.106	.358	3.195	.002**
FL	.276	.106	.291	2.618	.010**
FP	-.144	.108	-.152	-1.329	.187
FV	.067	.110	.071	.615	.540
BS	-.073	.102	-.074	-.710	.479
OC	-.109	.138	-.080	-.789	.432
GO	-.209	.171	-.194	-1.220	.225
MO	-.121	.143	-.111	-.849	.398
IO	-.052	.116	-.052	-.444	.658
IM-man	-.080	.207	-.043	-.386	.700
RD	.270	.213	.130	1.268	.208
AT	.366	.199	.200	1.836	.070*

***Significant at the level 1%
**Significant at the level 5%
*Significant at the level 10%
Dependent Variable: EAS3306
Independent variables **FS** Firm Size, **FL** Firm Liquidity, **FP** Firm Profitability, **FV** Firm Leverage, **BS** Board Size, **OC** Ownership Concentration, **GO** Government Ownership, **MO** Managerial Ownership, **IO** Institutional Ownership, **IM-man** Industry Membership-Manufacturing companies, **RD** Role Duality, **AT** Auditor Type

3- Voluntary Risk Reporting-2006

Model Summary

R	R Square	Adjusted R Square	Std. Error of the Estimate
.573	.328	.150	.8727553

ANOVA

	Sum of Squares	df	Mean Square	F	Sig.
Regression	18.239	13	1.403	1.842	.063(a)
Residual	37.323	49	.762		
Total	55.562	62			

Coefficients

	Unstandardized Coefficients		Standardized Coefficients	t	Sig.
	B	Std. Error	Beta		
(Constant)	.373	.393		.949	.347
FS	.422	.141	.455	2.996	.004**
FL	.039	.139	.043	.283	.778
FP	-.087	.143	-.095	-.612	.543
FV	.063	.138	.070	.457	.650
BS	.092	.145	.095	.633	.530
OC	-.245	.239	-.133	-1.025	.310
GO	-.312	.247	-.279	-1.263	.213
MO	-.253	.258	-.186	-.982	.331
IO	-.072	.169	-.070	-.423	.674
IM-man	-.247	.309	-.131	-.801	.427
RD	-.100	.353	-.039	-.285	.777
AT	-.083	.261	-.043	-.319	.751
IM-nonman	-.675	.391	-.273	-1.727	.090*

***Significant at the level 1%
**Significant at the level 5%
*Significant at the level 10%
Dependent Variable: VOL06
Independent variables **FS** Firm Size, **FL** Firm Liquidity, **FP** Firm Profitability, **FV** Firm Leverage, **BS** Board Size, **OC** Ownership Concentration, **GO** Government Ownership, **MO** Managerial Ownership, **IO** Institutional Ownership, , **IM-man** Industry Membership-Manufacturing companies, **RD** Role Duality, **AT** Auditor Type, **IM-nonman** Industry Membership-non-manufacturing companies

4- Mandatory Risk Reporting EAS 25-2007

Model Summary

R	R Square	Adjusted R Square	Std. Error of the Estimate
.669	.447	.375	.7618293

ANOVA

	Sum of Squares	df	Mean Square	F	Sig.
Regression	43.177	12	3.598	6.199	.000(a)
Residual	53.395	92	.580		
Total	96.572	104			

Coefficients

	Unstandardized Coefficients		Standardized Coefficients	t	Sig.
	B	Std. Error	Beta		
(Constant)	-.319	.231		-1.381	.171
FS	-.013	.102	-.013	-.130	.897
FL	-.016	.091	-.016	-.173	.863
FP	.050	.107	.050	.468	.641
FV	.011	.097	.011	.113	.911
BS	.243	.094	.237	2.600	.011**
OC	-.293	.121	-.209	-2.413	.018**
GO	-.072	.148	-.063	-.489	.626
MO	-.141	.131	-.126	-1.073	.286
IO	-.088	.107	-.083	-.817	.416
IM-man	.150	.174	.076	.860	.392
RD	-.355	.188	-.164	-1.886	.062*
AT	1.008	.190	.525	5.311	.000***

***Significant at the level 1%
**Significant at the level 5%
*Significant at the level 10%
Dependent Variable: EAS2507
Independent variables **FS** Firm Size, **FL** Firm Liquidity, **FP** Firm Profitability, **FV** Firm Leverage, **BS** Board Size, **OC** Ownership Concentration, **GO** Government Ownership, **MO** Managerial Ownership, **IO** Institutional Ownership, **IM-man** Industry Membership-Manufacturing companies, **RD** Role Duality, **AT** Auditor Type

