

**THE ASSOCIATION OF EXTERNAL AUDITOR'S
ATTRIBUTES WITH MANAGEMENT FRAUD RISK
ASSESSMENT IN FINANCIAL REPORTING:
EMPIRICAL EVIDENCE FROM YEMEN**

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MANAGEMENT FRAUD RISK ASSESSMENT IN FINANCIAL REPORTING:
EMPIRICAL EVIDENCE FROM YEMEN

By

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ABSTRACT

As stated by the International Standard of Auditing (ISA No. 240), the effectiveness of the external auditors' attributes is the primary process in management fraud risk assessment (*MFRA*). Therefore, the aim of this study is to examine the associations of external auditor effectiveness-related attributes and independent-related factors with *MFRA* in the context of Yemen. To achieve the objective of this study, questionnaires were distributed out to 410 external auditors working in private audit firms and the Yemeni Central Organization for Control and Accounting (*COCA*) for the year 2012. A total of 273 questionnaires were returned back out of which 19 were unusable. As such, the final sample of this study consists of 254 external auditors. Multiple regression analysis was used to test the study's hypotheses. This study finds positive associations of the external auditor's effectiveness score and external auditor's independence score with *MFRA*. Furthermore, questioning discussion ability, professional qualification, fraud detection experience, information technology (IT) skill, training on fraud detection, and social relationships are reported to have positive and significant associations with *MFRA*, while job position is found to have a negative association. The findings of this study indicate that Yemeni government and *COCA* should issue new regulations to increase the external auditors' awareness and effectiveness towards *MFRA*. This study also indicates that the audit profession in Yemen needs more control, regulations, laws and policies to enhance the structure of the external auditors' decision in issues related to *MFRA* in order to protect the interests of demand-supply sides of audit services and the related parties. Moreover, this study has implications for the Yemeni policy makers and government to enrich the external auditors' effectiveness and independence by issuing new regulations, new laws, and applying more control on the quality of auditing profession to protect the economy and the society stability.

Keywords: management fraud risk assessment, external auditor`s attributes, Yemen

ABSTRAK

Sebagaimana yang dinyatakan dalam Standard Pengauditan Antarabangsa (SPA No. 240), keberkesanan ciri-ciri juruaudit luar merupakan proses utama dalam penilaian risiko penipuan pengurusan (*PRPP*). Oleh yang demikian, kajian ini bertujuan untuk mengkaji hubungan antara ciri-ciri berkaitan keberkesanan dan kebebasan juruaudit luar terhadap *PRPP* dalam konteks negara Yaman. Bagi mencapai objektif kajian ini, soalan kajiselidik telah diedarkan kepada 410 juruaudit luar yang bekerja di dalam firma audit swasta dan Organisasi Pusat bagi Kawalan dan Perakaunan Yaman (*OPKP*) pada tahun 2012. Sejumlah 273 soal selidik telah dikembalikan semula yang mana hanya 19 daripadanya tidak dapat digunakan. Ini menjadikan sampel akhir kajian ini terdiri daripada 254 juruaudit luar. Analisis regresi berganda telah digunakan untuk menguji hipotesis kajian. Kajian ini mendapati wujudnya hubungan positif di antara skor keberkesanan juruaudit luar dan skor kebebasan juruaudit luar dengan *PRPP*. Selanjutnya, faktor-faktor kebolehan menyoal semasa berbincang, kelayakan profesional, pengalaman mengesan penipuan, kemahiran teknologi maklumat (TM), latihan berkaitan pengesanan penipuan, dan hubungan sosial dilaporkan mempunyai hubungan positif yang signifikan terhadap *PRPP*, manakala jawatan kerja mempunyai hubungan yang negatif. Dapatan-dapatan kajian ini menunjukkan bahawa kerajaan Yaman dan *OPKP* perlu mengeluarkan peraturan-peraturan baru bagi meningkatkan kesedaran dan keberkesanan juruaudit luar terhadap *PRPP*. Kajian ini juga menunjukkan bahawa profesyen audit di Yaman memerlukan lebih kawalan, peraturan, undang-undang dan dasar bagi meningkatkan struktur keputusan juruaudit luar dalam isu-isu yang berkaitan dengan *PRPP* bagi melindungi kepentingan permintaan-penawaran dalam perkhidmatan audit serta pihak-pihak yang berkaitan. Selain itu, kajian ini mempunyai implikasi terhadap pembuat dasar dan kerajaan Yaman bagi meningkatkan keberkesanan dan kebebasan juruaudit luar dengan mengeluarkan peraturan baru, undang-undang baru, serta mengaplikasikan lebih banyak kawalan ke atas kualiti profesyen pengauditan bagi melindungi kestabilan ekonomi dan masyarakat.

Kata kunci: penilaian risiko penipuan pengurusan, ciri-ciri juruaudit luar, Yaman

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LIST OF ABBREVIATION

AASB	Auditing and Assurance Standards Board
ACFE	Association of Certified Fraud Examiners
AICPA	American Institute of Certified Public Accountants
ACPA	Arabic Certified Public Accounting
AM	Auditor Partner
AP	Auditor Manager
AS	Accounting System
CFEs	Certified Fraud Examiners
COCA	Central Organization for Control and Accounting
CISA	Certified Information Systems Auditor
CMA	Certified managerial accounting
DSS	Decision Support System
DS	Database System
DFID	Department for International Development
EAES	External Auditor Effectiveness Score
EAIS	External Auditor Independent Score
FSAB	Financial Standards Accounting Board
GIS	Global Integrity Scorecard
ISA	International Standard on Auditing
IAASB	International Auditing and Assurance Standards Board
IFAC	International Federation of Accountants
IC	Investment Commission
IT	Information Technology
ICPA	International Certified Public Accounting
LAN	Local Area Network
MFRA	Management Fraud Risk Assessment
MSWG	Minority Shareholder Watchdog Group
MIT	Ministry of Industry and Trade
OECD	Organization for Economic Cooperation and Development
OSS	Office Support System
OTI	Organization Transparency International
PWC	Price Waterhouse Coopers
PCAOB	Public Company Accounting Oversight Board
SAS	Statement Auditing Standard
SEC	Securities and Exchange Commission
WB	World Bank
TO	Taxes Organization
YCB	Yemeni Central Bank
YACPA	Yemeni Association of Certified Public Accountants
YCPA	Yemeni Certified Public Accounting
YNIC	Yemeni National Information Center

CHAPTER ONE

INTRODUCTION

1.1 Research Background

Recently, management fraud has become a crucial issue, especially at the time when the consequence of this fraud is reflected in the collapse of many giant companies around the world. These collapses occurred in the U.S. (Enron, WorldCom, and Xerox), France (Vivendi Universal), Italy (Parmalat), Switzerland (Adecco International), UK (Bank of Credit and Commerce International and Barings Bank), and Australia (HIH Company) (KPMG, 2002; Dillon & Hadzic, 2009; Krambia-Kapardis & Zopiatis, 2010).

Management fraud has become the source of major costs for many organisations (Bierstaker, Brody, & Pacini, 2006). It occurs in almost all types of organizations and causes expensive, persistent, and increasing problems for businesses (Zahra, Korri, & Yu, 2005). The average estimated loss per organization from economic crimes globally is \$2,199,930 U.S. over a two-year period (Price Waterhouse Coopers [PWC], 2003). Organizations around the world lose an estimated five percent of their annual revenues to fraud, according to a survey of Certified Fraud Examiners (CFEs) conducted between January 2008 and December 2009. Applied to the estimated 2009 Gross World Product, this figure translates to a potential total fraud loss of more than \$2.9 trillion U.S. (Association of Certified Fraud Examiners [ACFE], 2010). Between 2002 and 2010, losses in terms of the U.S. Gross Domestic Product, have risen from \$600 billion to \$994 billion U.S., and the percentage of annual revenue lost to management fraud has risen from 5 percent to 7 percent (ACFE, Report to the

Nation, 2002, 2004, 2006, 2008, 2010). A recent study of 538 companies in 15 European nations found that fraud costs at least €3.6 billion (Zhuang, Thomas, & Miller, 2005; Bierstaker, *et al.*, 2006). Therefore, there has been awareness among the communities of the possible negative effects of management fraud on economic conditions and its retarding effect on social development. This makes it pertinent to tackle and fight its occurrence, as it has become a global issue (Organization for Economic Cooperation and Development [OECD], 2004).

Yemen is not an exceptional case. It ranks second, after Iraq, in terms of corruption and fraud around the world (The Organization Transparency International [OTI], 2009). In recent time, Yemeni National Bank, Spinning and Weaving Factory, Alberh Cement Factory, and Marib Poultry Company have collapsed, particularly due to management fraud (Yemeni Central Bank [YCB], 2005; Central Organization for Control and Accounting [COCA], 2007, 2009, 2010). Thereafter, the collapse of these companies resulted in a negative effect on the economic and social aspects of the country. In the marketplace, stakeholders' concerns started to emerge as to who should be responsible for assessing management fraud before the company fails. Many financial report users believe that the assessment of fraud is a primary audit objective, and that auditors are responsible for detecting all types of fraud (Leung & Chau, 2001; Fadzly & Ahmad, 2004; Dixon, Wood head, & Sohlman, 2006; Lee, Ali, & Gloeck, 2008). Under this circumstance, these concerns in Yemen raise questions about the audit function, especially the process of management fraud risk assessment (MFRA).

In the business environment, users of financial reports (i.e., stockholders, the government, etc.) rely on the auditor's opinion as to whether the financial statements, prepared by management, are free of material misstatements due to errors (unintentional misstatements) and fraud (intentional misstatements) (Burks, 2006; Porter, 1983). Therefore, in cases of fraud risk assessment, many auditors are charged to law court. Consequently, lawsuits brought against the auditors over management fraud weaken their credibility and tarnish the auditors' reputations (Dillon & Hadzic, 2009). These suits put mounting pressure on the profession and challenge the responsibilities of the external auditor to assess management fraud risk. The general views are that the responsibilities lie in the hands of the audit profession to embark on necessary steps and actions to regulate and lessen the effects of collapse of several major corporations by living up to their professional responsibility (KPMG, 2002). One of the well-known significant effects of fraud on the profession is the collapse of Arthur Andersen, one of the world's largest accounting and auditing firms (Bayer, 2002; Cote, 2002).

Therefore, there have been calls for improved quality of auditors to address the issue (O'Keefe, Simunic, & Stein, 1994; Deis & Giroux, 1992; Lowensohn & Reck, 2004). In this regard, the risk of the auditor increases when there is a suspicious case of management fraud due to an expensive type of fraud, and management is in a position to directly or indirectly manipulate accounting records, presenting fraudulent financial information or overriding control (International Standard on Auditing [ISA], No.240, para.19; Hegazy & Kassem, 2010; Zimbelman & Albrecht, 2012).

In the United States, many laws have been enacted, such as the Sarbanes-Oxley law of 2002. Its objective is to safeguard the public interest and ensure the confidence of investors in financial markets, oversee the work done by the audit profession, protect the independence of external auditors, and ensure impartiality of the external auditor. These have the effect of protecting and upholding the interests of investors, creditors, and financial statement users (American Institute of Certified Public Accountants [AICPA], 2005). Statement Auditing Standard [SAS] No. 99 resulted from a long history of the auditing profession's efforts to clarify the auditor's role in management fraud risk assessment, and it superseded SAS No. 82 (AICPA, 2002; Robert, Joseph, Mark, Nieschwietz, & Zimbelman, 2000).

In particular, great effort was made in terms of addressing issues related to fraud risk assessment by AICPA. The Institute adopted many policies and procedures to assess risk and expose management fraud. To reinforce this, standards ISA No.240 and SAS No.99 were issued to recognize the auditors' responsibility in assessment and reporting management fraud. Recently, ISA No. 240, regarding the auditor's responsibilities related to fraud in an audit of financial statements, classifies indicators (fraud risk indicators) into three categories—opportunity, pressure, and rationalization—that determine MFRA. Although Yemen has no local accounting and auditing standards and code of ethics, the law governing the audit profession, No. 26 of 1999, article 41 and 43, states that auditors are required to comply with generally accepted auditing standards. Further, Yemeni law No. 26, 1999, article 57, states that the responsibility towards the company's shareholders and users of the financial statements rests with the auditor. He or she must compensate for any

damages or losses he or she causes such as violating the Yemeni law and the International Standards on Auditing, or issuing incorrect financial statements.

Empirically, extensive studies have been conducted in many countries into the perception of financial report users of auditors' responsibilities in fraud risk assessment (e.g., in Australia: Beck, 1973; Monroe & Woodliff, 1994; in the U.S: Arthur Andersen, 1974; Baron, Johnson, & Smith, 1977; Epstein & Geiger, 1994; in U.K: Humphrey, Moizer, & Turley, 1993; in Hong Kong: Low, 1980; in Singapore: Leung & Chau, 2001; in Egypt: Dixon & Woodhead, 2006; and in Malaysia: Fadzly & Ahmad, 2004; in Taiwan: Hsu, Kung, & James, 2013). Their results confirm that users of financial reports believe that fraud risk assessment is the most fundamental objective of the auditors and that their role is to uncover all aspects of fraud.

One important issue related to the auditor's responsibility regarding fraud risk assessment is whether he or she is able to carry out this responsibility. International standards for the professional practice of auditing, issued by different international as well as national entities such as ISA No.240, and those issued by the International Auditing and Assurance Standards Board (IAASB), insist and stress in their standards that external auditors should possess the attributes needed to perform their individual responsibilities in fraud assessment (Rahahleh, 2010; ISA, No.240, para. 21). Kaminski, Wetzel, and Guan (2004); Bell and Carcello (2000); Colbert (2000); Beasley (1996); Persons (1995); Loebbecke, Eining, and Willingham (1989); and Albrecht and Romney (1986) empirically report that auditors' ability to assess fraud risk is subject to a change in their characteristics. Accordingly, any change in the characteristics of the auditors might likely cause changes in the extent to which

management fraud is assessed. The implication is that in those processes, external auditors could indicate their distinctive priorities, which can be categorized into wider patterns (Apostolou, Hassell, Webber, & Sumners, 2001; Kaminski, *et al.*, 2004).

In the same context, researchers (Mendell, 1995; Larkin, 1997; Graham & Bedard, 2003; Chen, 2005; Rahahleh, 2006; De Lange, Paul, Jackling, & Anee, 2006; Mahdi & Mansoury, 2009) outline several essential features and attributes to be a successful auditor. The two primary characteristics that most stakeholders and users expect from the external auditor are effectiveness and independence. Jaro (2005) showed the importance of 34 attributes of auditing quality. Saksena (2010) documented that several attributes will help external auditors conduct more thorough audits in an effort to assess fraud. Training and learning from experience are required to be successful, and an overarching goal of auditors should be continuous improvement.

In support of this, Washaly (2010) indicates that auditors are unable to assess the misstatements resulting from management fraudulent practices if they have not improved and developed their skills in conducting audits. He also reports that previous studies have focused largely on the mechanism and procedure of audit operation, and not on the desired design and performance of them.

There is a substantial amount of early and recent prior research on MFRA. These studies focused on auditor's attribute dimensions: experience (Knapp & Knapp, 2001); ability, motivation, and prior probabilities about the existence of fraud (Pincus, 1984); auditor's penalty and audit fee (Matsumura & Tucker, 1992); auditor

industry specialization (Carcello & Nagy, 2004); CPA qualification and types of auditor (Moyes & Hasan, 1996); tenure of auditor (Owusu-Ansah, Moyes, Oyelere, & Hay, 2002); responsibility (Porter, 1983; Gloeck, 1993; Lee, Ali, & Gloeck, 2008); litigation (Palmrose, 1987; Feroz, Park, & Pastena, 1991; Bloomfield, 1997; Bonner *et al.*, 1998); gender and auditor position (Moyse, Din, & Omar, 2009); knowledge of red flags and age (Yang, Moyes, Hamedian, & Rahdarian, 2010); and data mining or auto-detection (Zhou & Kapoor, 2011).

It should be noted that the above studies on the dimension of auditors' attributes have largely been carried out in countries having Anglo-Saxon legislation like the U.S., UK, and similar markets and relying on the theories of agency and attribution. Studies have focused on these countries because their capital markets are well-developed and they have the same type of business and audit environments. Further, these studies have resulted in mixed and inconclusive results regarding management fraud (Pinkus, 1989; Johnson, Jamal, & Berryman, 1989; Zimbelman, 1997; Glover, Prawitt, Schultz, & Zimbelman, 2003; Alleyne, Persaud, Greenidge, & Sealy 2010; Law, 2011).

In spite of the contradictory and inconclusive findings on MFRA, such results of studies on non-Yemen countries are not able to be generalized to the Yemeni context. This is because the setting of Yemen is different than the other countries in terms of politics, economics, and social and institutional aspects. For instance, the reports on auditor scandals and the qualified audit are uncertainly low, given the rising development of the audit market, the rise in demand for audit services, the various degrees of protecting investors from the enforcement of legal action, the

structure of ownership, and individual cultural differences. Given the distinction of the Yemeni market from the other countries, studying this country could provide quite a distinctive correlation results. In addition, using a different sample will provide more empirical evidence. Based on the researcher's best knowledge, empirical evidence linking external auditor's attributes and MFRA in Yemen does not exist. To buttress this fact, Talai (2004) and Adimi (2007) noted that not much is known about the audit function in Yemen. Given this fact, there is need for more empirical studies on the MFRA in this country. Nonetheless, the Yemen favorable environment in relation to business and regulation can motivate a change among the auditors to utilize self-attributes in risk assessment of management fraud.

For these reasons, this study aims to provide empirical evidence of the likely attributes of external auditors in Yemen assessing management fraud risk. The MFRA framework takes its lead from the past studies and applies to the following auditor variables: academic qualification, professional qualification, study major, training on fraud detection, auditing experience, fraud detection experience, job position, auditor type, information technology skill, responsibility perception and audit fees. In addition, the MFRA model of the study was augmented by new variables, which have not been incorporated and investigated before in the past studies. The new variables introduced to the MFRA framework are as follows:

Questioning discussion ability. International standards on auditing, especially International Federation of Accountants (IFAC) ISA 240 (IFAC, 2009), require early engagement and audit team discussion of the possibility of material financial misstatements due to fraud or error. Questioning discussion ability plays a significant

role as a skill for the successful risk assessment of management fraud by external auditors (SAS, No. 99). Moreover, the current environment requires new CPAs, as well as seasoned professionals, to acquire supplementary investigative and discussion skills, because the majority of frauds are uncovered following tips from employees and others (Kranacher & Stern, 2004).

Hiring and changing of the auditors. One important issue regarding the process of hiring and changing of the auditors is that it varies among stakeholders and organizations (e.g., Knechel, 2001; Abdel-Khalik, 1993). Yet, little knowledge is available about the complexity behind the reasons for which an organization chooses a specific auditor over another (e.g., Knechel, 2001). Moreover, hiring and changing of the auditor represents an important factor of auditor independence. When management controls the auditor's selection process, his or her independence in evaluating the financial statements may be negatively impacted (Amoudi, 2001; Kasharmeh, 2003; Matter, 1994; Teoh, 1992). As far as this study is concerned, the researcher is not aware of any work in the past that has provided an empirical connection between changing and hiring of the auditors and MFRA.

Social relations. With regard to social relations, studies by Bashtawi and Suleiman (2003) investigate the influences of social factors on the external auditors' performance and independence. It is found that the auditor's commitment to the rules and regulations decrease the adverse consequences of those factors. Basodan, Mustafa, and Almotaz (2004) showed that social relations between the auditor and management have negative effects on the independence and performance of the

external auditors. The researcher is not aware of past studies which have provided a connection of social relations to MFRA.

Economic relations. Some studies suggest that the provision of economic relations (non-audit services) compromises auditor independence. For example, Frankel, Johnson, and Nelson (2002) found that non-audit services are associated with increased discretionary accruals and the achievement of certain earnings benchmarks. Krishnamurthy, Zhou, and Zhou (2006) documented that the abnormal returns for Andersen's clients around Andersen's indictment are significant and more negative, when the market perceives the auditor's independence to be compromised. When management has a strong economic relation to the auditor (non-audit fees), the auditor has an incentive to ignore potential problems and issue a clean opinion (Zhang, Zhou, & Zhou, 2007). The offering of audit services (economic relations) simultaneously for the same client has created conflicts of interest that apparently impair auditors' objectivity and independence, resulting in audit failures (Rezaee, 2004). The researcher has no knowledge of studies that have connected economic relations with MFRA.

External Auditor's effectiveness score. With regard to the external auditor's effectiveness score (academic qualification, professional qualification, study major, training on fraud detection, audit experience, fraud detection experience, job position, auditor type, IT skill, questioning discussion ability, and responsibility perception), this study considers auditors' attributes as a bundle of characteristics associated with MFRA and not isolating them from each other because the

effectiveness of single attribute depend on the other attributes (Ward, Brown, & Rodriguez, 2009).

External Auditor's independence score. With regard to the auditor's independence score (audit fees, hiring and changing of the auditor, social relations, economic relations), it is better to look at external auditor attributes as a bundle of characteristics enhancing his or her ability in MFRA, because the independence of a single attribute depends on the other attributes (Ward *et al.*, 2009). Agrawal and Knoeber (1996) indicated that it is better to consider the combination of several factors rather than investigating them individually, which may mislead the results.

To recapitulate, it is believed that these characteristics act based fraud risk indicators in a complementary or substitutable fashion in making MFRA (e.g., Moyes & Hasan, 1996; Owusu-Ansah *et al.*, 2002; Moyse *et al.*, 2009; Zhou & Kapoor, 2011).

1.2 Problem Statement

Yemen has been facing hardships over the past 34 years resulting from political, economic, and social problems; from 1990 until this date, the hardships have been pronounced. On May 22, 1990, a new republic emerged, known as the Republic of Yemen. The lingering political, economic, and social problems related to corruption and lack of good governance were inherited by the new the Republic of Yemen, and pose challenges to the Republic, corruption has affected most of the Yemeni's aspects of life and has deteriorated the auditing system (Moghran, 2007). The situation has been further compounded by the occurrence of civil war and the presence of unstable and very weak law enforcement, which has influenced the

perpetration of management fraud (Moghram, 2007). The instability and disappearance of law and control have motivated greater management fraud, which is considered losses to the controlling and auditing system (Moghram, 2007).

One of the shortcomings and weaknesses that characterize the audit profession in Yemen is the lack of full audit standards. Though there are few rules such as audit law No. 26 of 1999, companies law No. 22 of 1997, COCA law No. 39 of 1992, penal and criminal Law No. 12 of 1994 and the banking law No. 38 of 1998; their presence cannot be used as required standards to guide professional practice in Yemen especially when the efficacies of such laws are compared with that of the rest of the globe. This weakness in Yemeni's standard has brought serious disparity between Yemen's auditors and that of other countries especially in the applications of the criteria that are being used as generally accepted auditing standards in the international auditing community (Bamashmoos, 2003).

The Organization Transparency International (OTI) annual report, released on November 17, 2009, documented Yemen as among the least transparent countries, with high levels of fraud and corruption. The World Bank report (2008) indicated that Yemen seems not to be able to reduce the occurrence. Furthermore, Transparency International's Corruption Perception Index 2013 ranks Yemen 167 out of 177 countries, with a score of 18/100 (OTI, 2013). This compares to a ranking of 156 in 2012 and 131 in 2006 (OTI, 2006, 2012). The World Bank's Control of Corruption Index 2011 ranks Yemen with a similarly low score, between the 10th and 25th percentile (WB, 2011). The Global Integrity Scorecard 2010 scores Yemen as very weak at 33/100, and ranks Yemen as 15/100 for the implementation of its anti-

corruption framework (GIS, 2010). This scoring pattern has been repeated each time the index has been compiled (2006, 2008, 2010), though the overall trajectory has been steadily worsening (as reflected in all indices) (Department for International Development [DFID], 2013). However, for the first half of 2005, COCA listed 55 cases resulting in financial losses exceeding 3 billion Yemeni riyals, (\$15 million U.S.).

The actual number of management fraud cases was generally considered to be significantly higher than what was reported by COCA. The cost of management fraud in governmental agencies has been reported as exceeding \$9 million U.S. annually (Moghram, 2007). Since 2003, for example, the number of organizations reporting incidents of bribery has increased by 71 percent. Claims of money laundering have increased by 133 percent, and reports of financial misinterpretation (management fraud) have grown by a whopping 140 percent (PWC, 2005). Unfortunately, management fraud in financial statements can intentionally misstate the financial position and performance of an organization. Such misstatements can result from manipulating, falsifying, or altering accounting records. Misleading financial statements cause serious problems in the market and the economy. They often result in large losses for users like investors and the government, lack of trust in the market and accounting systems, and litigation and embarrassment for individuals and organizations associated with financial statement fraud (Efendi, Srivastava, & Swanson, 2007; Zimbelman & Albrecht, 2012) .

Currency Unit – Yemen Riyals (YR) US\$1 = YR 200

One of the worst management fraud cases reported in Yemen was that of the National Bank for Trade and Investment. It is worth noting that the Central Bank of Yemen (YCB), in 2005, joined in probing the Yemeni Central members of the Board of Directors of National Bank for embezzling 47.818 billion Yemeni riyals (\$239 million U.S.) from the National Bank for Trade and Investment, which led to the bankruptcy of the bank (YCB, 2005). Furthermore, there was a case of a spinning and weaving factory, where in 2004 the total loss of the factory was 7.2 billion Yemeni riyals (\$36 million U.S.) and where 1,600 employees lost their jobs since the collapse of the factory. The aforementioned collapses are among many organizations such as Marib Poultry, (production and marketing of salt and gypsum), Paint Production, and General Company (production of seed potatoes) that collapsed in Yemen due to management fraud that occurred simultaneously with receiving clean reports from external auditors (COCA, 2007).

In the same vein, one of the motives of the administration to commit the fraud is to decrease the large amounts of profits to reduce tax (ISA 240, para. 10). In Yemen, tax fraud is large in the private sector, amounting in the year 2009 to \$3.5 billion U.S. Economists identified that undeclared annual profits are affecting the Yemeni economy (COCA, 2009). In addition, the government of Yemen, represented by the Taxes Organization, claims that about 80 percent of private companies in Yemen intentionally evade taxes payment by declaring unreal annual profits (Abbasi, 2009). Further, the probability of getting a qualified audit opinion by external auditors in the Yemeni business environment is rare. There are also ambiguities on how companies receive a clean report and at the same time announce their bankruptcy (Chih, 2008). This indicates that management fraud in Yemen is increasing, which may lead

businesses and government organizations to suffer in the long term. With each failure of the company shortly after the issuance of the MFRA, the financial statements users started asking the question: “Where were the external auditors?” and “Why were they unable to assess the risk for fraud?”

Under this circumstance, the role of external auditors in assessing the risk of management fraud is still questionable (Haij, 2002; Washaly, 2010). Simultaneously, this issue highlights the importance of the role of external auditors in Yemen as the government aims at establishing and enacting the Yemeni stock market (Saba Agency, 2010). In addition, Yemen has been accepted as a member in the World Trade Organization, and there is a governmental strategy of privatizing many governmental agencies (Althawranews, 2013, December). These new projects are expected to increase the demand for audit services. Empirical studies show users of financial reports believe that risk assessment of all aspects of fraud is the most fundamental objective of the external auditors. In other words, how could ISA 240 assist Yemeni auditors in detecting possible fraud in financial statements? (Leung & Chau, 2001; Dixon *et al.*, 2006; Humphrey *et al.*, 1993; Arthur Andersen, 1974; Baron *et al.*, 1977; Epstein & Geiger, 1994; Low, 1980; Fadzly & Ahmad, 2004; Beck, 1973; Monroe & Woodliff, 1994).

It is further reported that external auditors’ ability to assess risk for management fraud varies based on their characteristics (Kaminski *et al.*, 2004; Bell & Carcello, 2000; Colbert, 2000; Beasley, 1996; Persons, 1995; Loebbecke *et al.*, 1989; Albrecht & Romney, 1986). Accordingly, any change in the attributes of the auditors might cause a change in the degree to which management fraud is assessed. The

implication is that in those processes, external auditors could indicate their distinctive priorities that can be categorized into wider patterns (Apostolou *et al.*, 2001; Kaminski *et al.*, 2004).

IAASB, as well as other national and international standards levels of the Auditing Professional Practice such as ISA 240, have emphasized the requirement of the external auditors to have good quality attributes as a standard to carry out their roles of MFRA (Rahahleh, 2010; ISA 240, para. 21). The extant literature (Rahahleh, 2006; Chen, 2005; Mendell, 1995) has also identified many good attributes an auditor should possess in order to succeed. In addition, Jaro (2005) pointed out 34 significant attributes in six groups that portray auditing quality, among which is a link to external auditors. Saksena (2010) also indicated many attributes that help external auditors carry out their comprehensive audits to assess risk of management fraud. According to the author, acquiring training and learning through experience and constant improvement have the tendency to lead auditors to success. Washaly (2010) buttressed this assertion by noting that external auditors without improved self-developed skills found it difficult to uncover misstatements arising from fraud practices by management.

It is well-conceptualized by the attribution theory, suggested by the ISA No. 240 and argued by Kranacher and Stern (2004), that an auditor with greater questioning discussion ability is more likely to assess management fraud risk. In addition, agency theory and previous empirical evidence (Knechel, 2001; Abdel-Khalik, 1993) suggest that the higher the responsibility of the management in hiring and changing auditors, the less motivation the auditors have to assess management fraud risk.

Further, agency theory conjunctures and extant research (Bashtawi & Suleiman, 2003) argue that the higher social relations are established with the external auditors by management, the less likely the management fraud risk is assessed. Based on agency theory and the suggestions of prior research (Frankel *et al.*, 2002; Zhang *et al.*, 2007), firm's management establishing economic relationships with the external auditor negatively influences the fraud risk assessment. Furthermore, it is argued that considering the external auditor's attributes as one bundle gives better measurement than considering them individually (Ward *et al.*, 2009; Agrawal & Knoeber, 1996). In this regard, the effectiveness and independence of the aggregated attributes will indicate the auditor's ability to assess management fraud risk.

In short, this study aims to provide empirical evidence on the likely attributes of external auditors (academic qualification, professional qualification, study major, training on fraud detection, audit experience, fraud detection experience, job position, auditor type, information technology skill, questioning discussion ability, responsibility perception), and independence-related factors (audit fees, hiring and changing of the auditor, social relations, and economic relations) in risk assessment of management fraud in the Yemeni context.

1.3 Research Questions

Based on the above discussion in the problem statement section, the general question of this study is: what is the association between the external auditor's attributes and MFRA in Yemen? In particular, the following questions are addressed:

1. To what extent is the association between the external auditor's effectiveness-related attributes (academic qualification, professional qualification, study major, training on fraud detection, audit experience, fraud detection experience, job position, auditor type, information technology skill, questioning discussion ability, and responsibility perception) and MFRA?
2. To what extent is the association between the external auditor's effectiveness, independence scores and MFRA?
3. To what extent is the association between the external auditor's independence-related factors (audit fees, hiring and changing of the auditor, social relations, and economic relations) and MFRA?
4. Is there any significant difference mean score among different classes of auditor type (i.e., COCA, Big 4, international, and local) in terms of MFRA proxy?
5. What is the relative importance of the fraud risk indicators in Yemen?

1.4 Research Objectives

The broad aim of this study is to provide evidence of the association between the external auditor's effectiveness-related attributes, effectiveness score, independence-related factors, and independence score with the incidence of MFRA in Yemen. In specific, this study aims to achieve the following objectives:

1. To determine the association between the external auditor's effectiveness-related attributes (academic qualification, professional qualification, study major, training on fraud detection, audit experience,

fraud detection experience, job position, auditor type, information technology skill, questioning discussion ability, and responsibility perception) and MFRA.

2. To examine the association between the external auditor's effectiveness and independence scores and MFRA.
3. To identify the association between the external auditor's independence-related factors (audit fees, hiring and changing the auditor, social relations, and economic relations) and MFRA.
4. To identify a significant difference mean score among different classes of auditor type (i.e., COCA, Big4, international, and local) in terms of MFRA proxy.
5. To determine the relative importance of the fraud risk indicators in Yemen.

1.5 Significance of the Study

Significance of the study is analyzed in terms of its academic and practical significance.

1.5.1 Academic Significance

The findings of empirical studies carried out in the U.S., UK, and similar markets regarding MFRA in organizations by external auditors are mixed. However, the study of Yemeni auditors' attributes with MFRA is lacking in all studies focused on auditors' attributes with auditor performance and audit quality. Thus, by conducting this study, more valuable findings will be revealed, which helps enrich the level of auditors' attributes in risk assessment of management fraud, especially concerning

least developed countries like Yemen. Particularly, this study uses a sample of Yemeni external auditors in audit firms and the Central Organization for Control and Accounting (COCA). Therefore, the findings may also provide useful information when making comparative studies with other countries. To date, there is no study concerning MFRA in Yemen like this study's theoretical framework. By carrying out this study, the findings may explain the level of auditors' attributes and MFRA in Yemen. It will also provide a signal and guidance to auditors, owners, and investors on the preparation of assessing management fraud risk.

In terms of theory contribution, this study highlights agency theory, accountability theory, attribution theory, and MFRA perspective in relation to firms' scandals, and failure of external auditors to assess fraud. However, this study demonstrates that the accountability theory, which has not been previously used in the context of MFRA, complements agency theory and attribution theory. This theory has been used to explain the auditor's responsibility perception and MFRA.

With respect to methodological significance, this study includes the four new variables (questioning discussion ability, hiring and changing of the auditor, social relations, and economic relations) introduced in this study. Moreover, previous studies did not include testing external auditors' effectiveness and independence scores. Therefore, this study considers the above in relation to management fraud risk assessment in Yemen.

1.5.2 Practical Significance

In terms of practical contribution, the findings can provide some meaningful insights into regulators such as the Central Organization for Control and Accounting (COCA), Yemeni Association of Certified Public Accountants (YACPA), audit firms, Minority Shareholder Watchdog Group (MSWG), Investment Commission (IC), Taxes Organization (TO), Yemeni academicians, owners, investors, and consultants in designing rules and regulations for the external auditor profession.

The current research work could be useful to narrow the expectations gap in the audit and develop new approaches to the audit in order to increase the capacity of auditors to assess management fraud risk. This further increases the importance of the audit profession to society, and increases the justification for their need. The study could also demonstrate the strength and flexibility in providing the framework that is commensurate with enhancing audit economic developments. In most cases, failure to assess management fraud risk often leads to investors' losses, which in turn leads to litigation against external auditors. Therefore, the result of the current study is capable of providing insight for external auditors to focus more on enhancing the risk assessment of management fraud, to avoid the adverse impact of the detection on their credibility as professionals, as was the case with Arthur Andersen.

The role of external auditors in society is to improve confidence in their financial statements. Their success in the work can convince the community to trust the profession of auditing and external auditors as a group. By providing empirical evidence, external auditors could focus more on enhancing the auditing profession to avoid the adverse effects of abuse and poor credibility, so that financial statements

will be appropriate for decision making. False or untrue declarations of financial information can lead users to make incorrect decisions with respect to the distribution and allocation of investment resources. This leads to inefficiency, which ultimately hurts economic growth as a whole.

1.6 Scope of the Study

This thesis investigates the management fraud (financial statements fraud) issue from the perspective of external auditors (COCA, Big 4, international, and local) as applicable to the Yemeni setting. In this study, a quantitative method will be employed to obtain the primary data to be used. The primary data is sourced from the respondents with the use of a survey instrument, which would be distributed among the representative sample of public and private external auditors who work in audit firms and the Central Organization for Control and Accounting in Yemen. The mode of analysis that will be used in this study is descriptive. In addition, hypotheses will be developed to test the relationship in line with the objectives of the study. Similarly, multiple regressions will further be used to examine the relationship between the variable of this study, using the statistical package for social science.

On the other hand, the scope of the study leads to the limitation of study where it only focuses on the issue of management fraud from the perspective of external auditors applicable to the Yemen setting. The study employed quantitative method for data collection and questionnaires are distributed to the selected sampling population within the research boundaries.

1.7 Organization of the Thesis

This study is organized into seven chapters, including the introduction. The details of remaining chapters are described below in Table 1.1.

Table 1.1
Description of Chapters

Chapters	Description
Chapter1	Discusses the introduction, justification for the study, objectives, and significances of the study.
Chapter 2	Deals with relevant literature review and a summary of previous research related to this study. The review presented in this chapter will include an overview, background of Yemen, the concept and definition of fraud, types of fraud, management fraud, management fraud risk assessment (including the external auditor's responsibility), fraud triangle, characteristics of management fraud risk assessments, consideration of management fraud risk attributes,, and factors that influence external auditor risk assessment of management fraud are also discussed. Ultimately, agency, attribution, and accountability theories that explain MFRA are discussed.
Chapter 3	Explains the research conceptual framework and theoretical justifications for the hypotheses development.
Chapter4	Explains research design, research instruments, measurement of variables, and the data analysis techniques used in this study.
Chapter 5	Presents an analysis and interpretation of the results of the study. This chapter discusses unsolicited, as well as requested, responses to the survey form and an interpretation of the statistical findings.
Chapter 6	Highlights the results and consequent discussions.
Chapter7	Highlights the summary of the study, implications of the study contributions, limitations of the study, and the suggestions made for future research.

1.8 Summary

This chapter provides the background to this research study. It explains the statement of the problem and the need for research in this field. The objectives of this dissertation are stated. It points out the significance of this research to the academic literature and practice. Finally, the scope and organization of the study are discussed.

CHAPTER TWO

LITERATURE REVIEW

2.1 Introduction

This chapter presents an overview of the literature that relates to the topic under investigation, namely, the association of external auditor's attributes with MFRA in financial reporting: empirical evidence from Yemen. The overview consists of background of Yemen, the concept and definition of fraud, types of fraud, management fraud, management fraud risk assessment include external auditor's responsibility, fraud triangle, characteristics of management fraud risk assessments, consideration of management fraud risk attributes, and factors influencing the external auditor capability in management fraud risk assessment are also discussed. Ultimately, attribution, accountability, and agency theory that explain MFRA will be discuss.

2.2 Background of Yemen

2.2.1 General Information

Yemen is situated in the southwest Asia of Arabian Peninsula. It is bordering with Saudi Arabia in the north and Arabian Sea in the south. It also shares border with the Gulf of Aden in the east and the Sultanate of Oman in the west of the Red Sea. It has an area of 527,970 square kilometers. In terms of economy, Yemen is one of the less developed and poorest countries in the Middle East in which its percentage population living in poverty is more than 45 percent (WB, 2008). Politically, democracy involves the putting in place of institutions for the participation of

citizens in decision-making. These entail the creation of mechanisms where involvement in participation is made a usual feature of government's business.

In Yemen, State institutions never functions properly as expected and what is turning out to be the driving force in the life of Yemen citizen is corruption particularly fraud, bribed and nepotism. Yearly there has been increase in the number of the poor and unemployed citizens while the percentage (relative to the population) of the influential forces or officials, and tribal figures who got themselves enriched with the abuse of power is becoming increasing (Moghram, 2007).

2.2.2 Management Fraud in Yemen

Concerning management fraud, Yemen cannot be exempted. In terms of corruption and fraud, Yemen is ranked second after Iraq in the world rating (OTI, 2009). According to the World Bank report (2008), Yemen never seemed to have lessened the corruption phenomenon. For example, one management fraud considered to be worst in Yemen was the case of the National Bank for Trade and Investment reported. As a result, the Central Bank of Yemen (YCB) has intervened in this case of National Bank in 2005, pointing accusation finger to the Yemeni Central members of the Board of Directors of National Bank for Trade and Investment defrauding the amount of 47.818 billion Yemeni riyals (\$239 million U.S.), which consequently caused its bankruptcy. Unfortunately, the reports of external auditor at that time and before never signaled the risk of management fraud (YCB, 2005).

In addition, there was a case of spinning and weaving factory in which it incurred loss amounted to 7.2 billion riyals (\$36 million U.S.) with 1,600 employees losing their jobs following the liquidation of the factory in 2004. Similarly, COCA's report

in 2007 pointed out the yearly constant losses incurred by the Marib Company which amounted to 169.6 million riyals (\$.848 U.S.) in financial year end 2005 thus making it difficult to further its activities. The above-mentioned organizations are among many organizations which collapsed in Yemen as a result of management fraud which was cleanly reported from the external auditors (Chih, 2008). Others include Companies (production and marketing of salt and gypsum, production of seed potatoes, Paint Production) and Alberh Cement Factory, (COCA, 2007, 2010).

In addition, one administration's objective to embark on fraud is to reduce a greater amount of profits realized in order to lessen tax (ISA 240, para. 10). This form of tax fraud in Yemen is very rampant and large in the private sector totaling \$3.5 billion U.S. in 2009. It was pointed out by the economists that the failure to declare yearly profits is adversely influencing economy of Yemen (COAC, 2009). More so, the Taxes Organization representing government of Yemen asserts that roughly 80% of private companies in Yemen deliberately indulge in taxes avoidance by pronouncing ingénue annual profits (Abbasi, 2009). Unfortunately, the likelihood of getting qualified audit views by external auditors in the business environment of Yemen is somehow difficult. It was really not certain on the way a clean report was gotten at the same time its bankruptcy was announced (Chih, 2008).

2.2.3 Legal structure

Just like other countries, Yemen puts in place a legal and institutional system which establishes an official legal and institutional framework that deals with the issues of crimes and prevention of corruption. Nonetheless, the quality of official laws and rules for the prevention of corruption as well as institutions has influenced on the

Yemen's governance structures (Moghrum, 2007). Sometimes official laws are often neglected for unofficial laws, like custom and tribal laws in Yemen. For instance, in a case where an employee with a tribal support is found guilty of corruption, the tribal law or customs is used to deal with the issue through the tribe intervention. As a result, tribesmen always feel secure by the application of their unofficial laws and custom in dealing with issue (Al-Dawsari, 2012). In addition, most cases of corruption are settled at their preliminary, investigating or prosecuting stages through the intervention of tribesmen or the sheikh (tribe leader) for settlements and reconciliations out of the formal law (Al-Dawsari, 2012).

The essential question to ask in respect of the formal legal and institutional framework is, how effective are the frameworks in ensuring good governance and prevention of corruption in Yemen? In order to provide answer to this question there is a need to review and analyze the present state of official regulatory and organizational infrastructure which is in existence in Yemen (Moghrum, 2007). To do this an evaluation of the present legislation and institutions is necessary in order to identify the ability of the legal and administrative measures executed for the prevention of the corruption increment in Yemen. Many steps have been taken by the Republic of Yemen (a unified state) since May, 1990 in order to develop its unified legal and judiciary system by eradicating the old systems associated with the previous parts of Yemen. Several laws and regulations were made in order to strengthen the rule of law, enhance administration public service, and promote criminal justice system with the aim of establishing a base for legal framework which assists institutions to control and prevent corruption.

The legal framework put in place for the prevention of corruption in Yemen relies on the laws, regulations and by laws like (AL-Ahdal, 2008) stated as follows:

- Chartered Accountants Act No. 26 for the year 1999.
- Law No. 39 of 1992 for Central Organization Controlling and Accounting (COCA).
- Law No. 12 of 1994 for penal and criminal.
- Law No. 8 of 1990 and its amendment of 1979 for financial law.
- Law No. 30 of 2006, regarding the (Disclose and Declaration of financial assets for public servants (issued before the elections in 19 Augusts 2006).
- Tax Law No. 31 of 1991, as amended.
- Companies Law No. 22 for the year 1997.
- Law bodies, institutions and public companies, No. 35 for the year 1991.
- Amended the Banking Law No. 38 for the year 1998.
- The law regulating agencies and branches of foreign companies and home No. 36 for the year 1992.
- Unified accounting system and instructions issued by the Ministry of industry and Trade and the Central Organization for Control and Accounting.

