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UNIVERSITY OF THE WITWATERSRAND

FACULTY OF COMMERCE, LAW AND MANAGEMENT

SCHOOL OF ACCOUNTANCY

RESEARCH REPORT

Audit fee premium: the effect of King-III

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DECLARATION

I, **Vincent Pendehama**, declare that this dissertation is my own work except as indicated in the references and acknowledgements. The dissertation is submitted in partial fulfilment of the requirements for the degree of Master of Commerce in Accountancy at the University of the Witwatersrand, Johannesburg. It has not been previously submitted for any degree or examination at this or any other university.

Vincent Pendehama

29 May 2014

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LIST OF ABBREVIATIONS

ANOVA	Analysis of Variance
APA	Auditing Profession Act No.26 of 2005
BIG4	The big 4 audit firms in South Africa namely Deloitte, KPMG, PricewaterHouseCoopers and Ernst & Young
IOD	Institute of Directors
IR	Integrated report
IRBA	Independent Regulatory Board of Auditors
IRC	Integrated Reporting Committee of South Africa
JSE	Johannesburg Stock Exchange
MRA	Multiple regression analysis
OLS	Ordinary least squares
SOX	Sarbanes-Oxley Act

ABSTRACT

In the wake of recent corporate scandals at world-renowned companies such as Enron and WorldCom, public confidence in the role of the auditing profession plummeted. At the time, the profession was no longer perceived to be acting in the best interests of the public thus prompting regulatory authorities and civic organisations to initiate certain intervention measures. In America, the Sarbanes-Oxley Act of 2002 (SOX) was enacted which introduced mandatory sweeping corporate governance initiatives. When SOX was introduced, it was criticised for triggering increased compliance costs as well as creating fee opportunities for the audit profession (Griffin & Lont, 2007).

In South Africa, corporate reforms came in the form of King-I to III codes of corporate governance. In particular, King-III introduced the concept of integrated reporting (IR) which recommends that companies report holistically on both financial and sustainability (economic, social and environmental) issues. In contrast to SOX, the application of King-III is voluntary on an "apply or explain" basis.

Using a quantitative approach with multiple regression analysis and Analysis of Variance (ANOVA as the statistical techniques, three sets of models were run to examine two hypotheses. The first hypothesis sought the evidence pointing to whether the BIG4 audit firms were charging an audit fee premium in response to the recommendation of King-III on IR, while the second

hypothesis examined if there was a relationship between audit fees and non-audit service fees. The empirical results of the study attested to the BIG4 firms charging an audit fee premium while also proving a statistically significant relationship between the two types of fees.

The findings of the research study have implications for both the auditing profession and for the regulators, and will also add a South African dimension to the existing body of knowledge on the subject.

CHAPTER 1 - INTRODUCTION

1.1 Background

Recent corporate scandals have compelled the world to acknowledge the central role played by corporate governance in the global economy (Vaughn & Ryan, 2006). As a result of the scandals, which were blamed on the poor quality of corporate governance, society lost much of its confidence in the auditing profession and there was a growing perception that the profession was no longer acting in the interests of the public (Odendaal & De Jager, 2008). The debacles at iconic companies such as WorldCom and Enron feature in several studies (Anandarajan, Kleinman, & Palmon, 2012, Caneghem, 2009, Hay, Knechel, & Li 2006) in which the focus is on the failure of governance and in particular, the role of auditing.

In South Africa, corporate collapses included Masterbond, Regal Treasury Private Bank, LeisureNet, Saambou and MacMed (Odendaal & De Jager, 2008). These collapses resulted in bodies such as the Integrated Reporting Committee of South Africa (IRC) believing that events such as the global financial crisis, the ever-present socio-economic inequality, resource constraints and the effects of climate change, clearly demand that both public and private organisations, openly communicate the impact of global trends on their activities as part of their reporting obligations to their stakeholders (IRC, 2011). The IRC (2011) contends that the type of information that is currently being reported by companies tends to be backward-looking with a bias towards financial information and, thus, it is of little use in terms of decisions

which enable stakeholders to evaluate an organisation's ability to generate value and sustain itself in the short-, medium-, and long-term.