5- Mandatory Risk Reporting EAS 33-2007

Model Summary

R	R Square	Adjusted R Square	Std. Error of the Estimate
.550	.302	.211	.8041961

ANOVA

	Sum of Squares	df	Mean Square	F	Sig.
Regression	25.757	12	2.146	3.319	.001(a)
Residual	59.499	92	.647		
Total	85.256	104			

Coefficients

	Unstandardized Coefficients		Standardized Coefficients	t	Sig.
	B	Std. Error	Beta		
(Constant)	-.233	.244		-.956	.342
FS	.222	.107	.237	2.069	.041**
FL	.339	.096	.362	3.535	.001***
FP	.113	.113	.120	.997	.322
FV	.120	.103	.128	1.170	.245
BS	-.010	.099	-.010	-.100	.920
OC	-.117	.128	-.089	-.912	.364
GO	-.098	.156	-.090	-.627	.533
MO	-.177	.139	-.168	-1.273	.206
IO	-.020	.113	-.020	-.173	.863
IM-man	.059	.184	.032	.322	.748
RD	.124	.199	.061	.623	.535
AT	.277	.200	.154	1.382	.170

***Significant at the level 1%
**Significant at the level 5%
*Significant at the level 10%
Dependent Variable: EAS3307
Independent variables **FS** Firm Size, **FL** Firm Liquidity, **FP** Firm Profitability, **FV** Firm Leverage, **BS** Board Size, **OC** Ownership Concentration, **GO** Government Ownership, **MO** Managerial Ownership, **IO** Institutional Ownership, **IM-man** Industry Membership-Manufacturing companies, **RD** Role Duality, **AT** Auditor Type

6- Voluntary Risk Reporting-2007

Model Summary

R	R Square	Adjusted R Square	Std. Error of the Estimate
.580	.336	.188	.8551255

ANOVA

	Sum of Squares	df	Mean Square	F	Sig.
Regression	21.498	13	1.654	2.262	.017(a)
Residual	42.412	58	.731		
Total	63.910	71			

Coefficients

	Unstandardized Coefficients		Standardized Coefficients	t	Sig.
	B	Std. Error	Beta		
(Constant)	.125	.398		.316	.753
FS	.077	.148	.079	.519	.606
FL	-.085	.124	-.091	-.689	.494
FP	.119	.147	.123	.810	.422
FV	-.048	.128	-.051	-.378	.707
BS	.226	.128	.226	1.763	.083*
OC	-.152	.175	-.100	-.866	.390
GO	.004	.210	.003	.018	.986
MO	-.252	.201	-.206	-1.250	.216
IO	-.146	.161	-.127	-.907	.368
IM-man	.057	.290	.029	.197	.845
RD	.061	.298	.026	.206	.837
AT	-.304	.261	-.160	-1.167	.248
IM-nonman	-.704	.368	-.269	-1.915	.060*

***Significant at the level 1%
**Significant at the level 5%
*Significant at the level 10%
Dependent Variable: VOL07
Independent variables **FS** Firm Size, **FL** Firm Liquidity, **FP** Firm Profitability, **FV** Firm Leverage, **BS** Board Size, **OC** Ownership Concentration, **GO** Government Ownership, **MO** Managerial Ownership, **IO** Institutional Ownership, , **IM-man** Industry Membership-Manufacturing companies, **RD** Role Duality, **AT** Auditor Type, **IM-nonman** Industry Membership-non-manufacturing companies

Appendix 18: Alternative Proxy of Competition FA/TA (Fixed Assets/Total Assets)

1- EAS 25-2006

Model Summary

R	R Square	Adjusted R Square	Std. Error of the Estimate
.636	.404	.320	.7914688

ANOVA

	Sum of Squares	df	Mean Square	F	Sig.
Regression	39.101	13	3.008	4.802	.000(a)
Residual	57.631	92	.626		
Total	96.732	105			

Coefficients

	Unstandardized Coefficients		Standardized Coefficients	t	Sig.
	B	Std. Error	Beta		
(Constant)	-.481	.237		-2.024	.046
FS	-.058	.099	-.059	-.585	.560
FL	-.106	.098	-.107	-1.082	.282
FP	.127	.101	.128	1.256	.212
FV	.072	.102	.073	.710	.480
FA/TA	.006	.015	.034	.405	.686
BS	.141	.096	.138	1.470	.145
OC	-.254	.130	-.179	-1.961	.053*
GO	-.140	.159	-.124	-.877	.383
MO	-.178	.133	-.156	-1.339	.184
IO	-.059	.108	-.057	-.546	.586
IM-man	.162	.194	.082	.833	.407
RD	-.153	.198	-.071	-.772	.442
AT	1.029	.186	.539	5.546	.000***