2.2.4 Auditing Profession

Over the past two decades, there has been tremendous change in the auditing profession in Yemen due to new policies executed by the Yemeni government. One of the changes that took place involves a gradual implementation of the privatization policy in 1995. This has changed the public companies' ownership with the issuance of Law No. 22 of 1997. In order to verify public companies' the financial statements there is a rising demand for audit services in Yemen. As a result, the Yemeni

government passes a law, which is fundamental to any audit control 31 of 1992, and the revision of Law No. 26 of 1999. These laws govern the external auditor's work when auditing Yemeni companies.

The Yemeni Association of Certified Public Accountants (YACPA) was established in 1987 with approved or certified accountants as members. It aims to promote accounting profession and auditing and to strengthen the investors' confidence on the capital market (Anderson, 1996). There is a difference between the new and old law in terms of licensing. The new law (Article 5 of Law No. 26 of 1999) requires the following: a new degree in Accounting; three to four years work experience in audit after graduation; one to two years after the Masters degree with six months to one year post-doctoral. The most significant changes in the new law are in the qualification and licensing requirements to accountants as stated by the governing body.

2.3 Fraud

From the literature, it can be seen that fraud has been broadly defined. The ISA 240 'The Auditor's Responsibilities to Consider Fraud in an Audit of Financial Statement (Revised)' defines fraud as "an intentional act by one or more individuals among management, those charged with governance, employees or third parties, involving the use of deception to obtain an unjust or illegal advantage (ISA 240, para. 6, p. 6)." According to Black Law Dictionary cited in (Lawrence & Wills, 2004), fraud also means, "taking advantage over another person by providing false, misleading suggestions, or by suppression of the truth." Therefore, fraud is not restricted to monetary or material benefits. It includes intangibles such as status and information.

In the Anti-fraud policy in Murdoch University (2001), fraud is described as “...inducing a course of action by deceit or other dishonest conduct, involving acts or omissions or the making of false statements, orally or in writing, with the object of obtaining money or other benefits from or by evading a liability.”

According to MacDonald and Associates (1993), there are no actual definitions of fraud and error since the dividing line where error crosses into fraud is based on the psychological construct of intent. MacDonald and Associates (1993) argues that fraud is a legal term, which applies when intent can be proven in a court of law. However, Pollick (2006) claims that fraud is not easy to prove in a court of law as the accuser must be able to demonstrate that the accused had prior knowledge and had voluntarily misrepresented the facts. Alleyne and Howard (2005: 285) define fraud as intentional deception, cheating and stealing. Some common types of fraud include creating fictitious creditors, ‘ghosts’ on the payroll, falsifying cash sales, undeclared stock, making unauthorized ‘write-offs’, and claiming excessive or never-incurred expenses.

In summary it could be said that fraud is the intentional distortion of financial statements or other records by persons internal or external to the authority, carried out to conceal the misappropriation of assets or otherwise for gain.

2.4 Types of Fraud

There are many ways to classify the various types of fraud. The most common way is to simply divide fraud into those that are committed against organizations and those that are committed on behalf of organizations. Alleyne and Howard (2005)

classify fraud into employee embezzlement, management fraud, investment scams, vendor fraud, customer fraud, and miscellaneous fraud. The definition for each fraud is given in table 2.1.

Table 2.1
Types of Fraud

TYPE OF FRAUD	PERPETRATOR	VICTIM	EXPLANATION
Employee Embezzlement	Employees of an organization	The employer	Employees use their position to take or divert assets belonging to their employer. This is the most common type of fraud.
Vendor fraud	Vendors of an Organization	The organization to which the vendors sell goods or services	Vendors either overbill or provide lower quality or fewer goods than agreed.
Customer fraud	Customers of an organization	The organization which sells to the customers	Customers don't pay, pay too little, or get too much from the organization through deception.
Management fraud (Financial statement fraud)	Management of a company.	Shareholders and/or debt holders and regulators (taxing authorities, etc.)	Management of a manipulates the financial statement to make the company look better than it is. This is the most expensive type of fraud.
Investment scams and other consumer frauds	Fraud perpetrators all kinds	Unwary investors	These types of frauds are committed on the internet and in person and obtain the confidence of individuals to get them to invest money in worthless schemes.
Other (Miscellaneous) types of fraud	All kinds-depends on the situation	All kinds-depends on the situation	Anytime anyone takes advantage of confidence of another person to deceive him or her.

Source: Zimbelman and Albrecht (2012)

This study focuses on management fraud due to it is most costly or expensive type of fraud and management is frequently in a position to directly or indirectly manipulate

accounting records, present fraudulent financial information or override control (ISA, No.240, para.19; Hegazy & Kassem, 2010) .

2.5 Management Fraud

Management fraud involves different areas of study. The different areas of management fraud are dealt with by various theories in different discipline such as accounting, finance, management, ethics, organizational behaviour, social psychology, and leadership. Management fraud can take different form such as deliberate omission or incorrect stating of organization's assets or obligations (Elliot & Willingham, 1980). The Treadway Commission (1987) was defined management fraud as “intentional or reckless misconduct, whether act or omission, that results in materially misleading financial statements. It may entail gross and deliberate distortion of corporate records as well as the misapplication of accounting principles.” The outcome of this omission of incorrect statement can be organization's failure.

This implies that management fraud can be found in different forms of organizations causing unrelenting and costly problem for businesses (Zahra, Korri, & Yu, 2005). From the global economic crime, the mean lost calculated in respect of each organisation is \$2,199,930 U.S. during the period of two years (PWC, 2003). It was found in 15 European Countries that fraud costs a minimum of € 3.6 billion in a study of 538 companies carried out (Zhuang, Thomas & Miller, 2005; Bierstaker, *et al.*, 2006). Management fraud is now the main organizational costs (Bierstaker, *et al.*, 2006). The results of a survey of (CFEs) from Jan 2008 to Dec 2009 indicates that lose emanating from organizations throughout the world amounted to 5% of their

revenue yearly. This amount when related to 2009 estimates of Gross World Product shows a potential total fraud loss greater than \$2.9 trillion U.S. (ACFE, 2010). From 2002 to 2010, losses, when related to U.S. Gross Domestic Product, increase from to \$994 billion from \$600 billion while revenue lost yearly to management fraud increases to 7% from 5% (ACFE, Report to the Nation, 2002, 2004, 2006, 2008, 2010).

In addition, awareness has been created on the likely adverse impacts of management fraud on the economy and its retrogressive impact on social development which make it necessary to deal with for it has come to be an issue worldwide (OECD, 2004). Business crime whether internal or external is a forbidden act in business organization. Financial statements are misunderstood due to financial misstatements done intentionally or unintentionally. The action performed by the manager during business activity is known as management activity. According to Elliot and Willingham (1980), the combination of these activities raises the risk difficulty of the organization and the management responsibility for the blame.

When a fraud is considered from the view of fraud object, it is refer to as corporate fraud (O’Gara, 2004). Such could either be for organization in terms of inflating sales or against organization in terms of hiding or diverting assets. Given that from the structure of financial report, management fraud results from over or under statement, and misstatement, corporate fraud was refer to by O’Gara as the abuse for self-gain of the opportunistic advantage. The employment of an individual occupation for self-enrichment via the intentional misuse or wrong application of the resources of the organization is referred to as occupational fraud (ACFE, 2004). The

definition given by ACFE is an aspect of occupational fraud by including owners as well as executives. In their two-year report on occupational fraud, it was stated by ACFE that owners and executives stand for just 12.4 % of all occupational fraud cases reported. Also reported was a median loss which was larger than losses incurred from non-executives by 14 times. However, the laws, rules, and regulations made by U.S. Congress of the Sarbanes-Oxley Act of 2002 with its provisions of improving internal control of the organizations was to uncover and avoid management fraud. The report given by ACFE 2004 with respect to occupational fraud indicated that internal controls uncover only 6 % of all occupational fraud cases by owners and executives. Another report of misbehavior indicates cases of 51 % not involved in internal controls discovery.

With respect to fraud risk assessment, who should be blame for fraud? Users of financial report have considered the assessment of fraud risk to be purely external auditors' responsibility (Leung & Chau, 2001; Fadzly & Ahmad, 2004; Dixon & Woodhead, 2006; Lee *et al.*, 2008). Usually, financial information users are accountable on the report of external auditor in making sure that the management does not take them in. For this reason, many external auditors are sued to court over the cases of frauds. Lawsuit charged against the external auditors for fraud management has influence of weakening the credibility of their profession and adversely affect their reputation (Dillon & Hadzic, 2009). These mounted pressure on the profession and challenged the responsibilities of the external auditor to assess management fraud risk. The general views are that the responsibilities lie on the hand of the leader of the external auditors and the audit profession to embark on necessary steps and actions to regulate and lessen the effects of collapse of several major

corporations by living up to their professional responsibility (KPMG, 2002). Management fraud was considered to be the responsibility of external auditors in the preparation and certification of the financial statements from the books and record of organizations. Guidance was given by the AICPA to external auditors with respect to their responsibilities in detecting and preventing management fraud. Standard to follow was provided by the Financial Standards Accounting Board (FSAB) with respect to preventing and detecting management fraud through external auditor's ability on risk assessment.

The revision of the standards and approaches used by the external auditors to detect management fraud for clients was done by Statement on Accounting Standards (SAS) 99 following the Sarbanes-Oxley Act of 2002. The revision in SAS 99 expects the auditors to ensure the prevention of the occurrence of management fraud in a proactive manner. This revision differs from the past standards and approaches that paid attention on the detection of management fraud (Marczewski & Akers, 2005). Sutherland (1973) of a diffusion theory of fraudulent act made a proposition. It states that the act in which office workers commit fraud from their company or organization was a scholarly attitude as against their promoters where those who rejected it were absence. Baker and Faulkner (2003) make use of the word intermediate fraud for the description of organizations formed for a legal objective that started at some point, to embark in activities which are illegitimate. The application of diffusion theory was made to analyze the changing from legal to illegal enterprise by Baker and Faulkner utilizing an oil and gas venture as a case study. The venture started as a legal business venture and later tended to fraudulent

behavior. The authors draw conclusion that the contributing factors to the organization's success are peculiar to activities that are legitimate or illegitimate.

2.6 Management Fraud Risk Assessment

The first section provides background related to management fraud risk assessments. It describes the auditors' responsibilities in management fraud risk assessments, fraud triangle, fraud risk indicators, characteristics of management fraud risk assessments, and consideration of fraud risk attributes.

2. 6.1 External Auditors Responsibility in Management Fraud Risk Assessment

The responsibility and role of external auditors for the assessment of management fraud risk is a controversial issue (Mahdi & Mansoury, 2009). This is the major source of pressure facing the auditing profession in most countries in the world and one of the most important reasons for the expectation gap in the audit (Salehi & Azary, 2008). Recently, the incidents of frauds that pervade the public sector have actually revealed that the financial auditors are accomplices and culpable of conniving with the fraudsters. In this respect, it is important to clearly state that the roles of auditors are in the realm of revealing the actual financial status and performance of companies that they are auditing. This position has since been made clear by the international auditing standard which states that the primary function of financial auditor is to protect the interest of stakeholders through objective, competent and independent opinion that will reveal accurately financial status of any company. In addition, the auditor's standard has further specified that it is the

responsibility of auditor to assess fraud risk and how such can influence or impede his audit opinion (Robu, Chersan, Mironiuc & Carp, 2012).

The external auditor provides a crucial role in providing reasonable assurance to the quality of financial information presented to stakeholders and other users of financial statements for the purpose unraveling and preventing financial reports that may be misleading (Mahdi & Mansoury, 2009, Doines, & Lapadat, 2012). As an independent, objective party, shareholders, creditors and other interested parties rely on the audit report to determine whether to rely on the information for decision making. The two primary characteristics that most stakeholders expect from the external auditor are effectiveness and independence (Mahdi & Mansoury, 2009). These two characters coupled with ISA No. 240 are the main concern of this research.

Porter (1997) reviews the historical development of the external auditors' duty to assessment risk and report fraud over the centuries. Her study shows that there is an evaluation of auditing practices and shift in auditing paradigm through a number of stages. Boynton, Johnson, and Kell (2005) claimed that external auditors are required to be more proactive in searching for fraud during the course of an audit under ISA 240. Their duties now include considering incentives and opportunities presented to potential fraudsters, as well as rationalizations that the fraudulent acts are justified. Auditors are also expected to inquire more closely into reasons behind such matters as, for example, errors in accounting estimates, unusual transactions that appear to lack business rationale, and a reluctance to correct immaterial errors discovered by the external audit.

In contrast, Boynton *et al.* (2005) argue that since the fall of Enron, auditing standards have been revamped to re-emphasize the external auditors' responsibilities to assess management fraud risk. Their assertion is based on ISA 315 'Understanding the Entity and Its Environment and Assessing the Risks of Material Misstatement' and ISA 240 'The Auditor's Responsibilities to Consider Fraud in an Audit of Financial Statement (Revised).' ISA 315 requires external auditors to evaluate the effectiveness of an entity's risk management framework in preventing misstatements, whether through fraud or otherwise, in the course of an audit. Boynton *et al.* (2005) stressed that this requirement was not previously necessary. They further explained that such an evaluation was only required previously when they choose to place reliance on that framework and to reduce the extent of the audit investigation. In addition, all staff members engaged on an audit is now required to communicate their findings with each other, to prevent situations where staff members, working independently on their own sections of the audit, have failed to appreciate the significance of apparently minor irregularities that, if combined, take on a more sinister meaning.

The American institute of certified public accountants (AICPA) stipulated that "the auditor should assess the risk that errors and irregularities may cause the financial statement to contain a material misstatement SAS 53 (AICPA, 1988). Based on that assessment, the external auditor should design the audit to provide reasonable assurance of detecting errors and irregularities that are material to the financial statements. Prior to SAS 53, detection of irregularities (now known as fraud 3) was not differentiated from detection of any material error. The implementation of SAS

53 did not change the external auditor's responsibility with respect to detecting material irregularities; however, the auditor became responsible for assessing the risk of material errors and irregularities, considering specific risk factors listed in the statement, and preparing an audit plan accordingly.

In December 1997, SAS 82, entitled Consideration of Fraud in a Financial Statement Audit (AICPA, 1997), was issued to supersede SAS 53 (AICPA, 1988) by clarifying the auditor's risk assessment and reporting responsibility by requiring that the external auditor make a separate assessment of the possibility of fraud. When considering management fraud, SAS 82 requires external auditors to consider 25 risk factors included in the text of the standard.

In December 2002, a new Statement on Auditing Standard numbered 99 was issued. The new statement, entitled Consideration of Fraud in a Financial Statement Audit (AICPA, 2002) supersedes SAS 82 (AICPA, 1997). The new standard increases the external auditor's responsibility with regard to fraud audit procedures including extensive documentation of the audit team's discussions of fraud, identified fraud risks, fraud-related audit procedures and results, and communications about fraud and risks with the client and others. Notably, the new standard directs the external auditor to identify events or conditions that indicate incentives/pressures to perpetrate fraud, opportunities to carry out the fraud, or attitudes/rationalizations to justify a fraudulent action, and the auditors will be in the first and best position to take up the challenges where such responsibilities are required in line with the guidelines of the auditors' professional practice (AICPA, 2002; Smith, 2012).

International standards of auditing (ISA, No.240) establish standards and provide guidance on the external auditor's responsibility to consider fraud and error in an audit of financial statements. It requires that – when planning and performing audit procedures and evaluating and reporting the audit results – the external auditor consider the risk of material misstatements in the financial statements resulting from fraud or error.

Moreover, Apostolou and Crumbley (2008) mentioned that, International Standards on Auditing No. 240 provides similar directions to external auditors as its American counterpart SAS 99 with respect to fraud. Both present specific requirements for external auditors to follow like; considering a company's internal controls and procedures, and how these are actually implemented when planning the audit, designing and conducting audit procedures to respond to the risk that management could override internal controls and procedures, identifying specific risks where fraud may occur, considering whether any misstatement uncovered during the audit will indicative of fraud, obtaining fraud-related written representations from management, and communicating with appropriate managers and the board if the external auditor finds an indication that fraud may have occurred. It is however the responsibility of the auditors to detect and uncover frauds which significantly affects the actual and fair position of financial statement or such a responsibility will be for detection of fraud only especially when the audit exercise was actually designed for that (Hsu *et al.*, 2013).

2.6.2 Fraud Triangle

The framework that provides the explanations for the occurrence of financial statement fraud is the fraud triangle. In the commitment of fraudulent acts in financial statement, there exist three fraud triangle's elements at various degrees (AICPA, 2002; Albrecht *et al.*, 2008; Bell & Carcello, 2000; Hernandez & Groot, 2006; Rezaee, 2005). The categorization of real management fraud by Cressey (1971) was made to consist of elements such as one, an un-sharable problem, two, accessibility and control of assets or accounting records, and three, the ability to rationalize the actions taken by them. As quoted from Wells (2001), Wilson and Consultants (2004), they give a description of a triangular association between opportunity, pressure, and rationalization. According to Wilson and Consultants (2004), the opportunity is the ability to ignore or subdued controls which are purposely meant to avert manipulation. Pressure has to do with the motivation for the commitment of the fraudulent act, while rationalization is the moral and ethical argument for the justification of the act (Wilson & Consultants 2004).

In addition, element one that is incentives and pressures is described to be a pressure perceived for the commitment of fraud or a benefit perceived from the commitment of the financial statement fraud (AICPA, 2002, para. 7). It is possible for management or employees to undertake their work under non-financial and financial pressure to perpetrate in fraud related to financial statement. Pressure could come about from the unrealistic anticipation of earnings by the analysts, structures of compensation and incentive, the necessity for external financing, or weak performance (Hogan, Rezaee, Riley & Velury, 2008). The element two which is opportunities to perpetrate fraud come about due to conditions which permits the

employees or management to perpetrate financial statement fraud easily (AICPA, 2002, para. 7).

The absence or lack of effectiveness of internal controls, non-supervision, inappropriate separation of duties, and poor working environment give room for the perpetration of fraud. These opportunities have the tendency of tempting perpetrators to act in dishonest manner. Individuals under pressure with the incentives to commit fraud cannot constitute threat to an organization if they have no opportunity to act unethically. The element three which has to do with attitudes and rationalizations permit individual to provide justification for his or her involvement in perpetrating financial statement fraud (AICPA, 2002, para. 7).

Factors of fraud risk with respect to rationalization and attitude are not tangible or easily measurable and are also not easily observable. Individual's character as well as the external factors motivates ethical behavior. Some individuals are liable to perpetrating fraud than others as the natural tendency to perpetrate fraud relies upon their ethical values and upon personal circumstances (AICPA, 2002; Kenyon & Tilton, 2006). Job insecurity and working environment are external factors which cause bitterness and anger. Hasnan *et al*, (2013) therefore argue strongly that when management has taken a decision to commit fraud, its members must have first justified such action and must have been supported by the generality of the top management team. In addition, for operating managers to prepare fraudulent financial position, he must have been motivated by the interest of the owners or must have bowed to political pressures.

External auditors are required by ISA No. 240 to clearly take into consideration opportunities, attitudes, as well as incentives which have the likelihood of influencing managers or staffs to perpetrate financial statement fraud. Assessment of fraud risk ought to take into consideration how these elements interact (Loebbecke, Eining, & Willingham, 1989). Base on theory, their degrees of occurrence vary but are much related (Bell & Carcello, 2000). Generally, the more the presence of all these three conditions the more the tendency of the occurrence of fraud. Some instances where one of the fraud triangle elements could cause or add to the risk of financial statement fraud of the other element have been analyzed by practitioners based literature. The higher the incentives to perpetrate financial statement fraud the more the likelihood of perpetrators having their actions rationalized (AICPA, 2002). An employee could draw conclusion that misconduct is not going to be caught and penalized if internal control is not effective.

Where management has failed to display management integrity and ethical values to staffs at the time of fraud occurrence, staffs could draw conclusion that the misconduct is never considered to be serious and can go scot free with it (Kenyon & Tilton, 2006). The perceived significance of the fraud triangle elements has various perspectives.

In line with the recent 2008-2009 KPMG Integrity Survey, the main causes¹ of corporate fraud and misconduct are the incentives or pressures associated with

¹Root causes of misconduct are that managers and employees: (a) feel pressure to do whatever it takes to meet targets, (b) believe they will be rewarded for results not the means, (c) believe that code of conduct is not taken seriously, (d) lack familiarity with the standards applying to their jobs, (e) lack resources to complete the job, (f) are afraid of losing jobs if do not achieve targets, (g) believe policies are easy to override, and (h) are seeking to bend the rules or steal for personal gains (KPMG, 2008).

insufficient resources as well as job uncertainty (KPMG, 2008). The study by Webber, Sinason, Apostolou, and Hassell (2006) has showed that external auditors have given report of greater evaluation of fraud risk given the presence of either incentive or opportunity for fraud. In addition, external auditors add to their fraud risk evaluation given the presence of both incentive and opportunity as distinct to either only incentive or opportunity.

Therefore, it becomes difficult to pinpoint the actual fraud triangle elements which serve to be best explanatory of financial statement fraud. Business size, ownership, and geographical locations serve as examples of contextual factors. In spite of the fact that one or more fraud triangle elements cannot be observed or noticed, the risk of financial statement fraud does not reduce. The observation of the three elements does not necessarily imply a requirement to the presence of an important risk of financial fraud. In order for the objective to be maintained, the auditor should not presume that management is not honest and should not assume that management's honesty cannot be questioned (AICPA, 2002).

For instance, when an auditor discovers an opportunity to perpetrate fraud, there is increase in the possibility of committing financial statement fraud. As suggested by ISA No. 240, the auditor ought to assess fraud risk to find out the presence or not of these elements even if there has not yet been an indication of an incentive or rationalization. The main factors of fraudulent financial reporting are intent and deception, and for this reason, fraud perpetrators are not going to disclose their incentives, opportunities, and attitudes (AICPA, 2002; Knapp & Knapp, 2001). Due to its unique ability, management can influence accounting records directly and

indirectly; it influences the financial reports prepared and pass across fraudulent financial information (AICPA, 2002). The overriding controls of management can occur in patterns that cannot be predictable.

Auditors ought to anticipate the way the financial statement fraud could be hidden and maintain professional attitudes of skepticism (Ramos, 2003). Figure 2.1 indicates the three elements of the fraud triangle (Ramos, 2003).



Figure 2.1
The Fraud Triangle

2.6.3 Fraud Risk Indicators

The three major groups of fraud risk indicators within the components of fraud triangle which are associated with the fraudulent financial reporting namely

management, industry, and operating characteristics and financial stability² are discussed by ISA No. 240 and SAS No. 99. One, management characteristics have to do with the abilities, pressures, style, and attitude of management, as they are concerned with internal control and the process of financial reporting. These are expression of motivations of management to involve in fraudulent financial reporting. An example could be a compensation plan which is dependent upon meeting financial targets which is unrealistic. The excessive involvement of non-financial management in the choice of accounting principles provides another instance. In addition, the large rate at which senior management, counsel, or board committee leave and replaced is also a signal to conflict of interests tendency.

Two, industry characteristics take into consideration the economic environment as well as regulatory environment where the business entity is operating, which range from the stable characteristics of such environment to varying characteristics, like new accounting requirement, regulatory requirements, increased competition, saturation market, and the choice of a more stringent accounting policies to meet up with the pace of the industry. Three, operating characteristics and financial stability compose of factors like the nature of the entity, its complexity and transactions, the geographic areas where its operation takes place, the amount of locations in which records of transactions and disbursements are done, the financial condition of entity as well as its profitability. Some relevant factors of potential fraud risk to financial stability include significant pressure over the company to get more capital, inflicting threats of bankruptcy, or hostile acquirement of the company.

² ISA No. 240 fraud risk indicators as illustrative cover a broad range of situation. The standard discusses that “Not all fraud risk indicators in the ISA No. 240 appendix are relevant in all circumstances. Some may be of greater or less significance in entities of different size or different ownership characteristics or circumstances. The order of fraud risk indicators provided does not reflect their relative importance (ISA No.240, Appendix 1).”

Indicators of fraud risk associated with control or supervision weaknesses could be applicable to either of the fraud. The context of indicators of fraud risk is necessary to be properly assessed as auditors ought to have an insight into the business, business partners' relationship, economic conditions in general and the market environment where operation takes place. The likely constituents of fraud risk indicators such as facts or circumstances in one context could not be very important in another context. The sufficient awareness of and proper insight into the client entity, the industry as well as the environment make it possible for the capability of auditors to differentiate the abnormality within the entity's context like unusual transactions, questionable financial ratios, and non-plausible management's explanations or others (Kenyon & Tilton, 2006).

Fraud risk indicators' accumulation need be considered by the auditors. For instance, a reasonable part of compensation by management which is in form of stock options connected to stringent earnings target appear as a fraud risk indicator in the list of SAS No. 99. In a case where the fraud risk indicators is individually considered, this type of remuneration is mostly employed and may be considered as effective means of making the interest of management to align with the interest of stockholders and the earnings target cannot be considered as aggressive. Therefore, the individual fraud risk indicators could not show severe fraud. But in a case where the auditor discovers the ineffectiveness of the audit committee to monitor the process of accounting reporting entity as well as the practices of accounting, the cumulative consequences of these circumstances could persuade the potential financial statements fraud perpetrated.

According to the three major groupings (management characteristics, industry characteristics, and operating characteristics and financial stability) indicators of fraud risk are in addition grouped into three fraud triangle constituents. This brings about suggestion that fraud risk indicators form the expression of multiple attributes. For instance, to illustrate fraud risk indicator, management involves in an excessive manner while preparing financial reporting. One of management features which is categorized as the attitude element is the fraud risk indicator. In addition, management compensation plan depends upon earnings. Another management features include fraud risk indicator which is considered as the component of incentive. When the management excessively earns interest, it can be considered as a result of compensation plan connected to financial figures. This means that indicators of fraud risk given in ISA No. 240 in appendix 1 are interrelated and multi-dimensional. As example, the standard offers a list of indicators of fraud risk under each component of fraud triangle. The requirement of ISA No. 240 is the consideration of fraud risk indicators by carrying along three fraud triangle conditions such as incentives, opportunities, as well as attitudes should be one of the duties or roles of external auditors to assess risk of material misstatement as a result of fraud. Despite that, there has not been experimental examination of the effectiveness of taken fraud risk indicators into consideration along with the components of fraud triangle. ISA No. 240 provides examples of potential fraud risk indicators that the external auditor will assess management fraud risk. These risk indicators are categorized into the three categories of the fraud triangle. Table 2.2 provides a summary of the ISA No. 240 fraud risk indicators by category.

Table 2.2

Examples of Fraud Risk Indicators from ISA 240 Relating To Financial Statement Misstatements

Incentives/Pressures	Opportunities	Attitudes/Rationalizations
1. Financial stability or profitability is threatened by economic, industry, or entity operating conditions: • High degree of competition or declining profit margins • High vulnerability to rapid changes (i.e., technology, obsolescence, or interest rates) • Declines in customer demand • Operating losses • Recurring negative cash flows from operations • Rapid growth or unusual profitability • New accounting, statutory, or regulatory requirements 2. Excessive pressure exists for management to meet requirements of third parties: • Profitability/trend expectations • Need to obtain additional debt or equity financing • Marginal ability to meet exchange listing requirements or debt repayment or other debt covenant requirements • Likely poor financial results on significant pending transactions. 3. Management or directors' personal financial situation is: • Significant financial interests in the entity • Significant performance based compensation • Personal guarantees of debts 4. There is excessive pressure on management or operating personnel to meet financial targets set up by directors or management.	1. Industry provides opportunities for • Related-party transactions beyond ordinary • A strong financial presence or ability to dominate a certain industry sector that allows the entity to dictate terms or conditions to suppliers or customers • Accounts based on significant estimates • Significant, unusual, or highly complex transactions • Significant operations across international borders environments and cultures • Use of business intermediaries for which there appears to be no clear business justification • Significant bank accounts in tax-haven jurisdictions 2. Ineffective monitoring of management allows • Domination of management by a single person or small group • Ineffective board of directors or audit committee oversight 3. There is a complex or unstable organizational structure • Difficulty in determining the organization or individuals that have control of company • Overly complex structure • High turnover of senior management, counsel, or board 4. Internal control deficient • Inadequate monitoring of controls • High turnover rates or employment of ineffective accounting, internal audit, or information technology staff • Ineffective accounting and information systems.	1. Attitudes/rationalizations by board members, management, or employees that allow them to engage in and/or justify fraudulent financial reporting • Ineffective communication, implementation, support, or enforcement of ethics • Nonfinancial management's excessive participation in selection of accounting principles or the determining estimates • Known history of violations of securities laws or other laws • Excessive interest in maintaining or increasing stock price • Aggressive or unrealistic forecasts • Failure to correct known reportable conditions on a timely basis • Interest by management in employing inappropriate means to min. reported earnings for tax • Low morale among senior management • The owner-manager makes no distinction between personal and business transactions • Dispute between shareholders in a closely held entity. • Recurring attempts by management to justify marginal or inappropriate accounting on the basis of materiality • Strained relationship with current or predecessor auditor - o Frequent disputes with the current or predecessor auditor - o Unreasonable demands on the auditor, such as unreasonable time constraints - o Restrictions on the auditor that inappropriately limit access - o Domineering management behavior in dealing with the auditor

From International Standard on Auditing (ISA) 240, "The Auditor's Responsibilities Relating to Fraud in an Audit of Financial Statements", Appendix1: "Examples of Fraud Risk Indicators."

In summary, the above standards show that the efforts of standards' setters are directed toward narrowing the expectation gap by increasing external auditors' responsibility for assessment fraud risk. However, the expectation gap still exists. This is supported by Chemuturi (2008) that states that current professional standards and authoritative guidance require external auditors to provide reasonable assurance that financial statements are free from material misstatements, whether caused by errors or fraud. However, the lack of a commonly accepted definition of reasonable assurance along with limitations of audit methods in identifying fraud, cost constraints of audits, and high expectations by investors have widened the expectation gap regarding auditor responsibility for assess and detecting fraud.

In addition, W.S. Albrecht, C.C Albrecht, and C.O. Albrecht (2008) state that the new standards have helped external auditors better in assess and detecting fraud as they became more proactive in brainstorming possible frauds, working with audit committees and assess to management fraud risks. However, external auditors are not trained in determining when people are telling the truth or are being deceptive, when documents are real or forged, whether collusion is taking place, or whether fictitious documents have been created. Thus, the external auditors still need guidance in the area of fraud risk assessment. To assist in this process, this research aims to determine factors that can increase external auditors' competency in assessment of management fraud risk.

2.6.4 Characteristics of Management Fraud Risk Assessment

The assessment of management fraud risk is a multi-attribute, high-level judgment task which needs knowledge, experience, and reasoning (Loebbecke, *et al.*, 1989).

The goal of external auditors is to evaluate, and synthesize the discovered risks in order to decide the areas that are most susceptible to fraud. In what follows, external auditors ought to evaluate the forms of fraud which have the likelihood of occurrence and the way they are probably going to be hidden (Ramos, 2003). Risk identification has to do with the gathering of these factors from memory as well as from data recorded, and those risks to be taken into consideration in planning the degree of audit procedures are documented (Pailin, 2011). Primarily it is a search for negative and information that increases risk. In the process of pin pointing the risk of material misstatement resulting from fraud, external auditors ought to take into consideration the information collected within the context of the three fraud triangle components (AICPA, 2002). Assessment of the extent of the presence of fraud risk and pin pointing the highest risk areas are initial step which is crucial in uncovering financial statement fraud (Pailin, 2011). The external auditors particularly assess fraud risk indicators when assessment the extent of risk and handle this assessment with a higher level of professional skepticism, putting aside whatever prior beliefs of the integrity of management (Pailin, 2011).

The assessment of risk has to do with the combination and weighting of these factors to arrive at judgments with respect to risk (Bedard & Graham, 2002). More so, external auditors ought to be capable of synthesizing the risk indicators of individual and gather them into a single overall risk evaluation in order to decide the degree of material misstatements to fraud (Ramos, 2003). Therefore, the current study investigates the way the auditors assess fraud risk following the consideration of fraud risk indicators.

2.6.5 Consideration of Fraud Risk Attributes

SAS No. 99 stressed professional judgment while auditors are considering the attributes of fraud risk such as type, significance, likelihood and pervasiveness. First, type of risk which could exist is an assessment to know if there is involvement of fraudulent financial reporting, misappropriation of asset, and corruption (AICPA, 2002, para. 40). Type of risk significantly influences the responses' nature to a specific risk. Second, risk's significance is the size which fraud risk indicators may cause in a likely material misstatement (AICPA, 2002, para. 40). The significant of risk lies in its potential to cause material misstatement in the financial statements. There is a close association of this attribute with pervasiveness. Third, there is tendency that fraud risk indicators are going to cause material misstatement as a result of fraud (AICPA, 2002, para. 40). There may not be accuracy in the assessment of this attribute and affected by a personal assessment of internal controls. External auditors are not expected to completely dependent on their prior beliefs of management integrity or on the rarely occurrence of material misstatement. Four, there is relationship of pervasiveness of the potential risk and the whole financial statements or particularly, to specific accounts, transactions' class, or assertion (AICPA, 2002, para. 40). In the assessment of the presence or otherwise of material misstatement, the influence of balance-sheet as well as that of income-statement accounts needs be taken into consideration.

The aforementioned attributes of fraud risk indicators will affect the degree to which external auditors is going to plan the procedures of audit to approach a specific risk indicator and the nature of the way to go about it (Kenyon & Tilton, 2006). The

range of likely responses is considerable. From one perspective, having considered the attributes, the auditor could make conclusion that no particular steps are required and from the other perspective, the external auditor could have greater reservations and not be able to figure an opinion. By taking into consideration attributes of fraud risk indicators, it makes it easier for external auditors in planning and execution of audit procedures. None the less, consideration of the way the attributes are associated with the audit judgment quality is yet to be comprehended (Hogan, *et al.*, 2008).

2.7 Factors Influencing the External Auditor Capability in MFRA

Previous studies showed the importance and influence of many factors such as education (academic, professional, study major), training on fraud detection, experience (professional, fraud detect), job position, auditor type, responsibility perception, information technology skill and audit fees on the external auditor assessment of the management fraud risk (De Angelo, 1981; Mohamed, 2009; Moyes & Hasan, 1996; Moyes, 2007; Wilks & Zimbelman, 2004; Loebbecke *et al.*, 1989; Washally, 2010; Owusu-Ansah *et al.*, 2002; Lee *et al.*, 2008; Dixon *et al.*, 2006; Lynch & Gomaa, 2003). Nevertheless, in the other fields, the external auditor independence and audit risks are also accounted (Matsumura & Tucker, 1992; Amoudi, 2001; Bashtawi & Sufian, 2003; Zhang *et al.*, 2007). Previous accounting research has examined the relationship between these factors. However, these studies reported mixed results as discussed below.

2.7.1 Education

The supply of knowledge in any field can be increased through an effective education system. Distinguishing between teaching and learning is crucial. McKibbin

and Porter (1988) report that students in most undergraduate business programs are taught business concepts through functional areas: accounting, management, marketing, and finance; hence, students may be inadequately prepared for cross-functional work. This includes accounting students. Based on previous studies, educational factor is divided into academic qualification, professional qualification and study major (Jubran, 2010; Hameeri, 2006). The description and definition of each factor is provided in the following three subsections.

2.7.1.1 Academic Qualification

School, college and university education is a part of all external auditors' lives and provides them with opportunities to learn and acquire knowledge and attitudes. It is uncovered that academic qualification of the external auditor is positively related to the level of management fraud risk assessment effectiveness of the fraud risk indicators (e.g. De Angelo, 1981; Mohamed, 2009; Moyse *et al.*, 2009; Yang *et al.*, 2010).

In other words, the more educated external auditors are the more effective assessment of management fraud risk is, according to the attribution theory, there is apposite association between academic qualification and MFRA. There is higher awareness among those with PhD and the master qualifications of risk assessment than other level of education. Many incorrect practices are recorded due to lack of the scientific qualifications of external auditors (Mohamed, 2009). Formal education according to Mattar (1999) is no more appropriate to the needs of times as it greatly focuses on the procedures, which gives to concepts, ways and methods of teaching used in traditional accounting for improvement but fail to measure the skills and the

real potential of students. This could be the reason why some professional organizations need continuing professional education up to a university degree. On the contrary, Washally (2010) indicates that the scientific qualification (diploma, bachelor degree, master degree, and PhD) have no important association on MFRA.

Furthermore, general auditing standards are more interested in the personal features of the external auditors, and within those standards (Altwaijri & Nafabi, 2008). The scientific external auditors are normalized by the private standard in order to perform well and those who are to audit are required to obtain the right level of training to have the appropriate technical skill for external auditors' work. This makes necessary for the external auditors to have access to a sufficient amount of formal education in accounting and auditing (Altwaijri & Nafabi, 2008; Jubran, 2010). Kranacher and Stern (2004) state that to enhance fraud risk assessment abilities among external auditors and rebuild public confidence on them, accounting education must be expanded.

To recapitulate, it is argued that there is a potential relationship between external auditors' academic qualification and management fraud risk assessment in Yemen. Thus, it is included in this theoretical framework.

2.7.1.2 Professional Qualification

It is important to note that qualifications are usually earned from a professional society or educational institute, not from the government. If a demonstration of ability or knowledge is required by law before being allowed to perform auditing task or job, this is referred to as licensure such as Certified Public Accountant (CPA),

Certified Fraud Examiner (CFE) and Certified Management Accountant (CMA). The certification suggests a stronger lifetime professional awareness and commitment to assess of management fraud risk. Moyes and Hasan (1996), Moyes and Anandarajan (2002), Law (2008), and Lou and Wang (2011) state that professional qualification of the external auditor is positively related to management fraud risk assessment.

Moreover, the audit functions are becoming highly complex and thus require many professional qualifications (Lee & Blaszczynski, 1999). According to Khadir (1991), continuing professional education assist in improving the skills and efficiency of external auditors, conservation, and reviewers to judge objectively. Additionally, Yemeni (law No. 26, 1999) makes it necessary for each chartered accountant to continuing professional education according to the development in the economic environment. According to the attribution theory, there is appositive association between professional qualification and MFRA; when external auditors have high professional qualification that is reflect their abilities to assess management fraud risk.

On the other hand, Washaly (2010) find that no association between the auditor's professional qualification and MFRA because all external auditors that involve in corporate scandal have professional qualification in particular CPA. CPAs without many years of auditing experience cannot achieve higher fraud detection rates (Moyes, 1997). Moreover, the (AICPA) requires all associate to have the equivalent of 120 hours of continuing professional education yearly (Arens & Lubeck, 2002). In addition, they are required to attend the International Federation of Accountants (IFAC) programs at least 90 hours every three years (Alroata, 2002). For this reason,

continuing professional education is a channel, which can be employed to enhance the MFRA.

To recapitulate, it is argued that there is a potential relationship between professional qualification and management fraud risk assessment in Yemen. Thus, it is included in this research theoretical framework.

2.7.1.3 Study Major

Auditor who successfully completes the courses prescribed in a study major qualifies for an undergraduate degree. Having sufficient degree of formal education in accounting and auditing is an important requirement by accounting professional bodies in most countries. For example, in America, AICPA requires all accountants and auditors to have a university degree. The applicants are also required to pass the qualification exam which make them specialized in accounting or having 150 hours which is equivalent to a master degree (Mubark, 2000). In Yemen, the law (Law No. 26, 1999) requires the accountant to have at least bachelor degree in accounting. According to the attribution theory, there is appositive association between study major and MFRA, when the external auditors` major is accounting will be more ability to assess management fraud risk.

Moyes (2007) findings show that majority increases the effectiveness to assess management fraud risk than finance, another business and non-business major. Asfor (2003) uncovers that the ability of the external auditor to assess the risks of auditing is influenced by the course of study and about 66.7 percent of the sample used in the study show that they are majority in accounting. Additionally, Thneibat (1991) and

Washaly (2010) points out that the external auditors should major in accounting, economics, business administration or general administration.

Based on the above discussion, it is argued that there is a potential relationship between study major and management fraud risk assessment. Thus, study major is included in this research theoretical framework.

2.7.2 Training on Fraud Detection

The term training to detect fraud refers to the acquisition of knowledge, skills, and competencies as a result of the teaching of vocational or practical skills and knowledge that relate to specific useful competencies (Moyes *et al.*, 2009). Wilks and Zimbelman (2004), Brazel *et al.* (2010), Saksena (2010), Hassink, Meuwissen, and Bollen (2010), Yang and Moyes (2010) examine the effect of specific training fraud on fraud detection and find that a significant relationship between them and these professionals are tainted to recognize verbal and nonverbal indicants of deception, a potentially effective tool for financial statement auditors. According to the attribution theory, there is appositive association between training on fraud detection and MFRA, increase training on fraud detection for external auditors reflect their abilities to assess management fraud risk.

Carpenter, Durtschi and Gaynor (2006) state that training improves initial sensitivity to fraud, and training that stimulates experience with fraud can possibly be a substitute for actual experience. They suggest that audit firms may want to consider incorporating this alternative training methodology in their training programs to improve external auditor fraud judgments. Since finding corporate fraud is rare and

in-house, on-the-job auditor training is limited, a training methodology that enables greater knowledge acquisition and retention of that knowledge seems critical for improving audit performance in assessment of management fraud risk (Durtschi & Fullerton, 2005). One type of training that will be implemented is training that includes simulated experience in investigating and detecting fraud (Jaffar, 2009).

However, Yang *et al.* (2010) find that fraud risk indicators training among Malaysian auditors do not influence the level of effectiveness in MFRA activities in the public listed companies. This implies that auditors do not improve their level of effectiveness in assessment of fraud risk skills from attending either fraud risk indicators conferences or red flag training offered by the employers.

While it is possible that experience is an important factor in perceived importance of fraud risk indicators, Green and Calderon (1996) suggest that training is a viable option for enabling one to identify risk indicators. Based on this, an auditor's training in the use of fraud risk indicators should have a significant association on the perceived effectiveness of fraud risk indicators in assessing fraudulent activity. Therefore, it is theorized that external auditors who have received fraud risk indicators training should be able to recognize the importance of fraud risk indicators in the assessment of management fraud risk more than external auditors with little or no training. Thus, training is included in this research theoretical framework.

2.7.3 Experience

Experience is a general concept comprises knowledge of or skill of auditing and MFRA gained through profession practicing in or exposure to fraud (Owusu-Ansah

et al., 2002; Moyes *et al.*, 2009). Based on previous studies, experience is divided into two which are auditing experience and fraud detection experience (Washally, 2010). The description and definition of each of them are provided in the following two subsections.

2.7.3.1 Auditing Experience

Ashton (1990), reports that the external auditor who is of high experience has more potential and ability to detect errors and deviations in the financial statements. Furthermore, the external auditor's experience and his ability to evaluate those risks show differences in statistical indications between them. Many incorrect practices are recorded by many auditors due to lack of experience (Asfor, 2003).

Prior studies have found that the external auditor's experience has a significant association with the ability to assess or detect fraud (e.g. Loebbecke *et al.*, 1989; Pincus, 1984; Hackenbrack, 1992; Waller, 1993; Zimbelman, 1997; Bernardi, 1994; Moyes & Hasan, 1996; Knapp & Knapp, 2001; Owusu-Ansah *et al.*, 2002). Additionally, Hegazy and Kassem (2010) find that CPA firms seem to be significantly more effective in fraud detection using fraud risk indicators if their auditors have accumulated more external auditing experience frequently. In summary, the quality of audits has been found to be associated with the experience of the auditor. According to the attribution theory, there is appositive association between audit experience and MFRA.