Consequently, there is a growing trend, both nationally and internationally, for organisations to issue integrated reports (IRC, 2011). In South Africa, the King Code of Governance for South Africa 2009, popularly referred to as King-III, came into effect on 1st March 2010 in response to the provisions of the new Companies Act 71 of 2008 and also to changes in international governance trends (Institute of Directors (IOD), 2009). Among the key changes, King-III makes a recommendation for companies to issue an integrated report (IR), which combines both financial and sustainability reporting in one report (IOD, 2009).

Commenting on the proposal to introduce IR in Australia, Adams and Simnett (2011) stated that the setting up of the systems for measurement and reporting on an integrated basis could represent a large cost for certain organisations. Similarly, Griffin and Lont (2007) maintain that the introduction of mandatory and sweeping new corporate governance initiatives in the United States of America, in the form of the Sarbanes-Oxley Act (SOX) in 2002, resulted in incremental compliance costs for companies estimated to be in the region of $1.24 billion. In addition, SOX created unique challenges and fee opportunities for the auditing profession, which led to high fees being charged by audit firms, especially for the provision of non-audit services (Griffin & Lont, 2007).

In light of the experiences in other countries, it would be interesting to understand the nature of the challenges that IR poses to companies in South Africa with a special focus, as in this research study, on external auditing costs.

1.2 Statement of the problem

King-III ushered in the new concept of IR by recommending that all companies issue an integrated report, which combines both sustainability and financial information in a single report (IOD, 2009). Nevertheless, compliance with King-III is not compulsory as its application is based on the "apply or explain" principle. In the same vein, the position of the Johannesburg Stock Exchange (JSE) with regards to the compliance of listed companies in respect of IR is summarised in a guidance letter dated 31 January 2013. The letter reads as follows:

> "…The JSE's general approach to corporate governance in relation to the King Code on Corporate Governance for South Africa…is that certain principles are mandatory with the balance being adopted on an "apply or explain" basis. Chapter 9 of the King Code which deals with Integrated Reporting and disclosure is not a mandatory principle pursuant to our recent guidance and can therefore be applied on an "apply or explain basis…" (JSE, 2013).

Despite the position taken by the JSE, Furber (2013) seems to interpret King-III's recommendation as follows: "…integrated reporting…led South Africa to become the first country to make this form of reporting mandatory for plcs."

Despite the fact that King-II was the first to recommend the notion of sustainability reporting, this was done separately from financial reporting (IOD, 2009). This is in contrast to the view of the IRC (2011) which differentiates IR as not merely a consolidation of the financial statements and a sustainability report but as a

> "…concise overview of an organisation, integrating and connecting important information about strategy, risks and opportunities and relating them to societal, environmental, economic and financial issues."

According to Adams and Simnett (2011), IR is holistic, strategic, responsive and relevant across multiple future timeframes. In this regard, King-III recommends that certain sections of the IR be verified by independent assurers and this is notwithstanding the traditional assurance process which auditors provide in the form of a statutory audit.

King-III distinguishes the process of assurance from verification by stating that verification confirms the existence of stated facts while assurance is much broader and refers to the integrity of certain processes and systems. In addition, the assurance regarding sustainability performance and reporting is more complex as it does not adhere to clear standards as is the case with financial reporting (IOD, 2009). Accordingly, King-III recommends the use of both AccountAbility's AA 1000 Assurance Standard (AA1000AS) and the International Accounting and Auditing Standard Board's International Standard on Assurance Engagements (ISAE 3000) in combination on such assurance engagements. External assurance providers may include external

auditors, regulators (inspectorate) or any other assurance providers such as sustainability assurance providers, actuaries and geologists (IOD, 2009).

In this regard, King-III principle 3.4 (44) recommends that the audit committee "…should engage the external auditors to provide an assurance report on summarised financial information, confirming that the summarised financial information is appropriately derived from the annual financial statements." In view of the fact that the summary information is derived from both the more detailed annual financial statements and the sustainability report as already audited or assured, auditors are required to report in accordance with International Standards on Auditing (ISAs) (IRC, 2011). Other assurance services are also recommended on sustainability reporting and disclosure (IOD, 2009). As observed by the IRC (2011), "developing the ideal integrated report will be a journey for many organisations and so too will the extent and level of assurance."

Current reporting has been criticized for being backward-looking and therefore failing to provide stakeholders with forward-looking information that enables an objective evaluation of an organisation's ability to create both value and long-term sustainability (IRC, 2011).