***Significant at the level 1%
**Significant at the level 5%
*Significant at the level 10%
Dependent Variable: EAS2506
Independent variables **FS** Firm Size, **FL** Firm Liquidity, **FP** Firm Profitability, **FV** Firm Leverage, **FA/TA** Barriers to Entry, **BS** Board Size, **OC** Ownership Concentration, **GO** Government Ownership, **MO** Managerial Ownership, **IO** Institutional Ownership, **IM-man** Industry Membership-Manufacturing companies, **RD** Role Duality, **AT** Auditor Type

2- EAS 33-2006

Model Summary

R	R Square	Adjusted R Square	Std. Error of the Estimate
.492	.242	.135	.8536807

ANOVA

	Sum of Squares	df	Mean Square	F	Sig.
Regression	21.450	13	1.650	2.264	.012(a)
Residual	67.047	92	.729		
Total	88.497	105			

Coefficients

	Unstandardized Coefficients		Standardized Coefficients	t	Sig.
	B	Std. Error	Beta		
(Constant)	-.327	.256		-1.277	.205
FS	.335	.107	.352	3.125	.002**
FL	.279	.106	.294	2.637	.010**
FP	-.147	.109	-.155	-1.353	.179
FV	.061	.110	.064	.556	.580
FA/TA	.011	.016	.067	.714	.477
BS	-.062	.104	-.064	-.600	.550
OC	-.093	.140	-.069	-.665	.508
GO	-.208	.172	-.193	-1.213	.228
MO	-.120	.143	-.109	-.834	.406
IO	-.056	.117	-.057	-.480	.632
IM-man	-.060	.209	-.032	-.285	.776
RD	.276	.214	.133	1.290	.200
AT	.375	.200	.205	1.871	.065*

***Significant at the level 1%
**Significant at the level 5%
*Significant at the level 10%
Dependent Variable: EAS3306
Independent variables **FS** Firm Size, **FL** Firm Liquidity, **FP** Firm Profitability, **FV** Firm Leverage, **FA/TA** Barriers to Entry, **BS** Board Size, **OC** Ownership Concentration, **GO** Government Ownership, **MO** Managerial Ownership, **IO** Institutional Ownership, **IM-man** Industry Membership-Manufacturing companies, **RD** Role Duality, **AT** Auditor Type

3- VOL-2006

Model Summary

R	R Square	Adjusted R Square	Std. Error of the Estimate
.577	.333	.138	.8788596

ANOVA

	Sum of Squares	df	Mean Square	F	Sig.
Regression	18.487	14	1.321	1.710	.085(a)
Residual	37.075	48	.772		
Total	55.562	62			

Coefficients

	Unstandardized Coefficients		Standardized Coefficients	t	Sig.
	B	Std. Error	Beta		
(Constant)	.428	.407		1.050	.299
FS	.435	.144	.470	3.028	.004**
FL	.034	.140	.037	.242	.810
FP	-.087	.144	-.095	-.608	.546
FV	.072	.140	.080	.514	.610
FA/TA	-.011	.019	-.073	-.567	.573
BS	.079	.148	.082	.537	.594
OC	-.264	.243	-.144	-1.088	.282
GO	-.313	.248	-.280	-1.258	.214
MO	-.256	.260	-.188	-.986	.329
IO	-.058	.172	-.056	-.337	.738
IM-man	-.295	.322	-.156	-.916	.364
RD	-.104	.355	-.041	-.293	.770
AT	-.104	.265	-.054	-.391	.697
IM-nonman	-.720	.402	-.291	-1.793	.079*

***Significant at the level 1%
**Significant at the level 5%
*Significant at the level 10%
a Dependent Variable: VOL06
b Independent variables **FS** Firm Size, **FL** Firm Liquidity, **FP** Firm Profitability, **FV** Firm Leverage, **FA/TA** Barriers to Entry, **BS** Board Size, **OC** Ownership Concentration, **GO** Government Ownership, **MO** Managerial Ownership, **IO** Institutional Ownership, , **IM-man** Industry Membership-Manufacturing companies, **RD** Role Duality, **AT** Auditor Type, **IM-nonman** Industry Membership-non-manufacturing companies

4- EAS25-2007

Model Summary

R	R Square	Adjusted R Square	Std. Error of the Estimate
.684	.468	.392	.7514854

ANOVA

	Sum of Squares	df	Mean Square	F	Sig.
Regression	45.181	13	3.475	6.154	.000(a)
Residual	51.390	91	.565		
Total	96.572	104			