On the other hand, Smith *et al.* (2005), Hegazy and Kassem (2010) and Hassink *et al.* (2010) find that external auditors' years of experience do not have a significant

impact on MFRA. Furthermore, Alleyne *et al.* (2010) state that there is no significant relationship between experience and perceived effectiveness. In addition, Dahdouh (2006) and Brazel *et al.* (2010) observe negative association between audit experience and the extent of the response to fraud risk assessment.

In Yemen, professional law is very necessary for anyone willing to get a license to be a chartered accountant. Such individual must possess experience in qualification operation in accounting, or teaching in institutions such as college, university or higher education in the field of accounting and auditing (Law No. 26, 1999). Accordingly, the following must be met: (1) four years experience to follow the bachelor's degree; (2) Subsequent to two years experience to follow master qualification; and (3) One year experience after PhD qualification.

From the aforementioned discussion, it is clear that there is a potential relationship between auditing experience and management fraud risk assessment in Yemen. Thus, auditing experience is included in this research theoretical framework.

2.7.3.2 Fraud Detection Experience

It is often said that experience is the best teacher. Have auditors done their best and have they learned from experience when it comes to assess management fraud risk? That is a debatable question. What is certain is that there is a room for external auditors to improve and there are opportunities for them to learn from experiences (Saksena, 2010). A question that can be raised is, “How can external auditor learn to more effectively assess of management fraud risk? One of the best ways is to “profit” from the mistakes of others (Beasley, Carcello, & Hermanson, 2001).” Wilks and

Zimbelman (2004) and Washally (2010) find that specific fraud experience gives significant association with fraud risk assessment, and auditors who identify a higher number of relevant fraud follow necessary procedures that are specified for investigating fraud cases (Simon, 2012) .

In addition, Moyes and Hasan (1996) reveal that prior success of auditing firm in assess fraud risk is constantly significant variable in assess fraud risk for each audit cycle and combined cycle estimates. According to the attribution theory, there is appositve association between fraud detection experience and MFRA. In addition, knowledge of fraud will have important influence on the performance of auditors especially in the area of program modification. The effects of such knowledge will also be felt on fraud risk through factor identification and generation of hypothesis. In addition, since fraud is not common, audit knowledge will be primarily acquired through intense training as this will be a substitute to the actual field experience and such will be enhanced through good skills of problem solving and distinct knowledge motivation of the auditors (Hammersley, 2011).

ISA 240 and SAS 99 requires auditors with specific experience to conduct brainstorming sessions, a task with much at risk, and the external auditors who have no experience with fraud risk assessment do not have an opinion on the external auditor role in the redress process (Hassink *et al.*, 2010; Brazel *et al.*, 2010). Moreover, Nieschwietz, Schultz, and Zimbelman (2000) indicate that fraud experiences in audit engagements are rare, so for any single auditor, repeated practice in fraud risk assessment it is also rare. Glover, Prawitt, Schultz, and Zimbelman (2003) collect evidence on highly experienced fraud experts' perceptions

regarding the effectiveness of standard audit procedures at detecting receivables fraud and report significant variation in these experts' perceptions of effectiveness.

Law (2011) on the other hand, uncovers that auditors' prior success in fraud detection is an influential factor in the absence of fraud. Moreover, Smith *et al.* (2005) find that Malaysia auditors experience of fraud do not have any impact on auditor's perception, except for the red flag of "high turnover of senior management." The results are based upon auditors' general experience with management fraud, and suggest that auditors should pay particular attention to fraud risk indicators relating to the operating and financial stability category.

Based on the above discussion, it is declared that fraud detection experience has a potential relationship with management fraud risk assessment in Yemen. Thus, it is included in this research theoretical framework.

2.7.4 Job Position

An external auditor who is working in audit firm has several positions (owner or partner, senior, supervisor, junior). Similarly, in the public sector various positions (director general, head of the team, and senior auditors). Moyes *et al.* (2009) and Owusu-Ansah *et al.* (2002) find a significant influence between the level of fraud-detecting effectiveness and job position of auditors. Moreover, Washally (2010) uncover that high risk of fraud has a relationship with the audit plans risk of fraud is measured by the relative effect of the external auditors' features (e.g. job positions of auditors) in assessment of management fraud risk. This shows that the auditors with good position tend to have proper audit plan and in turn increases the possibility of

assessment of management fraud risk. According to the attribution theory, there is appositive association between auditor position and MFRA.

Furthermore, position level is used as the proxy for experience (Knapp, 1995; Knapp & Knapp, 2001; Baglia, 2000; Choo & Trotman, 1991; Abdolmohammadi & Owroso, 2000). The external auditor's position as audit partner or audit manager is used because both are seen as the person in-charge of the audit work and they are expected to have extensive experience in audit. In many audit engagements, generally, the audit manager is the personnel who will decide on the adequacy of the risk assessed (Jaffar *et al.*, 2008). On the other hand, Smith *et al.* (2005) find that job position of external auditors do not have a significant impact on their perception.

Bearing in mind the above findings, it is argued that there is a potential relationship between job position and management fraud risk assessment in Yemen. Thus, job position is embedded in this research theoretical framework.

2.7.5 Auditor Type

Affiliation of the external auditor to big audit firm is an advantage when compared with the external auditors working in a medium or small firm. Research has indicated that the Big 4 auditors provide higher quality auditing services (Lee *et al.*, 2007). Perols (2008) indicates that the presence of a Big 4 auditor is one of the significant variables in determining whether organizational fraud is detected or not. Francis and Yu (2009) report that Big 4 auditors provide higher quality audits for the U.S. Securities and Exchange Commission (SEC) registrants due to their greater in-house experience and expertise in administering such audits. They argue that larger branches that these auditors have provide greater degree of in-house expertise in

assessment material problems in their clients' financial statements. Furthermore, Ansah *et al.* (2002) investigate the relative influence of the type of audit firms on the likelihood of detecting fraud in the stock and warehouse cycle and find that such factor is statistically significant predictors of the likelihood of detecting fraud, and increase the likelihood of fraud detection. According to the attribution theory, there is appositve association between auditor type and MFRA.

On the other hand, auditor type has no significant bearing on the likelihood of fraud (Law, 2011; Kaplan, Pope, & Samuels, 2011). Yamani (1991), and Matter (1994), state that type of audit firm affects auditor's independence. In the work of Mubarak (2007), an inverse association between audit firm type and management fraud was reported. Big audit firms have more auditors who are more independent and vice versa. Moreover, low quality reports affect the reputation of the big audit firm negatively (Lennox, 1999; Teoh & Wong, 1993; Menon & Williams, 1991; De Angelo, 1981).

To recapitulate, it is argued that there is potential relationship between auditor type and management fraud risk assessment in Yemen. Thus, it is included in this research theoretical framework.

2.7.6 Information Technology Skill

The development in technology results in the familiarity with technology is not only beneficial but also vital to the survival in the new business environment due to the booming of the internet and the invention other modern technologies; there has been a dramatic increase in fraudulent schemes associated with all facets (Zhou & Kapoor,

2011). IT duper extended, new tools must be matched by preventive measures to replace the systems (Johno, 1985). The employers expect a new employee that enters the work force to possess basic technology skills that are required in the workplace. The competence in such technology enables employees to be creative in the workplace and helps them more rapidly adapt to their new work environment (Mohamed, 2009).

Information technology (IT) for the external auditor is concerned with technology to treat information. The acquisition, processing, storage and dissemination of vocal, pictorial, textual and numerical information by a microelectronics-based combination of computing and telecommunications are its main fields. Lynch and Gomaa (2003) form a framework on the basis of the theory of planned behaviour which deals with the potential effect of IT on fraud in an organization. It is believed that this framework can be very useful as a tool for external auditors when assessment fraud risk.

Messier, Eilifsen, and Austen (2004) analyze the causes and discovery of misstatements by external auditors and the association of those misstatements with IT using misstatements and IT data in 1988. At the period of intervention, there have been important changes in IT, with the possibility of changing the error occurrence and assessment process. Their results suggest that first the main causes of inappropriate statements were missing, poor design, improperly applied controls, insufficient methods employed when choosing, training and monitoring accounting personnel, and too much workload for accounting personnel; second, missing and weakly design controls, and too much workload for accounting personnel have

likelihood of causing inappropriate statements in computerized business processes than where there is no computerized business process; and third, the frequent use of tests of details on as directed by procedures on audits appears to be brought about by external auditors decision that it is more effective to carry out such tests than relying on IT controls. These results have significant implications for audit practitioners and researchers in audit.

Despite that, IT has significantly changed audit process only few researches have been conducted to investigate IT and the perceived importance of IT skill from a different group of audit firms. Janvrin, Bierstaker, and Lowe (2008) explore audit IT skill and its perceived importance due to the fact that IT skill can affect audit judgment directly and finally impact audit effectiveness and efficiency. In addition, audit IT skill and perceived importance of IT varies by firm size are investigated in order to deal with the concerns of regulator regarding obstacles to entry in public accounting and advance auditing research. For data collection, a field-based questionnaire was employed from 181 representative auditors of Big 4, national, regional, and local firms. The findings reveal that auditors use different audit applications to a large extent and seldom use others.

The external auditors consider many of the audit applications as essential but these tools have not been greatly used by them. Specialists in IT never seem to greatly use these tools as well the auditors who investigate clients with complex IT. It is observed that audit IT skill and perceived importance changed by firm size. These observations may be useful to: (1) authors thinking of how IT may affect audit judgment and decision-making; (2) standard setters assessing obstacles to entry into

public accounting and auditors' usage of IT; and (3) practitioners investigating their own investment levels of IT.

For supporting the above finding of the positive association between IT skill and MFRA, Zhou and Kapoor (2011) consider data mining (DM) based financial fraud detection techniques (such as regression, decision tree, neural networks and Bayesian networks) as helpful in detecting fraud. The effectiveness of these DM methods (and their limitations) is examined, especially when new schemes of financial statement fraud adapt to the detection techniques. They then explore a self-adaptive framework (based on a response surface model) with domain knowledge to detect financial statement fraud. They conclude by suggesting that, in an era with evolutionary financial frauds, computer assisted automated fraud detection mechanisms are more effective and efficient with specialized domain of knowledge. According to the attribution theory, there is appositve association between IT skill and MFRA.

On the other hand, Bierstaker *et al.* (2011) state that the growth of the internet and e-commerce increases the number of dial-in ports to computer networks thus is increasing the exposure to fraud. Furthermore, Uyar and Gungormus (2011) indicate that knowledge of accounting software is important for the auditing profession. The auditors should assure that only legitimate users have access to the computer network and associated data. Nevertheless, an external auditor's interest in IT can deviate from the main audit function.

Bearing in mind the above conflicting view on IT skill and management fraud risk assessment, IT skill is still included in this research theoretical framework. This is because of IT skill great capability in assessing fraud risk effectively and efficiently.

2.7.7 Questioning Discussion Ability

Professional skepticism is defined as “an attitude that includes a questioning mind and a critical assessment of audit evidence” (ISA 240: para. 23). Questioning discussion sessions are now a requirement on each audit per statement on auditing standards but concerns have been raised about their effectiveness in helping auditors better assess and detect fraud, indicate that a questioning discussion ability represent one of the important attributes of external auditor (ISA 240, para. 30). Moreover, the current environment requires new CPAs, as well as seasoned professionals, to acquire supplementary investigative and discussion skills because the majority of frauds are uncovered as a result of tips from employees and others (Kranacher & Stern, 2004). Available technologies increasingly support multiple aspects of audit team deliberations and decision-making (Bamber *et al.*, 1996), thereby aiding team discussions. According to the attribution theory, there is apposite association between questioning discussion ability and MFRA.

Based on the above discussion, it is declared that there is a potential relationship between questioning discussion ability and management fraud risk assessment in Yemen. Thus, it is included in this research theoretical framework.

2.7.8 Responsibility Perception

Under Public Company Accounting Oversight Board (PCAOB) auditing standards, an audit is a detection mechanism specifically designed to assess fraud risk and

detect material fraud: “An [external] auditor has a responsibility to plan and perform the audit to obtain reasonable assurance about whether the financial statements are free of material misstatement, whether caused by error or fraud.” The auditors must assume all these responsibilities.

Extensive studies have been conducted in many countries into the perception of financial report users of external auditors’ responsibilities in assess fraud risk and fraud detection (e.g. Beck, 1973; Monroe & Woodliff, 1994; Anderson, 1996; Baron *et al.*, 1977; Epstein & Geiger, 1994; Humphrey *et al.*, 1993; Low, 1980; Leung & Chau, 2001; Dixon *et al.*, 2006; Fadzly & Ahmad, 2004). These studies find that many financial report users believe that the assess fraud risk of irregularities is a primary audit objective and that the auditors have a responsibility for assess fraud risk all irregularities. Moreover, Porter (1983) concludes that 100% of investors in public institutions, 81% of investors in the sector private, 83% of qualified auditors, and 84% of corporate managers state that the discovery of fraud cases and material misstatement are the goal of the auditing. Carcello and Palmrose (1994) find a positive relationship between the existence of management fraud and the litigation against auditors.

Some studies have confirmed that the responsibility of the external auditor to assess management fraud risk creates the expectation gap in the auditing. Gloeck (1993) states that non-clear role of external auditor on the assess fraud risk and detection of fraud is one of the main reasons for the gap. Lee *et al.* (2008) show unquestionably the existence with respect to fraud detection, of a gap between the perception of the respondents and the present statutory requirements of auditors. According to the

accountability theory, there is appositive association between responsibility perception and MFRA.

Furthermore, Montgomery and Lagarias (2002) find that SAS 99 increases the responsibility of external auditor in assessing management fraud risk and conclude that the most important radical changes worthy of attention in the new standard include the following:

The discussion sessions between the audit team, the entrance to increase and strengthen the professional skepticism.

The expansion in the conduct of investigations and inquiries.

The recognition of the position or justification, as a third generally available in the event of fraud.

The standard instructions for a broad assessment of the risks arising from the distortion of the essential fraud.

The standard for action-oriented management risk to penetrate the internal control system.

In the same context, Selley and Turner (2004) compare between Canadian standards (Auditing and Assurance Standards Board [AASB], No. 5135), international standards (ISA, No. 240), and American standards (SAS, No. 99) and conclude that the three standards agree in the following aspects:

The agreement on the basic requirement, the importance of professional skepticism and due professional care when identifying and assessing and matching the fundamental risk of fraud, especially fraud committed by management.

The primary responsibility of the references, reasonable emphasis on the financial statements are sound and free of distortions resulting from both the fundamental error and fraud.

The discussions between the members of the audit team, about the risks of potential fraud.

Based on the above discussion, it is interesting to investigate the relationship between auditors' responsibility perception and the resulted level of management fraud risk assessment activities. Thus, responsibility perception is included in this research theoretical framework.

2.7.9 External Auditor's Effectiveness Score

Several empirical studies have been conducted using a combination of corporate governance mechanisms' effect on different disciplines such as performance, disclosure and auditing. For instance, O'Sullivan, Percy, and Stewart (2008) has indicated that it gives a stronger effect of measurement when investigation the overall corporate governance mechanisms than just examining them individually. In this study, the optimal combination of external auditor effectiveness attributes is considered better in increasing the probability of assessing the management fraud risk. It is better to look at external auditor attributes as a bundle of characteristics enhancing his ability in MFRA because the effectiveness of single attribute depend on the other attributes (Ward *et al.*, 2009). Agrawal and Knoeber (1996) indicated

that it is better to consider the combination of several factors better than investigating them individually which may mislead the results.

This study combined eleven auditor effectiveness attributes, namely; academic qualification, professional qualification, study major, training on fraud detection, audit experience, fraud detection experience, job position, auditor type, IT skill, questioning discussion ability and responsibility perception, in order to capture their aggregate effect on the probability of MFRA.

Bearing in mind the above conflicting view on external auditor's effectiveness score and management fraud risk assessment, external auditor's effectiveness score is still included in this research theoretical framework. This is because of its great capability in assessing fraud risk effectively and efficiently.

2.7.10 Audit Fees

The audit fees and the performance of the external auditor are positively related (Adimi, 2007). Matsumura and Tucker (1992) find a direct relationship between audit fees and fraud detection where by the increase in the audit fees results in less fraud. Li and Lin (2006) and Hwang and Lin (2008) find a positive relationship between audit fees and the occurrence of earnings management.

Bashtawi and Sufian (2003); Pelham and Nater (1995); Ashton (1990) and Asfor (2003) indicate that there is a relationship between fees and the independence of the auditor. For example, low fees negatively influence an auditor's performance and independence (AICPA, 1978). In another development, AL-Amoudi (2001) indicates

the existence of a gap between the audit fees and the auditor's responsibilities. The author also indicates that there is no standard for audit fees determination. For this reason, Jaro (2005) considers the recent audit fees do not suitable for the auditor's task and in turn influence their performance. Khasharmeh (2003) uncovers that the audit fees influence the selection of auditor by the company.

Sumunic (1980) notes that audit fees have significant influences on the independence of auditor. The influences are the reflection of the market competition. The AICPA (1978) also gives analysis of the influence of fees on the external auditors and accordingly, noted that most of the audit firms reduce their fees at the start of relating with their costumers but later increase the fees steadily after establishing the relationship. For this reason, the audit firms tend to maintain that relation with the customer and this has positive influence on their independence. This argument is also buttressed by Palmorse (1986), Francia and Simon (1987) and De Angelo (1981). This implies that if the audit fee is higher, then the audit quality will become better (Francis & Simon, 1987; Gist, 1994; Clarkson & Simunic, 1994). Based on agency theory there is appositve association between audit fees and MFRA.

On the other hand, Choi, Kim, and Zang (2010) uncovers that the quality of audit, which represents the size of absolute discretionary accruals, is related to abnormal audit fees (i.e. actual audit fee less expected, normal level of audit fee). Regression results show that the relationship between the two is asymmetric based on the sign of the abnormal audit fee. Where there is an indication of negativity for abnormal audit fees, the audit quality is not significantly related to abnormal audit fee.

Similarly, Dahdouh (2007) find that the relationship between the audit fee and the responsibility of the auditor for the discovery of fraud in financial reporting is not significant. Furthermore, Frankel *et al.* (2002) find a negative relationship between audit fees and the occurrence of earnings management. So abnormal audit fees have negative relation with management fraud detection where there was indication of positive abnormal audit fees. The results suggest that external auditors' motivation to prevent financial reporting biasness differ, based on whether amount paid by their clients is more or less than the normal level of audit fee.

To recapitulate it can be said that there is a potential relationship between audit fee and management fraud risk assessment. Thus, audit fee is included in this research theoretical framework.

2.7.11 Hiring and Changing of the Auditor

Many factors have been found to adversely affect the independence of the external auditors. For example, behavioural factors such as the conflict arising between the external auditor and the management with respect to interests and goals, and the methods and procedures for the hiring and changing of the auditor (Siam, 2003, Jubran, 2010). According to Amoudi (2001), the law never permits the auditor to discuss his changing, and this influence the level of disclosure in auditor's report, which subsequently influences his assessment on the client. The board of directors chooses the auditor and therefore the selection process of the auditor adversely affects his independence in assessing the financial statements of the shareholding companies.

In the Yemeni career environment, the general committee of the shareholders has legal right to select the external auditor in shareholding companies (Amoudi, 2001). However, the responsibility of the board of directors in selecting the auditor is restricted to certain cases, such as the inability of general committee to select one, or in case, the external auditor dies (Amoudi, 2001). The financial complexity faced by some of the shareholding companies in Yemen in recent time created doubts regarding the external auditor's true independence in the discharge of their job and offering their opinions companies (Law, No. 22, 1997). Additionally, the management responsibility in hiring and changing the external auditor was very essential and had adverse influence on the external auditor's independence (Matter, 1994). Moreover, hiring and changing of the auditor represents an important factor of auditor independence. When the management is control the selection process of selecting the auditor, which negatively affects his independence in evaluating the financial statements (Amoudi, 2001; Kasharmeh, 2003; Matter, 1994; Teho, 1992).

On the other hand, Dahdough (2007) found that the relationship between the external auditor change and the responsibility of the external auditor for the discovery of fraud in financial reporting is not significant. As a researcher as far aware, none of previous studies linked between hiring and changing of the auditor and management fraud risk assessment although independence one of the primary attributes of external auditor ability to assess management fraud risk. Agency theory suggests that there is a negative association between hiring and changing the auditor through administration and MFRA.

Based on the above discussion it is argued that hiring and changing of the auditor has a potential relationship with management fraud risk assessment in Yemen. Thus it is included in this research theoretical framework.

2.7.12 Social Relations

In social science, a social relation or social interaction refers to a relationship between two (i.e. a dyad), three (i.e. a triad) or more individuals (i.e. a social group) and they are derived from individual agency (Weber, 1991). Bashtawi and Suleiman (2003) investigate the influences of the social factors on the external auditors' performance and independence. It is found that the auditor's commitment to the rules and regulations decrease the adverse consequences of those factors. In addition, it is uncovered that social factors have negative influence on the external auditors' independence and performance. Agency theory suggests that there is a negative association between social relations and MFRA.

On other hand, Basodan *et al.* (2004) found a positive relationship between the personal relations and the auditor change. Al-Awaqleh, (2008) found a positive significant relationship between social relationship and the company's going concern. As far as researcher is, concern here is no study that links social relations and management fraud risk assessment. In turn, social relation is included in this research theoretical framework.

2.7.13 Economic Relations

Arthur Andersen firm which is an international audit firm became victim of Enron scandal following the announcement that the audit team shattered client's documents

in 2001. This misconduct results into the formation of Sarbanes-Oxley Act 2002, which prohibits nine forms of non-audit services by audit firms. The reason was due to the allegation that Andersen got a huge amount of non-audit services which damaged its venture goal of performing what auditors have enjoyed for some years back and a kind of independent checks. Consequently, studies of the impact of non-audit services on auditor reporting begin by researchers in the field of accounting such as Geiger and Rama (2003) and Sharma (2001). Sharma (2001) examines 49 bankrupt firms in Australia and discovers that non-audit services may damage auditors' independence. It is uncovered that 25 of the respondents obtain going-concern opinion following control for financial distress. The author's findings further show that clients who pay higher non-audit services are not more likely to get a going-concern opinion in the year before bankruptcy.

Geiger and Rama (2003) draw conclusion of no evidence in support of non-audit services decrease external auditor's ability to give objective report concerning financial position of the clients. Nonetheless, they find that lawful audit fees are related to going concern audit opinion which implies that it is necessary to have more audit efforts to give report of potential unsuitability of going-concern supposition. Furthermore, Frankel *et al.* (2002) found that non-audit services are associated with increased discretionary accruals and the achievement of certain earnings benchmarks. Krishnamurthy *et al.* (2006) documents that the market perceives the external auditor's independence is being compromised when the turnover of Andersen's clients is abnormal. In other words, when the management and the external auditor have a strong economic relation (non-audit fees), the auditor has an incentive to ignore potential problems and issue a clean opinion (Zhang *et al.*, 2007).

In effect, many studies show that there is a negative relationship between the non-audit services and the auditors' independence (Shockly, 1981; Titard, 1971; Hartly & Ross, 1972). Agency theory suggests that there is a negative association between economic relations and MFRA.

The offering of audit services and non-audit services simultaneously for the same client has created conflicts of interest that apparently have impaired auditors' objectivity and independence, resulting in audit failures (Rezaee, 2004). On the other hand, Asbaugh, LaFond, and Mayhew (2003) and Reynolds, Deis, and Francis (2004) where they find no relationship between non-audit fees and external auditor independence. As far as researcher is concern there is no study that links economic relations and management fraud risk assessment. This leads this research to include economic relation in its theoretical framework.

2.7.14 External Auditor's Independence Score

In this study, argues that combining external auditor independence-related factors into one score will increase the likelihood of assessing management fraud risk. It is better to look at external auditor independence-related factors as a bundle of characteristics enhancing his or her ability in MFRA, because the independence of a single attribute depends on the other attributes (Ward *et al.*, 2009). Agrawal and Knoeber (1996) indicated that it is better to consider the combination of several factors better than investigating them individually which may mislead the results. This study combined four external auditor independence-related factors, namely; audit fees, hiring and changing of the auditor, social relations, and economic relations, in order to capture their aggregate effect on the probability of MFRA.

Bearing in mind the above conflicting view on external auditor's independence score and management fraud risk assessment, external auditor's independence score is still included in this research theoretical framework. This is because of its great capability in assessing fraud risk effectively and efficiently.

2.8 Agency Theory, Attribution Theory and Accountability Theory

These three theories are very relevant to the studies of auditing. They are useful in analyzing the relationship that exists among the principals of the (organizations, shareholders, clients, and the external auditor) in assess management fraud risk (Wilks & Zimbelman, 2004; Awaqlh, 2008; Jaffar, 2009; Matsumura & Tucker, 1992). While the agency role deals with the composition of firm in term of who owns the resources and who utilizes or controls it, the accountability theory determines the responsibility of the external auditors, management and shareholders in dispensing their duties. Attribution theory is concerned with the ability of external auditor to assess management fraud risk.

2.8.1 Agency Theory

There have been attempts at modeling the interaction between the external auditor and managers by using an agency (optimal contracting) framework (Matsumura & Tucker, 1992). For example, Antle (1982) and Baiman, Evans, and Noel (1987) demonstrate the demand for an audit in a three-person game that includes the owner as well the manager and external auditor.

In management institution, agency theory which is gotten from financial economics literature is broadly taught. According to the theory, firm bears connection with the

principal who is the possessor of the economic resources and the agents or managers who control and utilize the resources (Jensen & Meckling, 1976). The fundamental of the theory is that more information are readily at the hands of the agents than the owner of resources and this information impact negatively on the resources' owner ability to regularly check if the development or progress by the agents is in line with their interests (Adams, 1994). The process of contract is believed to have been utilized for the achievement of maximum wealth by the rational action of the principals and agents. Given that the principal is connected with the agents, contracting costs will be borne by them to realize pareto-optimality, in which case the principals pay for the cost of monitoring and the agents pay for the costs of bond such as internal audit cost (Adams, 1994).

The failure of firms such as WorldCom and Enron had its roots agency cost (Jensen, 2004). This is because managers have their interest according to agency theory, which may differ from that of the stakeholders. The cost of overseeing or controlling the behaviours of the management and avoid contradictory interest is the agency costs (Ekanayake, 2004). The activities of management are influentially brought in common to the interests of the shareholders by utilizing motivations such as incentives, compensation schemes, and control system. This includes the use of external auditors to ensure the principals that the financial statements being prepared by the agents give true and fair view. In turn, this highlights the importance of external auditor independence.

2.8.2 Attribution Theory

Kelley (1967) brought forth the attribution theory which emphasized that in the same work, the specific causes to which preceding success or failure is attributed largely determine the performance anticipated in the future. Based on this argument, Weiner, Frieze, Kukla, Reed, Rest, and Rosenbaum (1971) content that the influence of the past success or failure on future performance changes depending on the nature of the attribution, internal in term of effort and/or ability, or external in term of luck and/or task problem). In particular, propositions were made by Weiner *et al.* (1971) which include the following: (1) the attribution to stable or internal causes such as ability and effort is positively association with the anticipated performance in the future given that success experience is followed, and (2) the attribution to unstable causes or external causes such as luck, and task problem is positively associated with the future anticipated performance given that failure experience is followed.

Weiner *et al.* (1971) argued that in the first proposition, any preceding success that was believed to be the result of stable causes such as ability and effort, are considered to have higher chance of repetition than success brought about by unstable causes because stable factors have the likelihood of future continuity than the unstable ones. In the second proposition, any previous failure that was believed to result from unstable cause such as luck and task problem, are considered to be easily dealt with in the future more than failure resulting from stable causes, and are therefore prone to less dampening impact on expected future performance.

According to the theory, past success' or failure's effect in assessing subsequent management fraud risk depends on the type of attribution such as internal which is

the ability to assess and uncover risk in fraud or external which is the problem of external auditor's independence resulting from their social, economic and administrative association with the management of organization.

According to Ybarra and Stephan (1999), and Wilks and Zimbelman (2004), studies on the theory of attribution put it that individual tends to analyze or predict bad behaviours like fraudulent activities in the attitude of people more than the pressures on them at a particular time or abound opportunities for them. Many studies have in job performance that have adopted this theory include Orpen (1980) and Taggar and Neubert (2004). In the investigation of the proposition of the theory of attribution introduced by Weiner *et al.* (1971), within the workers in their real-life jobs, Orpen (1980) finding supports Weiner *et al.* (1971) argument that previous success or failure has significant effect on expected future performance in the same work. Taggar and Neubert (2004) conducted a test on the proposition that the theory of attribution has the ability to give analysis of the peers' stimulus to the performing characteristics of the team member. Their result confirmed that the attitudinal establishment of cognitive ability and carefulness has relationship with causal attributions.

Other authors, Kaplan and Reckers (1985, 1993) have contributed to accounting literature by applying the theory of attribution to the public accounting performance. They investigate the impacts of the analysis given by the subordinate for the performance that is below the standard on the assessment judgments. Finding reveals that causal attributions affect the end-of-job performance scores by the subjects and their likelihood of performing the assignment in the future with the subordinate.

The relevance of attribution theory to the current study cannot be overlooked in that the study evaluates the causal attribution of the performance of the external auditors in their capacity to assess of management fraud risk. The application of this theory in the current study will permit the attribution of the anticipated future level of ability to assess of management fraud risk to the prior ability of external auditors to assess of management fraud risk. For this reason, it is believed that prior success and failure in the assessment of management fraud risk will respectively have positive and negative impact on the attributes of external auditors to assess of management fraud risk. This is because the objective of this current study is to investigate the influence of attributes' ability of the external auditor to assess of management fraud risk.

Thus, external auditor's prior success or failure in their ability to assess management fraud risk is considered to have higher chance of repetition in their next ability to assess of management fraud risk. This implies that the appropriate discovery of fraud risk by the external auditor based on the professional standard judgment will likely affect the external auditors' ability to assess of management fraud risk. The ability of the external auditors is considered as a stable cause. Thus, attribution theory is used as a basis in developing this research theoretical framework. This is evident from the inclusion of external auditor effectiveness-related attributes or competence and independence. The current study used the attribution theory is the main theory to explain the relationship between the variables, due to people used to attribute success to greater ability or effort, and attached failure to poor ability or poor effort (Heider, 1982). Therefore, this study focuses attention on the external and internal related attribution while the external auditors' ability is regarded to be a stable cause.

2.8.3 Accountability Theory

The theory of accountability has to do with the performance of auditing, audit of companies, audit quality, and economic and social developmental function (Hill, Mittal & Kulasingham, 1989). Thus, ability of the knowledge, experience, good skills, carefulness and effective performance in audit should be the qualities of external auditors (Hill *et al.*, 1989).

In the light of this, Gray, Owen, and Adams (1996) referred to accountability as "the duty to provide an account (by no means necessarily a financial account) or reckoning of those actions for which one is held responsible." In the same vein, Gray and Jenkins (1993) state "Accountability is an obligation to present an account of, and answer for, the execution of responsibilities to those who have entrusted those responsibilities." In addition, Perks (1993) says that "accountability sounds like a good thing — something that we can all be in favor of" and he added: For simplicity the concept of accountability will be introduced as if there are only two parties involved: directors may be accountable to shareholders, politicians to the electorate, secretaries to managers, or children to parents. In practice, individuals and organizations may be accountable to a number of different parties. Accountability means the obligation to give an account. The extent to which the form and content of that account is defined will vary from one relationship to another.

Accountability was defined above indicates the following: (1) implementing particular actions and accounting for those actions entail responsibility see Stewart (1984) and Gray *et al.* (1996) for detail; (2) accountability and the responsibility are

connected such that accountability is established to ensure responsibility; (3) emphasis is placed on information as a connection between the concerned parties; and (4) the information content relies on the relation in accountability.

Accountability model of Porter (1989) has shown that organizations managers give an account relating to many issues such as the honesty, authorization, efficiency and effectiveness in the utilization of funds and socially responsible behaviour. Stewart (1984) pointed out various bases of accountability—, which he referred to as the 'ladder of accountability' (Stewart, 1984). For the report of appropriate utilization of fund, 'probity' or 'legality' accountability is referred to.

The 'process accountability' as the next level indicates the right procedure taken by the agent; and the next two levels which are directed to the performance of the agent on the whole work and to see if the set objectives are met are 'performance accountability' and 'programme accountability'; and lastly is the 'policy accountability' which supports the 'performance' and 'programme' levels by presenting the account in term of wide policy in relation to objectives. In the study carried out by Sinclair (1995), it was found that various chief executives of public agencies in Australia expressed the various bases of accountability in which they view themselves to be accountable. In order to execute authority for the representatives elected, there was political accountability; to the public there was wider accountability; within their managerial hierarchy, there was managerial accountability; and there was professional accountability and personal accountability as a kind of loyalty to one's mind.

In short, it can be concluded that agency theory deals with the association of the agent as the management and the principal which is the owners and beneficiaries and the external judge which is the external auditor and increase external auditor independence. Attribution theory deals with the ability of the external auditor to assess probable management frauds while assessment deceitful risk. The external auditor possesses an integrated attribute of knowledge. Lastly, accountability theory determines the responsibility of management and external auditor about fraud in the organizations. The external auditors should have knowledge, experience, good skills, conscious and audit effective performance in assess management fraud risk. The management should be sincere when producing financial statements. This relationship is the essence of this research theoretical framework.

2.9 Summary

In this chapter, a comprehensive explanation of the literature reviews management fraud risk assessment is provided. Previous studies conducted in different countries are critically discussed and reported. The factors that are expected to influence the extent of management fraud risk assessment are included into a framework. The hypotheses are then developed. The diagrams of the framework and its hypotheses are offered in chapter 3.

CHAPTER THREE

RESEARCH FRAMEWORK AND HYPOTHESES DEVELOPMENT

3.1 Introduction

Having defined and described the background and the theoretical information of this research, this chapter discusses the hypotheses developed for the purpose of this research. To ease the reader in understanding this chapter, its framework structure is provided. The diagram of this research, theoretical framework, is initially offered. This is followed by the explanation of research hypotheses that are developed in this research.

3.2 Theoretical Framework

The development of theoretical framework is a vital step in the research methodology because it clearly showcases the directions of the study's contribution. It is considered an epistemology of constructivism that assumes a pluralist and relativist view of the reality (Guba & Lincoln, 1994). According to Sekaran and Bougie (2013), theoretical framework is delineated as a logically developed, defined framework that gives a detailed network of the relationship between the variables associated with the problematic situation, and identified through such processes as literature review, observations, and interviews.

Theoretical framework presents a model that identifies the logical associations among several factors that have been considered as important and vital to the research problem (Cavana, Delahaye, & Sekaran, 2001). Importantly, the authors highlighted that the relationships between the factors flow logically from the documentation of

previous studies in the problem area. Thus, this procedure forms the basis for the construction of the theoretical framework. Based on the literature review in the previous chapter, this study intends to investigate four groups of independent variables (external auditor effectiveness-related attributes, external auditor effectiveness score, external auditor independence-related factors, and external auditor independence score) and dependent variable (MFRA) using the frameworks of attribution, accountability, and agency theories. Attribution theory is the underlying theory. Table 3.1 below presents these research variables.

Table 3.1
Description of Research Variables

Independent Variables	Dependent Variable
External auditor's effectiveness-related attributes	
External auditor's effectiveness score	Management fraud risk assessment (MFRA)
External auditor's independence-related factors	
External auditor's independence score	

As discussed in chapter two, it is important to consider external auditor effectiveness-related attributes in order to examine management fraud risk assessment (Zhou & Kapoor, 2011; Moyse *et al.*, 2009; Lee *et al.*, 2008). This study investigates management fraud risk assessment using fraud risk indicators according to ISA 240 as proxy for the external auditors' ability in detecting possible fraud at the organization level. Both SAS 99 and ISA 240 classify the fraud risk indicators into three categories: opportunity, pressure/incentive, and attitude/rationalization.

Opportunity fraud risk indicators are found in situations that are ideal for people to commit fraud more easily due to ineffective internal controls, inadequate

supervision, or managers overriding internal controls. Pressure fraud risk indicators are circumstances in which people have a financial incentive to commit fraud such as falsely overstating sales or profits to receive their bonuses, or exerting pressure on managers to reduce actual expenses to be under budgeted costs. Rationalization fraud risk indicators are situations where people have certain traits and abilities to commit fraud and justify it with false reasons that they believe are true.

A fraud risk indicator questionnaire containing nine variables multiple choice questions, seven variables followed by a five-point Likert scale, with questions for 14 opportunity fraud risk indicators, 15 pressure fraud risk indicators, and 11 rationalization fraud risk indicators, was developed and distributed to four external auditor types: COCA, Big 4, international, and local. The study indicates the direct or inverse relationships between each external auditor's effectiveness-related attributes, independence-related factors, external auditor's effectiveness score, external auditor's independence score, and fraud risk indicators to reflect MFRA.

This study extends the previous research by examining the association of the external auditor's effectiveness-related attributes, which are: (1) academic qualification; (2) professional qualification; (3) study major; (4) training on fraud detection; (5) auditing experience; (6) fraud detection experience; (7) job position; (8) auditor type; (9) information technology skill; and (10) auditor's responsibility perception with MFRA. This study introduces new variables that have not been previously investigated with the MFRA. These include: (1) questioning discussion ability; (2) hiring and changing auditors; (3) social relations; and (4) economic relations.

It is well-conceptualized by attribution theory, suggested by ISA No. 240 and argued by Kranacher and Stern (2004), that an auditor with greater questioning discussion ability is more likely to assess management fraud risk. In addition, agency theory and previous empirical evidence (Knechel, 2001; Abdel-Khalik, 1993) suggest that the higher the responsibility of management in hiring and changing the auditors, the less motivation the auditors have in assessing management fraud risk. Further, agency theory conjunctures and extant research (Bashtawi & Suleiman, 2003) argue that the higher social relations established with external auditors by management, the less likely management fraud risk is assessed. Based on agency theory and the suggestions of prior research (Frankel *et al.*, 2002; Zhang *et al.*, 2007), the firm's management establishing an economic relationship with the external auditor negatively influences the fraud risk assessment.

Furthermore, it is argued that considering the external auditor's attributes as one bundle provides better measurement than considering them individually (Ward *et al.*, 2009; Agrawal & Knoeber, 1996). In this regard, the effectiveness and independence of the aggregated attributes will indicate the external auditor's ability in assessing management fraud risk. This study argues that the optimal combination of external auditor effectiveness score and independence score are considered better in increasing the probability of assessing the management fraud risk. It is better to look at external auditor attributes as a bundle of characteristics, enhancing his or her ability in MFRA, because the effectiveness or independence of a single attribute depends on the other attributes (Ward *et al.*, 2009). Agrawal and Knoeber (1996) indicated that the effect of a single attribute might be misleading. This study combined 11 external auditor's effectiveness attributes: academic qualification,

professional qualification, study major, training on fraud detection, auditing experience, fraud detection experience, job position, auditor type, information technology skill, questioning discussion ability, and auditor's responsibility perception, in order to capture their aggregate effect on the probability of MFRA. Also, this study names four other factors, alongside auditor's independent score: audit fees, hiring and changing of the auditors, social relations, and economic relations, in order to capture the overall impact on the possibility of assessing management fraud risk.

Additionally, for effective management fraud risk assessment, external auditors' independence-related factors should be examined such as audit fee, hiring and changing of the auditor, social relations, and economic relations. These variables have been revealed to influence management fraud risk assessment in relation to external auditors' independence. Sumunic (1980) states that audit fees have significant influence on the independence of external auditors. In supporting the above assertion is the AICPA submission. AICPA (1978) noted that most audit firms reduce their fees at the start of the customer relationship, but later increase fees steadily after establishing the relationship. This implies that if the audit fee is higher, then the audit quality will become better (Francis & Simone, 1987; Gist, 1994; Clarkson & Simunic, 1994).

In addition to external auditor's fee is the influence of hiring and changing of auditors. According to Al-Amoudi (2001), the law never permits the external auditor to discuss his or her changing, influencing the level of disclosure in the external auditor's report, which subsequently influences his or her assessment of the client.

Bashtawi and Sufian (2003) investigate the influences of social and economic factors on the external auditors' performance and independence. Sharma (2002) uncovers that clients who pay higher non-audit services are not more likely to get a going-concern opinion in the year before bankruptcy. In summary, the decision to include the external auditor's independence-related factor in this study is based on evidence from prior studies. Therefore, the above discussion leads to the construction of this research theoretical framework, which is illustrated in Figures 3.1 and 3.2.