Consequently, according to the IRC (2011), King-III suggests the inclusion of the following eight elements in the Integrated Report: (1) a report profile which outlines the scope and boundary of the report, the reporting principles relating to IFRS and sustainability in terms of GRI, policy on assurance services and any major supporting documentation; (2) organisational overview, business

model, and governance structure including information such as the size of the organisation, the location of its operations and activities, its products and services, its structure including divisions, subsidiaries, associates and joint venture, the business model, claims on resources, governance structures and, key policies, etc.; (3) the operating context which includes an outline of the organisation's ability to create value in the short-, medium-, and long-term; an outline of the relevant financial, social, environmental, economic and governance issues and trends; global trends such as exchange rates, commodity prices; both negative and positive significant impact decisions; principal risks and opportunities; (4) strategic objectives, competencies and key performance areas (KPIs) such as short, medium and long-term objectives and targets; an evaluation of the organisation's competencies (internal systems, personnel and culture) and; a list of priority KPIs; (5) an account of the organisation's performance in the form of abridged financial statements; factors affecting profits; identification of unusual/non-operating items; segment information; capital expenditure, research and development commitments; financial and economic value added statements and; organisation's activities in respect of its strategic objectives and targets; (6) future performance objectives outlining a clear statement of intent regarding future performance and a forward-looking reflection on internal systems, personnel and culture; (7) remuneration policies, including information on policies for remuneration of senior executives and employees in general; report on current period remuneration and factors influencing future policies, and; (8) an analytical commentary in the form of a brief commentary on the organisation's structure, its members, current and future performance;

strategic objectives; financial ratios; economic, environmental, and social and governance information; summarised historic information; etc. (IRC, 2011).

1.3 Purpose of the study

The purpose of the research study was to evaluate whether the BIG4 audit firms were charging an audit fee premium as a result of the recommendations of King-III on integrated reporting for companies listed on the Johannesburg Stock Exchange.

1.4 Significance of the study

Prior studies (Anandarajan et al, 2012; Ashbaugh,2004; Holland & Lane, 2012; Blankley, Hurtt, & MacGregor, 2012) proved that the level of audit fees may have adverse effects on how auditors conduct themselves such as compromising their independence, and this could lead them not to disclose cases of clients managing earnings and as a result, this could affect the quality of the audit process. As observed by Charles, Glover, and Sharp (2010), any study of the drivers of auditors' pricing practices is important to researchers, audit firms, investors, regulators and audit clients. Hoitash, Markelevich, and Barragato (2007) corroborate that any study of the fees paid to auditors adds an important dimension to the on-going conversation on the way in which the accounting profession should be organised and monitored.

Of equal importance is the fact that the majority of prior studies (Ebrahim, 2010; Huang et al, 2009; Umar & Anandarajan, 2004) on audit fees have been on single country settings with the majority of such studies being

conducted in countries in Europe and America. It would appear that, since the introduction of King-III, there has been no study in South Africa that has focused on the impact of King-III on the pricing of both audit and non-audit services fees. Thus this research study is of significance in that (1) it seeks to fill in this apparent void on the study of the impact of IR on audit fees since King-III was introduced as well as (2) to augment existing literature on the subject by adding a South African dimension.

1.5 Research questions

The research study sought to answer the following two complementary questions:

1.5.1 Research question 1:

Post King-III, were the BIG4 audit firms in South Africa charging an audit fee premium in response to the recommendations of the code on integrated reporting?

The following research hypotheses were based on this preceding question:

H_0: Post King-III, there was no evidence that the BIG4 audit firms were charging an audit fee premium in response to the recommendations of the code on integrated reporting.

H_1: Post King-III, there was evidence that the BIG4 audit firms were charging an audit fee premium in response to the recommendations of the code on integrated reporting.

1.5.2 Research question 2:

Was there a relation between audit fees and non-audit service fees?

Prior studies have proved that the simultaneous provision of both the statutory audit and non-audit services result in knowledge spill-overs (Simunic, 1984), and consequently this may lead to the arbitrary allocation of fees in the books of the auditee probably in pursuance of incentives for partners (Hay et al, 2006).

The following hypotheses were based on this research question:

H_0: Post King-III, there was no significant relation between audit and non-audit service fees.

H_1: Post King-III, there was a significant relation between audit and non-audit service fees.

1.6 Definition of terms

Audit fees refer to the fees that are charged by external auditors for carrying out the statutory annual audit of the financial statements of an organisation.