Coefficients

	Unstandardized Coefficients		Standardized Coefficients	t	Sig.
	B	Std. Error	Beta		
(Constant)	-.298	.228		-1.306	.195
FS	-.003	.101	-.003	-.026	.979
FL	-.021	.090	-.021	-.232	.817
FP	.061	.106	.062	.580	.564
FV	.011	.096	.011	.112	.911
FA/TA	.040	.021	.151	1.884	.063*
BS	.249	.092	.242	2.693	.008**
OC	-.300	.120	-.214	-2.505	.014**
GO	-.046	.147	-.040	-.311	.756
MO	-.137	.130	-.122	-1.054	.295
IO	-.094	.106	-.090	-.890	.376
IM-man	.133	.172	.068	.773	.442
RD	-.387	.186	-.178	-2.077	.041**
AT	.956	.189	.498	5.054	.000***

***Significant at the level 1%
**Significant at the level 5%
*Significant at the level 10%
Dependent Variable: EAS2507
Independent variables **FS** Firm Size, **FL** Firm Liquidity, **FP** Firm Profitability, **FV** Firm Leverage, **FA/TA** Barriers to Entry, **BS** Board Size, **OC** Ownership Concentration, **GO** Government Ownership, **MO** Managerial Ownership, **IO** Institutional Ownership, **IM-man** Industry Membership-Manufacturing companies, **RD** Role Duality, **AT** Auditor Type

5- EAS33-2007

Model Summary

R	R Square	Adjusted R Square	Std. Error of the Estimate
.550	.302	.203	.8083811

ANOVA

	Sum of Squares	df	Mean Square	F	Sig.
Regression	25.790	13	1.984	3.036	.001(a)
Residual	59.467	91	.653		
Total	85.256	104			

Coefficients

	Unstandardized Coefficients		Standardized Coefficients	t	Sig.
	B	Std. Error	Beta		
(Constant)	-.231	.246		-.939	.350
FS	.224	.108	.239	2.068	.041*
FL	.338	.096	.361	3.509	.001***
FP	.114	.114	.122	1.002	.319
FV	.120	.103	.128	1.164	.247
FA/TA	.005	.023	.020	.223	.824
BS	-.009	.099	-.010	-.093	.926
OC	-.118	.129	-.089	-.914	.363
GO	-.094	.158	-.087	-.599	.551
MO	-.176	.139	-.168	-1.262	.210
IO	-.020	.114	-.021	-.179	.858
IM-man	.057	.185	.031	.308	.759
RD	.119	.200	.059	.596	.553
AT	.270	.204	.150	1.328	.187

***Significant at the level 1%
**Significant at the level 5%
*Significant at the level 10%
Dependent Variable: EAS3307
Independent variables **FS** Firm Size, **FL** Firm Liquidity, **FP** Firm Profitability, **FV** Firm Leverage, **FA/TA** Barriers to Entry, **BS** Board Size, **OC** Ownership Concentration, **GO** Government Ownership, **MO** Managerial Ownership, **IO** Institutional Ownership, **IM-man** Industry Membership-Manufacturing companies, **RD** Role Duality, **AT** Auditor Type

6- VOL-2007

Model Summary

R	R Square	Adjusted R Square	Std. Error of the Estimate
.581	.337	.175	.8619038

ANOVA

	Sum of Squares	df	Mean Square	F	Sig.
Regression	21.566	14	1.540	2.074	.027(a)
Residual	42.344	57	.743		
Total	63.910	71			

Coefficients

	Unstandardized Coefficients		Standardized Coefficients	t	Sig.
	B	Std. Error	Beta		
(Constant)	.124	.401		.309	.758
FS	.083	.150	.085	.550	.584
FL	-.084	.125	-.090	-.674	.503
FP	.115	.149	.119	.772	.443
FV	-.046	.129	-.048	-.354	.724
FA/TA	.015	.051	.036	.302	.764
BS	.228	.129	.229	1.765	.083*
OC	-.142	.179	-.093	-.793	.431
GO	.000	.212	.000	-.001	.999
MO	-.257	.204	-.210	-1.262	.212
IO	-.149	.163	-.129	-.917	.363
IM-man	.065	.294	.033	.222	.825
RD	.044	.306	.019	.144	.886
AT	-.319	.267	-.168	-1.194	.237
IM-nonman	-.703	.371	-.268	-1.896	.063*

***Significant at the level 1%
**Significant at the level 5%
*Significant at the level 10%
Dependent Variable: VOL07
Independent variables **FS** Firm Size, **FL** Firm Liquidity, **FP** Firm Profitability, **FV** Firm Leverage, **FA/TA** Barriers to Entry, **BS** Board Size, **OC** Ownership Concentration, **GO** Government Ownership, **MO** Managerial Ownership, **IO** Institutional Ownership, , **IM-man** Industry Membership-Manufacturing companies, **RD** Role Duality, **AT** Auditor Type, **IM-nonman** Industry Membership-non-manufacturing companies