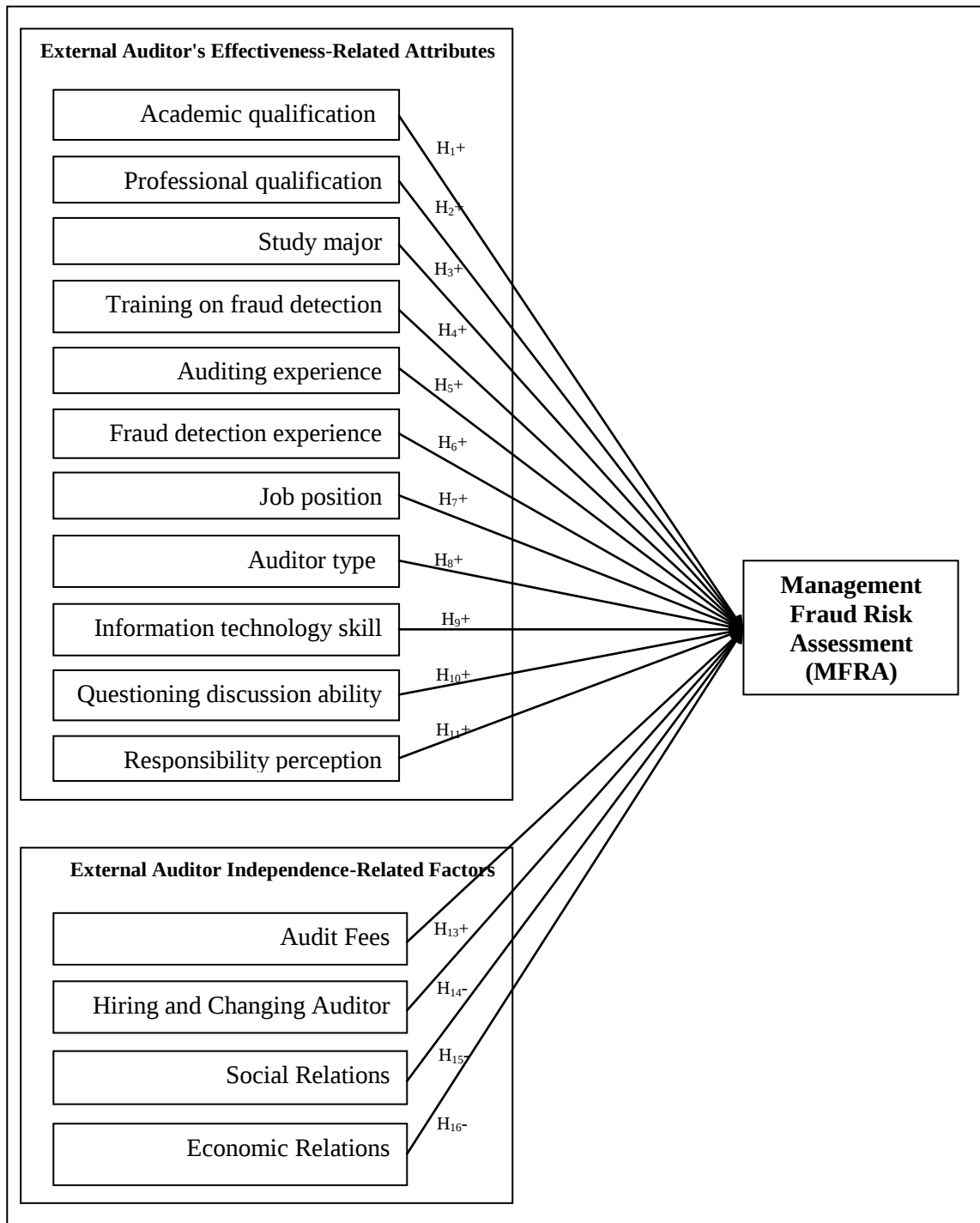


Figure 3.1:
Theoretical framework 1

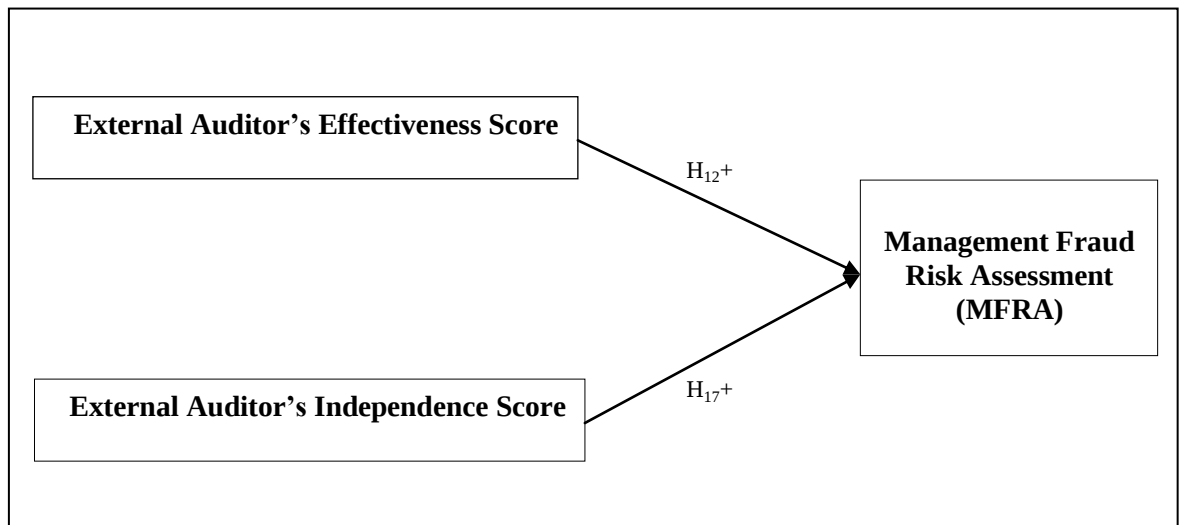


Figure 3.2:
Theoretical framework 2

3.3 Hypotheses Development

This section discusses the hypotheses of this research. The hypotheses are developed based on the theoretical framework that is illustrated in Figures 3.1 and 3.2. As discussed in chapter two, the research hypotheses are related to the relationship among external auditor effectiveness-related attributes (academic qualification, professional qualification, study major, training on fraud detection, auditing experience, fraud detection experience, job position, auditor type, IT skill, questioning discussion ability, and responsibility perception), external auditor independence-related factors (audit fees, hiring and changing of the auditor, social relations, and economic relations), external auditor effectiveness score (including all eleven attributes), external auditor independent score (including four independent-related factors), and management fraud risk assessment in Yemen. All are discussed in detail in the following subsections.

3.3.1 External Auditor Effectiveness-Related Attributes

3.3.1.1 Academic Qualification

Based on attribution theory, the higher the academic qualification, the higher the probability the external auditor can assess management fraud. De Angelo (1981), Moyse *et al.* (2009), and Yang *et al.* (2010) stated that there is a positive association between academic qualification and management fraud risk assessment. The higher the qualification, the better the management fraud risk assessment will be. This result contradicts Mattar (1999), who uncovered a negative relationship between academic qualification and performance due to concepts, ways, and methods of teaching used in traditional accounting. Therefore, the effect of academic qualification on the auditor's ability to assess management fraud risk is not significant, if not expanded and improved (Kranacher & Stern, 2004; Washally, 2010). This statement by Mattar (1999) buttresses the need for continuing and improving academic qualification of auditors in order to provide excellent service at all times. Formal education, according to Mattar (1999), is no more appropriate to the needs of the times as it greatly focuses on procedures, which gives way to concepts and methods of teaching used in traditional accounting for improvement, but fails to measure the skills and real potential of students. This could be the reason why some professional organizations need continuing professional education, up to a university degree. The above submission is inconclusive, leading to the need for further investigation of these variables, because academic qualification plays an essential role in influencing management fraud risk assessment. Hence, this research posited the following hypothesis:

H1: There is a positive association between academic qualification and management fraud risk assessment.

3.3.1.2 Professional Qualification

According to the attribution theory, there is a positive association between auditor's professional qualification and management fraud risk assessment. Moyes and Hasan (1996), Moyes and Anandarajan (2002), Law (2008), and Lou and Wang (2009) uncovered that the professional qualification of the external auditor is positively related to management fraud risk assessment. According to Khadir (1991), continuing professional education assists in improving the skills and efficiency of auditors to judge objectively. On the other hand, Washally (2010) views that the external auditor's professional qualification has no significant relationship with management fraud risk assessment because all external auditors that are involved in corporate scandals have professional qualifications, particularly CPAs. However, external auditors are required to fulfill requirements such as the International Federation of Accountants program (IFAC), where accountants should attain 90 hours of continuing professional education every three years (Alroata, 2002).

The above discussion shows inconclusive results, which leads to the need to further investigate the relationship between professional qualification and management fraud risk assessment. This is because assessment of management fraud risk requires the skill and efficiency that could be obtained through professional qualification. Hence, this research posits the following hypothesis:

H2: There is a positive association between professional qualification and management fraud risk assessment.

3.3.1.3 Study Major

Attribution theory conjunctures that the higher the study major the higher the probability the external auditor can assess management fraud. Moyes (2007) finds that there is a positive relationship between study major and management fraud risk assessment. Asfor (2003) finds a positive relationship between the ability of the external auditor and the assessment of audit risks. On the contrary, Thneibat (1991) and Washaly (2010) uncover that there is a weak relationship between study major and the external auditor's evaluation of audit risk. Thus, from the two researchers, one can deduce that the findings are inconclusive; therefore, this study intends to further investigate the influence of study major on management fraud risk assessment. This is because, for effective and strong evaluation in assessing management fraud risk, there is need for study major. Based on this, the next research hypothesis is stated as follows:

H3: There is a positive relationship between study major and management fraud risk assessment.

3.3.1.4 Training on Fraud Detection

Attribution theory proposes that discovering subsequent management fraud depends on the type of training. Wilks and Zimbelman (2004), Moyes *et al.* (2009), and Brazel *et al.* (2010) examine the effect of specific training of external auditors on fraud detection. Their finding reveals that training of external auditors is significantly positively related to detection of fraudulent financial reporting. In addition, Jaffar (2009) states that training and simulated experiences help in investigating fraud. However, Yang *et al.* (2010) found that fraud risk indicator training among Malaysian auditors does not influence the level of effectiveness in management fraud

detection activities in publicly-listed companies. This implies that external auditors do not improve their level of effectiveness in fraud risk assessment skills from attending either fraud risk indicator conferences or fraud risk indicator training offered by employers. However, the researcher hypothesizes that training has an influence on management fraud risk assessment. This is because assessing management fraud requires adequate skills and knowledge. Thus, the following hypothesis is proposed:

H4: There is a positive association between training on fraud detection and the external auditor's assessment of management fraud risk.

3.3.1.5 Audit Experience

As suggested by attribution theory, the more audit experience obtained by the external auditor, the higher the incidence that management fraud is assessed. The practical experience of external auditors has been empirically tested to determine auditor's performance in assessing management fraud (Loebbecke *et al.*, 1989; Pincus, 1984; Hackenbrack, 1992). Their studies find that the external auditor's experience is positively related to management fraud risk assessment. Their studies further reveal that the more experienced and knowledgeable the auditor is, the more he or she is likely to assess and manage fraud risk. According to the authors, financial statements released by companies with well-known and experienced external auditors are believed to be more reliable. Additionally, Hegazy and Kassem (2010) findings showed that CPA firms seem to be significantly more effective in fraud risk assessment using fraud risk indicators if their external auditors have accumulated more auditing experience.

On the contrary, Smith *et al.* (2005), and Alleyne *et al.* (2010) uncover that there is a weak relationship between the external auditor's years of experience and management fraud. Brazel *et al.* (2010) observe negative associations between audit experience and the extent of the response to fraud detection. In short, the relationship between audit experience and management fraud risk assessment is inconclusive. Therefore, there is the need to re-investigate external auditor's experience and management fraud risk assessment, because experience is the best teacher and needed for guidance in future assessment of fraud. Thus, the following proposition is made:

H5: There is a positive association between the audit experience and management fraud risk assessment.

3.3.1.6 Fraud Detection Experience

Based on attribution theory, the higher the fraud detection experience, the higher the probability the external auditor can assess management fraud. It is often said that experience is the best teacher. Have auditors done their best and learned from experience when it comes to assessing fraud? That is a debatable question. What is certain is that there is room for external auditors to improve, and there are opportunities for them to learn from experience (Saksena, 2010). A question that can be raised is, "How can external auditors learn more effectively in management fraud risk assessment?" This question is answered by previous researchers such as Beasley *et al.* (2001), Wilks and Zimbelman (2004), and Washally (2010). These researchers find that specific fraud experience has significant association with fraud detection. Also, Moyes and Hasan (1996) reveal that prior success and experience of auditing firms is a significant variable in detecting fraud in each audit cycle and combined

cycle estimates. On the other hand, Law (2011) and Smith *et al.* (2005) averred that auditors' prior success and experience do not have any impact on the assessment of management fraud risk. With these submissions showing inconsistencies in the previous studies, there is a need to re-investigate experience in assessment of management fraud risk. This is because previous experience in fraud detection has influence and is needed for present and future management fraud risk assessment. Hence, this research posits the following hypothesis:

H6: There is a positive association between fraud detection experience and management fraud risk assessment.

3.3.1.7 Job Position

Based on attribution theory, discovering subsequent management fraud depends on the type of job position. In many audit engagements, the audit manager is the person who decides on the adequacy of the risk assessed (Washaly, 2010). The job position is found to be significantly related to the level of fraud-detecting effectiveness (Owusu-Ansah *et al.*, 2002; Moyes *et al.*, 2009). From their studies, Jaffar *et al.* (2008) provide evidence that external auditor's job position influences management fraud risk assessment.

On the contrary, Smith *et al.* (2005) conducted a study and found that job positions of auditors do not have any impact on auditors' perception and thus, do not influence management fraud risk assessment. However, this study is of the opinion that job positions of external auditors do influence management fraud risk assessment, because auditors with a good job position are likely to have a proper audit plan,

which could influence management fraud risk assessment. Based on this observation, the following proposition is made:

H7: There is a positive association between job position and management fraud risk assessment.

3.3.1.8 Auditor Type

Attribution theory suggests that auditor type may cause a variation in the degree of management fraud risk assessment. Auditor type has been examined and found to have association with management fraud risk assessment. The studies that have examined these two variables are Perols (2008) and Owusu-Ansah *et al.* (2002). They find a significant positive relationship between auditor type and fraud detection. In addition, research has indicated that the Big 4 auditors provide higher quality auditing services (Lee *et al.*, 2007). On the contrary, Law (2011) finds that auditor type has no significant relationship with management fraud detection. Auditor type has the likelihood of influencing fraud risk assessment because it could influence auditor's independence, with the consequence of influencing management fraud risk assessment. For this reason, external auditor type could serve as a predictor of better fraud risk assessment. Based on this reason, the next hypothesis is formulated to either support or reject the above findings.

H8: There is a positive association between external auditor type and management fraud risk assessment.

3.3.1.9 Information Technology Skill

According to attribution theory, there is a positive association between IT skill and management fraud risk assessment. It is believed that IT skill can be a very useful

tool for external auditors in carrying out their duties in investigating fraud (Zhou & Kapoor, 2011). Scholars who have examined IT skill in relation to management of fraud conclude that there is a relationship between the two variables. Janvrin *et al.* (2008) explore audit IT usage and its effect on auditors' judgment. They conclude that IT skill of auditors has a direct effect on audit effectiveness and efficiency. In addition, Messier, Eilifsen, and Austen (2004) and Lynch and Gomaa (2003) find a significant relationship between IT skill and organization fraud.

On the other hand, Bierstaker *et al.* (2011) uncover that the growth of the internet and e-commerce has led to a rise in the number of dial-in ports to computer networks, thus increasing the exposure to fraud. In spite of the conflicting results of IT skill and management fraud risk assessment, this study considers IT skill to be effectively and efficiently capable of influencing proper fraud risk assessment, and so is included as an explanatory variable. On this basis, the following hypothesis is proposed:

H9: There is a positive association between external auditors' IT skill and management fraud risk assessment.

3.3.1.10 Questioning Discussion Ability

As postulated by attribution theory, the higher the questioning discussion ability, the higher the probability the external auditor can better assess management fraud risk. Questioning discussion sessions are now a requirement on each audit, as per a statement in auditing standards, but concerns have been raised about their effectiveness in helping external auditors better assess fraud, indicating that questioning discussion ability represents one of the important attributes of external

auditors (ISA 240, para. 30). Moreover, the current environment requires new CPAs, as well as seasoned professionals, to acquire supplementary investigative and discussion skills, because the majority of frauds are uncovered as a result of tips from employees and others (Kranacher & Stern, 2004). Available technologies increasingly support multiple aspects of audit team deliberations and decision making (Bamber *et al.*, 1996), thereby aiding team discussions. Based on the above arguments that questioning discussion ability greatly influences management fraud risk assessment, the following hypothesis is proposed:

H10: There is a positive association between questioning discussion ability and management fraud risk assessment.

3.3.1.11 Responsibility Perception

According to accountability theory, there is a positive association between responsibility perception of the external auditor and management fraud risk assessment. Lee *et al.* (2008) showed unquestionably the existence, with respect to detection of fraud, of a gap between the perception of the respondents and the present statutory requirements of external auditors. Furthermore, Montgomery *et al.* (2002) and McConnell and Banks (2003) found SAS 99 increases the responsibility of the external auditor at the beginning of management fraud risk assessment, and concluded that the most important radical changes are worthy of attention in the new standard.

Extensive studies have been conducted in many countries into the perception of financial report users of external auditors' responsibilities in fraud risk assessment or detection (e.g., Beck, 1973; Monroe & Woodliff, 1994; Anderson, 1974; Baron *et*

al., 1977; Epstein & Geiger, 1994; Humphrey *et al.*, 1993; Low, 1980; Leung & Chau, 2001; Dixon *et al.*, 2006; Fadzly & Ahmad, 2004). These studies find that many financial report users believe that the assessment of irregularities is a primary audit objective, and that auditors have a responsibility to assess all irregularities. Moreover, Porter (1983) concludes that 100 percent of investors in public institutions, 81 percent of investors in the private sector, 83 percent of qualified auditors, and 84 percent of corporate managers state that the discovery of fraud cases and material misstatement are the goal of the auditing. Carcello and Palmrose (1994) find a positive relationship between the existence of management fraud and the litigation against external auditors because they did not live up to their responsibilities. Therefore, this study seeks to assess the auditors' perception of different aspects of this responsibility. Based on the above findings, and because responsibility perception is associated with fraud assessment, the following hypothesis is proposed:

H11: Responsibility perception has a positive association with management fraud risk assessment.

3.3.2 External Auditor's Effectiveness Score

This study argues that combining external auditor effectiveness attributes into one score will better increase the probability of assessing management fraud. According to Ward *et al.* (2009), it is better to look at external auditor attributes as a bundle of characteristics enhancing his or her ability in assessing management fraud risk, because the effectiveness of a single attribute depends on the other attributes. By the same token, Agrawal and Knoeber (1996) indicated that the effect of a single attribute might be misleading. This study combined 11 external auditor effectiveness

attributes: academic qualification, professional qualification, study major, training on fraud detection, auditing experience, fraud detection experience, job position; auditor type, information technology skill, questioning discussion ability, and external auditor's responsibility perception, in order to examine their combined effect on the incidence of management fraud risk assessment. Thus, the following hypothesis is stated:

H12: The external auditor's effectiveness score has a positive association with management fraud risk assessment.

3.3.3 External Auditor's Independence-Related Factors

3.3.3.1 Audit Fees

Based on agency theory, the higher audit fees via owners, the more likely the external auditor can better assess management fraud risk. Audit fees perform an important function in the practice of audit work by influencing the performance and quality of auditing of the external auditor. The fees serve as a way of supporting the autonomy of the external auditor, with the objective of enhancing his or her performance. For this reason, some researchers attempted to examine the association of audit fees with factors like the autonomy of the external auditor, quality of the audit, and the performance of the external auditor. It has been pointed out by Bashtawi and Sufian (2003) that there is an association between the autonomy of the external auditor and fees. In particular, studies by Palmorse (1986), Francia and Simon (1987), and De Angelo (1981) show that audit fees have been positively associated with the autonomy of the external auditor. When forced to increase the minimum amount of testing for fraud, external auditors decreased discretionary

testing, yet still spent more on testing overall (Matsumura & Tucker, 1992). The increased spending increased fraud risk assessment and decreased fraud commission.

In the situation where abnormal audit fees are negative, the quality of the audit is not significantly associated with the abnormal audit fee (Choi *et al.*, 2010). In addition, the results of Frankel *et al.* (2002) indicate that auditor fees are negatively associated with the occurrence of earnings management. Therefore, there was a positive association of abnormal audit fees with management fraud risk assessment in a situation of positive abnormal audit fees. The finding pointed out that the reasons external auditors avoid bias in the reporting of finances are different. This depends on the amount of fees payable via the clients (whether it is larger or smaller than the level of normal audit fees). Given this, the following proposition is made:

H13: Audit fees have a positive association with management fraud risk assessment.

3.3.3.2 Hiring and Changing of the Auditor

Agency theory suggests that there is a negative association between hiring and changing of the auditor via management and assess of management fraud risk. Several factors have been identified to have negatively influenced the autonomy of the external auditors; behavioral factors are among these. For instance, this includes the conflicts of interests and goals which come up between the organization's management and the external auditor; and the approaches and ways of hiring and changing of the external auditor (Siam, 2003). The role of management in the hiring and changing of the external auditor is very important, as it negatively affects the autonomy of the external auditors (Matter, 1994). Therefore, external auditor's hiring

and changing is an important factor influencing the autonomy of the external auditor. The selection or controlling of the selection process of the external auditor through management has influenced the autonomy of the external auditor in assessing financial statements (Amoudi, 2001; Khasharmeh, 2003; Matter, 1994; Teho, 1992). Therefore, the following proposition is made:

H14: Hiring and changing of the external auditor via management is negatively associated with management fraud risk assessment.

3.3.3.3 Social Relations

Agency theory conjunctures that social relations with the external auditor undermined the probability of management fraud risk assessment. Bashtawi and Sufian (2003) investigate the influences of the social and economic factors on the external auditors' performance and independence. It is found that the external auditor's commitment to the rules and regulations decrease the adverse consequences of those factors. In addition, it is uncovered that social and economic factors have a negative influence on the external auditors' independence and performance. By making any association with the administration of the company, the external auditors are exposed to unavoidable pressures, which could negatively influence their autonomy. Their findings indicate a negative association between external auditor's social relations and performance and independence.

On other hand, Basodan *et al.* (2004) used the five point Likert scale to measure the effect of personal relationship on auditor change. The result was that there is a positive relationship between personal relations and external auditor change. Al-

Awaqleh (2008) found a positive significant relationship between social relationship and the company's going concern.

By making any association with the administration of the organization, the external auditors are exposed to unavoidable pressures, which could negatively influence their autonomy. Their findings indicate a negative association between the external auditor's social relations and management fraud risk assessment. For this reason, external auditors are expected to stay clear of any relationship that could influence his or her role in assessing management fraud. Thus, the following proposition is made:

H15: Social relations of external auditors and management fraud risk assessment are negatively associated.

3.3.3.4 Economic Relations

According to agency theory, there is a negative association between economic relations with the external auditor and management fraud risk assessment. The help rendered by the external auditor or the audit firm is known as economic relations (or what could be known as non-audit fees). Such assistance includes services offered on taxes, advising management and small businesses, and services related to non-audit accounting. A study by Frankel *et al.* (2002) indicated that non-audit services are related to increased discretionary accruals, as well as with the realization of certain targeted earnings. Reports by Krishnamurthy *et al.* (2006) indicated that the abnormal returns for the clients of Andersen around the indictment of Andersen are negatively significant, especially at the time the autonomy of external auditor is viewed to be have been tampered with. Zhang *et al.* (2007) submitted that where

management and external auditor shave tight economic relations (non-audit fees), there is motivation for the external auditor to do away with any difficulties that may develop and offer a new unstained view. Also, Shockly (1981), Titard (1971), and Hartly and Ross (1972) indicated that non-audit services have a negative effect on the autonomy of the external auditors. To the extent that economic relations have influence in assessing fraud, the following proposition is formulated:

H16: Economic relations of the external auditor and management fraud risk assessment are negatively associated.

3.3.3 External Auditor's Independence Score

This study argues that combining external auditor independence-related factors into one score will increase the likelihood of assessing management fraud. According to Ward *et al.* (2009), it is better to look at external auditor attributes as a package of characteristics, enhancing his or her ability to assess management fraud risk, because the independence of a single attribute depends on the other attributes. For the same reason, Agrawal and Knoeber (1996) indicated that the effect of a single attribute might be deceptive on which to make a decision. This study combined four external auditor independence-related factors: audit fees, hiring and changing of the auditor, social relations, and economic relations, in order to examine their combined effect on the incidence of management fraud risk assessment. Thus, the following proposition is made:

H17: The external auditor independence score has a positive association with management fraud risk assessment.

3.4 Summary

In this chapter, this research conceptual framework is diagrammed and followed by the hypotheses. The framework consists of the factors that are relevant to external auditor assessment of management fraud risk in Yemen. It is then tested using a survey approach, which is discussed in chapter four. Therefore, the proposed hypotheses are tested.

CHAPTER FOUR

RESEARCH METHODOLOGY

4.1 Introduction

The previous chapter deals with this study's theoretical framework and hypotheses development. This chapter focuses on the methodology adopted by this research. This covers research design, sampling procedure, research instrument, data collection, and data analysis.

4.2 Research Equation

The theoretical frameworks, which aim to explain MFRA success, are denoted by the following general expressions:

$$\text{MFRA} = f \{ \text{AQ, PQ, SM, TFD, AE, FDE, JP, AT, ITS, QDA, RP, AF, HCA, SR, ER} \} \dots\dots\dots (1)$$

$$\text{MFRA} = f \{ \text{EAES, EAIS} \} \dots\dots\dots (2)$$

Multiple regression analysis is employed because it makes it easy to control for ceteris paribus analysis, as it gives room for controlling many other factors that simultaneously influence the dependent variable. Using multiple regression models is advantageous because it allows many explanatory variables that could be correlated, by which one can infer causality, and which could be misleading if simple regression is used. Adding more useful variables to a model, which could explain dependent variables, permits the explanation of more variation in dependent variables. Therefore, one can employ multiple regression analysis to build reasonable models for predicting the endogenous variable.

Another advantage of multiple regression analysis is that it has the capability to incorporate fairly general functional form association (Hair *et al.*, 2006). The regression coefficient (β) indicates the effect of the independent variables on the dependent variable. Specifically, for each unit change in the independent variables, X, there is an expected change equal to the size of β in the dependent variable, Y. Based on the above justification, the regression model is formulated as follows:

$$\begin{aligned} \text{MFRA} = & \alpha + \beta_1 \text{AQ} + \beta_2 \text{PQ} + \beta_3 \text{SM} + \beta_4 \text{TFD} + \beta_5 \text{AE} + \beta_6 \text{FDE} + \beta_7 \text{JP} \\ & + \beta_8 \text{AT} + \beta_9 \text{ITS} + \beta_{10} \text{QDA} + \beta_{11} \text{RP} + \beta_{12} \text{AF} + \beta_{13} \text{HCA} + \beta_{14} \\ & \text{SR} + \beta_{15} \text{ER} + \varepsilon \dots\dots\dots (1) \end{aligned}$$

$$\text{MFRA} = \alpha + \beta_1 \text{EAES} + \beta_2 \text{EAIS} + \varepsilon \dots\dots\dots (2)$$

Where:

MFRA = Management Fraud Risk Assessment

a = the constant term of the equation

AQ = Academic Qualification

PQ = Professional Qualification

SM = Study Major

TFD = Training on Fraud Detection

EA = Auditing Experience

EFD = Fraud Detection Experience

JP = Job Position

AT = Auditor Type

ITS = Information Technology Skill

QDA = Questioning Discussion Ability

RP = Responsibility Perception

EAES	= External Auditor Effectiveness Score
AF	= Audit Fees
HCA	= Hiring and Changing of the Auditor
SR	= Social Relations
ER	= Economic Relations
EAIS	= External Auditor Independence Score
ε	= A random disturbance term (error).

4.3 Research Design

Zikmund (2000) defined research design as a master plan describing the techniques and procedures for collecting and analyzing required information. Thus, the fundamental research design employed in this study is a survey design. Data used is primary data collected from the respondents. The primary data collection is done with the use of a personal survey questionnaire. This instrument is employed to measure assessment of management fraud risk via the external auditor. The respondents are external auditors in the Central Organization for Control and Accounting and audit firms (Big 4, international, and local) in Yemen.

4.4 Research Population and Sample Size

According to Sekeran and Bougie (2010), population is defined as the entire group of people or events that the researcher wishes to examine. In this study, the population is external auditors in the Central Organization for Control and Accounting and audit firms (Big4, international, and local) in Yemen. According to Yemeni Association of Certified Public Accountants (YACPA) and Ministry of Industry and Trade (MIT),

the present active number of external auditors in Yemen is 723, and as of early 2012 there are 227 audit firms and officers in Yemen (YACPA & MIT, 2012).

The objective of the Central Organization for Control and Accounting (COCA) is to achieve effective control over public funds and to ensure adequate management by maintaining economy, efficiency, and effectiveness. Article 4 in COCA Law 39 for 1992 also ensures the improvement of performance of units under their control, especially public business organizations by governmental external auditors, and that they should have three years' experience after earning their CPA license. Furthermore, COCA is responsible for the implementation of financial audit statements of the public economic units in order to determine the validity and representation of financial reporting by giving its opinion on how such statement is prepared in accordance with generally accepted accounting principles and comments about the errors and irregularities (COCA Law 39, 1992, article 7, para. 12).

The new Yemeni audit law (Article 5 of Law No. 26 of 1999) requires the following from its officers: a new degree in Accounting; three to four years work experience in audit after graduation; one to two years after the Master degree with six months to one year post-doctoral. Since this study investigates external auditors in Yemen, pointing toward the important role which audit partners, managers, and senior auditors play in determining the quality of the session is important (Prazel *et al*, 2010).

The sample of this study is a subset of the population, Table 4.1 illustrates the details for population and sample size, 89.08% of the external auditors in Sana'a region and

10.92 in other states. Therefore, target sample is 644 in Sana'a the capital of Yemen since large sample of the population of the study can be found in the capital (YACPA & MIT, 2012). To collect the data for the undertaken study, the self-administration mechanism was used by distributing copies of the translated questionnaire to the respondents.

Table 4.1
Population and Sample Size

Region	Auditor TYPE			Population Size	%		Target Sample
	WP		N		WP	Region	
Sana'a		COCA	-	246	34.02		246
	Audit	B4	4	63	8.71		63
	firms	I	3	29	4.01	89.08	29
		L	195	306	42.32		306
Other States		B. COCA	-	41	5.67		
	Audit	B4	-		-		
	firms	I	2	4	0.55	10.92	
		L	23	34	4.70		
Total			227	723			644

WP=work place, N=number, B=branches, B4=Big4, I=international, L=local

4.5 Research Activities

Research activities are the process to carry out this study, which include research instrument development, data collection, and data analysis. These activities are discussed further in the next section.

4.5.1 Research Instrument Development

The questionnaire is used as a research instrument in this study. This instrument has been tested and considered an appropriate tool to collect data in a survey study

(Ismail, 2004). Therefore, the researcher established a questionnaire to obtain required data from respondents.

4.5.2 Structure of the Questionnaire

The questionnaire was designed based on the basic principles suggested by Dillman (1978). These principles are:

- Order the questions in descending order of importance and usefulness;
- Group the questions that are similar in content together, and within areas, by type of question;
- Take advantage of cognitive ties that respondents are likely to make among the groups of questions in deciding the order of the questions involved; and
- Position the questions that are most likely to be objectionable to respondents after the less objectionable one.

Subsequent to this information, the research questionnaire is divided into three main parts, as illustrated in table 4.2. Please refer to Appendix A for the details of the questionnaire.

Table 4.2
Summary of Questionnaire Organization

Part	Section	Contents
1		*Personal attributes (effectiveness-related attributes)
2		*Management fraud risk assessment
3		Main part
	A	*Questioning discussion ability (effectiveness-related attribute)
	B	*Responsibility perception (effectiveness-related attribute)
	C	*Audit fees (independence-related factor)
	D	*Hiring and changing (independence-related factor)
	E	*Social relations (independence-related factor)
	F	*Economic relations (independence-related factor)

This study uses two types of scales in the questionnaire. The first part is the dichotomous scale “interval” or “nominal” answer. The second part makes use of the popular and acceptable five-point Likert scale, which is designed to examine how strongly the respondents agree or disagree with the statement (Cavana *et al.*, 2001). The five-point Likert scale follows the following format where (1) stands for “strongly disagree,” (2) represents “disagree,” (3) stands for “neutral,” (4) represents “agree,” and (5) stands for “strongly agree.” Arabic language was used in the questionnaire and was translated by two professional translators from English to Arabic and vice versa.

Appendix A displays an example of the designed questionnaire distributed to external auditors for response in COCA and audit firms. The external auditors were asked to indicate their opinion on 95 items concerning the assessment of

management fraud risk by external auditors, how their responsibility is viewed, their level of questioning discussion, and the exogenous-related factors of the external auditor. The scale contains the following items:

Table 4.3
Summary of Items Measured use Five Point Likert Skills

VARIBLES	ITEMS NEMBERS
Part II Items= a	
1. Management Fraud Indicators	
Opportunities	(1-14)
1. Industry provides opportunities for:	= a; 1-6
2. Ineffective monitoring of management allows:	= a; 7-8
3. There is a complex or unstable organizational structure:	= a; 9-11
4. Internal control deficient:	= a; 12-14
Incentives/Pressures	(15-29)
1. Financial stability or profitability is threatened by economic, industry, or entity operating conditions:	=a; 15-21
2. Excessive pressure exists for management to meet requirements of third parties:	=a; 22-25
3. Management or directors' personal financial situation is:	=a; 26-28
b.4. There is excessive pressure on management	=a; 29-29
Attitudes/Rationalizations	
1. Attitudes/rationalizations by board members, management, or employees that allow them to engage in and/or justify fraudulent financial reporting:	=a; 30-36
2. Strained relationship with current or predecessor Auditor.	=a; 37-40
Part III Items= b	
2. The Variables that Association the Auditor Assessing of the Management Fraud-Risk as follow:	
1. Questioning discussion ability	=b; 1-11
2. Responsibility perception	=b; 12-21
3. Auditor fees	=b; 22-31

Table 4.3 (continued)

VARIABLES	ITEM NUMBERS
4. Hiring and changing of the auditors	=b; 32-42
5. Social relations	=b; 43-50
6. Economic relations	=b; 51-55

4.5.3 Operationalization and Measurement of the Variables

The guidelines recommended by Sekaran and Bougie (2010) and Hair, Bush, and Ortinau (2000) were used as operational variables of this study. Thus, the following paragraphs describe how each variable is operationalised. In line with that, a composite or index measure is a multi-item instrument constructed to measure a single concept (Zikmund, 2000).

4.5.3.1 Management Fraud Risk Assessment

The dependent variable in this study is MFRA. For the purpose of this study, quantitative measurement will be used to measure fraud risk indicators, according to ISA 240 as proxy for the external auditor's assessment of management fraud risk. AICPA (2002), Brazel *et al.* (2010), Smith *et al.* (2005), Moyes (2007), Brazel *et al.* (2009), Lou and Wang (2009), Yang *et al.* (2010), and Moyes *et al.* (2009) have developed the items concerning the auditor's perception of assessment tools. Those items were adopted and adapted by this study, using a five-point Likert scale. In all cases, the value of "1" implies that the external auditor's assessment of management fraud is not perceived as important, while "5" is considered very important. This study used the composite measure for the items as a measure of the auditor's assessment of management fraud. The composite measure of overall MFRA was

created by summing across the three dimensional values according to the guidelines recommended by Zikmund (2000) and Hair *et al.* (2006). This is similar to that of Moyes (2007) and Moyes *et al.* (2009).

Accordingly, to measure MFRA (dependent variable), this study employed 40 items, as shown in Appendix A. When the lowest point total is 40 (1 x 40 items), it implies that the MFRA of the respondent is low or bad. If the total maximum points are 200 (5x 40 items), it means that the respondent's MFRA is high or good. The items in relation to management fraud risk indicators can be referred to in Appendix A-1. Pre-test and pilot testing were conducted and administered to test the validity of the items so that questions that are related and valid are used for the final survey. Table 4.4 illustrates the sources and number of items related to the MFRA.

Table 4.4
Items Related to MFRA

D.V.	Number of Items	Sources of the Items
Management fraud risk assessment	40	ISA 240; SAS 99; Moyes, 2007; Moyes <i>et al.</i> (2009).

As discussed in chapter 1, the independent variables that are used to measure the external auditor's effectiveness-related attributes in individual measurements are academic qualification, professional qualification, study major, training on fraud detection, auditing experience, fraud detection experience, job position, auditor type, IT skill, questioning discussion ability, and responsibility perception, and in combined measure, all of the above external auditor's effectiveness-related attributes. Variables to measure the external auditor's independence-related factors are audit

fees, hiring and changing of the auditor, social relations, and economic relations, alongside the external auditor's independence-related factors measure.

4.5.3.2 External Auditor Effectiveness-Related Attributes

4.5.3.2.1 Academic Qualification

To measure academic qualification in this study, the following variables will be used: Diploma, Bachelor's degree, Master's degree, PhD., and Others, and could be represented by nominal scale x_1, x_2, x_3, x_4, x_5 . For example, Diploma: $x_1 = 1$; Bachelor's degree: $x_2 = 2$; Master's degree: $x_3 = 3$; PhD: $x_4 = 4$; and Others: $x_5 = 5$ (Hair *et al.*, 2006). This measurement is used by several studies such as Moyes *et al.* (2009), Moyes (2007), and Kozloski (2002).

4.5.3.2.2 Professional Qualification

In this study, professional qualification is measured by asking respondents to select one or more from the following: YCPA—Yemeni Certified Public Accountant; ACPA—Arabic Certified Public Accountant; ICPA—International Certified Public Accountant; CISA—Certified Information Systems Auditor; CMA—Certified Managerial Accountant; CFE—Certified Fraud Examiner; Non-professional certified; and Other if he or she has certifications other than these specified. These choices could be represented by nominal scale $x_1, x_2, x_3, x_4, x_5, x_6, x_7, x_8$. For example: YCPA: $x_1 = 1$; ACPA: $x_2 = 2$; ICPA: $x_3 = 3$; CISA: $x_4 = 4$; CMA: $x_5 = 5$; CFE: $x_6 = 6$; None: $x_7 = 7$ and Others: $x_8 = 8$ (Hair *et al.*, 2006). This measurement is used by several studies such as Kozloski (2002), Moyes (2007), and Jaffar *et al.* (2008).

4.5.3.2.3 Study Major

In this study, academic major is used as a non-metric variable. Therefore, to measure this variable, a nominal scale is used by asking the subjects through the questionnaire “Please ‘tick’ the appropriate choice” related to the external auditor’s specialization such as accounting, finance, management, and economics. Non-metric variables could be represented by nominal scale: x_1, x_2, x_3, x_4, x_5 . For example, accounting: $x_1 = 1$; finance: $x_2 = 2$; management: $x_3 = 3$; economics: $x_4 = 4$; and Other: $x_5 = 5$, as suggested by Hair *et al.* (2006). This measurement is used by several studies such as Moyes (2007) and Kozloski (2002).

4.5.3.2.4 Training on Fraud Detection

To measure the training on fraud detection variable, this study adopted Kozloski (2002), Lynch (2004), and Moyes (2007) in the form of questions such as: Who had continuing professional education (CPE) on fraud risk indicators? Who attended conferences and workshops on fraud risk indicators or fraud detection? Who had been offered in-house training on fraud risk indicators? Who had training related to international standards of auditing (ISA 240) or statement auditing standards (SAS 99)? Any training other than specified above should be indicated. The hours stated by the respondents would be categorized as: 1: ≤ 10 ; 2: 11–15; 3: 16–20; 4: 21–25; 5: >25 , using ordinal scale: x_1, x_2, x_3, x_4, x_5 . For example, $\leq 10, x_1 = 1$; 11–15, $x_2 = 2$; 16–20, $x_3 = 3$; 21–25, $x_4 = 4$; $>25, x_5 = 5$, as suggested by Hair *et al.* (2006). Therefore, to measure this variable, subjects are asked “Please specify your hours of training on fraud detection.”

4.5.3.2.5 Auditing Experience

New Yemeni audit law (Article 5 of Law No. 26 of 1999) requires the following: a new degree in Accounting; four years work experience in audit after graduation; two years after the Masters degree one year post-doctoral. External auditors who have less than three years experience were measured as having insufficient experience to complete the task. In addition, the article No. 4, of the Yemeni COCA Law No. 39 of 1992, and the special auditors of public and mixed institutions, banks, insurance companies, and shareholding companies, specified that external auditors must have a minimum of at least three years work experience after receiving a chartered accountant license. Prior studies used the years of experience of external auditors to measure auditing experience on fraud detection, such as Jubran (2010), Loebbecke *et al.* (1989), Pincus (1984), Hackenbrack (1992), Waller (1993), Zimbelman (1997), Bernardi (1994), Moyes and Hasan (1996), Knapp and Knapp (2001), and Owusu-Ansah *et al.* (2002). The years stated by the respondents would be categorized as ≤ 2 years, 3 – 4 years, and ≥ 5 years. Therefore, to measure this variable, the subjects are asked “Please specify your experience in auditing.

4.5.3.2.6 Fraud Detection Experience

Experience in fraud detection is measured in this study by using an ordinal scale adopted from Wilks and Zimbelman (2004) and Brazel *et al.* (2010). The numbers of engagements on which the respondent served and on which fraud was identified are coded as follows: 1 = 0; 2 = 1; 3 $\geq$ 2.

4.5.3.2.7 Job Position

In this study, the job position variable for external auditors is measured as partner or owner of office/general manager, manager or supervisor audit/department director,

and senior auditor/team leader, and could be represented by nominal scale x_1, x_2, x_3 . For example, partner or the owner of office/general manager: $x_1 = 1$; manager or supervisor audit/department director: $x_2 = 2$; and senior auditor/team leader: $x_3 = 3$ (Hair *et al.*, 2006). This measurement is used by several studies such as Moyes *et al.* (2009), Owusu-Ansah *et al.* (2002), and Washally (2010).

4.5.3.2.8 Auditor Type

In this study, auditor type is measured as a non-metric variable using a nominal scale x_1, x_2, x_3, x_4 . For example, COCA: $x_1 = 1$; Big 4: $x_2 = 2$; international: $x_3 = 3$; and local: $x_4 = 4$ (Hair *et al.*, 2006). This measurement is used by several studies such as Moyes (2007) and Hegaz and Kassem (2010). The subjects are asked “Please ‘tick’ the appropriate choice” related to the external auditor’s type (work place): COCA, Big 4, international, or local.

4.5.3.2.9 Information Technology Skill

The measurement of external auditor skill or ability in IT over MFRA in this study is adopted from Cragg *et al.* (2002), Paopun (2000), Thong (1999), Xiao *et al.* (1996), and Raymond and Pare (1992). This study uses IT as a non-metric variable. Therefore, to measure this variable, a nominal scale is used and respondents are asked “Please ‘tick’ the technologies presently used such as office support system (OSS), decision support system (DSS), database system (DS), local area network (LAN), accounting system (AS), and others.” Non-metric variables could be represented by nominal scale: $x_1, x_2, x_3, x_4, x_5, x_6$ (Hair *et al.*, 2006). For example,

office support system: $x_1 = 1$; decision support system: $x_2 = 2$; database system: $x_3 = 3$;
 local area network: $x_4 = 4$, accounting system: $x_5 = 5$ and other technologies: $x_6 = 6$.

4.5.3.2.10 Questioning Discussion Ability

In this study, the researcher adopted ISA 240 (2004) for measuring questioning discussion ability. The study gets responses to measure the relationship between questioning discussion ability and MFRA through the use of a five-point Likert scale (strongly disagree, disagree, neutral, agree, and strongly agree).

External auditors are required to comply with ISA 240 to improve MFRA. In order to know the effect of questioning discussion ability on MFRA, an 11-item was operationalized (ISA 240, para. 30). The items were placed on a five-point Likert scale of 1 (strongly disagree), indicating low level of effect on MFRA, through 5 (strongly agree), indicating high level of effect on MFRA. The score for the construct is ascertained by totaling the responses to various items. When the lowest point total is 11 (1x11 items), it implies that the respondents do not have institutionalized ability to conduct a questioning discussion. If the total maximum points are 55 (5 x 11 items), it means that the respondents have institutionalized ability of questioning discussion. Table 4.5 shows the sources and number of the items related to the questioning discussion ability. The items are illustrated in Appendix A-1.

Table 4.5
Items Related to Questioning Discussion Ability

I.V.	Number of Items	Sources of the Items
Questioning discussion ability	11	ISA 240 (2004).

4.5.3.2.11 Responsibility Perception

In this study, based on ISA 240, this study adopted and adapted the measurement of Schlenker *et al.* (1994), Alleyne and Howard (2005), DeZoort and Harrison (2007), and Lee *et al.* (2008). The relationship between responsibility perception and MFRA is measured using a five-point Likert scale (strongly disagree, disagree, neutral, agree, and strongly agree).

External auditors are required to comply with ISA 240 to improve MFRA. To know whether this affects the responsibility perception of MFRA; it is operationalized using a 10-item instrument. The items were placed on a five-point Likert scale, 1(strongly disagree) indicating low level of effect on MFRA, through 5 (strongly agree), indicating high level of effect on MFRA. The score for the construct is ascertained by totaling the responses to various items. When the lowest point total is 10 (1x10 items), it implies that the respondents do not have institutionalized perception of the responsibility. If the total maximum points are 50 (5 x10 items), it means that the respondents have institutionalized perception of the responsibility. Table 4.6 shows the sources and number of the items related to the responsibility perception. The details of the items are illustrated in Appendix A-1.

Table 4.6
Items Related to Responsibility Perception

I.V.	Number of Items	Sources of the Items
Responsibility Perception	10	Alleyne and Howard (2005), DeZoort and Harrison (2007), Schlenker <i>et al.</i> (1994), Lee <i>et al.</i> (2008).