Non-audit service fees refer to any fees other than audit fees and include fees for services such as tax compliance, tax advice, tax planning, mergers and acquisitions and corporate governance.

1.7 Structure of the report

The report is organised in the following order. In chapter 2, a literature review highlights the theoretical framework of audit fees, examines prior studies and explores the regulatory framework in South Africa. Chapter 2 concludes by investigating the adapted fee model by Hay et al 2006. The literature review provides the basic theoretical underpinning and foundation of the study. Chapter 3 contains an overview of the methodology used in the study and examines the sources of data and how the data will be collected and analysed. The chapter also discusses the regression model. Chapter 4 presents and discusses the regression results. Finally, chapter 5 contains a summary of the research report, the conclusions drawn from the research findings and recommendations for future studies.

CHAPTER 2 – LITERATURE REVIEW

2.1 Introduction

The chapter commences by reviewing relevant literature on both audit and non-audit service fees as well as highlighting the findings of previous studies. This is followed by a review of the seminal audit fee model of Simunic (1980) and a presentation of the adapted model as well as a discussion on the theoretical underpinning of the variables. The chapter concludes by taking an overall view of the regulatory environment in South Africa by examining the corporate governance landscape and the legal environment in South Africa.

2.2 Literature review

Recent corporate collapses at such iconic firms as Enron and WorldCom as a result of accounting scandals which, in most cases, implicated the auditors, have resulted in close scrutiny of the activities of auditors (Caneghem, 2009). In 2000, the audit firm, Ernst & Young, had to settle $355 million in a single shareholder lawsuit while in 2001, the Securities & Exchange Commission brought a fraud case against Arthur Andersen for its involvement in the scandal at Waste Management (Coates, 2007). As a direct result of similar scandals, the United States of America Congress enacted the Sarbanes-Oxley Act (SOX) in 2002 with a view to regulating the auditing

of public companies by introducing sweeping mandatory corporate initiatives (Coates, 2007).

Since the introduction of SOX, a number of studies have focused on its impact on audit fees (Charles et al, 2010; Ebrahim, 2010; Griffin & Lont, 2007; Ciesielski & Weirich, 2006; Raghunandan & Rama, 2006). The core aim of SOX was to enhance the role of auditors in enforcing laws against fraud and theft in public listed companies by tightening the rules concerning the client-auditor relationship, auditor rotation and duration, the provision of non-audit services and corporate whistle-blowing (Coates, 2007). Its implementation, however, has come under considerable criticism from various stakeholders (Krishnan, Krishnan, & Song, 2011).

The compliance costs associated with SOX were regarded as fairly steep with small firms bearing the brunt of such costs as a result of, among other things, the auditors retesting items which had already been tested by management as a means of evaluating the management processes, and also sometimes dictating to management about the processes of evaluation. This often resulted in unnecessary cost and effort (Krishnan et al, 2011). Ebrahim (2010) contends that the impact of the higher audit fees resulting from the requirements of SOX could have meant an increasing number of clients, especially the smaller clients, downgrading to smaller audit firms, thus lowering audit quality. Griffin and Lont (2007) estimate that the incremental costs of compliance with SOX amount to approximately $1.24 billion as a direct consequence of altering the overall scope and quality of an audit, as well as related onerous disclosures and internal controls.

A survey carried out by PriceWaterhouseCoopers in 2004 found out that, as a result of the fact that SOX aimed at preventing deceptive accounting and curbing management misdemeanour by imposing stiffer sanctions for non-compliance, 59% of CEOs feared that overregulation posed a risk to firm growth (Zhang, 2007). SOX curtailed the activities of public accounting firms by prohibiting the rendering of non-audit services such as internal audit functions to clients (Hoitash et al., 2007). Ghosh and Pawlewicz (2009) argue that certain of the key provisions of SOX could have resulted in substantial audit effort and thus, there was growing consensus among academics and practitioners that audit fees would increase following its passage.

Nevertheless, SOX did result in a much tighter corporate governance environment over financial reporting (Ebrahim, 2010) and also brought in the following benefits, namely (1) motivated firms to spend money on strengthening their internal controls and this, in turn, (2) benefited investors directly by lowering the levels of risk losses and fraud, (3) increased management transparency and accountability, (4) the anticipated lowering of the cost of capital of firms while, (5) the economy was expected to benefit from both the better allocation of resources and rapid growth (Coates, 2007).