4.5.3.3 External Auditor Effectiveness Score

This study develops a composite measure of external auditor effectiveness. This score sums the value of 11 dichotomous attributes of external auditor effectiveness in order to create a score that is an indicator of higher effectiveness of the external auditor (Goh, 2009; Farook & Lanis, 2007; Hanlon, Rajgopal, & Shevlin, 2003). The 11 attributes included in this measurement are academic qualification, professional qualification, study major, training on fraud detection, auditing experience, fraud detection experience, job position, auditor type, IT skill, questioning discussion ability, and responsibility perception, ranging from 0–1. The following describes the process used to dichotomize the 11 attributes of external auditor’s effectiveness:

Table 4.7

Constructing External Auditor Effectiveness Score (EAES)

External Auditor Effectiveness Score (EAES)	EAES is bounded by “1-0,” with a higher score indicating higher effectiveness of the external auditor.
Academic Qualification (AQ)	Academic qualification is coded “1” if the average proportion of the number of postgraduate external auditors is equal to or higher than the sample median, and “0” otherwise.
Professional Qualification (PQ)	Professional qualification is coded “1” if the average of number of professional qualifications is equal to or higher than the sample median, and “0” otherwise.
Study Major (SM)	Study major is coded “1” if the average proportion of the number of accounting majors of external auditors is equal to or higher than the sample median, and “0” otherwise.
Training on Fraud Detection (TFD)	Training is coded “1” if the average proportion of the number of hours spent in training fraud detection by an auditor is equal to or higher than the sample median, and “0” otherwise.
Auditing Experience (EA)	Auditing Experience is coded “1” if the average of years of auditing experience is equal to or higher than the sample median, and “0” otherwise.
Fraud Detection Experience (FDE)	Fraud detection experience is coded “1” if the average number of fraud cases detected is equal or higher than the sample median, and “0” otherwise.
Job Position (JP)	Job position is coded “1” if the average proportion of the number of managers of external auditors is equal to or higher than the

	sample median, and “0” otherwise.
Auditor Type (AT)	Auditor type is coded “1” if the average proportion of the number of private external auditors is equal to or higher than the sample median, and “0” otherwise.
IT skill (ITS)	IT skill is coded “1” if the average proportion of the number of accounting systems using by external auditors is equal to or higher than the sample median, and “0” otherwise.
Questioning Discussion Ability (QDA)	Questioning discussion ability is coded “1” if the average of the five-point Likert scale is equal to or higher than the sample median, and “0” otherwise.
Responsibility Perception (RP)	Responsibility perception is coded “1” if the average of the five-point Likert scale is equal to or higher than the sample median, and “0” otherwise.

4.5.3.4 External Auditor Independence-Related factors

4.5.3.4.1 Audit Fees

This study makes use of an instrument which comprises 10 items and the five-point Likert scale, and shows the influence of audit fees on the likelihood of MFRA. The scale ranges from 1 to 5, with 1 representing strongly disagree, while 5 stands for strongly agree. The former could be interpreted as “unimportant,” while the latter implies “very important.” The formulation of questions lean son those of Siam (2003), Matter (1994), Awaqleh (2008), and Basodan *et al.* (2004).

If the lowest total points are 10 (1x10 items), audit fees were not considered important by respondents, which further implies that the impact of audit fees is very low on the probability of MFRA. Further, maximum total points of 50 (5 x 10 items) from the respondents implies that they considered audit fee practice as very important and as having strong impact. Table 4.8 shows the sources and number of the items related to the audit fees. The details of the items are illustrated in Appendix A-1.

Table 4.8
Items Related to Audit Fees

I.V.	Number of Items	Sources of the Items
Audit fees	10	Siam (2003), Matter (1994), Awaqleh (2008), and Basodan <i>et al.</i> (2004).

4.5.3.4.2 Hiring and Changing of the Auditor

This study employed an instrument adopted and adapted from Siam (2003), Yamani (1991), Awaqleh (2008), and Mater (2000), with a Likert scale ranging from 1 to 5, where the value 1 represents unimportant or strongly disagree, and the value 5 stands for highly important or strongly agree, on the impact of hiring and changing auditors on MFRA. The lowest total points, 11 (1x11 items), means that the selection and dismissal of the auditor are not considered by respondents to be an important practice. This suggests that the impact of hiring and changing an auditor is considerably low. The maximum total points, 55 (5 x 11 items), implies that selection and dismissal have been considered an important practice by the respondents and, as such, have greater impact on external auditors. Table 4.9 shows the sources and number of the items related to the hiring and changing of the auditor. Please refer to Appendix A-1 for the item details.

Table 4.9
Items Related to Hiring and Changing of the Auditor

I.V.	Number of Items	Sources of the Items
Hiring and changing of the auditor	11	Siam (2003), Awaqleh (2008), Yamani (1991), and Mater (2000).

4.5.3.4.3 Social Relations

The association of previous experience of auditor and client with bias of audit reporting was considered by Firth (1980). This study designs its construct with eight items in an instrument by following Basodan *et al.* (2004) and Firth (1980). Attention of the questions was directed to how external auditors and company management are socially associated. Respondents are faced with five options based on a five-point Likert scale of “strongly disagree, disagree, neutral, agree, and strongly agree.” In a situation where the score is 8 (1x 8 items) which denotes strongly disagree, the social association of external auditor and management, as well as the impact of social association on the external auditor’s assessment of management fraud risk, is low. This further implies that social association has no effect. Conversely, if the score is 40 (5 x 8 items), which is strongly agree, then the external auditor’s assessment of management fraud risk is strongly influenced by having a social relationship with management. In other words, social relations have significant association. Table 4.10 shows the sources and number of the items related to the social relations. Please refer to Appendix A-1 for the item details.

Table 4.10
Items Related to Social Relations

I.V.	Number of Items	Sources of the Items
Social relations	8	Basodan <i>et al.</i> (2004) and Firth (1980).

4.5.3.4.4 Economic Relations

Non-audit fees received by external auditors as payment were used by Simunic (1980) for the measurement of economic relations. Furthermore, the idea of measuring services offered by the consultant was brought about in 1991 on the basis

of a survey by Yamani (1991), made in the same year for the measurement of non-audit services, which influenced the autonomy of the auditors.

A five-point Likert scale has been employed by some studies for the measurement of services rendered by the consultant (Basodan *et al.*, 2004; Matter, 1994; Siam, 2003, Awaqleh, 2008). Concerning this study, questions with five items have been used for the measurement of economic relations drawn from Yamani (1991), Matter (1994), Basodan *et al.* (2004), and Siam (2003). A score of 5 (1x 5 items) implies that there is low impact of economic relations on MFRA. A score of 25 (5 x 5 items) implies there is a large impact of economic relations on the external auditor's assessment of management fraud risk. Table 4.11 shows the sources and number of the items related to the economic relations. Please refer to Appendix A-1 for the item details.

Table 4.11
Items Related to Economic Relations

I.V.	Number of Items	Sources of the Items
Economic relations	5	Awaqleh (2008), Simunic (1980), Yamani (1991), and Basodan <i>et al.</i> (2004).

4.5.3.5 External Auditor Independence Score

This study develops a composite measure of external auditor independence. This score sums the value of four dichotomous attributes of external auditor independence in order to create an auditor independence score that is an indicator of higher independence of the external auditor (Goh, 2009; Farook & Lanis, 2007; Hanlon, Rajgopal, & Shevlin, 2003). The four attributes included in this measurement are audit fees, hiring and changing an auditor, social relations, and economic relations, ranging from 0–1. The following describes the process used to dichotomize the four attributes of auditor's independence:

Table 4.12

Constructing External Auditor Independence Score (EAIS)

External Auditor Independence Score (EAIS)	EAIS is bounded by “1–0,” with a higher score indicating higher independence of the external auditor.
Audit Fees (AF)	Audit fees are coded “1” if the average of the five-point Likert scale is equal to or higher than the sample median, and “0” otherwise.
Hiring and Changing of Auditor (HCA)	Hiring and changing an auditor is coded “1” if the average of the five-point Likert scale is equal to or higher than the sample median, and “0” otherwise.
Social Relations (SR)	Social relations are coded “1” if the average of the five-point Likert scale is equal to or higher than the sample median, and “0” otherwise.
Economic Relations (ER)	Economic relations are coded “1” if the average of the five-point Likert scale is equal to or higher than the sample median, and “0” otherwise.

In summary, the measurement of all variables was obtained from the various questionnaires as per Table 4.13.

Table 4.13

Summaries of Variables Measurement

Variables	Notation	Measurement and support
Management Fraud Risk Assessment	MFRA	For the cross-sectional questionnaire data, fraud risk indicators of management on a five-point Likert scale (Smith <i>et al.</i> , 2005; Moyes, 2007; Moyes <i>et al.</i> , 2009; ISA 240; SAS 99).
Academic Qualification	AQ	Nominal scale: x 1, x 2, x 3, x 4, x 5. Diploma, Bachelor, Master, PhD., Other (Moyes <i>et al.</i> , 2009; Moyes, 2007; Kozloski, 2002).
Professional Qualification	PQ	Nominal scale: x 1, x 2, x 3, x 4, x 5, x 6, x 7, x 8. YCPA, ACPA, ICPA, CISA, CMA, CFE, None, Other (Kozloski, 2002; Moyes, 2007; Jaffar <i>et al.</i> , 2008).
Study Major	SM	Nominal scale: x 1, x 2, x 3, x 4, x 5. Accounting, Finance, Management, Economics, Other (Moyes, 2007; Kozloski, 2002).
Training on Fraud Detection	TFD	Ordinal scale: Number of hours (1: ≤10, 2: 11–15, 3: 16–20, 4: 21–25; 5: >25) (Moyes, 2007; Jaffar <i>et al.</i> , 2008; Kozloski, 2002; Brazel <i>et al.</i> ,

		2010).
Audit Experience	AE	The years stated by the respondents would be categorized as < 2 years, 3 – 4 years, and > 5 years. (Zimbelman, 1997; Knapp & Knapp, 2001; & Owusu-Ansah <i>et al.</i> 20020.
Fraud Detection Experience	EFD	Number of engagements on which respondent served and on which fraud was identified and coded as follows: 1= 0, 2= 1–2, 3 $\geq$ 2 (Wilks & Zimbelman, 2004; Brazel <i>et al.</i> , 2010).
Job Position	JP	Nominal scale: x 1, x 2, x 3. Partner or owner of office/general manager and above, manager or supervisor audit/department director, senior auditor/team leader (Moyes <i>et al.</i> , 2009; Owusu-Ansah <i>et al.</i> , 2002; Washaly, 2010).
Auditor Type	AT	Nominal scale: x 1, x 2, x 3, x 4. COCA, Big 4, international, and local (Moyes, 2007; Hegaz & Kassem, 2010).
Information Technology Skill	ITS	Nominal scale: x 1, x 2, x 3, x 4, x 5, x 6. OSS, DSS, DS, LAN, AS, other. (Cragg <i>et al.</i> 2002; Paopun, 2000; Thong, 1999; Xiao <i>et al.</i> 1996).

Table 4.13: (Continued)

Variables	Notation	Measurement and support
Questioning Discussion Ability	QDA	For cross-sectional questionnaire data, external auditor perception of a list of eleven items of QDA, on a five-point Likert scale (ISA 240, 2004, para. 30).
Responsibility Perception	RP	For cross-sectional questionnaire data, external auditor perception of a list of ten items of RP, on a five-point Likert scale (Ştirbu <i>et al.</i> , 2009; Schlenker, 1994; Alleyne & Howard, 2005; DeZoort & Harrison, 2007; Lee <i>et al.</i> , 2008; ISA 240).
External Auditor Effectiveness Score	EAES	A score bounded by 0–1, revealing that a higher score is an indicator of higher auditor effectiveness (Goh, 2009; Farook & Lanis, 2007; Hanlon <i>et al.</i> , 2003)
Auditor's Fees	AF	For cross-sectional questionnaire data, external auditor perception of a list of ten items of AF, on a five-point Likert scale (AICPA, 1997; Basodan <i>et al.</i> , 2004; Awaqleh, 2008; Matter, 1994; Siam; 2003).
Hiring and Changing of the Auditor	HCA	For cross-sectional questionnaire data, external auditor perception of a list of eleven items of HCA, on a five-point Likert scale (Siam, 2003; Awaqleh, 2008; Yamani, 1991; Mater, 2000).

Social Relations	SR	For cross-sectional questionnaire data, external auditor perception of a list of eight items of SR, on a five-point Likert scale (Awaqleh, 2008; Basodan <i>et al.</i> , 2004; Firth, 1980).
Economic Relations	ER	For cross-sectional questionnaire data, external auditor perception of a list of five items of ER, on a five-point Likert scale (Matter, 1994; Basodan <i>et al.</i> , 2004; Siam, 2003, Awaqleh, 2008).
External Auditor Independence Score	EAIS	A score bounded by 0–1, revealing that a higher score is an indicator of higher external auditor independence (Goh, 2009; Farook and Lanis, 2007; Hanlon <i>et al.</i> , 2003)

4.6 Data Collection

This study makes use of primary data collected through questionnaires. The questionnaires were administered and collected through the use of personal contact, which is called off-line survey method. This method was suggested and considered to be the most appropriate method for collecting primary data (Sekaran & Bougie, 2010). Using this method, the following advantages are attached: (1) gives the researcher the opportunity to have close contact with the respondent; (2) allows the researcher to clearly explain the concept to respondents; and (3) increases level of responses, since the researcher waits to collect the administered questionnaires (Sekaran & Bougie, 2010).

4.6.1 Unit of Analysis

The study spells out the unit of analysis, which is external auditors in Yemen. They consist of 723 active numbers who are spread equally throughout the COCA, and 227 audit firms and offices in Yemen (YACPA & MIT, 2012).

4.7 Data Analysis Techniques

Descriptive and inferential data analysis techniques are employed to analyze the data collected from the questionnaires administered.

4.7.1 Descriptive Analysis

The descriptive statistics involved mean values and standard deviations for all variables in this study. Descriptive analysis was carried out in order to bring the raw data into an understandable form for simple interpretation. The use of this analysis will enable one to establish the degree to which external auditors see their roles with respect to external auditor assessment of management fraud risk. In addition, it will enable one to identify the degree to which management fraud risk effectiveness cautions the assessment of management fraud risk in Yemen.

4.7.2 Inferential Analysis

The inferential analysis embarked upon includes factor analysis, test of reliability of the instrument, and multiple regressions.

4.7.2.1 Factor Analysis

Since factor analysis perform the role of reducing large number of variables into a reasonable and manageable number of factors for easy interpretation, it is employed in this study to test the factors for a reasonable proportion sample (Sekaran & Bougie, 2010). Factor analysis also indicates the pattern of association among the variables and, to that extent, uncovers any variable clusters and ensures that the variables do not correlate. It also identifies factors that are associated in a linear form to the original variables (Agresti & Finlay, 1997). Furthermore, factor analysis is employed for the measurement of the validity of the construct (Hair *et al.*, 2006). In

an inferential study, the use of this approach has always been found to be robustly free of type one error (Agresti & Finlay, 1997).

4.7.2.2 Test of Reliability of the Instrument

First, reliability of the instrument shows the degree at which the structure to be measured is really covered or caught by the variables treated. As suggested by Hair *et al.* (2006), the study carried out reliability analysis on the factors extracted. The purpose is to determine internal consistency of the instruments measured. Thereafter, the instruments' reliability is subjected to Cronbach's Alpha test.

Second, Cronbach's Alpha is employed to determine how credible the responses to the questionnaires are in order to make sure that both the outcomes and responses are in agreement with the sample drawn for the study. The standard acceptable statistical value of Cronbach's Alpha for this measurement is 60 percent or above. It has been shown to be poor if the value is below 60 percent (Sekaran & Bougie, 2010; Hair *et al.*, 2006).

4.7.2.3 Multiple Regressions

The method of multiple regression is employed to examine if the endogenous variables (such as management fraud risk assessment) is significantly influenced by the external auditors' effectiveness-related attributes, external auditor effectiveness score, external auditor independence-related factors, and external auditor independence score.

Furthermore, this study employed the analysis of multiple regressions, otherwise known as standard regression, to investigate the hypotheses in order to verify the

level of interactive impact of independent variables on the dependent variable. This is because of the presence of only one dependent variable, external auditor assessment of management fraud risk, which is suitable to be measured by interval, while there were many independent variables which could be measured by interval and nominal.

However, there is the possibility of adding grouped predictors in the regression analysis with the use of continuous or interval variables (Hair *et al.*, 2006). The objective here is to examine the impacts of many exogenous variables at the same time on a single endogenous variable.

In addition, analysis of bivariate, which concerns just two variables, and the analysis of multivariate regression, which concerns many variables at the same time, is dealt with in this study. To conduct the hypotheses testing, the Pearson Product-Moment correlation is employed. Since the hypotheses concern just two variables, analysis of correlation is done as well (Carver, Faetc, Nash, & Cosson, 2006).

4.8 Refinement of the Instrument

As mentioned above, this study developed the measures from extensive literature. According to Bourque and Fielder (1995), the reliability and validity must be re-evaluated if modifications are made to the instrument. Such practice was adopted in this study to ensure the quality of the study instrument. In addition, refining the instrument was suggested by several studies before collecting the data (Dillman, 1978; Cavana *et al.*, 2001).

Therefore, before gathering the main data, Pre-test and pilot testing were carried out to further improve the questionnaire. The process of improving the instrument also served a validation purpose, since parts of the study instrument were developed exclusively for the study. To refine the study instrument, this study undertook content validity and pilot testing with Yemeni external auditors.

4.8.1 Content Validation

As recommended by Sekaran and Bougie (2010) and Gay and Diehl (1996), the content validity for the study instrument was conducted from two perspectives. First, the questionnaire items were collected from previous studies. Second, the questionnaire items were reviewed by 17 academic and professional experts, nine of them experts in quantitative research (senior lecturers and above). Some of those lecturers are owners and partners in audit firms, four experts are audit professionals who work in the COCA (general managers), and the other four experts are audit professionals who work in audit firms (partners and senior auditors).

Their suggestions to improve the study instrument were adequately considered with respect to the idea and deletion of those excess items and explanation (e.g. 11 items of questioning discussion ability); setting examples for some unclear items (e.g. item 4 of management fraud risk assessment) and reformulate some items (e.g. items 1, 3, 18, 19, 20, 21, 32 of management fraud risk assessment, items 3, 4 of social relations, items 2, 9 of audit fees and items 1, 2 of responsibility perception).

Further, they helped to judge how suitable each item is in terms of language style, clarity of each item, and whether each item measures the ability of external auditor in

the assessment of fraud risk in the field it represents. 88% of the reviewers agreed with the instrument and to the deletion and amendment of those items as follows:

- 1- Two Items that referred to the management fraud risk assessment (Part II) in the ISA 240 were deleted from the questionnaire because they were not stock market and code of morality in Yemen such as:
 - a- excessive interest in maintaining or increasing stock price.
 - b- low morale among senior management.

Additionally, this study selected the accounting data according to ISA No. 240 and previous studies since the items 1 to 40 represent this field.

- 2- Field B in the questionnaire, which is related to the external auditor responsibility perception, two items were deleted because they were similar to other items in the questionnaire such as:
 - a- there should be an audit standard (ISA 240 or SAS 99) that would make auditors responsible for detecting and reporting frauds.
 - b- normal audit testing not designed to detect material misstatements due to management fraud.
- 3- One Item that referred to the audit fees (filed C) was deleted because same idea was repeated in other item such as:
 - a low audit fees is considered one of the problems that faces the audit career in Yemen.

4- One item in field F in the questionnaire that relates to the economic relations was deleted because of its similarity with other items in the questionnaire such as:

- giving non audit services by separate sections in the big audit offices reduces the negative effects on the management fraud risk assessment.

After deleting the items depending on the judges' opinions, there are finally a total of 95 items which made the instrument valid.

4.8.2 Instrument Reliability

Each of the study variables was examined using reliability analysis of estimated Cronbach's Alpha for internal consistency (Cavana *et al.*, 2001). In this study, any item with Cronbach's Alpha not less than .6 will be considered reliable and suitable for the study (Nunnally, 1978). Thus, the Statistical Package for Social Science (SPSS) version 21 was used in order to examine reliability. The pilot study was conducted among 50 respondents, as suggested for reliability testing (Sekaran & Bougie, 2010). The test aimed to examine the level of consistency among the items of each of the variables involved in this study. In short, a pilot test was conducted to measure consistency among items of the research constructs. It was uncovered from the pilot study results that all the constructs had Cronbach's Alpha not less than .6, as shown in table 4.14.

Table 4.14
Cronbach's Alpha Test

Variables	No. of Items	Cronbach's Alpha
MFRA	40	.935
QDA	11	.877
RP	10	.629
AF	10	.866
HCA	11	.890
SR	8	.892
ER	5	.864

4.8 Summary

Literature in previous studies has established the qualities or features of fraud risk indicators on management fraud risk assessment, as well as the responsibilities of the Yemen's external auditor to assess of management fraud risk in financial reporting. This study employed survey instrument (questionnaires) in order to shed more light on the outcomes. This could be facilitated by the use of Yemen's external auditors to respond to the questions asked in respect of the objective of this study. The indicators of management fraud are to be investigated based on the available data. Effectiveness and independence scores, as well as the factors relating to autonomy of auditors, are examined to establish their association with the external auditor's assessment of management fraud risk.

CHAPTER FIVE

ANALYSIS AND FINDINGS

5.1 Introduction

In guiding the reader to this chapter, it is good to reflect the background of this study. This research has five main areas of interests. The first interest is the determination of the association between the external auditor's effectiveness-related attributes and the MFRA in Yemen. The second interest is the examination of the association between the external auditor's effectiveness and independent scores and the MFRA in Yemen. The third interest is determination of the association between the external auditor's independent-related factors and the MFRA in Yemen. The fourth interest is identifies a significant difference mean scores between auditor type

(COCA, Big 4, international and local) in terms of MFRA proxy. Finally, this study determines the relative importance of the fraud risk indicators in Yemen. The research hypotheses have been discussed in chapter three while the methodology has been discussed in chapter four. As mentioned in the chapter four, the research data is primary in nature and collected by using a questionnaire which is discussed in this chapter how it was developed from the previous research.

In this chapter, a response rate is firstly discussed in section 5.2 while section 5.3 explains the non-respondent bias. Respondent profile is discussed in section 5.4. The goodness of the data is discussed in section 5.5. Finally, SPSS version 21 was used to analyze the data.

5.2 Response Rate

According to, Hair, Black, Babin, Anderson, and Tatham (2010) and Sekaran and Bougie (2013) mentioned that a sample size of 200 is considered an appropriate to test a model. In this study, attempts were made to increase the response rate such as by reminding the respondents through telephone calls and self-visits (Sekaran & Bougie, 2013). For data collection purposes, 410 actual distributed questionnaires were distributed personally by hand to external auditors in Sana'a the capital of Yemen (Staffs in the COCA and audit firms). The returned questionnaires were 273. After checking them, the researcher found that 19 questionnaires were badly completed. The researcher dropped those questionnaires. Therefore, 254 questionnaires were considered usable for analysis procedure. The response rate was

66.58% which suited the purpose of hypotheses testing (Al-Marri, Ahmed, & Zairi, 2007). Table 5.1 summarizes the distribution of the questionnaire.

Table 5.1
Response Rate of Questionnaires

Auditor Type	COCA + Audit Firms	Target Sample	Actual Distributed Questionnaires	Returned Questionnaires		Badly Completed Questionnaires	Usable Questionnaires	Usable response Rate %
				Number	Response Rate %			
COCA	-	246	157	104	66.24	7	97	61.78
Audit Firms	B4	4	63	41	80.39	2	39	76.47
	I	3	29	17	73.91	-	17	73.91
	L	195	306	111	62.01	10	101	56.42
Total	202	644	410	273	66.58	19	254	61.95

* Response rate = 273/410, * Usable response rate = 254/410, B4=Big4, I=international, L=local

5.3 Non-Response Bias

Matteson, Ivancevich and Smith (1984) argued that relying on voluntarily participation always results in the possibility that respondent and non-respondents differ in some manner. Armstrong and Overton (1977) argued that non-respondents are supposed to have the same features as the not on time respondents. This process involves breaking the sample into early responses (143 questionnaires those returns received after one month of distribution) and late responses (111 questionnaires those returns received after two month. The objective of the above test is to examine if there are any significant differences in the major variables between early and late responses. Therefore, t-test was conducted to examine the differences between the two groups. Table 5.2 below shows the result of non-response bias test.

Table 5.2

Test of Non-Response Bias – Independent Sample T-Test

Variables at 95%	<u>Levene's Test for Equality of Variances</u>		<u>t-test for Equality of Means</u>	Significance Level
	F	Sig	Sig. (2-tailed)	
QDA	0.120	0.729	0.474 - 0.471	Not Sig
RP	2.995	0.085	0.649 - 0.644	Not Sig
AF	0.001	0.971	0.386 - 0.384	Not Sig
HCA	1.934	0.166	0.774 - 0.772	Not Sig
SR	0.127	0.722	0.427 - 0.423	Not Sig
ER	0.380	0.538	0.994 - 0.994	Not Sig
MFRA	0.012	0.912	0.338 - 0.340	Not Sig

Note: The critical values were all not significant

The results from the test of non-respondent bias indicate that there is no significant difference between early and late responses. All the values were above the significant level of .05. Therefore, non-response bias is not an issue in this research.

5.4 Profile of the Respondents

This section discusses the respondents' general information. Specifically, it provides information about research respondents. The information includes the respondents' auditor type (work place), job position, academic qualification, professional qualification, study major, auditing experience, training on fraud detection, fraud detection experience, information technology skill. Sections 5.4.1 to 5.4.9 discuss the profiles in details.

5.4.1 Respondents` Auditor Type

This study classified the research respondents (external auditors) into COCA, Big 4, international and local. Table 5.3 illustrates the findings in details.

Table 5.3
Respondents` Auditor Type

Auditor Type	Frequency	Percentage
COCA	97	38.2
Big 4	39	15.4
International	17	6.7
Local	101	39.8
Total	254	100

The results show that 39.8% of the respondents are working in local audit firms. The respondents that are working in COCA represent 38.2% while the respondents that are working in Big 4 represent 15.4%. In addition, the analysis shows that only 6.7% of the respondents are working in international audit firms. This shows that most of the respondents are working in local audit firms.

5.4.2 Respondents` Job Position

The research intends to know more expertise in MFRA. This study classified the research respondents into partner, manager and senior. Table 5.4 below shows details.

Table 5.4
Respondents` Job Position

Job position	Frequency	Percent
Partner	52	20.5
Manager	90	35.4

Senior	112	44.1
Total	254	100

The descriptive analysis shows that 52 of the respondents are partner that represent 20.5% from the sample. 90 respondents (35.4%) are manager, while 112 respondents (44.8%) are senior.

5.4.3 Respondents' Academic Qualification

This section discusses the academic qualification of the respondents. The research questionnaire included four educational levels that were Diploma (DI), Bachelor (BA), Master of Science (MSc) and Doctor of Philosophy (PhD). Table 5.5 shows that 8 respondents which represent 3.1% have DI degree, 181 respondents which represent 71.3% have BA, 54 respondents which represent 21.7% have MSc, while 11 respondents which represent 4.3% have PhD.

Table 5.5
Respondents' Academic Qualification

Academic Qualification	Frequency	Percentage
Diploma	8	3.1
Bachelor	181	71.3
Master of Science	54	21.3
Doctor of Philosophy	11	4.3
Total	254	100

5.4.4 Respondents' Study Major

The research questionnaire included five options for studies major which were accounting, management, finance, economic and others. Table 5.6 provides the results of the distribution of respondents for study major. The results show that most of the respondents are accounting major representing 83.9% from the research

sample size, while 7.1% of the respondents are finance. On the other hand, 5.5% from the respondents are management major and 2% from the research sample size are economic major, while 1.6% from the respondents is other majors.

Table 5.6
Respondents' Study Major

Study Major	Frequency	Percentage
Accounting	213	83.9
Management	14	5.5
Finance	18	7.1
Economic	5	2
Others	4	1.6
Total	254	100

5.4.5 Respondents' Professional Qualification

This section discusses the professionals' qualifications (PQ) of the respondents, which may have a respondent more than qualified. The research questionnaire included eight options for professional qualification that were: Yemeni Certified Public Accounting (YCPA), Arabic Certified Public Accounting (ACPA), International Certified Public Accounting (ICPA), Certified Information System Auditor (CISA), Certified Fraud Examiner (CFE), Certified Managerial Accounting (CMA), Non-professional certified (Non-PC) and others. The results of the distribution are provided in Table 5.7.

Table 5.7
Respondents' Professionals Qualifications

Professionals' qualifications	Frequency	Percentage
YCPA	125	49.2
ACPA	31	12.2
ICPA	8	3.1
CISA	11	4.3
CFE	8	3.1
CMA	57	22.4
Non-PC	48	18.9
Others	9	3.5

Table 5.7 shows that 125 respondents that represent 49.2% from the sample size of research (254) have YCPA, 31 respondents that represent 12.2% have ACPA, 8 respondents that represent 3.1% have ICPA, 11 respondents that represent 4.3% have CISA, 8 respondents that represent 3.1% have CFE, 57 respondents that represent 22.4% have CMA, 48 respondents that represent 18.9% have Non-PC and 9 respondents that represent 3.5% have others.

Table 5.8

Percentage of Accounting and Non Accounting Certificate with PQ

Professional qualification	Accounting	Non-accounting
1	83%	17%
2	87%	13%
3	100%	0
4	100%	0

One reason for this result could be attributed to the percentage of accounting and non-accounting certificate holders with professional qualification. As an additional analysis conducted, it turns out that 17% and 13% of the non-accounting certificate holders are having one and two certificates of professional qualifications, respectively. This gives an indication that the importance of the major of study in Yemen in auditing profession could be replaced by the professional qualification.

5.4.6 Respondents' Auditing Experience

Table 5.9 illustrates that 58.3% of respondents have 5 years or more (year of experience ≥ 5) in auditing experience, while 30.7% have from 3 to 4 years of (3-4 years) in auditing experience. 28 of the respondents that represent 11% have 2 years or less (≤ 2 years) in auditing experience.

Table 5.9
Respondents' Auditing Experience

Year work	Frequency	Percentage
≤ 2 years	28	11
3-4 years	78	30.7
≥ 5 year	148	58.3
Total	254	100

5.4.7 Respondents' Training on Fraud Detection

The research intends to know more training fraud detection. This study classified the research respondents into training kinds on fraud risk indicators or fraud detection. The research questionnaire included five options for training on fraud detection. These are continuing professional education (CPE), attended conferences or workshops (ACW), firm offered in-house (FOH), training that is related to International Standard of Auditing (ISA 240) or Statement Auditing Standard (SAS 99) (T240, 99) and others. Table 5.10 below shows the external auditors' training on fraud detection in details.

Table 5.10
Respondents` Training on Fraud Detection

Training	Frequency	Percentage
CPE	74	29.1
ACW	73	28.7
FOH	85	33.4
T240,	99	54
Others	6	2.3

From Table 5.10, 74 respondents that represent 29.1% from the sample size of research (254) have CPE, 73 respondents that represent 28.7% have ACW, 85 respondents that represent 33.4% have FOH, while 99 respondents that represent 54% have T240, and 99 and 6 respondents that represent 2.3% have others.

5.4.8 Respondents` Fraud Detection Experience

The researcher intends to know the expertise in fraud detection, that is the number of engagements in which respondents served and frauds were detected. This study classified the research respondents into none, one case and two or more case. Table 5.11 below shows the external auditors' experience in fraud detection in details.

Table 5.11
Respondents` Fraud Detection Experience

Fraud detection experience	Frequency	Percent
None	66	26.0
One case	38	15.0
Two or more case	150	59.0
Total	254	100

The descriptive analysis shows that 66 of the respondents representing 26.0% from the sample did not serve in the engagement where frauds were detected. However, 38

respondents that represent 15.0% claimed to have served in one case where frauds have been detected, while 150 respondents that represent 59.0% claimed to have served in two or more cases where frauds have been detected.

5.4.9 Respondents` Information Technology Skill

This study classified IT into office support system (OSS), decision support system (DSS), database system (DS), local area network (LAN), accounting system (AS) and others. The results are illustrated in Table 5.12.

Table 5.12

Respondents` Information Technology Skill

Information Technology Skill	Frequency	Percentage
OSS	94	37.0
DSS	89	35.0
DS	99	39.0
LAN	78	30.7
AS	211	83.1
Others	7	2.8

The results show that 211 respondents are using AS which represents 83.1% while 99 respondents are using DS which represent 39.0%. Respondents who claim to be using OSS are 90 representing 39.0% of the total sample. In addition, the analysis show that 89 respondents use DSS which represent 35.0% while 78 respondents use LAN which represent 30.7% and 7 respondents use other IT which represent 2.8%.

The summary of respondents` profiles is presented in Table 5.13. This includes auditor type, job position, academic qualification, professional qualification, study major, auditing experience, training on fraud detection, experience in fraud detection, and information technology skills.

Table 5.13
Summary of the Respondents' Profile Results

Respondents' Category	Minimum	Maximum	Frequency	Percentage
Sample			254	100%
Auditor type	1	4		
COCA			97	38.2
Big 4			39	15.4
International			17	6.7
Local			101	39.8
Total			254	100
Job position	1	3		
Partner			52	20.5
Manager			90	35.4
Senior			112	44.1
Total			254	100
Academic qualification	1	5		
Diploma			8	3.1
Bachelor			181	71.3
Master of Science			54	21.3
Doctor of Philosophy			11	4.3
Others			0	
Total			254	100
Study major	1	5		
Accounting			213	83.9
Management			14	5.5
Finance			18	7.1
Economic			5	2
Others			4	1.6
Total			254	100

Table 5.13 (continue)

Respondents' Category	Minimum	Maximum	Frequency	Percentage
Professionals' qualifications	1	8		
YCPA			125	49.2
ACPA			31	12.2
ICPA			8	3.1
CISA			11	4.3
CFE			8	3.1
CMA			57	22.4
Non-PC			48	18.9
Others			9	3.5
Auditing experience	1	3		
≤ 2 years			28	11
3-4 years			78	30.7
≥ 5 years			148	58.3
Total			254	100
Training on fraud detection	1	5		
CPE			74	29.1
ACW			73	28.7
FOH			85	33.4
T240, 99			54	21.2

Others			6	2.3
fraud detection Experience	1	3		
None			66	26.0
One case			38	15.0
Two or more case			150	59.0
Total			254	100
IT Skill	1	6		
OSS			94	37.0
DSS			89	35.0
DS			99	39.0
LAN			78	30.7
AS			211	83.1
Others			7	2.8

5.5 Goodness of Measures

The goodness and suitability of the measurement tool were examined by using the validity and reliability test. The description of these two tests is dealt with in subsection 5.5.1 till 5.5.3.

5.5.1 Validity

Gay and Diehl (1996), Saunders, Lewis, and Thornhill (2007) and Zikmond, Badin, Carr, and Griffin (2010) argued that validity can be considered as the extent to which the instrument measurements intend to measure. It is important to conduct validity test to be sure that the instrument used in this study reveals the actual meaning of the measure. According to Saunders *et al.* (2007) there are three groups of validity tests that are: (1) content validity, (2) construct validity, and (3) criterion-related validity. The content validity is already described in chapter four (please refer to section 4.8.1). The second type of validity is construct validity, which testifies how well the results obtained from the use of the measure fit the theories around which the test is

designed (Zikmund, 2003). To measure this type of validity, factor analysis test was used. The third type of validity is criterion-related validity, which reflects the relationship between scale scores and some specified measurable criterion (Pallant, 2001). Previous researches state that the criterion validity can be measured using several ways such as Pearson correlations, Tolerance Value, and Variance Inflation Factors (VIF) (Al-Smadi, 2011; Emery, Crump, & Bors, 2003; Friedman, Goldman, Srivastava, & Parkin, 2004). In this study, the Pearson correlation, Tolerance value and VIF value will be tested in order to conduct the criterion validity.

5.5.2 Reliability

In simple word, reliability can be defined as "consistency". As Baddie (2001) revealed that reliability means regardless of whenever the same procedures are used repeatedly. The measurement is regarded reliable if it yields the same results when the same technique applies repeatedly on the same respondents over a different period of time. The famous measurement for reliability is the value of Cronbach's alpha, which is ranged from 0 to 1. Cronbach's Alpha can be considered as a flawlessly adequate indication of the internal consistency, and thus of reliability (Sekaran & Bougie, 2013). According to Nunnally (1978) the value of 0.6 is the acceptable alpha value for research in general. In the current study, Cronbach's alpha reliability test was conducted to be sure of internal consistency of the measurement items. In this regard, reliability test was conducted after factor analysis, and the result of the reliability test for each factor were summarized after each factor analysis.

5.5.3 Construct Validity

Gibbons, Dempster, and Moutray (2009) stated that factor analysis has been widely used, to assess the construct validity of a test or a scale. According to Johnson and Wichern (2007), factor analysis was founded by Karl Pearson, Charles Spearman and others in the early 20th century. Zikmond *et al.* (2010) and Pallant (2007) described factor analysis as a kind of data reduction approach employed to classify the fundamental variables from the original factors. In summary, factor analysis is used to reduce and reclassify large number of items into smaller items in new variables.

5.5.3.1 Factor Analysis Test on Effectiveness-Related Attributes

External auditor effectiveness-related attributes include two continuous variables. These are questioning discussion ability and responsibility perception.

5.5.3.1.1 Factor Analysis Test on Questioning Discussion Ability

The KMO, MSA and BTS results for questioning discussion ability (QDA) are presented in Table 5.14.

Table 5.14
KMO, MSA and BTS Value for Questioning Discussion Ability

Kaiser-Meyer-Olkin Measure of Sampling Adequacy.			.866
Bartlett`s Test of Sphericity	Approx. Chi-Square		1037.395
	Df		55
	Sig		.000

From Table 5.14 it can be seen that the value of KMO, MSA was .866, which according to Kaiser (1974) is meritorious. The BTS value was very large (1037.395) and significant (.000). The KMO, MSA and BTS values indicated that questioning

discussion abilities were fit for factor analysis. The results for extracted components of questioning discussion ability variable are shown in Table 5.15.

Table 5.15

The Results of Extracted Component for Questioning Discussion Ability

Comp	Initial Eigenvalues			Extraction Sums of Squared Loadings			Rotation Sums of Squared Loadings		
	Total	Var. %	Cum. %	Total	Var. %	Cum. %	Total	Var. %	Cum. %
1	4.749	43.172	43.172	4.749	43.172	43.172	3.580	32.544	32.544
2	1.288	11.710	54.882	1.288	11.710	54.882	2.457	22.338	54.882
3	.864	7.856	62.738						
4	.781	7.103	69.841						
5	.726	6.596	76.437						
6	.633	5.757	82.194						
7	.524	4.766	86.960						
8	.451	4.101	91.062						
9	.382	3.471	94.532						
10	.327	2.971	97.503						
11	.275	2.497	100.000						

Extraction Method: Principal Component Analysis. Note: Comp = Component; Cum. % = Cumulative %; Var. % = % of Variance

The extracted components were generated using the latent root criterion. This explained about 54.882% of the cumulative variance. The next step determines the number of variables based on variable loading using varimax rotation criterion to reduce the item in each variable and make them more meaningful. The results are illustrated in Table 5.16.

Table 5.16

Loading Factor Using Varimax Rotation for Questioning Discussion Ability

Items	Component	
	1	2
QDA_9	.816	
QDA_10	.795	

QDA_8	.765	
QDA_6	.634	
QDA_11	.620	
QDA_5	.527	
QDA_7	.507	
QDA_1	.503	
QDA_3		.817
QDA_2		.810
QDA_4		.771

Extraction Method: Principal Component Analysis.

Rotation Method: Varimax with Kaiser Normalization.

a. Rotation converged in 3 iterations.

Table 5.16 shows the final factor structure and the component variables. The questioning discussion ability (QDA) have two dimensions while the personal and interpersonal investigation skills were divided into two different groups, namely “earnings management” (EM) and “allegations raised attention” (ARA). The items QDA2, QDA3 and QDA4 are considered as earnings management, while the items QDA1, QDA5, QDA6, QDA7, QDA8, QDA9, QDA10 and QDA11 are considered as allegations raised attention. The reliability test was conducted to determine the consistency of the constructs. Table 5.17 shows the values of Crobach`s alpha for the final two dimensions.

Table 5.17

Summary of Reliability Test for Final two Factors for Questioning Discussion Ability

Factor	No. of Items	Alpha-Value
Earnings management	3	.784
Allegations raised attention	8	.843

The Cronbach`s alpha values were above .6 (exceed minimum accepted value of .6 suggested by Nunnally, 1978). This provided confidence to use the above dimensions for prospective study.

5.5.3.1.2 Factor Analysis Test on Responsibility Perception

As explained in section 5.5.3.1.1, the same procedures were conducted to identify underlying dimensions for variable representing responsibility perception (RP). The results for KMO, MSA and BTS are shown in Table 5.18.

Table 5.18

KMO, MSA and BTS for Responsibility Perception

Kaiser-Meyer-Olkin Measure of Sampling Adequacy.			.764
Bartlett`s Test of Sphericity	Approx. Chi-Square		440.313
	Df		21
	Sig.		.000

Table 5.18 shows that KMO and MSA value for the responsibility perception items was .764, which is meritorious and suitable for conducting factor analysis. The BTS value was 440.313 and significant (.000). The KMO, MSA and BTS value indicted that responsibility perception items were appropriate for factor analysis.

Table 5.19 below shows the responsibility perception in assess of management fraud risk. Using the latent root criterion, two factors were extracted, which explain about 60.618 percent of the cumulative variance.

Table 5.19

Results of Extraction of Component for Responsibility perception

Comp	Initial Eigenvalues			Extraction Sums of Squared Loadings			Rotation Sums of Squared Loadings		
	Total	Var. %	Cum. %	Total	Var. %	Cum. %	Total	Var. %	Cum. %
1	2.889	41.267	41.267	2.889	41.267	41.267	2.667	38.100	38.100
2	1.355	19.352	60.618	1.355	19.352	60.618	1.576	22.519	60.618

3	.817	11.669	72.287
4	.584	8.338	80.625
5	.484	6.915	87.540
6	.447	6.380	93.921
7	.426	6.079	100.000

Extraction Method: Principal Component Analysis. Note: Comp = Component; Cum. % = Cumulative %; Var. % = % of Variance

Table 5.20 shows component matrix for responsibility perception. In this case, responsibility perception has two meaningful components. The responsibility perception (RP) has two dimensions, namely “professional skepticism” (PS) and “additional tests” to assess fraud and documented (AT).

Table 5.20
Results of Component Matrix for Responsibility perception

Items	Component	
	1	2
RP_8	.801	
RP_7	.797	
RP_9	.710	
RP_6	.651	
RP_4	.648	
RP_2		.881
RP_1		.839

Extraction Method: Principal Component Analysis.
Rotation Method: Varimax with Kaiser Normalization.
a. Rotation converged in 3 iterations.

The items RP1 and RP2 are considered as professional skepticism to prevent fraud, while the items RP4, RP6, RP7, RP8 and RP9 are considered as additional tests to detect fraud and documented. The reliability test was conducted to determine the

consistency of the constructs using Cronbach's alpha. Table 5.21 shows the Cronbach's alpha value for responsibility perception.

Table 5.21

Summary of Reliability test for Responsibility perception

Factor	No. of Items	Alpha-Value
Professional skepticism	2	.667
Additional tests	5	.781

The results show the values of Cronbach's alpha are above the minimum acceptable value of .6 as suggested by Nunnally (1978). These results provide confidence to use the above dimensions for prospective research. To illustrate, items RP3, RP5 and RP10 not loaded due to Cronbach's alpha value was .5 less than .6, so those three items removed from the responsibility perception scale.

5.5.3.2 Factor Analysis Test on External Auditor Independent-Related Factors

External auditor independent-related factors include four variables and these are audit fees, hiring and changing of the auditor, social relations and economic relations. Their results are provided in the following four sub-sections.

5.5.3.2.1 Factor Analysis Test on Audit Fees

The same procedure, as in the previous section was employed to determine whether factor analysis is suitable to be conducted on variables representing audit fees. The results of KMO, MST and BTS for audit fees are presented in Table 5.22.

Table 5.22

KMO, MSA and BTS for Audit Fees

Kaiser-Meyer-Olkin Measure of Sampling Adequacy.	.894
--	------

Bartlett`s Test of Sphericity	Approx. Chi-Square	923.502
	Df	45
	Sig.	.000

Table 5.22 shows that KMO and MSA value for the audit fees was .894, which is meritorious based on Kaiser`s classification (1974) and thus suitable for factor analysis. The BTS value is 923.502 and significant (.000).

Table 5.23 shows the results for extracted components of audit fees. Using the component matrix, the items were combined into two meaningful dimensions for audit fees, namely determining audit fees (DAF) and Higher and lower fees (HLF). The items AF6, AF2, AF3, AF1, AF8 and AF10 are considered as Higher and lower fees, while the items AF7, AF5, AF4 and AF9 are considered as determining fees.

Table 5.23
Results of extraction of component for Audit Fees

Comp	Initial Eigenvalues			Extraction Sums of Squared Loadings			Rotation Sums of Squared Loadings		
	Total	Var. %	Cum %	Total	Var. %	Cum.%	Total	Var. %	Cum. %
1	4.666	46.657	46.657	4.666	46.657	46.657	3.232	32.320	32.320
2	1.066	10.659	57.316	1.066	10.659	57.316	2.500	24.996	57.316
3	.785	7.853	65.169						
4	.725	7.245	72.414						
5	.561	5.606	78.021						
6	.519	5.195	83.215						
7	.486	4.858	88.073						
8	.459	4.588	92.661						
9	.406	4.064	96.725						
10	.328	3.275	100.000						

Extraction Method: Principal Component Analysis. Note: Comp = Component; Cum. % = Cumulative %; Var. % = % of Variance

Table 5.24
The Loading on Final Factor Using Component Matrix

Items	Component	
	1	2
AF_6	.762	
AF_2	.741	
AF_3	.727	
AF_1	.656	
AF_8	.622	
AF_10	.525	
AF_7		.848
AF_5		.672
AF_4		.666
AF_9		.625

Extraction Method: Principal Component Analysis. Rotation Method: Varimax with Kaiser Normalization.
a. Rotation converged in 3 iterations.

Table 5.24 shows the final factor structure and its component items. To test the reliability of the factors, Cronbach`s alpha test was conducted. Table 5.25 shows the values of Cronbach`s alpha for the factors.

Table 5.25
Summary of Reliability test for Audit Fees

Factor	No. of Items	Alpha-Value
Higher and lower audit fees	6	.824
Determining audit fees	4	.776

The results show the values of Cronbach`s alpha are above the minimum acceptable value of .6 as suggested by Nunnally (1978). These results provide confidence to use the above dimensions for futuristic study.

5.5.3.2.2 Factor Analysis Test on Hiring and Changing of the Auditor

The same procedure, as in the previous section, was employed to determine whether factor analysis is suitable to be conducted on variables representing hiring and changing of the auditor. The results of KMO, MST and BTS for hiring and changing of the auditor are presented in Table 5.26.

Table 5.26
KMO, MSA and BTS for Hiring and Changing of the Auditor

Kaiser-Meyer-Olkin Measure of Sampling Adequacy.			.893
Bartlett`s Test of Sphericity	Approx. Chi-Square		1070.298
	Df		55
	Sig.		.000

Table 5.26 shows that KMO and MSA value for the hiring and changing auditor was .893, which is meritorious based on Kaiser`s classification (1974) and thus suitable for factor analysis. The BTS value was 1070.298 and significant (.000). Table 5.27 shows the results for extracted components of hiring and changing of the auditor.

Table 5.27
Results of extraction of Component for Hiring and Changing of the Auditor

Comp	Initial Eigenvalues			Extraction Sums of Squared Loadings		
	Total	Var. %	Cum. %	Total	Var. %	Cum. %
1	5.025	45.684	45.684	5.025	45.684	45.684
2	.981	8.916	54.601			
3	.893	8.118	62.719			
4	.889	8.085	70.804			
5	.679	6.169	76.973			
6	.560	5.095	82.068			
7	.496	4.507	86.575			
8	.414	3.762	90.337			
9	.391	3.557	93.894			
10	.342	3.108	97.002			
11	.330	2.998	100.000			

Extraction Method: Principal Component Analysis. Note: Comp = Component; Cum. % = Cumulative %; Var. % = % of Variance

Using the component matrix, the items were combined into one meaningful factor for hiring and changing of auditor. Table 5.28 shows the results of component matrix.

Table 5.28

The Loading on Factor Using Component Matrix

Items	Component
	1
HCA_7	.765
HCA_5	.752
HCA_8	.719
HCA_2	.713
HCA_6	.712
HCA_9	.695
HCA_3	.677
HCA_10	.636
HCA_4	.602
HCA_11	.601
HCA_1	.520

Extraction Method: Principal Component Analysis.

a. 1 component extracted.

The reliability of factor structure and its component items are tested. To test the reliability of the factor, Cronbach`s alpha test was conducted. Table 5.29 shows the value of Cronbach`s alpha for the factor.

Table 5.29

Summary of Reliability Test for Hiring and Changing of the Auditor

Factor	No. of Items	Alpha-Value
Hiring and changing of the auditor	11	.877

The result shows the value of Cronbach`s alpha is above the minimum acceptable value of .6 as suggested by Nunnally (1978).

5.5.3.2.3 Factor Analysis Test on Social Relations

The same procedure, as in the previous section, was employed to determine whether factor analysis is suitable to be conducted on variable representing social relations.

KMO, MST and BTS results are shown in Table 5.30.

Table 5.30
KMO, MSA and BTS for Social Relations

Kaiser-Meyer-Olkin Measure of Sampling Adequacy			.894
Bartlett`s Test of Sphericity	Approx. Chi-Square		764.544
	Df		15
	Sig.		.000

Table 5.30 shows that KMO and MSA value for the social relations is .894, which is meritorious based on Kaiser`s classification (1974) and thus suitable for factor analysis. The BTS value was 764.544 and significant (.000). Table 5.31 shows the results for extracted components of social relations.

Table 5.31
Results of Extraction of Component for Social Relations

Component	Extraction Sums of Squared					
	Initial Eigenvalues			Loadings		
	Total	% of Variance	Cumulative %	Total	Variance	Cumulative %
1	3.856	64.270	64.270	3.856	64.270	64.270
2	.602	10.026	74.296			
3	.510	8.494	82.790			
4	.394	6.569	89.359			
5	.349	5.820	95.178			
6	.289	4.822	100.000			

Extraction Method: Principal Component Analysis.

Using the component matrix, the items were combined into one meaningful factor for social relations. Table 5.32 below shows the results of component matrix.

Table 5.32
The Loading on Factor Using Component Matrix

Items	Component
	1
SR_1	.858
SR_3	.840
SR_5	.823
SR_4	.771
SR_2	.759
SR_7	.752

Extraction Method: Principal Component Analysis.

a. 1 component extracted.

The reliability of factor structure and its component items are tested. To test the reliability of the factor, Cronbach`s alpha test was conducted. Table 5.33 shows the value of Cronbach`s alpha for the factor.

Table 5.33
Summary of Reliability test for Social Relations

Factor	No. of Items	Alpha-Value
Social relations	6	.888

The result shows the value of Cronbach`s alpha is above the minimum acceptable value of .6 as suggested by Nunnally (1978). To clarify, items SR6 and SR8 not loaded due to Cronbach`s alpha value was .5 less than .6, consequently those items removed from the social relations scale.

5.5.3.2.4 Factor Analysis Test on Economic Relations

The same procedure, as in the previous section, was employed to determine whether factor analysis is suitable to be conducted on variables representing economic relations. The results for KMO, MST and BTS are shown in Table 5.34.

Table 5.34

KMO, MSA and BTS for Economic Relations

Kaiser-Meyer-Olkin Measure of Sampling Adequacy			.854
Bartlett`s Test of Sphericity	Approx. Chi-Square		639.679
	Df		10
	Sig.		.000

Table 5.34 shows that KMO and MSA value for the economic relations is .854, which is meritorious based on Kaisers` classification (1974) and thus suitable for factor analysis. The BTS value is 639.679 and significant (.000). Table 5.35 shows the results for extracted components of economic relations.

Table 5.35

Results of Extraction of Component for Economic Relation

Component	Initial Eigenvalues			Extraction Sums of Squared Loadings		
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	3.365	67.293	67.293	3.365	67.293	67.293
2	.590	11.794	79.087			
3	.422	8.442	87.529			
4	.377	7.548	95.078			
5	.246	4.922	100.000			

Extraction Method: Principal Component Analysis

Using the component matrix, the items are combined into one meaningful factor for economic relation. Table 5.36 shows the results of component matrix.

Table 5.36
The Loading on Factor Using Component Matrix

Items	Component
	1
ER_2	.866
ER_4	.856
ER_5	.839
ER_1	.823
ER_3	.708

Extraction Method: Principal Component Analysis. a. 1 component extracted.

To test the reliability of the factor, Cronbach's alpha was conducted. Table 5.37 shows the value of Cronbach's alpha for the factor.

Table 5.37
Summary of Reliability Test for Economic Relation

Factor	No. of Items	Alpha-Value
Economic Relation	5	.874

The result shows the value of Cronbach's alpha is above the minimum acceptable value of .6 as suggested by Nunnally (1978).

5.5.3.3 Factor Analysis Test on Management Fraud Risk Assessment

The same procedure, as in the previous section, was employed to determine whether factor analysis is suitable to be conducted on variables representing MFRA. The results of Kaiser-Meyer-Olkin for the measure of the adequacy of sampling and the Bartlett's Test of sphericity for KMO, MST and BTS are shown in Table 5.38

Table 5.38
KMO, MSA and BTS for MFRA

Kaiser-Meyer-Olkin Measure of Sampling Adequacy		.900
Bartlett`s Test of Sphericity	Approx. Chi-Square	3982.703
	Df	561
	Sig.	.000

Table 5.38 shows that KMO and MSA value for the MFRA was .900, which is meritorious based on Kaiser`s classification (1974) and thus suitable for factor analysis. The BTS value was 3982.703 and significant (.000). Table 5.39 shows the results for extracted components of MFRA. Using the component matrix, the items were combined into seven meaningful dimensions for MFRA and the results of component matrix are shown in Table 5.40. The MFRA have seven dimensions, namely personal estimates (PE), "administration behavior" (AB), funding and competition (FC), justify of accounting policies (JAP), Sales between control and goals (SCG), administration organize of auditor work (AOAW) and obtaining a loan and repayment (OLR).

Table 5.39
Results of Extraction of Component for MFRA

Comp	Initial Eigenvalues			Extraction Sums of Squared Loadings			Rotation Sums of Squared Loadings		
	Total	Var. %	Cum.%	Total	Var. %	Cum. %	Total	Var. %	Cum. %
1	10.554	31.041	31.041	10.554	31.041	31.041	4.287	12.608	12.608
2	3.467	10.196	41.236	3.467	10.196	41.236	4.234	12.452	25.060
3	1.669	4.910	46.146	1.669	4.910	46.146	3.469	10.202	35.262
4	1.457	4.287	50.433	1.457	4.287	50.433	2.437	7.168	42.430
5	1.134	3.335	53.768	1.134	3.335	53.768	2.243	6.597	49.027
6	1.118	3.289	57.056	1.118	3.289	57.056	2.023	5.950	54.977
7	1.010	2.972	60.028	1.010	2.972	60.028	1.717	5.051	60.028
8	.964	2.835	62.863						
9	.860	2.529	65.392						
10	.839	2.469	67.861						
11	.806	2.369	70.231						
12	.772	2.271	72.501						

13	.748	2.201	74.703
14	.661	1.944	76.646
15	.632	1.860	78.506
16	.597	1.756	80.262
17	.594	1.748	82.010
18	.553	1.628	83.637
19	.529	1.556	85.193
20	.519	1.527	86.720
21	.504	1.483	88.203
22	.425	1.250	89.453
23	.410	1.206	90.659
24	.390	1.146	91.804
25	.374	1.101	92.905
26	.335	.986	93.892
27	.307	.903	94.795
28	.299	.878	95.673
29	.281	.828	96.500
30	.275	.810	97.310
31	.263	.773	98.083
32	.245	.721	98.804
33	.236	.695	99.500
34	.170	.500	100.000

Extraction Method: Principal Component Analysis. Note: Comp = Component; Cum. % = Cumulative %; Var. % = % of Variance

Table 5.40
The Loading on Final Factor Using Component Matrix

Items	Component						
	1	2	3	4	5	6	7
MFRA_4	.732						
MFRA_3	.731						
MFRA_2	.617						
MFRA_11	.559						
MFRA_8	.553						
MFRA_5	.524						
MFRA_9	.470						
MFRA_7	.458						
MFRA_31		.846					
MFRA_32		.694					
MFRA_33		.675					
MFRA_1		.545					
MFRA_34		.526					

MFRA_10	.	.505		
MFRA_30		.454		
MFRA_27			.719	
MFRA_25			.678	
MFRA_26			.660	
MFRA_28			.656	
MFRA_17			.419	
MFRA_38			.766	
MFRA_40			.588	
MFRA_39			.553	
MFRA_29			.409	
MFRA_14				.645
MFRA_6				.620
MFRA_13				.559
MFRA_22				.475
MFRA_12				.462
MFRA_37				.753
MFRA_36				.710
MFRA_24				.626
MFRA_16				.508
MFRA_15				.463

Extraction Method: Principal Component Analysis.
Rotation Method: Varimax with Kaiser Normalization.
a. Rotation converged in 12 iterations.

From the Table 5.40, the items MFRA4, MFRA3, MFRA2, MFRA11, MFRA8, MFRA5, MFRA9 and MFRA7 are considered as personal estimates (PE), MFRA31, MFRA32, MFRA33, MFRA1, MFRA34, MFRA10 and MFRA30 are considered as administration behavior (AB), MFRA27, MFRA25, MFRA26, MFRA28 and MFRA17 are considered as Funding and competition (FC), MFRA38, MFRA40, MFRA39, and MFRA29 are considered as Justify of accounting policies (JAP), MFRA14, MFRA6, MFRA13, MFRA22, and MFRA12 are considered as sales between control and goals (SCG), MFRA37 and MFRA36 are considered as administration organize of auditor work (AOAW), while the items MFRA24, MFRA16 and MFRA15 are considered as obtaining a loan and repayment (OLR).

The reliability test was conducted to determine the consistency of the constructs.

Table 5.41 shows the values of Cronbach`s alpha for the final seven factors.

Table 5.41

Summary of Reliability test for MFRA

Factor	No. of Items	Alpha-Value
PE	8	.847
AB	7	.849
FC	5	.771
JAP	4	.758
SCG	5	.710
AOAW	2	.643
OLR	3	.632

Table 5.41 shows that Cronbach`s alpha values were above .6 which is the minimum accepted value as suggested by Nunnally (1978). This provides confidence to use it for further analysis. To illustrate, items MFRA6, MFAR18, MFRA19, MFAR20, MFRA21 and MFRA23 not loaded due to Cronbach`s alpha value less than .6, consequently those items removed from the management fraud risk assessment scale.

Table 5.42 below provides a summary for the validity and reliability test.

Table 5.42

Summary of the Construct Validity (Factor Analysis and Reliability Results)

Construct	Items	Factor Loading	KMO	% of Variance	Cronbach`s Alpha
<i>Independent Variables</i>					
Effectiveness-Related Attributes					
Questioning Discussion Ability			.866	54.882	

- Earnings management	8	.816, .795, .765, .634, .620, .527, .507, .503				.784
- Allegations raised attention	3	.817, .810, .771				.843
Responsibility perception			.764	60.618		
- Additional tests	5	.801, .797, .710, .651, .648				.781
- Professional skepticism	2	.881, .839				.667
Independent-Related Factors						
Audit Fees			.894	57.316		
- Higher and lower fees	6	.762, .741, .727, .656, .622, .525				.824
- Determining fees	4	.848, .672, .666, .625				.776
Hiring and Changing Auditor	11	.765, .752, .719, .713, .712, .695, .677, .636, .602, .601, .520	.893	45.684		.877
Social Relations	6	.858, .840, .823, .771, .759, .752	.894	64.270		.888
Economic Relations	5	.866, .856, .839, .823, .708	.854	67.293		.874

Table 5.42 (Continued)
Summary of the Construct Validity (Factor Analysis and Reliability Results)

Construct	Items	Factor Loading	KMO	% of Variance	Cronbach's Alpha
Dependent Variable					
MF-risk assessment			.900	60.028	
- Personal estimates	8	.732, .731, .617, .559, .553, .524, .470, .458			.847
- Administration behavior	7	.846, .694, .675, .545, .526, .505, .454			.849
- Funding and competition	5	.719, .678, .660, .656, .419			.771
- Justify of accounting policies	4	.766, .588, .553, .409			.758
- Sales between control and goals	5	.645, .620, .559, .475, .462			.710
- AO-of auditor work	2	.753, .710			.643
- OL-and repayment	3	.626, .508, .463			.632

MF= management fraud, AO= Administration organize, OL= Obtaining a loan

From the Table 5.42, it can be seen that the factor loading for the entire items in the questionnaire is more than .45, which based on Hair *et al.* (2006) can provide a guideline for identifying significant factor loading. Additionally, the value of KMO is above than .5. The percentage of variance is also considered as another indicator that shows that this research instrument is valid. The minimum percentage of variance is 45.684% which shows that the current research instrument passes the construct validity test. The Cronbach`s alpha value is above .6, which as suggested by Nunnally (1978), provides confidence to use them for further analysis in the future study.

In order to summarize the changes that happen after factor analysis test, Table 5.43 below show the components before factor analysis and the final components after factor analysis test.

Table 5.43
The Final Variables after Factor Analysis

Old Factor	No. items	New Factor	No. Items
Questioning discussion Ability, QDA	11	Earnings management, ER Allegations raised attention, ARA	8 3
Responsibility perception, RP	10	Additional tests, AT Professional skepticism, PS	5 2
Audit fees, AF	10	Higher and lower fees, HLF Determining fees, DF	6 4
Haring and changing Auditor, HCA	11	Haring and changing Auditor HCA	11
Social relations, SR	8	Social relations, SR	6
Economic relations, ER	5	Economic relations, ER	5
Management fraud risk Assessment, MFRA	34	Personal estimates Administration behavior Funding and competition	8 7 5

Justify of accounting policies	4
Sales between control and goals	5
Administration organize of auditor work	2
Obtaining a loan and repayment	3

In summary, the final variables that will be used for further analysis are determined using factor analysis test. Many new variables have been found after the factor analysis test. There are also many indicators that illustrate a confidence to use the above variables for another subsequent analysis in the future study. The next section discusses the descriptive statistics of study variables.

5.6 Descriptive Statistics of Study Variables

All variables are subject to descriptive statistics in order to identify their characteristics. Specifically, mean, standard deviation, maximum and minimum values were computed. The results of these descriptive statistics are presented separately for each item in each variable in respect of 254 valid cases of the mean scores for the five point-likart scale. In this regard, the mean scores above 3 are considered to be high (positive) while the mean scores below 3 are considered to be low (negative) (National Institute of Standard and Technology, 2010).

5.6.1 Descriptive Statistics for Questioning Discussion Ability

Table 5.44 illustrates the mean and standard deviation for the questioning discussion ability. The table also presents the minimum and maximum values of variable.

Table .5.44

Descriptive Statistics for Questioning Discussion Ability Items

Items	N	Minimum	Maximum	Mean	Std. Deviation
QDA1	254	1	5	3.87	.937
QDA 2	254	1	5	3.89	.928
QDA 3	254	1	5	3.75	.978

QDA 4	254	1	5	3.98	.904
QDA 5	254	1	5	3.60	.878
QDA 6	254	1	5	3.78	.860
QDA 7	254	1	5	3.59	.901
QDA 8	254	1	5	3.93	.821
QDA 9	254	1	5	3.94	.846
QDA 10	254	1	5	4.19	.867
QDA 11	254	1	5	4.03	.833
Valid N (listwise)	254				

Note: N represents total number of respondent

The results indicate that mean value for questioning discussion ability fall between "3.59 to 4.19". This indicates that most of the respondents expressed their agreement with the items statement of questioning discussion ability.

5.6.2 Descriptive Statistics for Responsibility Perception

The mean values for the items of responsibility perception are shown in Table 5.45 and they range from "3.22 to 4.33".

Table 5.45
Descriptive Statistics for Responsibility Perception Items

Items	N	Minimum	Maximum	Mean	Std. Deviation
RP1	254	1	5	3.87	1.029
RP 2	254	1	5	3.22	1.405
RP 4	254	1	5	4.33	.724
RP 5	254	1	5	4.03	.754
RP 6	254	1	5	4.08	.731
RP 7	254	1	5	4.13	.751
RP 8	254	1	5	4.03	.774
Valid N (listwise)	254				

N: Total number of respondent

The results for the mean refer that respondents ranked above than 3, which is indicate that the respondents agree with items statement in responsibility perception section.

5.6.3 Descriptive Statistics for Audit Fees

Table 2.46 illustrates the characteristics of the audit fees. The results indicate that mean value for audit fees fall between "3.09 to 3.80". These results reflect the positive agreement of the respondents with the items statement of audit fees.

Table 5.46
Descriptive Statistics for Audit Fees Items

Items	N	Minimum	Maximum	Mean	Std. Deviation
AF1	254	1	5	3.44	1.068
AF 2	254	1	5	3.41	1.120
AF 3	254	1	5	3.12	1.120
AF 4	254	1	5	3.09	1.137
AF 5	254	1	5	3.67	1.002
AF 6	254	1	5	3.37	1.050
AF 7	254	1	5	3.50	1.066
AF 8	254	1	5	3.52	1.013
AF 9	254	1	5	3.80	1.068
AF 10	254	1	5	3.61	.998
Valid N (listwise)	254				

N: Total number of respondent

5.6.4 Descriptive Statistics for Haring and Changing of the Auditor

The mean values for the items of haring and changing auditor are shown in Table 5.47 and they range from "3.41 to 4.00".

Table 5.47
Descriptive Statistics for Haring and Changing Auditor Items

Items	N	Minimum	Maximum	Mean	Std. Deviation
HCA_1	254	1	5	3.46	.972
HCA_2	254	1	5	3.88	.991
HCA_3	254	1	5	4.00	.832
HCA_4	254	1	5	3.66	.900
HCA_5	254	1	5	3.61	.835
HCA_6	254	1	5	3.41	.940
HCA_7	254	1	5	3.56	.921
HCA_8	254	1	5	3.61	1.006
HCA_9	254	1	5	4.00	.887

HCA_10	254	1	5	3.92	.981
HCA_11	254	1	5	3.48	1.039
Valid N (listwise)	254				

N: Total number of respondent

The results for the mean refer that respondents ranked above than 3, which is indicate that the respondents agree with items statement in haring and changing auditor section.

5.6.5 Descriptive Statistics for Social Relations

The mean values for the items of social relations are shown in Table 5.48 and they range from "3.17 to 3.54". These results reflect the positive agreement of the respondents with the items statement of social relations.

Table 5.48
Descriptive Statistics for Social Relations Items

Items	N	Minimum	Maximum	Mean	Std. Deviation
SR_1	254	1	5	3.37	1.116
SR_2	254	1	5	3.48	1.043
SR_3	254	1	5	3.44	1.087
SR_4	254	1	5	3.17	.975
SR_5	254	1	5	3.35	1.082
SR_7	254	1	5	3.54	1.123
Valid N (listwise)	254				

N: Total number of respondent

5.6.6 Descriptive Statistics for Economic Relations

The mean values for the items of economic relations are shown in Table 5.49 and they range from "3.04 to 3.65".

Table 5.49

Descriptive Statistics for Economic Relations Items

Items	N	Minimum	Maximum	Mean	Std. Deviation
ER_1	254	1	5	3.41	1.098
ER_2	254	1	5	3.42	1.110
ER_3	254	1	5	3.04	1.231
ER_4	254	1	5	3.48	1.028
ER_5	254	1	5	3.65	1.104
Valid N (listwise)	254				

N: Total number of respondent

The results for the mean refer that respondents ranked above than 3, which is indicate that the respondents agree with items statement in economic relations section.

5.6.6 Descriptive Statistics for Management Fraud Risk Assessment

In this section, Table 5.50 shows the results of descriptive statistics for the management fraud risk assessment. The respondents agree with the instrument items under management fraud risk assessment. This reflects in the mean values which range from "3.17 to 3.98", while deviation values range from ".914 to 1.123".

Table 5.50

Descriptive Statistics for MFRA Items

Items	N	Minimum	Maximum	Mean	Std. Deviation
MFRA_1	254	1	5	3.76	1.049
MFRA_2	254	1	5	3.84	.954
MFRA_3	254	1	5	3.71	1.018
MFRA_4	254	1	5	3.49	1.013
MFRA_5	254	1	5	3.98	1.123
MFRA_6	254	1	5	3.52	.985
MFRA_7	254	1	5	3.52	1.001
MFRA_8	254	1	5	3.75	.969
MFRA_9	254	1	5	3.65	.919
MFRA_10	254	1	5	3.98	1.018
MFRA_11	254	1	5	3.78	.973
MFRA_12	254	1	5	3.52	.923
MFRA_13	254	1	5	3.31	.970
MFRA_14	254	1	5	3.17	.932
MFRA_15	254	1	5	3.39	.999

MFRA_16	254	1	5	3.45	1.068
MFRA_17	254	1	5	3.56	1.112
MFRA_22	254	1	5	3.49	.993
MFRA_24	254	1	5	3.80	1.020
MFRA_25	254	1	5	3.37	.976
MFRA_26	254	1	5	3.39	1.022
MFRA_27	254	1	5	3.46	.980
MFRA_28	254	1	5	3.27	.987
MFRA_29	254	1	5	3.62	.961
MFRA_30	254	1	5	3.93	.973
MFRA_31	254	1	5	3.76	1.089
MFRA_32	254	1	5	3.80	.944
MFRA_33	254	1	5	3.77	1.024
MFRA_34	254	1	5	3.89	.970
MFRA_36	254	1	5	3.38	.981
MFRA_37	254	1	5	3.32	.977
MFRA_38	254	1	5	3.62	.893
MFRA_39	254	1	5	3.96	.965
MFRA_40	254	1	5	3.80	.914
Valid N (listwise)	254				

N: Total number of respondent

In summary, this section discussed the descriptive statistics test; it is aimed to identify the variables' characteristics. In particular, the mean, standard deviation, maximum and minimum values. The results of the descriptive statistics are conducted separately for each item in each variable. The results reflect the respondents' agreement with each of the item's statement since the mean score are found to be above 3. This implies high and positive agreements.

Furthermore, the greatest and lowest values of the standard deviation for all items are ".724 and 1.405" not close to the mean values, which reflect the existence of considerably acceptable variability within the data set. In the next section, this study will discuss the correlation analysis.

5.7 Correlation Analysis

The correlation analysis was used in this study to measure the power of the association between numerical variables (Healy, 1984; Baba, 2004). To achieve this bivariate correlation procedure was undertaken. The bivariate correlation procedure computes Pearson's correlation coefficient, Spearman's Rho, and Kendall's Tau and their significance levels. Correlation measures how variables or ranks order are related. Pearson's correlation coefficient "R" is the most famous measure of linear association. Pallant (2011) provides a guide in the interpretation of the power of relationship between two variables. This guideline is known as Guilford's rules of thumb. Table 5.51 below shows the Guilford's rules of thumb.

Table 5.51
Guilford's Rules of Thumb

R	Strength of relationship
R = .10 to .29 or r = -.10 to -.29	Low
R = .30 to .49 or r = -.30 to -.49	Moderate
R = .50 to 1.0 or r = -.50 to -.1.0	High

Implementing the above bivariate correlation procedure on the research data generates the correlation between a pair of variables. The results of the Pearson's correlation is displayed in Table 5.52 and Table 5.53 below.

Table 5.52
Correlation between the EAES, EAIS and MFRA Variables

Factors	EAES	EAIS	MFRA
EAES Pearson Correlation	1		

		Sig. (2-tailed)			
EAIS	Pearson Correlation	.291**	1		
	Sig. (2-tailed)	.000			
MFRA	Pearson Correlation	.379**	.407**	1	
	Sig. (2-tailed)	.000	.000		
	N	254	254	254	

**. Correlation is significant at the 0.01 level (2-tailed).
 a. EAES (External auditor effectiveness score)
 b. EAIS (External auditor independence score)

Table 5.53
Correlation between the study Variables

		AT	JP	AQ	SM	PQ	TFD	AE	FDE	ITS	QDA	RP	AF	HCA	SR	ER	MFRA
AT	Pearson Correlation	1															
JP	Pearson Correlation	-.388**	1														
AQ	Pearson Correlation	.108	.048	1													
SM	Pearson Correlation	.008	-.066	-.233**	1												
PQ	Pearson Correlation	-.151*	.172**	.078	.068	1											
TFD	Pearson Correlation	-.189**	.162**	.006	-.004	.058	1										
AE	Pearson Correlation	-.408**	.222**	-.078	.040	.189**	.327**	1									
FDE	Pearson Correlation	-.262**	.161*	.059	-.016	.062	.200**	.259**	1								
ITS	Pearson Correlation	-.074	.085	-.096	.173**	.029	.172**	.168**	.139*	1							
QDA	Pearson Correlation	-.012	-.029	.048	.085	.043	.108	.098	.034	.032	1						
RP	Pearson Correlation	.105	-.090	-.236**	.072	.002	.089	.098	.003	.172**	.433**	1					
AF	Pearson Correlation	-.074	.032	.254**	-.075	.139*	.093	.019	.120	.016	.314**	.177**	1				
HCA	Pearson Correlation	-.039	.049	.190**	-.096	.108	.129*	.097	.180**	.075	.402**	.303**	.741**	1			
SR	Pearson Correlation	-.130*	.159*	.228**	-.026	.206**	.162**	.167**	.167**	-.030	.212**	.028	.539**	.543**	1		
ER	Pearson Correlation	-.042	.095	.167**	-.046	.086	.089	.034	.150*	-.015	.270**	.073	.515**	.482**	.671**	1	
	Pearson Correlation	-.143*	.005	.107	.084	.184**	.219**	.159*	.257**	.155*	.500**	.203**	.372**	.422**	.382**	.322**	1
MFRA	Sig. (2-tailed)	.022	.943	.087	.180	.003	.000	.011	.000	.013	.000	.001	.000	.000	.000	.000	
	N	254	254	254	254	254	254	254	254	254	254	254	254	254	254	254	254

** . Correlation is significant at the 0.01 level (2-tailed).

* . Correlation is significant at the 0.05 level (2-tailed).

The findings from the correlation analysis between the variables, as illustrated in Table 5.52 and Table 5.53, illustrate significant correlation between independent variables (auditor type, job position, academic qualifications, study major, professional qualification, training on fraud detection, auditing experience, fraud detection experience, information technology skill, questioning discussion ability, responsibility perception, external auditor effectiveness score, audit fees, hiring and changing of the auditor, social relations, economic relations and external auditor independence score) and dependent variable management fraud risk assessment at the significance levels of .001 and .05. Table 5.54 shows the summary of the correlation between the variables and the significant of the relationship based on Guildford's rule of thumb.

Table 5.54
Summary of the Correlation

Variables	Correlation Coefficient with MFRA	Strength of Relationship Based on Guildford's Rule of Thumb
MFRA (DV)		Same variable
AT	.143*	Low correlation relationship and significant
JP	.005	" correlation relationship and insignificant
AQ	.107	" correlation relationship and insignificant
SM	.084	" correlation relationship and insignificant
PQ	.184**	" correlation relationship and significant
TFD	.219**	" correlation relationship and significant
AE	.159*	" correlation relationship and significant
FDE	.257*	" correlation relationship and significant
ITS	.155*	" correlation relationship and significant
QDA	.500**	Large correlation relationship and significant
RP	.203**	Low correlation relationship and significant
EAES	.379**	Moderate correlation relationship and significant
AF	.372**	Moderate correlation relationship and significant
HCA	.422**	Moderate correlation relationship and significant
SR	.382**	Moderate correlation relationship and significant
ER	.322**	Moderate correlation relationship and significant
EAIS	.407**	Moderate correlation relationship and significant

Note. **p < .001

*p < .05

From the above result in Table 5.53, it can be seen that all of variables have correlation with MFRA. This indicates large, moderate and low relationship between dependent variables and independents variables. It can also be seen that all the variables show significant correlation levels at .001 and .05 except job position, academic qualifications, and study major show the insignificant correlation. In the next section, this study presents and discusses the hypotheses tested using the multiple regression analysis.

5.8 Multiple Regression Analysis Test

Hypotheses are tested using multiple regressions in order to achieve the objective of the analysis. This study uses standard regression because all independent variables are of immediate and potentially equal interest, and all independent variables enter the regression equation at once. Because of the close connection between the multiple regressions and Pearson's correlation, the regressions consider a powerful tool for summarizing the nature of the relationship between variables through the production of a line which fits the data closely. This line is called the line of best fit to summarize the relationship between two variables. Regression is also necessary for making prediction of likely values of the independent variable.

5.8.1 Test for Violations of Assumptions

Hair, Black, Babin, Anderson, and Tatham (2010); Tabachnick and Fidell (2007) revealed that normality, linearity, outliers, homoscedasticity and multicollianarity should be examined to ascertain their presence or otherwise before conducting multiple regression.

5.8.1.1 Normality Test

According to Gravetter and Wallnau (2009), normality test is used to describe a symmetrical, bell-shaped curve, which has the greatest frequency of scores in the middle, with smaller frequencies towards the extremes. Pallant (2007) revealed that normality can be assessed to some extent, by obtaining skewness and kurtosis. Coakes, Steed and Ong (2009) argued that skewness and kurtosis refer to the shape of the distribution. The positive values for skewness are an indication for a positive skewness. Pallant (2001) explained that skewness value provides an indication of the symmetry of the distribution, while the kurtosis value provides information about the "peakedness" of the distribution. According to Hair *et al.* (2006), normality exists when skewness and kurtosis are +/- 2.58. If the distribution is perfectly normal, you would obtain a skewness and kurtosis value of 0 (rather an uncommon occurrence in the social sciences) (Pallant, 2011). Table 5.55 shows the results of normality test.

Table 5.55
The Statistics of Skwness and Kurtosis Ratios for Continuous Variables

Items	N	Min	Max	Mean	Std. Deviation	Skewness				Kurtosis	
						Statistic		Std.		Std.	
						Statistic	Error	Statistic	Error	Statistic	Error
QDA	254	1.36	5.00	3.8683	.58002	-.834	.153	1.578	.304		
ER	254	1.00	5.00	3.3969	.90967	-.263	.153	-.344	.304		
SR	254	1.00	5.00	3.3930	.85835	-.261	.153	-.349	.304		
HCA	254	1.00	5.00	3.6918	.62886	-.687	.153	1.824	.304		
AF	254	1.00	5.00	3.4520	.72350	-.476	.153	.289	.304		
RP	254	1.86	5.00	3.9573	.55111	-.585	.153	1.044	.304		
MFRA	254	1.88	5.00	3.6175	.54500	-.318	.153	.557	.304		

Valid N listwise 254

From Table 5.55 it can be seen that all variables are normally distributed since all the results of skewness and kurtosis are in the range ± 2.58 , as suggested by Hair *et al.* (2010). This indicates that the data is appropriate and suitable for multiple regression analysis. The histogram for the normal distribution, as illustrated in Figure 5.1, provides additional evidence for the normality test.

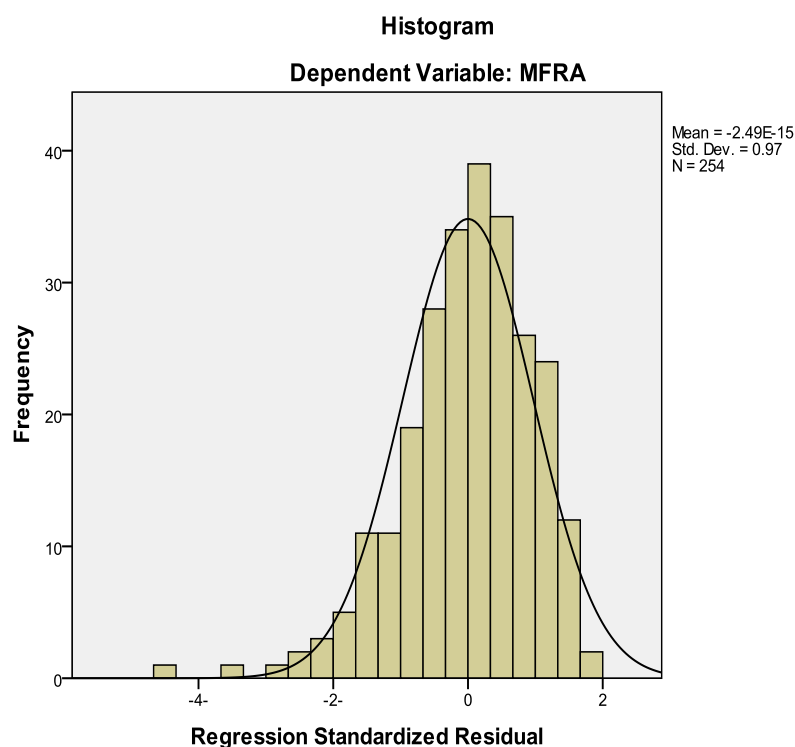


Figure 5.1
The Histogram for Normal Distributed

The scores are reasonably normally distributed, with most scores occurring in the middle, tapering out towards the extremes.

5.8.1.2 Linearity and Homogeneity Test

Linearity is the second assumption for the multiple regression tests. Tabachnick and Fidell (2007) defined linearity as the degree of how the relationship between the

variables can be portrayed in a straight line. To assess this, linearity residual plots, as suggested by Hair *et al.* (2010), was employed. Please refer to Figure 5.2 for details.

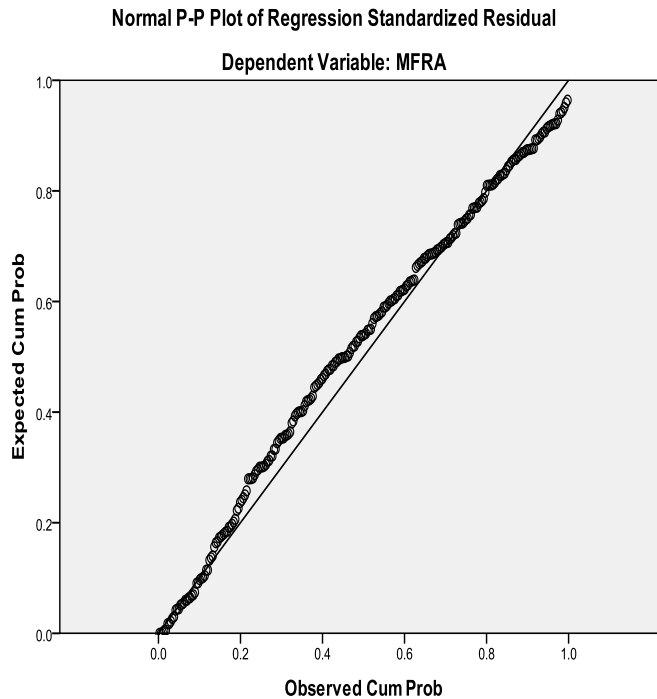


Figure 5.2
The normal P-P Plot

The results illustrated in Figures 5.1 and 5.2 provide justification to use multiple regressions to explore the relationship between the dependent and independent variables.

The homoscedasticity appears when the values of the variance for dependent variable concentrate in only a limit range of the independent variable (Hair *et al.*, 2006). This assumption is examined by using residual plot to ensure that there is no pattern of increasing or decreasing residual. As illustrated in Figure 5.3 the assumptions of homoscedasticity are fulfilled and it is appropriate to use multiple regression analysis.

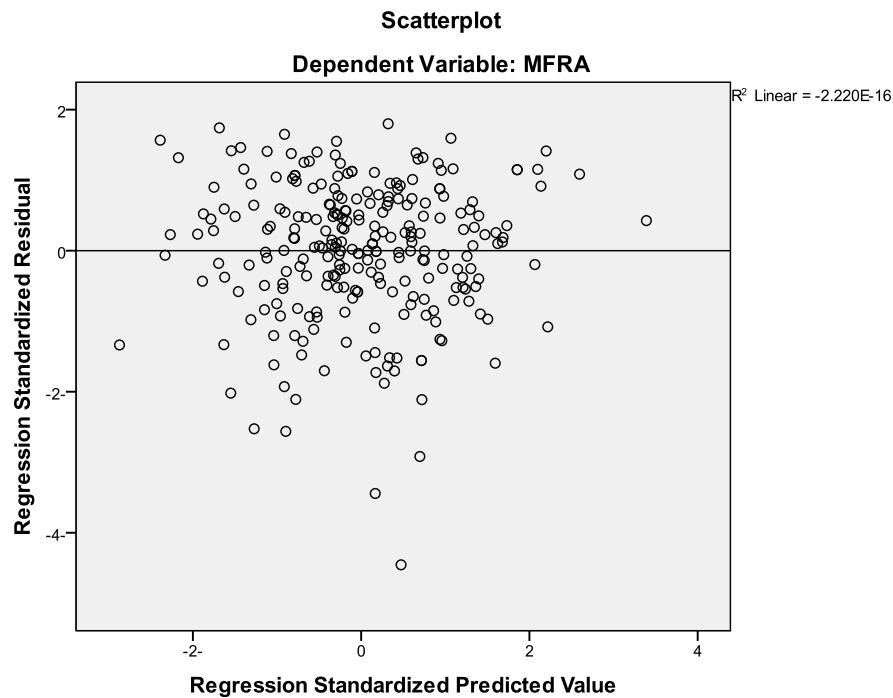


Figure 5.3
The Scatter plot

5.8.1.3 Multicollinearity Test

According to Hair *et al.* (2010), multicollinearity is the degree to which other variables can explicate a variable in the analysis. Multicollinearity can be recognized if there is a highly correlated between the variables (Tabachnick & Fidell, 2007).

In order to examine the multicollinearity among the variables in this study, VIF and tolerance tests are conducted. The term "tolerance" means the amount of variability of the selected independent variable not explained by the other independent variables, while the VIF should not be more than 10 (Hair *et al.*, 2010). Thus, in this study, the independent variables are scrutinized for determining the existence of multicollinearity. The results are illustrated in table 5.56.

Table 5.56

Testing for Multicollinearity

Model	Variables	Collinearity Statistics	
		Tolerance	VIF
1	(Constant)		
	QDA	.688	1.453
	RP	.653	1.531
	AF	.391	2.555
	HCA	.361	2.769
	SR	.429	2.330
	ER	.494	2.023
	JP	.800	1.250
	AT	.672	1.488
	SM	.879	1.138
	AQ	.758	1.320
	PQ	.900	1.112
	TFD	.846	1.182
	AE	.700	1.428
	FDE	.848	1.179
	ITS	.879	1.137

a. Dependent Variable: MFRA

From Table 5.56 it can be seen that the largest VIF among the variables is 2.769 which is lower than the maximum value (VIF=10) that is suggested by Hair *et al.* (2010). The lowest tolerance among the variables is .36 which is not small value (not less than .10). This indicates that the multiple correlation with other variables is low, suggesting the impossibility of multicollinearity (Hair *et al.*, 2010). The results of multicollinearity test indicate that there is no multicollinearity problem that exists amongst the predicted variables. Therefore, it is possible to run multiple regression analysis. After the test for the violations of multiple regression assumption, the data appear to be suitable for the multiple regressions test. This is discussed in the next section.

5.8.2 Testing the Model Using Multiple Regression

Multiple regression analysis was conducted in order to examine the relationships between MFRA as dependent variable and academic qualification, professional qualification, study major, training on fraud detection, audit experience, fraud detection experience, job position, auditor type, IT skill, questioning discussion ability, responsibility perception, audit fees, hiring and changing the auditor, social relations and economic relations as independent variable. Multiple regression analysis provides many indicators that explain one relationship. For example, R-value indicates for how well a set of variables is able to predict a particular outcome. Moreover, besides .001 and .05 as significant level, .1 can also be accepted as significant level. The rationale behind this is the sample size of the study (Ang, Davies & Finlay, 2001; Speed, 1994).

From the analysis, R^2 value of this research is .422 as illustrated in Table 5.57. This means that the academic qualification, professional qualification, study major, training on fraud detection, audit experience, fraud detection experience, job position, auditor type, IT skill, questioning discussion ability, responsibility perception, audit fees, hiring and changing the auditor, social relations and economic relations explain 42.2 percent of the variance of MFRA. According to Pallant (2007) the adjusted R^2 statistic corrects R^2 value to provide a better estimate of the true population value. In this study, the adjusted R^2 value for Model 1 is .39. The model is also significant at level .000. Table 5.57 shows the results in details.

Table 5.57
Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Durbin-Watson
1	.650 ^a	.422	.39	.42721	2.200

a. Predictors: (Constant), ITS, ER, AT, PQ, SM, RP, TFD, FDE, AQ, JP, QDA, AE, AF, SR, HCA

b. Dependent Variable: MFRA

On the other hand, the value of analysis of variance (ANOVA) is used to assess the statistical significance of the result, as illustrated in Table 5.58.

Table 5.58
The ANOVA (b) Result

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	31.709	15	2.114	11.582	.000 ^a
	Residual	43.437	238	.183		
	Total	75.146	253			

a. Predictors: (Constant), ITS, ER, AT, PQ, SM, RP, TFD, FDE, AQ, JP, QDA, AE, AF, SR, HCA

b. Dependent Variable: MFRA

The result in Table 5.58 demonstrates that the null hypothesis (that the multiple R in the population is equal to 0) is rejected since the model of this study is statistically significant at ($P = .000$).

Overall, Table 5.59 details out the relationships between dependent variable, MFRA and independent variables. All the fifteen variables are included in the analysis and the results show that questioning discussion ability ($\beta = .372$, $P = .001$), social relations ($\beta = .110$, $P = .022$), job position ($\beta = -.122$, $P = .045$), professional qualification ($\beta = .123$, $P = .046$), training on fraud detection ($\beta = .000$, $P = .085$), fraud detection experience ($\beta = .193$, $P = .004$), and IT skill ($\beta = .156$, $P = .042$) are significant. As well, academic qualification ($\beta = .036$, $P = .612$), study major ($\beta = .071$, $P = .364$), audit experience ($\beta = .003$, $P = .566$), auditor type ($\beta = -.095$, $P =$

.161), responsibility perception ($\beta = -.031$, $P = .613$), audit fees ($\beta = .031$, $P = .605$), hiring and changing of the auditor ($\beta = .080$, $P = .263$), and economic relations ($\beta = .001$, $P = .975$) are insignificant. The expectations for all variables are positive significant accepted HCA, SR and ER negative significant.

Table 5.59
The Coefficients (a) Value

Model		Unstandardized Coefficients		Standardized Coefficients		Sig.	Expected Sig.
		B	Std. Error	Beta	t		
1	(Constant)	1.158	.260		4.447	.000	
	QDA	.372	.056	.396	6.670	.000	+Sig
	RP	-.031	.060	-.031	-.507	.613	+Sig
	AF	.031	.059	.041	.518	.605	+Sig
	HCA	.080	.071	.092	1.122	.263	-Sig
	SR	.110	.048	.173	2.301	.022	-Sig
	ER	.001	.042	.002	.032	.975	-Sig
	JP	-.122	.060	-.111	-2.014	.045	+Sig
	AT	-.095	.067	-.085	-1.406	.161	+Sig
	SM	.071	.078	.048	.910	.364	+Sig
	AQ	.036	.071	.029	.508	.612	+Sig
	PQ	.123	.061	.104	2.006	.046	+Sig
	TFD	.000	.000	.093	1.728	.085	+Sig
	AE	-.003	.005	-.034	-.575	.566	+Sig
	FDE	.193	.066	.156	2.914	.004	+Sig
	ITS	.156	.076	.108	2.049	.042	+Sig

a. Dependent Variable: MFRA

5.8.3 Regression on External Auditor Effectiveness Score (EAES) and External Auditor Independent Score (EAIS)

Multiple regression is also utilized to achieve the second objective of this research that is to examine the external auditor effectiveness and independent scores (Model 2).

5.8.3.1 Normality Test (EAES and EAIS)

Hair *et al.* (2006) has pointed out that for the existence of normality the skewness and kurtosis should be ± 2.58 . The results of normality test are shown by the Table 5.60.

Table 5.60
The Statistics of Skewness and Kurtosis Ratios for Continuous Variables

	N	Min	Max	Mean	Std. Dev.	Skewness Statistic	Skewness Std. Error	Kurtosis Statistic	Kurtosis Std. Error
EAES	254	2.00	10.00	5.8465	1.72291	-.064	.153	-.572	.304
EAIS	254	.00	4.00	1.9528	1.51336	.074	.153	-1.465	.304
Valid N(listwise)	254								

From Table 5.60 the results of skewness and kurtosis show their values which are within the range ± 2.58 , as pointed out by Hair *et al.* (2010). This indicates that the variables namely, external auditor effectiveness score (EAES) and external auditor independent score (EAIS) demonstrate to be normally distributed. Therefore, it shows that the data are appropriate for the multiple regression analysis. In addition, the histogram for the normality indicates the scores of the variables are well distributed as shown by Figure 5.4. This offers more information which proves the normal distribution.

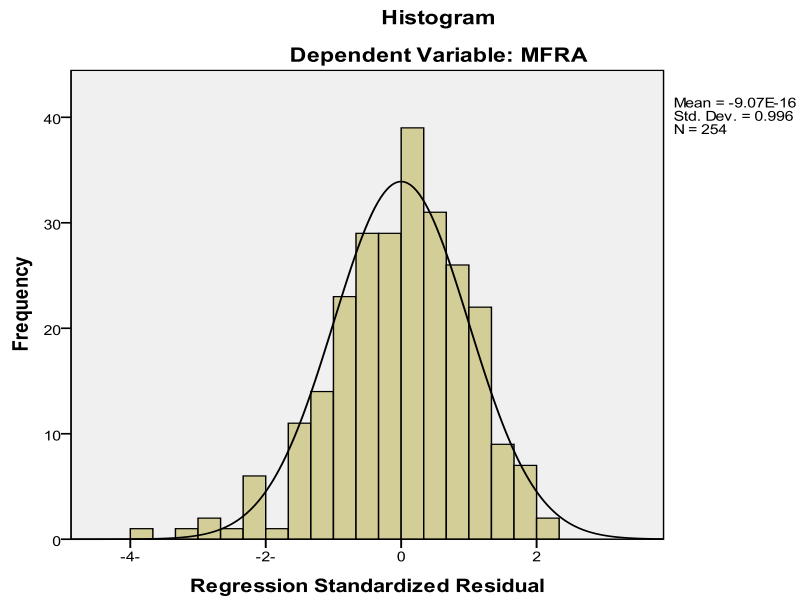


Figure 5.4
The Histogram for Normal Distribution (EAES & EAIS)

Figures 5.4, has displayed the results of normality test for external auditor effectiveness score and external auditor independent score. Overall the results suggest that the assumption of normality of data is met.

5.8.3.2 Linearity and Homogeneity Test (EAES and EAIS)

Hair *et al.* (2010) also suggest the test of residual plots linearity. This is presented in Figure 5.5 below. The result of linearity test through plot in Figure 5.5 shows no evidence of nonlinear pattern to the residuals. In detailing, the Normal P-P Plot, found that all points of external auditor effectiveness score and external auditor independent score lie in a reasonably straight diagonal line from bottom left to top right. This would suggest no major deviations from linearity.

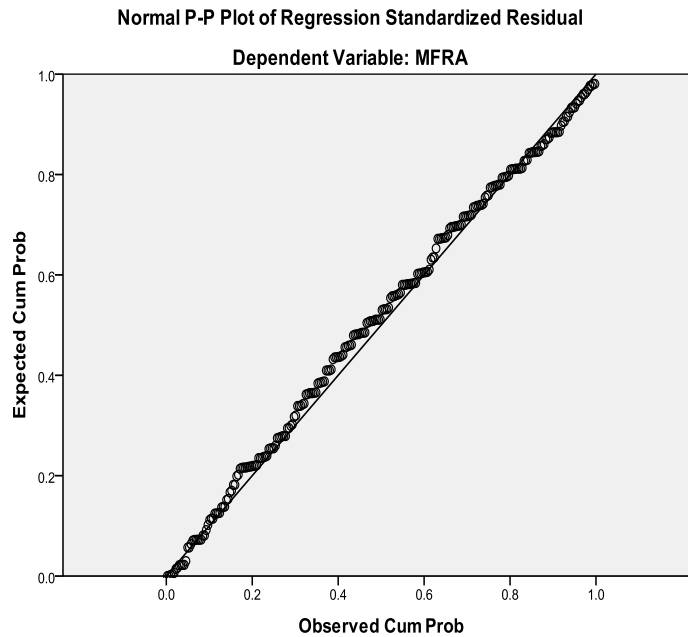


Figure 5.5
The Normal P-P Plot (EAES & EAIS)

With the results of the histogram for normal distribution and the normal P-P plot as indicated in Figures 5.4 and 5.5 there is evidence of normal distribution and this suggests appropriateness in employing multiple regressions to examine the relationship of MFRA with EAES and EAIS.

Figure 5.6 shows the results of scatter plot. There is indication that the assumption of homoscedasticity is upheld and therefore, it is appropriate to employ multiple regression analysis. Moreover, the presence of outliers can also be detected from the Scatterplot. Tabachnick and Fidell (2007) define outliers as cases that have a standardised residual (as displayed in the scatterplot) of more than 3.3 or less than – 3.3. With large samples (200+), it is not uncommon to find a number of outlying residuals. In this study researcher not found cases outliers, it may not be necessary to take any action (pallant, 2011).

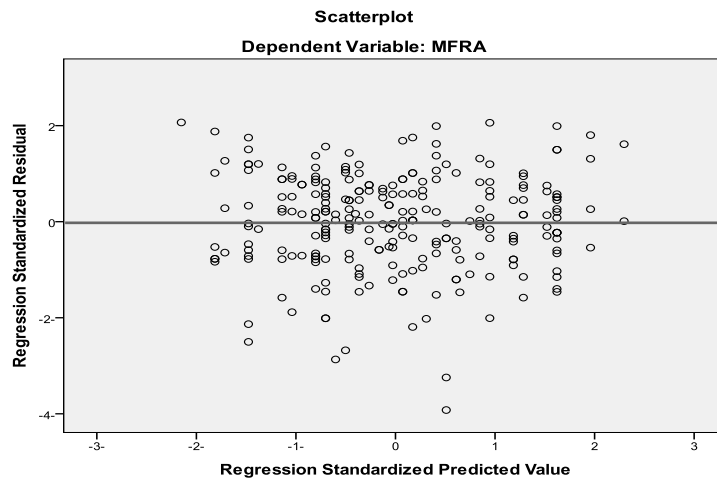


Figure 5.6
The Scatterpolt (EAES & EAIS)

5.8.3.3 Multicollinearity Test (EAES and EAIS)

According to Hair *et al.*, (2010), the value of VIF is suggested to be less than 10 in the determination of the presence of multicollinearity among the variables. If the value is less than 10, it indicates the absence of multicollinearity. The results of the test of presence of multicollinearity among the independent variables are displayed in Table 5.61.

Table 5.61
Testing for Multicollinearity

Variable	Collinearity Statistics	
	Tolerance	VIF
EAES	.915	1.093
EAIS	.915	1.093

a. Dependent Variable: MFRA

From Table 5.61, the results show that the value of VIF for the variable EAES and EAIS are respectively 1.093 and 1.093. Since these values are lesser than 10 and the Tolerance values are more than .10, it implies that there is absence of

multicollinearity as pointed out by Hair *et al.* (2010). It further confirms that there is no violation of the assumption of multiple regressions. With the absence of multicollinearity among the explanatory variables, it is deemed appropriate to proceed in employing multiple regression analysis to the data. The next section tests for the regression of effectiveness and independent scores.

5.8.3.4 Testing Regression of Effectiveness Score and Independent Score

In this section, the study investigate the relationship between the dependent variable, MFRA and the external auditor effectiveness score (EAES) which involves the combination of the impacts of eleven different sub-variables and external auditor independent-related factors (EAIS) which also involves the combination of the impacts of four different sub-variables as independent variable. Multiple regression analysis is employed to accomplish this. The justification for this has to do with the study sample size (Ang, Davies & Finlay, 2001; Speed, 1994).

From the results in Table 5.62, the value of R^2 is shown to be .240. This implies that about 24.0% of the variance of MFRA is explained by the EAES and EAIS. As pointed out by Pallant (2011) the adjusted R^2 statistic corrects R^2 value to give an estimate which is better to explain the value of actual population. The result in Table 5.61 indicates that the value of adjusted R^2 for Model 2 is .234. The level of significant for the model is .000. Table 5.62 provides the summary of the results.

Table 5.62

Model Summary of EAES and EAIS

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Durbin-Watson
2	.490 ^a	.240	.234	.47713	2.117

a. Predictors: (Constant), EAES, EAIS

b. Dependent Variable: MFRA

Furthermore, the results of analysis of variance (ANOVA) employed for the assessment of the statistical significance of the regression result are indicated in Table 5.63. The result also provide for the tests of the null hypothesis.

Table 5.63

The ANOVA (b) Result of EAES and EAIS

Model		Sum of Squares	df	Mean Square	F	Sig.
2	Regression	18.006	2	9.003	39.549	.000 ^a
	Residual	57.140	251	.228		
	Total	75.146	253			

a. Predictors: (Constant), EAES, EAIS

b. Dependent Variable: MFRA

These tests show that null hypothesis that is multiple R in the population is equals to 0. The model 2 in this study reaches statistical significance (sig. = .000, this really means $p < .0005$).

Table 5.64 presents the overall details of the relationships of the dependent variable, MFRA with the independent variables, EAES and EAIS. The results from the table indicate that EAES ($\beta = .090$, $P = .001$) and EAIS ($\beta = .117$, $P = .001$) are a positive significant.

Table 5.64

The Coefficients (a) Value of EAES and EAIS

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
2	(Constant)	2.864	.107		26.883	.000
	EAES	.090	.018	.284	4.944	.000
	EAIS	.117	.021	.324	5.632	.000

a. Dependent Variable: MFRA

5.9 One-way ANOVA with Post-Hoc Tests among Auditor Type and MFRA

One-way ANOVA with post-hoc tests is also utilized to achieve the fourth objective of this research that is to identify a significant difference mean scores between auditor type (COCA, Big 4, international and local) in terms of MFRA proxy (fraud risk indicators). The one-way ANOVA informs if there is presence or not of the significant differences in the mean scores on fraud risk indicators who are proxy the dependent variable across the four groups of auditors that are Central Organization for Control and Accounting (COCA), Big 4, international and local audit firms. In addition, the results of Post-hoc tests indicate where these differences are among the groups. The results are presented below.

Table 5.65

One-way ANOVA Groups

MFRA

	Sum of squares	df	Mean square	F	Sig.
Between Groups	6.115	3	2.038	7.382	.000
Within Groups	69.031	250	.276		
Total	75.146	253			

The results in the Table 5.65 show the between-groups and within-groups sums of squares, degrees of freedom. The value of significant level from the table is .000. Since this value is lower than .05 (Pallant, 2011), it implies that there is a significant difference among the mean scores on MFRA for the four groups. However, the group which is different from other is not known. For the differences in between each pair of groups, Table 5.66 shows the results. Therefore, Table 5.66 presents the results of multiple comparisons, which is the result of the post-hoc tests.

Table 5.66
Multiple Comparisons
MFRA
Tukey HSD

(I) AT	(J) AT	Mean Difference (I-J)	Std. Error	Sig.	95% Confidence Interval	
					Lower Bound	Upper Bound
COCA	Big 4	.31936*	.09963	.009	.0544	.5843
	International	-.29704	.13816	.195	-.6645	.0704
	Local	.17632	.07470	.114	-.0223	.3750
Big 4	COCA	-.31936*	.09963	.009	-.5843	-.0544
	International	-.61640*	.15272	.000	-1.0225	-.2103
	Local	-.14304	.09907	.900	-.4065	.1204
International	COCA	.29704	.13816	.195	-.0704	.6645
	Big 4	.61640*	.15272	.000	.2103	1.0225
	Local	.47336*	.13776	.004	.1070	.8397
local	COCA	-.17632	.07470	.114	-.3750	.0223
	Big 4	.14304	.09907	.900	-.1204	.4065
	International	-.47336*	.13776	.004	-.8397	-.1070

*, The mean difference is significant at the 0.05 level.

The results of the post-hoc tests as given in Table 5.66 exactly point to where the differences among the groups lie. The asterisks show that there is significant difference as the values are less than 0.05. Therefore, the results show that COCA group with Big 4 group, and international group with Big 4 and local group being compared are significantly different from one another at the $p < .05$ level. This further implies that the COCA group with Big 4 group and international group with local

and Big 4 group are differ significantly in terms of their assess management fraud risk by using fraud risk indicators.

5.10 Rank of Fraud Risk Indicators

Rank of fraud risk indicators is also utilized to achieve the fifth objective of this research that is to determine the relative importance of the fraud risk indicators in Yemen. Table 5.67 shows the average and rank of the external auditors' responses for each fraud risk indicators. In the Yemen study, the level of MFRA effectiveness was perceived to be the same for all the 34 fraud risk indicators. In fact, all four groups of external auditors' type surveyed in this Yemen study perceived, the level of MFRA effectiveness of the 34 fraud risk indicators to be the average value between "3.17" and "3.98" for 34 fraud risk indicators on a five-point Likert scale.

Table 5.67
Fraud risk Indicators Average

Item Name	Item Content	Mean	Rank
MFRA_10	Ineffective accounting information systems Including cases involving fundamental weaknesses in internal control.	3.98	1
MFRA_5	Domination of management by a single person or small group in a non-owner-managed business without compensating controls.	3.98	1
MFRA_39	Formal or informal restrictions on the auditor that inappropriately limit his access to people or information.	3.96	2
MFRA_30	Known history of violations of securities law, or claims against the entity or her senior management.	3.93	3
MFRA_34	Management failure to correct known reportable conditions in internal controls in a timely basis.	3.89	4
MFRA_2	Inadequate monitoring of significant internal controls.	3.84	5
MFRA_24	Management has personally guaranteed significant debts of the firm.	3.80	6
MFRA_32	An interest by management in employing inappropriate means to minimize reported earnings for tax-motivated reasons.	3.80	6
MFRA_40	Recurring attempts by management to justify marginal or inappropriate accounting on the basis of materiality.	3.80	6
MFRA_11	High turnover rates or employment of ineffective accounting, internal audit, or information technology staff.	3.78	7

Table 5.67 (Continued)

Item Name	Item Content	Mean	Rank
MFRA_33	Frequent disputes with the current or previous auditor on accounting, auditing, or reporting matters.	3.77	8
MFRA_31	Domineering management behaviour in dealing with the auditor.	3.76	9
MFRA_1	Ineffective board of directors or audit committee oversight over the financial reporting process and internal control system.	3.76	9
MFRA_8	Significant, unusual, or highly complex transactions, especially occurring close to year end that pose difficult “substance over form” questions.	3.75	10
MFRA_3	Assets, liabilities, revenues, or expenses based on significant estimates that involve subjective judgments or uncertainties that are difficult to corroborate.	3.71	11
MFRA_9	Significant bank accounts or subsidiary or branch operations in tax-haven jurisdictions for which there appears to be no clear business justification.	3.65	12
MFRA_29	New accounting, statutory, or regulatory requirements unjustified.	3.62	13
MFRA_38	A practice used by management of committing analysts, creditors, and other third parties to achieve aggressive or unrealistic forecasts.	3.62	13
MFRA_17	Operating losses causing threat of imminent bankruptcy or foreclosure, or hostile takeover.	3.56	14
MFRA_12	Difficulty in determining the organization or individuals that have controlling interest in the entity.	3.52	15
MFRA_7	Overly complex organizational structure involving unusual legal entities or managerial lines of authority not clear.	3.52	15
MFRA_6	High turnover of chief executive officers or board of directors.	3.52	15
MFRA_22	There is excessive pressure on management or operating personnel to meet financial targets established by those charged with governance, including sales or profitability incentive goals.	3.49	16
MFRA_4	Significant related-party transactions not in the ordinary course of business example agricultural organization sales to farmers TVs.	3.49	16
MFRA_27	Need to obtain additional debt or equity financing of major research and development or capital expenditures to stay competitive.	3.46	17
MFRA_16	Rapid growth or unusual profitability especially compared to that of other companies in the same industry.	3.45	18
MFRA_15	Weak ability to repay debt or to meet the requirements of other debt instruments.	3.39	19
MFRA_26	Significant declines in customer demand and increasing business Failures in the industry or overall economy.	3.39	19
MFRA_36	Non-financial management's excessive participation in the selection of accounting principles or the determination of significant estimates.	3.38	20
MFRA_25	High degree of competition or market saturation accompanied by declining margins.	3.37	21
MFRA_37	Unreasonable demands on the auditor, such as unreasonable time constraints regarding the completion of the audit or the issuance of the auditor's report.	3.32	22

Table 5.67 (Continued)

Item Name	Item Content	Mean	Rank
MFRA_13	A strong financial presence or ability to dominate a certain industry sector that allows the entity to dictate terms or conditions to suppliers or customers .	3.31	23
MFRA_28	High vulnerability to rapid changes in technology, product obsolescence, or interest rates.	3.27	24
MFRA_14	Significant operations located or conducted across international borders in jurisdictions where differing business environments and cultures exist.	3.17	25

5.11 Additional Tests

The aim of additional tests is to identify a significant similar/different variable among different classes of auditor type in terms of their effectiveness-related attributes, and independence-related factors. Multiple linear regression analysis is appropriate to achieving the objective of additional analysis in three sections: firstly, to identify a significant similar/difference among the auditors working in Central Organization for Control and Accounting (COCA) and the auditors working in audit firms (Non-COCA). Secondly, to identify a significant similarity/difference among auditors who are partners/managers (AP/AM), and auditors who are Non-partners/managers (Non-AP/AM). Finally, using dummy variables for the four groups of auditors under multiple linear regression analysis in order to know which group has high ability to assessing management fraud risk. Details of the three tests are in the following sections.

5.11.1 Testing Regression of COCA and Non-COCA

Table 5.68 details out a significant similar/difference among COCA and Non-COCA. To illustrate, auditor type is a constant variable making regression to be deleted from the analysis. All the fourteen variables are included in the analysis and the results show that questioning discussion ability is a significant similar variable

among COCA and Non-COCA ($\beta = .328, P = .002$) ($\beta = .396, P = .000$) respectively. Conversely, professional qualification ($\beta = .142, P = .102$) ($\beta = .086, P = .380$), audit fees ($\beta = -.010, P = .145$) ($\beta = .007, P = .489$), fraud detection experience ($\beta = .101, P = .479$) ($\beta = .199, P = .015$), and social relations ($\beta = .096, P = .185$) ($\beta = .128, P = .064$) are significantly different among COCA and Non-COCA.

Table 5.68
Multiple liner regression Test of COCA and Non-COCA

variables	COCA B (Sig)	Non-COCA B (Sig)
JP	-.075 (.530)	-.122 (.110)
AQ	.032 (.807)	.005 (.954)
SM	.038 (.812)	.079 (.436)
PQ	.142 (.102)	.086 (.380)
TFD	.000 (.237)	.000 (.257)
AE	-.010 (.145)	.007 (.489)
FDE	.101 (.479)	.199 (.015)
ITS	.232 (.206)	.155 (.114)
QDA	.328 (.002)	.396 (.000)
RP	.071 (.513)	-.068 (.390)
AF	.123 (.241)	.000 (.998)
HCA	.024 (.842)	.094 (.326)
SR	.096 (.185)	.128 (.064)
ER	-.035 (.595)	.007 (.899)

a. Dependent Variable: MFRA, b. Number of respondents: COCA=97, Non-COCA=157

5.11.2 Testing Regression of AP/AM and Non-AP/AM

Table 5.69 details out a significant similarity/difference among AP/AM and Non-AP/AM. To illustrate this, job position is a constant variable making regression to be deleted from the analysis.

Table 5.69
Multiple liner regression Test of AP/AM and Non-AP/AM

variables	AP/AM B (Sig)	Non-AP/AM B (Sig)
AT	-.025 (.743)	-.171 (.202)
AQ	.022 (.801)	-.012 (.922)
SM	-.104 (.288)	.343 (.012)
PQ	.149 (.025)	.028 (.848)
TFD	.001 (.016)	.092 (.737)
AE	-.010 (.907)	-.010 (.340)
FDE	.299 (.001)	.092 (.360)
ITS	.084 (.422)	.248 (.040)
QDA	.349 (.000)	.361 (.000)
RP	-.050 (.495)	-.019 (.870)
AF	.038 (.588)	-.046 (.666)
HCA	.084 (.356)	.157 (.183)
SR	.157 (.010)	.045 (.572)
ER	-.002 (.966)	.053 (.491)

a. Dependent Variable: MFRA, b. Number of respondents: AP/AM =142, Non-AP/AM =112

Table 5.69 displays all the fourteen variables which are included in the analysis and the results show that questioning discussion ability is a significant similar variable among AP/AM and Non-AP/AM ($\beta = .349, P = .000$) ($\beta = .361, P = .000$) respectively. On the other hand, study major ($\beta = -.104, P = .288$) ($\beta = .343, P = .012$), professional qualification ($\beta = .149, P = .025$) ($\beta = .028, P = .848$), training on fraud detection ($\beta = .001, P = .016$) ($\beta = .092, P = .737$), fraud detection experience ($\beta = .299, P = .001$) ($\beta = .092, P = .360$), information technology skill ($\beta = .084, P = .422$) ($\beta = .248, P = .040$), hiring and changing of the auditor ($\beta = .084, P = .356$) ($\beta = .157, P = .183$), and social relations ($\beta = .157, P = .010$) ($\beta = .045, P = .572$) are significantly different among AP/AM and Non-AP/AM.

5.11.3 Testing Regression on Auditor Type

Multiple regression analysis was conducted in order to examine the high significant group of auditor type (COCA, Big 4, international, and local) in terms of their ability to assess management fraud risk. The results of the regression test as given in Table 5.69 precisely point to where the differences among the groups lie. Therefore, the results show that international audit firms ($\beta = .227, P = .046$), COCA ($\beta = .123, P = .073$) have the ability to assess management fraud risk. To illustrate this, regression test does not show the results of Big 4 and local firms due to the fact that international audit firms including Big 4 and local audit firms are not significant (see appendix H part 3).

Table 5.70
Multiple liner regression Test on Auditor Type

Model	Unstandardized		Standardized		
	Coefficients		Coefficients		
	B	Std. Error	Beta	t	Sig.
(Constant)	1.114	.257		4.342	.000
coca	.123	.068	.110	1.801	.073
Iaudit	.227	.113	.104	2.003	.046
JP	-.116	.060	-.106	-1.92	.055
AQ	.047	.070	.038	.667	.505
SM	.065	.077	.044	.840	.402
PQ	.117	.061	.099	1.909	.057
TFD	.000	.000	.089	1.678	.095
AE	-.003	.005	-.027	-.466	.642
FDE	.179	.066	.144	2.692	.008
ITS	.156	.076	.108	2.063	.040
QDA	.358	.056	.380	6.389	.000
RP	-.028	.060	-.028	-.461	.645
AF	.031	.059	.041	.526	.600
HCA	.084	.071	.097	1.187	.236
SR	.096	.048	.152	2.007	.046
ER	.005	.042	.009	.123	.902

a. Dependent Variable: MFRA, b. Iaudit= International audit firms

5.12 Summary

This chapter summarizes the findings obtained from data analysis of the survey that was conducted to examine the association of external auditor`s attributes with MFRA in Yemen. Firstly, the response rate of the survey is highlighted. The estimated response rate was 66.58%. This is followed by the section that discusses non-respondent bias. Then the descriptive statistics to explain general information of the respondent, and the current state of MFRA in Yemen are provided. For testing the hypotheses multiple regressions analysis is elaborated. For analysis a significant difference scores among auditor type and assessing management fraud risk proxy

One-way ANOVA with post-hoc tests are expounded. The average value is illustrated to determine the relative importance of the fraud risk indicators in Yemen. Finally, additional tests were performed for type and position of auditor.

CHAPTER SIX

DISCUSSION

6.1 Introduction

This chapter discusses the finding of this research. As declared in chapter two, there are four groups of independent variables in this research: external auditor effectiveness-related attributes, external auditor independence-related factors, external auditor effectiveness score, and external auditor independence score. In order to guide the reader through this research, the description of post-analysis conceptual framework will be presented first. This chapter will end with a summary.

6.2 Research Hypotheses Test Results

This study conducted a test on the research hypotheses by making use of the multiple regression analysis test. Seventeen hypotheses were tested, as displayed in Table 6.1. From the results of the test, seven of the total hypotheses tested were found to be supported. Furthermore, nine hypotheses stated there was a significant relationship between variables (professional qualification, training on fraud detection, fraud detection experience, job position, IT skill, questioning discussion ability, external auditor effectiveness score, social relations, and external auditor independence score) and management fraud risk assessment. In addition, all the variables have a positive significant relationship with MFRA, excluding job position of external auditor, which was negatively significant. Table 6.1 below shows the details of the results.

Table 6.1

The Results of the Research Hypotheses

Code	Hypotheses Statement	Remarks
H1	There is a positive association between academic qualification and management fraud risk assessment.	Not Supported
H2	There is a positive association between professional qualification and management fraud risk assessment.	Supported
H3	There is a positive association between study major and management fraud risk assessment.	Not Supported
H4	There is a positive association between training on fraud detection and management fraud risk assessment.	Supported
H5	There is a positive association between audit experience and management fraud risk assessment.	Not Supported
H6	There is a positive association between fraud detection experience and management fraud risk assessment.	Supported
H7	There is a positive association between external auditor job position and management fraud risk assessment.	Not Supported
H8	There is a positive association between external auditor type and management fraud risk assessment.	Not Supported
H9	There is a positive association between external auditors' IT skill and management fraud risk assessment.	Supported
H10	There is a positive association between questioning discussion ability and management fraud risk assessment.	Supported
H11	Responsibility perception has a positive association with management fraud risk assessment.	Not Supported
H12	External auditor effectiveness score has a positive association with management fraud risk assessment.	Supported
H13	Audit fees have a positive association with management fraud risk assessment.	Not Supported
H14	Hiring and changing of the external auditor is negatively associated with management fraud risk assessment.	Not Supported
H15	Social relations of the external auditor and management fraud risk assessment are negatively associated.	Not Supported
H16	Economic relations (non-audit fees) of the external auditor and management fraud risk assessment are negatively associated.	Not Supported
H17	External auditor independence score has a positive association with management fraud risk assessment.	Supported

6.3 External Auditor Effectiveness-Related Attributes

As explained in chapter two, there are 11 independent variables under this construct: academic qualification, professional qualification, study major, training on fraud detection, audit experience, fraud detection experience, job position, auditor type, IT skill, questioning discussion ability, and responsibility perception. The results of the regression test for the examination of these variables in relation to the dependent variable are discussed in the next subsections.

6.3.1 Academic Qualification

In this study, academic qualification is proxy by the diploma, bachelor's degree, master's degree, and Ph.D. degree. Since the respondents mostly have bachelor's degrees, their capability to assess management fraud risk less than those who have Ph.D. or master's degrees. The finding from regression testing, as illustrated in Table 5.59, confirms that there is no significant relationship between academic qualification and management fraud risk assessment (since the P -value = .612). Therefore, hypothesis H_1 in the current study is found to be unsupported. This result does not give support to attribution theory in the Yemeni context. The relationship between academic qualification and management fraud risk assessment is also positive (with an estimated value of $\beta = .029$). This result supports those obtained by Kranacher and Stern (2004) and Washally (2010) in their previous studies, where it was reported that academic qualification was not significant to management fraud risk assessment.

The current results imply that formal education for external auditors in Yemen is no more appropriate to the needs of the times as it focuses greatly on procedures, which gives way to concepts and methods of teaching used in traditional accounting for improvement but fail to measure the skills and the real potential of students (Al-Talai, 2004; Al-Ahdal, 2008). This could be why some professional organizations need continuing professional education up to a university degree. This reflects that academic qualification has no influence on management fraud risk assessment. Therefore, this further suggests that the consideration of academic qualifications not all that important in management fraud risk assessment in Yemen.

6.3.2 Professional Qualification

In the present study it was hypothesized that the assessment of management fraud risk in the Yemen is influenced by professional qualification. Professional qualifications expected to improve the effectiveness and efficiency of external auditors, conservators, and the auditors to judge objectively. In this study, professional qualification is proxy by Yemeni certified public accountant, Arabic certified public accountant, international certified public accountant, certified information system auditor, certified fraud examiner, and certified managerial accountant.

As indicated by the current study results, the association of professional qualification with management fraud risk assessment (as illustrated in Table 5.59) was found to be significant (with P -value = .046) and positive (with an estimated value of $\beta = .104$). This result supports the attribution theory suggestion in the Yemeni context. Previous studies (Moyes & Hasan, 1996; Moyes & Anandarajan, 2002; Law, 2008; Lou & Wang, 2009) have found similar results to those obtained by the current study. Those previous studies uncovered that the relationship between professional qualifications of the auditor and fraud detection in financial reporting were positively significant. Therefore, the current study's hypothesis H_2 is found to be supported. In addition, these results are in line with the results found in the correlation test (as shown in Table 5.53), which confirms that there is a positive linear relationship between professional qualification and management fraud risk assessment. The findings clarify that professional qualification has influence on management fraud risk assessment and for this reason, it is important to make it mandatory for external

auditors in Yemen to pass a professional examination. This is to improve their ability to assess management fraud risk.

6.3.3 Study Major

An individual's study major is a general characteristic that can be useful in audit work. In this study, major of study is proxy by accounting, finance, management, and economics. The results from regression testing (as illustrated in Table 5.59) show that study major is insignificant (with P -value = .364) in influencing management fraud risk assessment in Yemen. In addition, the relationship is found to be positive (with an estimated value of $\beta = .048$) with the external auditor assessment of management fraud risk. This result does not support the conjuncture of attribution theory in the Yemeni context. Thneibat (1991) and Washaly (2010) have found similar results in previous studies. Their studies uncover that there is a weak and insignificant association between study major and the external auditor's assess of management fraud risk. Therefore, the results did not support the hypothesis H_3 ; this implies that study major plays no significant role when considering management fraud risk assessment.

One reason for this result could be attributed to the weak focus given by the accounting schools at Yemeni universities in developing accounting curricula for accounting major students. The accounting curricula are outdated, the teaching methods are a pencil and paper-based method, ignoring the problem-based method, and many subjects in the accounting curriculum are not related either to academic or professional education (Matter, 1999; Al-Talai, 2004; Al-Ahdal, 2008). In this regard, the ministry of higher education in Yemen should take practical steps to

enhance the accounting education at Yemeni universities so that the quality of accounting graduates would be improved.

Another possible interpretation for this result could be attributed to the percentage of accounting and non-accounting certificate holders with professional qualifications. As an additional analysis concluded, 17 percent and 13 percent of non-accounting certificate holders have one and two certificates of professional qualifications, respectively. This indicates that the importance of the major of study in Yemen in the auditing profession could be replaced by the professional qualification. The justification for this result could be attributed to the sample size of the respondents, the majority of whom (83.95 percent) are accounting study majors (as shown in Table 5.8). Therefore, there is a lack of variation in variable.

6.3.4 Training on Fraud Detection

According to Moyes *et al.* (2009), the term “training to detect fraud” refers to the acquisition of knowledge, skills, and competencies in order to identify and detect fraud. The association between the external auditors, hours of training on fraud detection, and assessment of management fraud risk in financial reporting is examined in the current study. Therefore, the current study examines the effect of training on fraud detection on management fraud risk assessment in Yemen. Findings of this study (as illustrated in Table 5.59) confirm that training on fraud detection has a marginal positive association (P -value = .09 and an estimated value of $\beta = .093$) with management fraud risk assessment in Yemen. This result gives weak support to the proposition of attribution theory in the Yemeni context. In addition, this result is supported by the correlation test (as shown in Table 5.53).

In reality, most of the training hours are routine especially the auditors working in COCA through in-house training which is held once every year but ineffectual and minute details on fraud risk indicators is very rare training. Moreover, training on fraud detection through fraud risk indicators in local audit firms is very rare if not non-existent, that is why training on fraud detection statistically significant but economically insignificant. This result is consistent with Wilks and Zimbelman (2004), Moyes *et al.* (2009), Jaffar (2009), and Brazel *et al.* (2010). Therefore, the results weakly support hypothesis H₄; this implies that training on fraud detection plays a weakly significant role when considering management fraud risk assessment.

Hence, this result implies that more effort should be devoted by the Yemeni government to employee training to recognize verbal and nonverbal indicators of deception, a potentially effective tool for financial statement auditors. Yemeni COCA and audit firms should have a policy that revolves around training and re-training of all categories of staff, as development of human resources enhances assessment of management fraud risk. Presentations (i.e., seminars, workshops, and in-house training), hands-on training or learning, and group building techniques are various methods through which training on fraud detection can be achieved. Similarly, audit personnel can attend fraud detection training and attachment programs overseas in the office of a reputable audit firm. Those trained abroad can transfer such training to other audit personnel.

To overcome the problems related to the assessment of management fraud risk by external auditors, the Yemeni government should conduct special training programs on management fraud risk assessment issues, develop a recycling program, and give

rewards to external auditors, researchers, or anyone who develops new policies on management fraud risk assessment. The Yemeni government should also motivate external auditors to initiate the assessment of management fraud risk seriously and carefully. On the other hand, training programs related to the assessment of management fraud risk must be practiced by external auditors. This will improve their ability to assess management fraud risk.

6.3.5 Audit Experience

The association between the external auditor's years of experience and fraud assessment in financial reporting is examined in the current study. The findings of this study indicate that the regression test results (as illustrated in Table 5.59) of the audit experience is not statistically significant and is negative (with P -value = .566 and an estimated value of $\beta = -.034$) to management fraud risk assessment in Yemen. This result does not support the suggestion of attribution theory in the Yemeni setting. Smith *et al.* (2005), Dahdouh (2007), Alleyne *et al.* (2010) and Brazel *et al.* (2010) have reported similar results to the present one by showing that there is a negative and insignificant relationship between the external auditor's years of experience and fraud detection in financial reporting. This implies that hypothesis H₅, that management fraud risk assessment has a positive association with audit experience, is rejected.

This result can be interpreted as there are routine audit procedures that auditors apply when auditing their clients in Yemen. Therefore, using the same procedures every year not improve the quality of audit services (Washalley, 2010; Zimbelman, 2012). As a result, audit procedures should be reviewed and updated based on the recent

auditing tests and standards related to fraud assessment. Therefore, the government of Yemen should also issue new regulations related to this factor. Before approving any audit license for auditors, the government should make sure that the external auditors have reviewed audit standards and have updated experience to practice audit work. Further, a training environment conducive to fraud detection experience, as tested in the next hypothesis, is relevant in the Yemeni auditing setting.

6.3.6 Fraud Detection Experience

Previous studies by Beasley *et al.* (2001), Wilks and Zimbelman (2004), and Washally (2010) have found that specific fraud experience has significant association with fraud detection. In the same vein, Moyes and Hasan (1996) reveal that prior success of auditing firms is significant in detecting fraud in each audit cycle and combined cycle estimates. In this study, fraud detection experience is proxy by the number of cases of fraud detected.

The findings from the regression test of the current study (as displayed in Table 5.59) confirm that fraud detection experience is significantly associated with management fraud risk assessment in a positive manner (with P -value = .004 and an estimated value of $\beta = .156$). This result supports the attribution theory suggestion in the Yemeni environment. This result is parallel to those obtained by Beasley *et al.* (2001), Wilks and Zimbelman (2004), and Washally (2010). The study's hypothesis H_6 is thus accepted.

This implies that fraud detection experience in Yemen is found be an attribute that enables external auditors to assess management fraud risk. In this regard, the Yemeni

regulators should consider fraud detection experience of Yemeni external auditors in assessing management fraud risk. This is because management fraud involves careful and deliberate attempts to conceal fact sat the highest level of management. Although external auditors are not trained to assess management fraud risk, they are expected to inquire. Since external auditors are responsible for planning and performing audit assignments and obtaining reasonable assurances, knowledge of risk factors relating to fraudulent financial reporting and asset misappropriation gained from previous assignments can be considered when designing a new audit engagement. Consequently, in addition to the audit guidelines issue by accounting regulatory bodies in Yemen, external auditors need skepticism and knowledge gained from previous engagements to assess management fraud risk.

6.3.7 Job Position

In their studies, Owusu-Ansah *et al.* (2002) and Moyes *et al.* (2009) have posited that auditor position can be significantly related to the level of fraud-detecting effectiveness. In the current study, it is hypothesized that the assessment of management fraud risk is influenced by job position of the external auditor. In this study, job position is proxy by partner or the owner of office/general manager, manager or supervisor audit/department director, or senior auditor/team leader. The results in Table 5.59 confirm that job position of the external auditor is negatively significant in influencing management fraud risk assessment (with P -value = .045 and an estimated value of $\beta = -.122$). This result does not support the attribution theory proposition in the Yemeni context. Therefore, hypothesis H_7 is not supported.

One justification for this result could be attributed to the specific orders received by senior external auditors in assessing the possibility of management fraud. They are responsible to their managers in conducting this procedure successfully, more so than if managers themselves carry out this procedure. Further, managers are usually decision makers and they might pay less attention to technical procedures (Knapp & Knapp, 2010).

In addition, according to the International Transparency Organization report of 2009, one issue of management fraud is that top administrative positions are given based on nepotism, cronyism, and bribes (Washally, 2010). This implies that Yemeni policy makers should enact reforms and take corrective steps to reduce management fraud. Further, the Yemeni government should establish a governmental body that ensures external auditors follow audit quality control practices that, in turn, might affect the structure of the Yemeni audit market (Adimi, 2007; Al-Ahdal, 2008; Jubran, 2010).

6.3.8 Auditor Type

In this study, auditor type is proxy by the Big 4, international, local, and COCA. This study investigates the association of auditor type with the assessment of management fraud risk. The regression analysis results (as in Table 5.59) show that the relation of auditor type to the assessment of management fraud risk is negatively insignificant (with p -value = .161 and an estimated value of $\beta = -.085$). This result does not support the suggestion of attribution theory in the Yemeni context. Results of some past studies have been similar to those obtained in the current study. For example, Law (2011) found that auditor size is not related to fraudulent financial reporting detection, while Frankel *et al.* (2001) reported that auditor type is insignificant when

taking into consideration the relative size of non-audit services fees. Mubarak (2007) indicates that the big audit firms have the ability to detect fraudulent financial reporting, but its reporting depends on the personal interests of the external auditor, and the evidence for this argument was that of the incidence in Arthur Andersen. Therefore, hypothesis H₈ is not supported.

The audit market and environment in which auditing firms operate are competitive, and Yemen is no exception. Local firms strive for excellence in their service provision to compete with their Big 4 counterparts, since the Big 4 depend on local partners. Another possible interpretation for this result could be attributed to the sample size distribution in a manner that the 78 percent of the respondents are local firms and COCA, while Big 4 and international firms represent 22 percent (as illustrated in Table 5.3). Previous studies confirm that large audit firms have more financial and human resources at their disposal than small audit firms. Therefore, management has little incentive to pressure them. However, in the case of small audit firms, because they depend on clients economically, they tend to let some issues go. This implies that the Yemeni government should review and scrutinize the audit quality control practices of all audit firms, including the Big 4.

6.3.9 Information Technology Skill

Scholars who have examined IT skill in relation to management of fraud risk conclude that there is a relationship between the two variables. It is believed that IT skill can be very useful tools for external auditors in carrying out their duties in investigating fraud (Zhou & Kapoor, 2011). In this study, IT skill is proxy by the office support system, decision support system, database system, local area network,

and accounting system. In this research, it was hypothesized that management fraud risk assessment is associated with IT skill. From the regression test (as in Table 5.59) it can be seen that IT skill have a significant and positive association (P -value = .042, β = .108) with management fraud risk assessment. This result supports the attribution theory suggestion in the Yemeni context. This is in tandem with previous studies such as Messier *et al.* (2004), Lynch and Gomaa (2003), and Egap (2009). Therefore, hypothesis H₉ is accepted.

The result implies that audit firms and COCA that invest in IT skill such as accounting systems, database systems, and decision support systems will be more capable in assessing management fraud risk. Further, the Yemeni government should accept the fact that the advent of technology has gradually changed the way auditors assess client-related risk. Traditional methods of risk assessment are no longer sufficient to deal with clients with highly computerized financial reporting systems. Consequently, IT-related skill is indispensable in management fraud risk assessment. Hence, there is a serious need to give an attention to IT skill as an element of management fraud risk assessment in Yemen.

6.3.10 Questioning Discussion Ability

Questioning discussion sessions are now a requirement on each audit, per a statement on auditing standards (ISA 240, Para. 30). During the discussion session, emphasis is placed on likely aspects of the financial reporting system susceptible to fraud, and the likely causes. It has been indicated that questioning discussion ability represents one of the most important attributes of the external auditor. The empirical finding (as illustrated in Table 5.59) confirms that questioning discussion ability is significant

(P -value = .001) and positively (β = .396) associated with management fraud risk assessment. Also, the results of correlation test show that the two variables have a significant (P -value = .001) linear relationship (see Table 5.53). This result supports the attribution theory proposition in the Yemeni context. Hence, hypothesis H_{10} is accepted.

Results from this study suggest that Yemeni COCA and audit firms should strengthen the attribution of questioning discussion ability of external auditors or team members in the assessment of management fraud risk. External auditors or audit team members should brainstorm and exchange ideas about management-related fraud risk. A pre-requisite of an audit assignment is an in-depth understanding of the client's internal control and reporting procedures. This understanding is obtained by discussion with client staff. Through discussion and questioning, the auditor will satisfy him or herself that the underlying books and records can be relied on as the basis of preparing financial statements. The output of the audit discussion and questioning session is relevant to the expression of an audit opinion, so a great deal of attention should be paid to it when assessing management fraud risk.

6.3.11 Responsibility Perception

Gloeck (1993) states that a non-clear role of the external auditor on the assessment of fraud risk and detection of frauds one of the main reasons for the gap. Lee *et al.* (2008) show unquestionably the existence, with respect to fraud detection, of a gap between the perception of the respondents and the present statutory requirements of external auditors. In this study, it is found that responsibility perception has an insignificant negative association (with P -value = .613 and an estimated value of β =

-.031) with management fraud risk assessment (as illustrated in Table 5.59). This result does not support the suggestion of accountability theory in the Yemeni context. Therefore, hypothesis H_{11} is not supported. This result shows the existence of confusion and lack of understanding of various aspects of the responsibility of the external auditor in assessing management fraud in Yemen, because there is a lack of explicit text in the law of the audit profession in Yemeni No. 26, 1999, which makes external auditors responsible for assessment that leads to fraud assessment (Al-Talai, 2004; Al-Ahdal, 2008).

The result reveals that there is a gap between the respondents' expectations and the present statutory requirements for external auditors. This may, in turn, suggest that the auditing law in Yemen is very deficient. In addition, the results show that respondents' perception of the official objective of an audit lacks a sense of responsibility. This is in opposition to what has been stipulated in ISA 240, which merely requires external auditors to form an opinion on the financial statement, but not of fraud assessment efforts of organizations. In addition, Yemeni external auditors perform audits based on audit plans and the required procedures to implement those plans. Therefore, they are satisfied with their audit performance, ignoring the importance of the additional audit procedures of management fraud risk assessment, such as considering the external factors influencing the business environment (i.e., economic and financial issues) and top management behavior based on fraud triangle elements (i.e., motivation, opportunity, and rationalizations) (Washally, 2010). This implies that the Yemeni government should consider issuing clear, specified regulations explaining the external auditor's responsibility in order to improve the perceptions of the external auditors in assessing management fraud risk.

In summary, the above discussion shows that hypotheses H₂, H₄, H₆, H₉, and H₁₀, which test management fraud risk assessment in Yemen in relation to effectiveness-related attributes, are found to be supported. It means that as long as the users of financial statements are willing to activate the role of the external auditor in relation to the improvement of the assessment of the management fraud risk, they should support the external auditor with regard to effectiveness-related attributes. Therefore, there is an urgent need for those attributes to be considered with management fraud risk assessment in Yemen. On the other hand, hypotheses H₁, H₃, H₅, H₇, H₈, and H₁₁ are found to be not supported. The next section discusses the results relating to hypothesis H₁₂ that examines the association of the effectiveness score on management fraud risk assessment in Yemen.

6.4 External Auditor's Effectiveness Score

According to Ward *et al.* (2009), it is better to look at external auditor attributes as a bundle of characteristics enhancing his or her ability in managing fraud risk assessment, because the effectiveness of a single attribute depends on the other attributes. Agrawal and Knoeber (1996) indicated that it is better to consider the combination of several factors than investigating them individually, which may mislead the results.

From the regression test (as illustrated in Table 5.64), it can be seen that effectiveness score has a highly significant and positive influence (with *P*-value = .001 and an estimated value of $\beta = .090$) on management fraud risk assessment. In addition, this result is supported by the correlation test (as displayed in Table 5.52) result that indicates a significant (*P*-value = .001) linear relationship between

external auditor's effectiveness Score and management fraud risk assessment. Therefore, hypothesis H₁₂ that external auditor effectiveness score has a positive association with management fraud risk assessment, is found to be supported. Thus, there is a need to give attention to the external auditor effectiveness score in management fraud risk assessment in Yemen. This is because a combination of several factors is better than investigating them individually, due to the fact that these factors work in either a complementary or substitutable fashion.

6.5 External Auditor Independence-Related Factors

External auditor independence can be related to the disclosure of a firm's internal control problems. When there is a strong economic bond between an auditor and a client firm, the auditor has an incentive to ignore potential problems and issue a clean opinion on the client firm's internal controls (Zhang *et al.*, 2007). As mentioned in chapter two, this independence factor consists of four variables: (1) audit fees; (2) hiring and changing of the auditor; (3) social relations; and (4) economic relations. The next four subsections discuss the results for hypotheses H₁₃, H₁₄, H₁₅, and H₁₆ in detail.

6.5.1 Audit Fees

Choi *et al.* (2010) uncovered that the quality of audit, which represents the size of absolute discretionary accruals, is related to abnormal audit fees (i.e., actual audit fee is less expected, normal level of audit fees). The findings of the current study from the regression test (as depicted in Table 5.59) show that audit fee is insignificantly (with the *P*-value = .605) associated with the assessment of management fraud risk, with a positive sign ($\beta = .041$). This result does not support the proposition of agency

theory in the Yemeni context. This finding is line with the results of studies like Al-Amoudi (2001), Jaro (2005), and Dahdouh (2007). Al-Amoudi (2001) observed that there is a gap between audit fees and the external auditor's responsibilities due to lack of regulation on audit fees charges.

Further, Jaro (2005) posits that audit fees negatively affect audit quality due to the independence issue. He documents further that management fraud risk assessment is not significantly related to audit fees. Similarly, Dahdouh (2007) found that the relationship between the external auditor change and the responsibility of the auditor for the discovery of fraud in financial reporting is not significant. Therefore, consistent with the above discussed results of the prior studies, hypothesis H_{13} is not accepted. This implies that audit fees do not affect management fraud risk assessment. In Yemen, the audit fees charged are not appropriate to the external auditor's efforts (Adami, 2007; Al-Ahdal, 2008). Therefore, the Yemeni government should issue new regulations to ensure suitable audit fees, since audit fees affect the independence score of the external auditor, which is a significant factor in management fraud risk assessment.

6.5.3 Hiring and Changing of the Auditor

Many factors have been found to adversely affect the independence of external auditors. For example, behavioral factors, such as the conflict arising between the external auditor and management with respect to interests and goals, and the methods and procedures for hiring and changing of the auditor, have been found to affect the independence of external auditors (Jubran, 2010; Siam, 2003).

In this study, it was hypothesized that management fraud risk assessment is negatively related to hiring and changing of the auditor. The regression test results (as illustrated in Table 5.59) exhibit that hiring and changing of the auditor are not statistically significant (with P -value = .263 and an estimated value of $\beta = .092$) in relation to management fraud risk assessment in Yemen. This result does not support the suggestion of agency theory in the Yemeni context. Results from this study support the finding of Dahdouh (2007) that the relationship between auditor change and the responsibility of the auditor for the discovery of fraud in financial reporting is not significant. Therefore, hypothesis H_{14} is not accepted. The result thus implies that hiring and changing of the auditor is not important in Yemen, because it does not reflect the external auditor's ability and skills in practicing his or her independence in management fraud risk assessment (Al-Amoudi, 2004; Al-Ahdal, 2008).

6.5.2 Social Relations

Bashtawi and Sufian (2003) investigated the influences of social and economic factors on external auditors' performance and independence. It was found that the external auditor's commitment to rules and regulations decreases the adverse consequences of those factors. The findings of this study (as illustrated in Table 5.59) found that social relations have significant positive association (P -value = .022 and an estimated value of $\beta = .173$) with management fraud risk assessment. In addition, this result is supported by the correlation test (as displayed in Table 5.53) result that indicates a significant (P -value = .001) linear relationship between social relations and management fraud risk assessment. This result does not support agency theory conjuncture in the Yemeni context. However, Basodan *et al.* (2004) found a positive relationship between personal relations and external auditor change. Furthermore,

Al-Awaqleh (2008) found that social relations have a significantly positive association with organizations going concerns.

Social relations show a strong predictor for external auditor assessment of management fraud risk. The study found empirical evidence supports hypothesis H₁₅. The findings confirm that the higher the social relations between the external auditor and management, the better they work to improve the assessment of management fraud risk, with other factors being constant, and vice versa. Furthermore, Simunic (1980) said that the duration of the relationship between the external auditor and company management leads to supporting external auditor independence.

The practical implication is that rendering additional non-audit services by Yemeni audit firms strengthens their social relationship with clients, and this improves their ability to report management fraud risk. According to the theory, knowledge acquired from non-audit service enhances the management fraud risk assessment ability of the external auditor, because the external auditor is familiar with internal control processes as well as the client's employees (Al-Awaqleh, 2008). In addition, close social relation between external auditor and manager of organization will be helpful to find indicators of personal pressure that may be push manager to the fraud. In the same text, social relation not effect of external auditor work if he follows audit professional responsibilities. With this argument, the current study concludes that there is a positive relationship between social relations and the external auditor's assessment of management fraud risk.

6.5.4 Economic Relations

Extant studies in accounting, starting with the pioneering work of Simunic (1980), have examined the impact of non-audit services on external auditors' reporting. However, the allegation that Andersen got a huge amount of non-audit services, which damaged its venture goal of carrying out what auditors have enjoyed for some years, reignited researcher interest in the area.

In this study, it is hypothesized that economic relations of the auditor is negatively associated with management fraud risk assessment. The regression test results (as illustrated in Table 5.59) exhibit that economic relations of the auditor are not statistically significant (with P -value = .975 and an estimated value of $\beta = .002$) with management fraud risk assessment in Yemen. This result does not support the proposition of agency theory in the Yemeni context. The results from this study are in tandem with Asbaugh *et al.* (2003) and Reynolds *et al.* (2004), where they find no relationship between non-audit fees and auditor independence. They argue that an auditor's concern with maintaining its reputation for providing high-quality audits can restrain it from undertaking activities that jeopardize independence, since the revenue from each client will be a small percentage of the auditor's total revenue. Other studies suggest that the provision of non-audit services compromises auditor independence. There is an indication that management fraud risk assessment is not significantly related to the economic relations of the external auditors. Based on the results of the regression test, which are not significant, hypothesis H_{16} is not accepted. This implies that Yemeni external auditors avoid audit assignments that are likely to jeopardize their independence of assessing management fraud risk.

6.6 External Auditor's Independence Score

Agrawal and Knoeber (1996) indicate that it is better to consider the combination of several factors than investigating them individually, which may mislead the results. From the regression test (as illustrated in Table 5.64), it can be seen that independence score has a highly significant and positive influence (with P -value = .001 and an estimated value of $\beta = .11$) on management fraud risk assessment.

In addition, this result is supported by the correlation test (as displayed in Table 5.52) result that indicates a significant (P -value = .001) linear relationship between external auditor's independence Score and management fraud risk assessment. This implies that hypothesis H_{17} is accepted. For this reason, it is important to pay attention to the independence score as an important element in management fraud risk assessment in Yemen. This is also because a combination of several factors is better than investigating them individually, as these factors depend on each other, and they work in either a complementary or substitutable fashion.

In short, the above argument shows that hypotheses H_{12} , H_{15} , and H_{17} , which test management fraud risk assessment in Yemen in relation to external auditor effectiveness score, social relations, and external auditor independence score, are found to be significant. It means that the users of financial reports are enthusiastic to activate the role of the external auditor in relation to the enhancement of management fraud risk assessment, and they should support the external auditor in connection with effectiveness score, social relations, and independence score. Therefore, there is an urgent need for those attributes to be considered with

management fraud risk assessment in Yemen. On the other hand, hypotheses H₁₃, H₁₄, and H₁₆ are found to be not supported.

Hence, the Yemen government should seriously increase its effort towards the improvement of this issue, since it is found that not properly assessing management fraud risk will implicitly impair Yemen's economic and social performance. The new techniques and regulations will hopefully help to protect the interests of financial reporting users. Findings of this study also contribute to the area of economic and social responsiveness in general, and to the field of the external auditor assessment of management fraud in particular. The next section discusses the results relating to the comparison of mean scores among external auditor types in Yemen.

6.7 Comparison among Auditor Types on Fraud Risk Indicators

Management fraud risk assessment. The results in Table 5.66 indicate that the perception forward MFRA of those working in the Central Organization of Controlling and Accounting is more significant than those working in Big 4 firms, but is not more significant than those working in local audit firms. In addition, the perception of those working in the Central Organization of Controlling and Accounting is lowly insignificant compared to those working in international audit firms. Over all, the indicators meant to measure MFRA are seen to be more important by those working in international audit firms when compared to those working in the Central Organization of Controlling and Accounting, Big 4 and local audit firms. Interestingly, those working in Big 4 audit firms are not the highest while looking at the importance of these recognized indicators to assess fraud risk globally.

6.8 Relative Importance of Fraud Risk Indicators in Yemen

With reference to Table 5.67, it can be seen that weak accounting information systems and management override of internal control and domination of management by a single person or small group in a non-owner-managed business without compensating controls are important fraud risk indicators when assessing management fraud risk. These indicators are followed in terms of importance by restrictions to accessing proper information. Other indicators are ranked based on their importance to the respondents, as illustrated in Table 5.67. On the other hand, a strong financial presence and high vulnerability to rapid changes in technology are other indicators when external auditors assess management fraud risk, as indicated by the respondents. Lastly, significant operation location is considered as the least important indicator in assessing management fraud risk.

6.9 COCA and Non-COCA

From the regression test (as illustrated in Table 5.68), it can be seen that questioning discussion ability (QDA) is highly significant and has positive influence on both Central Organization for Control and Accounting (COCA) ($\beta = .396$, $P = .000$) and audit firms (Non-COCA) ($\beta = .328$, $P = .002$). These attributes in both groups are highly important and which implies that financial information in public or private economic organizations in Yemen is unreliable, since multitude questions often lead to reduction in the confidence, and the discussion ability often leads to right assessment of management fraud risk in order to reduce them in Yemen. So, the Yemeni government, COCA, and Yemeni Association of Certified Public Accounting (YACPA) should be organized technically through neurological software

training (hearing, watching, reading, and thinking) in order to improve the investigation and audit skills of the auditors.

On the other hand, regression test (see Table 5.68) shows that COCA and Non-COCA auditors possess different attributes, such as professional qualification, audit experience, fraud detection experience, and social relations. However, the COCA auditors have higher professional qualification ($\beta = .142$, $P = .10$) than Non-COCA auditors ($\beta = .086$, $P = .38$). The COCA law number 39 of 1992 in article 4 makes it mandatory for COCA auditors to be certified as part of prerequisites for auditing public organizations. However, this requirement is not mandatory for private audit firms. The Yemeni government must exercise control on audit firms by making sure that each auditor gets license to operate.

Furthermore, the auditors working in COCA have more audit experience than auditors working in private audit firms, as depict in the regression test shown in the Table 5.68 for the COCA ($\beta = -.010$, $P = .145$) and for Non-COCA ($\beta = .007$, $P = .489$). The establishment of COCA under Law No. 45 of 1974 issued in Sana'a as well as Law No. 11 for the year 1972 issued in Aden require audit firms at the end of the eighties and YACPA as declared in 1993, to periodically update the experience of their public auditors in order to have higher audit experience. The same is also applicable to the private audit firms who are given opportunity to accept auditor with less experience in order to reduce cost. The COCA must therefore follow innovative procedures of auditing yearly in order to have a positive impact as audit firms must also employ highly experienced auditor.

Moreover, regression test shows the results of fraud detection experience (as illustrated in Table 5.68), for Non-COCA ($\beta = .199$, $P = .015$) and COCA ($\beta = .101$, $P = .479$). From the finding it is illustrated that Non-COCA has higher fraud detection experience than COCA. The competition among audit firms and the connection of international/Big 4 audit firms with parent firms made them to be more experienced. So, the auditors working in COCA must improve their fraud detection experience due to the sensitivity of this factor in assessing management fraud risk.

Finally, through regression test as depict in Table 5.68 reveals that in terms of social relations, the Non-COCA auditors ($\beta = .128$, $P = .064$) are better than COCA auditors ($\beta = .096$, $P = .1$). Auditors working in the audit firms are keen on the configuration of social relationships with clients in order to continue to work with them and to gain the new clients, while the auditors working in COCA are less concerned about their social relationships when dealing with the public economic organization.

6.10 AP/AM and Non-AP/AM

Regression test in Table 5.69 shows the Similarities and differences among partner/manager auditors (AP/AM) and non-partner/manager auditors (Non-AP/AM.). The similarity for the two groups at questioning discussion ability factor and the differences factors at study major, professional qualification, fraud detection experiences, information technology skill, hiring and changing of the auditor and social relations.

The results in Table 5.69 shows that questioning discussion ability factor is highly significant for AP/AM ($\beta = .349$, $P = .000$) and Non-AP/AM ($\beta = .361$, $P = .000$). Both groups have ability on questioning discussion in the management of fraud risk assessment.

Otherwise, the Non-AP/AM auditors are major in accountings than AP/AM auditors. Regression test as shown in Table 5.69, Non-AP/AM ($\beta = .343$, $P = .012$) and AP/AM ($\beta = -.104$, $P = .288$). Recently, emphasis has been placed on accounting major in auditing work because of its importance and necessity to increase auditors' ability in assessing management fraud risk. In respect of this, Yemeni audit law No. 26 for 1996 obligated the auditor who wants to get a license to be accounting major while the old audit law No. 31 for 1992 allows auditors who major in other areas such as finance and management to be licensed as the AP/AM.

In addition, regression test (as illustrated in Table 5.69) shows that AP/AM have higher professional qualification ($\beta = .149$, $P = .025$) than Non-AP/AM ($\beta = .028$, $P = .848$). The work paired and requirements of partnership and administration in auditing have made partner/manager auditor to possess several professional qualifications. The auditors should be associated with continuing professional education with the purpose of getting Certified Fraud Examiner (CFE) as this will improve their ability in assessing management fraud risk. Presently, there are just 8 certified auditors representing a very small 3.1% of the auditors in Yemen (as illustrated in Table 5.7).

Partners and managers auditors have higher training on fraud detection than the others because they are at the center of decision-making and have largest responsibilities especially in the assessment of management fraud risk. The results of regression test supported the previous agreement (as illustrated in Table 5.69) for AP/AM ($\beta = .001, P = .016$) and Non-PA/AM ($\beta = .092, P = .737$).

Moreover, the regression test results (as illustrated in Table 5.69) exhibit that fraud detection experience of the Non-partner/manager auditor is not statistically significant ($\beta = .092, P = .360$) different than partner/manager auditor are significant ($\beta = .299, P = .001$). High job position requires expertise in fraud detection to give right opinion that financial reporting requires.

The findings from the regression test of the current study (as displayed in Table 5.69) confirm that information technology skill of the Non-partner/manager auditor is significantly associated in a positive manner ($\beta = .248, P = .040$) while partner/manager auditor is not significantly associated in a positive manner ($\beta = .084, P = .422$). The non-managers and partners auditors are more skilled at the usage of technology because they are young, have technical education and are technology inclined while partner/manager auditors who are old have less skill in technology.

Furthermore, the auditors' non-partners and managers frequently change from time to time when compared with the auditors' partners and managers because partners and managers have high positions, qualifications, experience, responsibilities, and partnerships. The findings of the current study from the regression test (as depicted in Table 5.69) show that hiring and changing Non-PA/AM auditor is a positive

significant ($\beta = .157, P = .1$) while PA/AM auditor is a positive insignificantly ($\beta = .084, P = .356$).

Finally, regression test (as illustrated in Table 5.69) shows that AP/AM have more social relations ($\beta = .157, P = .010$) than Non-AP/AM ($\beta = .045, P = .572$). AP/AM auditors have extensive social relations through their high job position as a result of; they have to build strong and longtime relationship with clients, while non-AP/AM auditors are not interested.

6.11 COCA, Big 4, International and Local Auditors Comparing

Regression analysis results (as depicted in Table 5.70) show that the auditors working in international audit firms have highest ability in assessing management fraud risk, ($\beta = .227, P = .046$) than the auditors working in COCA with low significant ($\beta = .123, P = .073$). While the local audit firm does not have ability in management fraud risks assessment. Therefore, COCA must put efforts in place to improve auditors` ability through training on fraud detection, fraud detection experience and information technology skill. The government must also intensify control on local audit firms where there is no control on the audit firms in Yemen and found that it is through the main centers for international audit firms.

6.12 Summary

This chapter discusses the findings that have been outlined in chapter five. At first, the research hypotheses test results show that nine out of 17 alternative hypotheses are significant, and seven out of 17 alternative hypotheses are accepted and

discussed. The chapter further deals with the discussion of the findings from regression and correlation test results. The discussion of results is followed by analyzing the comparison of the mean scores among auditor types and relative importance of fraud risk indicators in Yemen. The results of this study provide insight into the factors that have significant impacts on management fraud risk assessment in Yemen. The summary, implications, contributions, limitations, recommendations for future research and conclusion are explained in the last chapter.

CHAPTER SEVEN

CONCLUSIONS AND RECOMMENDATIONS

7.1 Introduction

This chapter concludes the main findings from the results presented in the previous chapter and suggests some recommendations for the appropriate regulatory bodies, relevant agencies, and interested parties to consider. It consists of six sections. Section 7.2 presents summaries of the findings. The implications of the study are highlighted in Section 7.3. Section 7.4 is concerned with the contributions of the study. Next, Sections 7.5 and 7.6 report the limitations of the study and suggest future research. Section 7.7 concludes the entire study of the thesis.

7.2 Summary of the Study

This study attempted to provide evidence on how effectiveness-related attributes (academic qualification, professional qualification, study major, training on fraud detection, audit experience, fraud detection experience, job position, auditor type, IT skill, questioning discussion ability, and responsibility perception) and independence-related factors (audit fees, hiring and changing of the auditor, social relations, and economic relations) are associated with management fraud risk assessment (MFRA) by the external auditors working in the Yemeni Central Organization of Controlling and Accounting, and audit firms. In the past 34 years, Yemen has been faced with hardships, and the period from 1990 until this date, marked the hardest time. In 1990, a new Republic resulted from merging the southern and northern parts of Yemen. The new republic is known as the “Republic of Yemen.” Many political, economic, and social problems were inherited by the

Republic of Yemen from the former regimes. These problems range from corruption and absence of good governance. Corruption has become the order of the day and most state institutions do not function well. There was an increase in the unemployment level and the number of poor was becoming higher, while influential forces, officials, and tribal figures enriched themselves through the abuse of power (Moghram, 2006). Corruption has been widespread in all aspects of Yemenis' lives, and constituted a big challenge. As a result, there was lack of stability and disappearance of law and control in the society. Particularly pronounced was the dramatic level of corruption associated with management fraud, which was considered to be a big loss. Therefore, the Yemeni Central Organization of Controlling and Accounting and audit firms faced big tasks before the implementation of a modern MFRA (Yemeni Anti-Corruption Organization, Transparency International Organization, and the International Federation of Arab Accountants) recommended by both local and international bodies. In the middle of 2005, 55 cases which led to financial losses of more than \$3 billion Yemeni riyals (\$15 million U.S.) have been listed by COCA. The actual number of cases of management fraud is viewed to be significantly more than that. The indication is that management fraud in Yemen has been increasing, and this increase could have a long-term adverse effect on businesses and government organizations, to the extent of affecting economic and social stability. Therefore, lawsuits brought against the external auditors over management fraud weaken their credibility and tarnish the external auditors' reputations. It should be noted that the ability of external auditors to assessment the risk of management fraud differs on the basis of their features. Therefore, if the attributes of the external auditor change, there is likelihood for change in the degree to which management fraud is assessed.

Based on the above problems, the current study develops five research questions: (1) To what extent is the association between the external auditor's effectiveness-related attributes and MFRA? (2) To what extent is the association between the external auditor's effectiveness and independence scores and MFRA? (3) To what extent is the association between the external auditor's independence-related factors and MFRA? (4) Is there any significant difference in the mean scores among different classes of auditor type (i.e., COCA, Big 4, international, and local) in terms of MFRA, effectiveness-related attributes and independence-related factors? (5) What is the relative importance of fraud risk indicators in Yemen? In order to address these questions, the researcher developed a theoretical framework and research hypotheses. A questionnaire was designed for data collection from the respondents, and the data was analyzed using SPSS V.21 software.

In order to determine the relationships between MFRA (dependent variable) and the independent variables, multiple regression analysis was employed. In order to determine whether there was a significant difference between external auditor types/positions, one-way ANOVA was employed, additional regression tests and the average of fraud risk indicators which determine their relative importance. The results of this study are quite interesting, as a number of variables which have relationships with MFRA are recorded. For example, the variables which have significant associations with MFRA include professional qualification, training on fraud detection, fraud detection experience, job position, IT skill, questioning discussion ability, external auditor effectiveness score, social relations, and external auditor independence score. Conversely, some variables were not significantly related to MFRA: academic qualification, study major, audit experience, auditor

type, responsibility perception, audit fees, hiring and changing of the auditor, and economic relations.

7.3 Implications of the Study

The method employed in this study has some implications in that management fraud risk assessment was conceptualized and measured based on 34 indicators. Three dimensions were used instead of a single indicator: opportunities, incentives/pressures, and attitudes/rationalizations. These indicators have not been investigated together in the past studies.

There is no gain in saying that the current study has provided enough useful information regarding MFRA, COCA, and audit firms' levels in Yemen, for such information has proven to be not easily accessible. More so, this study has made a significant contribution to the MFRA literature by employing a questionnaire and by examining external auditors in both COCA and audit firms from the viewpoint of MFRA in the emerging economy of Yemen.

This study provides support for the theoretical proposition by providing evidence of the effect of responsibility perceptions in explaining MFRA. Findings show that there is a gap between the respondents' expectations and the current statutory requirements expected of external auditors. The results further indicate that respondents' perception, with respect to the official objective of external auditors, was that there was lack of sense of responsibility on the path of auditor, contrary to what is stated in ISA 240. This simply required external auditors to form opinions on the financial statement, and not on prevention and detection of fraud. External

auditors in Yemen conduct audits based on audit plans and procedures. For this reason, they are content with the performance of their audits and ignore additional related audit procedures for the assessment of management fraud risk, such as paying attention to the external factors affecting the business environment (i.e., economic and financial issues), and the behavior of top management on the basis of fraud triangle elements (i.e., motivation/pressure, opportunity, and rationalizations).

Several authors have highlighted or provided explanation regarding factors associated with management fraud risk assessment; however, none of them has systematically studied the determining factors which have contributed to the assessment of management fraud risk by focusing on the effectiveness-related attributes and independence-related factors, coupled with ISA No. 240, as done in this study. Therefore, this study contributes to the empirical knowledge and literature in the area of external auditor responsibility, increase in management fraud risk assessment, and disclosure.

The external auditors' responsiveness-related variables were also established by this study. Based on the available studies reviewed, past studies have remained silent about it. Therefore, the results of this study have contributed to improving understanding of the dynamics of external auditors' responsiveness associated with the assessment of management fraud risk.

Explicitly, the current study examines the association of external auditors' attributes with management fraud risk assessment. In addition, some new variables were included for external auditors' attributes. These variables consist of questioning

discussion ability, hiring and changing of the auditor, social relations, and economic relations. By including these new variables, more contributions are made to the extant literature and more evidence is provided on the results of COCA and audit firms in the context of the Yemeni setting. More so, in this study, consideration was given to the inclusion of external auditors' effectiveness score and external auditors' independence score in relation to management fraud risk assessment in Yemen, which prior research has failed to do. Focusing on the effectiveness score and independence score are considered desirable, as these variables are essential elements of management fraud risk assessment in Yemen. In addition, it is better to investigate a combination of many factors rather than examining them individually, as these factors may depend on one other and work in either a complementary or substitutable manner.

Comparison is made of Yemeni external auditor types. The findings show the indicators for measuring MFRA is deemed to be more significant by workers of international audit firms than by workers of the Central Organization of Controlling and Accounting, Big 4, and local audit firms. By considering the importance of these indicators in the global assessment of fraud risk, Big 4 audit firms' workers are not the highest. In this study, the relative importance of the fraud risk indicators in Yemen was taken into consideration. Results indicated that weak accounting information systems and management override of internal control and domination of management by a single person or small group in a non-owner-managed business without compensating controls are important indicators of fraud risk in the assessment of management fraud risk. These indicators are considered with respect to their importance by restrictions to accessing information properly. As pointed out

by the respondents, a strong financial presence and high vulnerability to rapid changes in technology serve as other indicators when management fraud risks are assessed by an auditor. Finally, location of significant operation is considered to be the least important indicator in management fraud risk assessment.

In the field of auditing, the development and integration of effectiveness-related attributes, independence-related factors, and external auditor decision regarding management fraud risk and its assessment is yet to be well-known to researchers and academics. Research development with respect to management fraud risk assessment is currently taking place and for this reason, there is ample opportunity to advance in this aspect. The work is interdisciplinary and cross-functional; therefore, the development and utilization of theories from different fields is important to improve the body of knowledge in this aspect. Nonetheless, different scopes and levels of research in this field still need the usage of ISA No. 240, and harmonized, standardized financial reporting in management fraud risk assessment. In this research the test of relationships is straightforward. The complexity involved in relationship testing deals with data accumulation, building of theory, and testing of model, as well as with issues relating to non-normality and development of theory. The types of constructs and relationships that are important are demonstrated from the complex relationships covered by this study, while the issues revolving around those multiple relationships that have not been solved are still insignificant in the proposed model.

The findings become interesting to external auditors who are to make decisions with regard to management fraud risk assessment. With respect to the attribute

“questioning discussion ability,” this study offers proof that the external auditor’s questioning discussion ability with client staff and audit team, professional qualification, fraud detection experience, IT skill, training on fraud detection, social relations improvement, external auditor’s effectiveness score, and external auditor’s independence score actually enhance management fraud risk assessment by the external auditor. The findings of this study will guide practitioners to better know what COCA and audit firms are practicing, based on ISA No. 240. The results obtained from this study show that these factors have influence on the assessment of management fraud risk by the external auditor. Therefore, the Yemeni government should have better control of the practices of external auditors concerning management fraud risk assessment and auditing reports.

Regulations for command and control serve as essential tools in Yemeni laws and ISA No. 240. In Yemen, the Law of Chartered Accountants Act No. 26 (1999), Companies Law No. 22 (1997), Banking Law No. 38 (1998), Central Organization Control and Accounting Law No. 39 (1992), Penal and Criminal Law No. 12 (1994), and Tax Law No. 31 (1991) were issued in order to ensure the achievement of audit quality. The Yemeni government has responded to external auditors to apply international accounting and auditing standards. The law requires Yemeni external auditors to check accounts and financial statements accordingly in order to protect the Yemeni economy.

To successfully implement Yemeni laws and ISA No. 240, there should be cooperation and coordination between the government of Yemen and external auditors regarding the assessment of management fraud risk. This is important if the

external auditors concentrate more on consultant services. For this reason, regulators, policy makers, and the Yemeni government ought to pay more attention and have a close relationship with external auditors in order to prevent the act of collaboration for management fraud in Yemen. Also, there should be commitment to implementing ISA No. 240, Yemeni laws, and regulations on management fraud risk assessment by the external auditor. This will ensure more control of management fraud risk assessment by external auditors.

The essence of Yemeni laws, ISA No. 240, and the attributes of external auditors is to enforce the compliance of the external auditor in management fraud risk assessment. To date, local standards are lacking with respect to management fraud in Yemen. The Yemeni government, the Central Organization of Controlling and Accounting, and the Yemeni Association of Certified Public Accountants (YACPA) are expected to have better control of the report of external auditors on management fraud risk assessment. An active role has not been given to the Yemeni Association of Certified Public Accountants (YACPA) by Yemeni law to inspect, control, and assess Yemeni external auditors' commitment to the International Standards on Auditing. Thus, there should be enforcement by the Yemeni government to ensure that the external auditors are more responsible in the issue of management fraud risk assessment in the future.

7.4 Contributions

Based study implications discussion, this study makes important contributions to the MFRA literature in many ways. In the following, the practical and theoretical

contributions of the study are discussed. Also discussed is the contribution of the study to academia.

7.4.1 Theoretical Contribution

The current study has made significant theoretical contributions. First, various theories are integrated by this study in order to strengthen the knowledge of management fraud risk assessment. In addition, an integrated conceptual framework from various studies is introduced. Second, the suitability of various variables is determined empirically and the framework is validated within the context of management fraud risk assessment. In addition, a survey method is employed with items that measure the variables in the study's framework. Third, new independent variables such as questioning discussion ability, hiring and changing of the auditor, social relations, and economic relations are integrated into the framework to improve their relationship with management fraud risk assessment. The inclusion is that if financial statements users are willing to make the role of the external auditor active with regard to management fraud risk assessment improvement, they ought to support the external auditor considering these attributes. More so, studies in the past have failed to include the testing of external auditors' effectiveness score and independence score. Therefore, the current study took into consideration the inclusion of these variables in the assessment of management fraud risk in Yemen.

Furthermore included is the comparison of Yemeni external auditor types. The inclusion of the comparison between the types of external auditors are to the external auditor's knowledge of strengths and the weaknesses, to modernize the legislation and oversight the external auditors via the Yemeni government, to the appropriate

choice of the external auditor through the holders of organizations, and to trust of information is contained in the financial statements via the investors. In the same context, the Yemeni external auditor is considered the relative importance of fraud risk indicators in assessing management fraud risk in Yemen.

Lastly, agency theory, accountability theory, attribution theory, and MFRA perspective are highlighted in this study in relation to firms' scandals and external auditors' failure to assess management fraud risk. The study further demonstrates that accountability theory had not been applied in the prior studies within the context of MFRA, and complemented agency theory and attribution theory. The theory was employed to provide explanation for the external auditor's responsibility perception and MFRA.

7.4.2 Methodological Contribution

The current study contributes methodologically through the development and validation of the survey instrument. Creation and validation of questionnaires for variables established by theory implies that the strength of the variables and the theoretical connection to change in measurement are tested. By developing research questionnaires in this study on the basis of management fraud risk assessment literature, this practice represents a major contribution to scientific practice in this area, according to the argument of Boudreau and Gefen (2004). From another perspective, the results obtained with the use of factor analysis provided a new assessment for the attributes, and this could be employed for assessing management fraud in other auditing fields. The foregoing argument justifies the consideration that

developing an instrument in the management fraud field is an important contribution to research methodology.

7.4.3 Contribution to Academia

In empirical studies conducted in the U.S., UK, and other markets with respect to external auditors' attributes with MFRA, the results have been mixed. Within the Yemen context, study of external auditors' attributes with MFRA is very rare, as most of the studies direct attention to auditors, attributes of auditor performance, and audit quality. Therefore, by departing from these prior studies, the current findings are more significant to enrich the level of external auditors' attributes in management fraud risk assessment, particularly in an emerging economy like Yemen.

In this study, Yemeni external auditors in audit firms and in the Central Organization for Controlling and Accounting are used as samples. With this, the results are capable of providing useful information to make comparative studies with other countries. Also, from the studies available for review to date, no study concerning MFRA in Yemen has been found using similar theoretical framework as the current one. With this development, the results of this study could be useful to explain the level of external auditors' attributes and MFRA in Yemen. It could also serve as a signal and guidance to external auditors, investigators, owners, and investors on how best to prepare for management fraud risk assessment.

In spite of the fact that the current research contributes practically, theoretically, and academically, it cannot be exonerated from some important limitations. The next

section discusses some of the limitations encountered in the course of conducting this research.

7.5 Limitations of the Study

As a result of the security situation in Yemen following its revolution in 11 February, 2011, this research was only able to focus on external auditors (as research respondents) who worked in audit firms and in the Central Organization for Controlling and Accounting. However, other important stakeholders such as owners, investors, managers of organizations, internal auditors, investigators in Yemeni Anti-Corruption Commission and tax auditors were not taken into consideration. Therefore, focusing on external auditors (COCA and audit firms) without extending it to these stakeholders (owners, investors, organizations managers, internal auditors, investigators in Yemeni Anti-Corruption Commission, and tax auditors) constitutes a limitation of the current study.

In this study, consideration was not given to variables like culture, governmental policy, and financial and control systems. This research was limited because of the difficulty of studying them in the complex political situation in Yemen. Methodology limitation is use of Likert-scale, the quality of the data produced might be questionable. There is a lack of studies regarding the variable of the study in the Yemeni context. This lack prevented the study from comparing the obtained results with other established studies in Yemen.

Another limitation of this research is that it tended to emphasize MFRA rather than auditing fields. However, the aforementioned limitations provide an opportunity to

improve the study of MFRA in the future, rather than to underrate the valuable contributions of the current study. As long as this study followed a rigorous process and realized its stated objectives, the importance of this study is not in doubt.

7.6 Suggestions for Future Research

The focus of this research is on management fraud risk assessment. It is suggested that other work in the future extend this study by examining the following:

- Since Yemen is considered a mosaic of various cultures, future studies should consider culture as an important variable.
- Change in government and influence of government policy, particularly after the 11 February, 2011 revolution, may play a significant role.
- Future studies should also examine the impact of financial and control systems on management fraud risk assessment.
- The relationship of management fraud risk assessment on external effectiveness and independence in terms of developing auditors' skills/ knowledge also needs to be considered in future work.
- Qualitative method such as case study and interviews can be employed.
- Consideration of investigative skills to assess fraud crime.
- Moderator and mediator variables can be used for future studies.
- Comparative study is desirable for future studies.
- Future research may compose the political risk items into different categories to assess management fraud risk.

This study suggests that some variables (such as audit experience, external auditor type, and responsibility perception) which were found to be insignificant in this study

could still be re-examined in future studies. In addition, the opinions of the owners, investors, managers of organizations, internal auditors, investigators in Yemeni Anti-Corruption Commission and tax auditors need be considered in future work since they are very important in the study of management fraud risk assessment. Another important aspect is to find out whether or not the same perspective is shared by the four groups in management fraud risk assessment. Comparative research could be undertaken to discover the differences and similarities among the four groups.

7.7 Conclusion of the Study

The results of this study suggest that external auditors ought to deal with the issue of management fraud risk in relation to the interests and expectations of financial statements users. While trying to deal with this challenge, the external auditor must make known his outcome of management fraud risk assessment and give early warning to the owner of the organization, in case of any threats of organizational bankruptcy. In order to deal with this challenge easily, the external auditor needs the support of the government, the Central Organization for Controlling and Accounting (COCA), and the Yemeni Association of Certified Public Accountants (YACPA). For this reason, the Yemeni government, COCA, and YACPA ought to make new regulations which will require an update of the professional qualification of external auditors and their training on fraud detection, in order to improve their experience in fraud assessment, IT skill, and questioning discussion ability. Such new regulations will also improve their social relations.

The results of this study also suggest that the audit career in Yemen needs more control, regulations, policies, and systems to provide a well-developed structure that

protects the decisions of external auditors with regard to management fraud issues. In addition, the views of external auditors are very important for sustainable improvement of management fraud risk assessment. In order to easily facilitate understanding of management fraud risk assessment by external auditors, this study also presents a description of selected attributes of effectiveness factors and independence-related factors. Attention is given to effectiveness score and independence score as important elements in management fraud risk assessment in Yemen.

The current study is significant in the sense that it helps shed light on the relative importance of the responses of external auditors to management fraud risk assessment and the way it can be beneficial to financial statements users. The external auditors' responsiveness in relation to management fraud risk assessment unfolded by this study could also serve as reference to academia and as a catalyst for further investigations. Following a thorough discussion of the study's objectives achieved and related prior literature, the general and individual implications of the outcomes of the study are deliberated to give further details about their importance from the academic and audit points of view.

Theoretically and practically, the study's findings have significant value in the sense that the research model developed for this study can be used as explanatory models for external auditors in management fraud risk assessment. In the audit field, this model contributes to the knowledge. From the external auditors' view, the results of this study can serve as a guide to develop a strategy for audit actions in the assessment of management fraud risk, as this has the potential of improving the level

of management fraud risk assessment by external auditors. Finally, the results and recommendations of this study will provide useful information to the competent and required authorities via the National Information Center (NIC) in Yemen which will receive a copy of this research.

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