In addition to those studies that focused on the effects of SOX on audit fees, other studies (Caneghem, 2009; Carson, Simmett, Soo, & Wright, 2012) concentrated on audit fees but with special attention on the fee premium associated with the big audit firms, the so called BIG firm audit premium.

2.2.1 The BIG firm audit fee premium

Soon after the demise of Arthur Andersen in Australia, the concentration in the market for audit services increased thus leaving the large global audit clients with little choice of audit providers. This, in turn, resulted in significant increases in audit fees (Carson et al, 2012). According to Ebrahim (2010), the increase in audit fees was as a result of the fact that the large audit firms represent a niche segment of the audit market and this gives them the power to charge premium fees. Ebrahim (2010), however, maintains that it was the change in regulation, caused by SOX and the "Expectation Gap" of 1988 introduced by the Auditing Standards, that resulted in increased audit effort and, consequently, audit fees.

Other studies have attributed the BIG Firm premium to the size of the audit firm (El-Gammal, 2012), the size of the client (Carson et al, 2012) and the industry-specialist premium (Craswell, Francis, & Taylor, 1995).

Firstly, prior studies have shown that the size of the audit firm as measured by the firm's assets, market shares and the number of employees to be correlated with audit quality and as a result, the big audit firms are able to charge an audit fee premium (El-Gammal, 2012). According to Fleischer and Goettsche (2012), large auditors earn higher fees because of their perceived higher audit quality. This finding is further corroborated by a number of research studies (Carson et al, 2012; Chaney, Jeter, & Shivakumar, 2004; DeAngelo, 1981; Ireland & Lennox, 2002) who also attribute the premium to the greater expertise of the BIG firms (audit quality) as well as to enhanced auditor independence, varying auditor techniques and also to better resources required to satisfy legal claims which are available to the BIG firms as

compared to those available to the smaller firms. In his study, (Simunic 1980) found a statistically significant premium on one of the big audit firms as compared to the rest of the BIG 8, thus clearly confirming that the levels of premium differed even among the big firms.

Secondly, Carson et al (2012) attribute client size as a determining factor that leads large global clients to seek the expertise and profile of the large audit firms. Carson (2009) believe that, in view of their large staff compliment, resources and geographic logistics available to handle huge client engagements, global audit firms should be the natural choice of auditors for such large clients. On the other hand, Carson, et al (2012) argue that the significant audit fees paid by large global clients are a direct result of limited auditor choice especially after the demise of Arthur Andersen in Australia. Cameran (2005) also attributes the premium not to client size but either to the monopolistic power of the large audit firms or to the required return on their reputation (Cameran, 2005). Some small firms, however, may also prefer BIG audit firms for a number of reasons which include lowering the cost of raising capital and managing the negative market perception associated with financial distress when switching from a BIG to a small audit firm (Dye, 1991).

Thirdly, Craswell et al (1995) attribute the BIG firm audit fee premium to industry specialisation by pointing out that the processes of brand development and industry specialisation, with reference to the Big 8, are argued to be costly, thus resulting in premium fees in the region of 34% for industry specialists and 30% for a Big 8 brand name. In their study, Casterella, Francis, Lewis, and Walker (2004) found that the smaller clients, with limited bargaining power, pay an industry-specialist premium as

compared to their larger counterparts. Carson et al (2012) appear to justify the fact that some auditing firms choose to specialise for reasons of product differentiation and also in order to achieve economies of scale in training and developing audit approaches. Nevertheless, research findings on whether industry specialisation results in a fee premium have not been conclusive in any one direction (Carson et al, 2012).

2.2.2 Relationship between audit and non-audit fees

Other studies on audit fees have focused on the relationship between audit fees and non-audit fees, for example studies conducted by Simunic (1984; Palmrose (1986); De Berg, Kaplan, and Pany (1991); and Davis et al (1993), as well as Bell, Landsman, and Shackleford (2001), cited by Whisenant, Sankaraguruswamy, and Raghunandan (2003). These research studies were motivated by the suggestion that knowledge spill-overs existed between the provision of both audit and non-audit services and as a result, the determination of both fees took place simultaneously. It was then possible that this simultaneous determination of audit and non-audit fees could result in a biased estimation of the relationship between the two fees in single-equation models of both audit and non-audit fees (Whisenant et al, 2003).

Other studies also reported a significant positive association between audit and non-audit service fees, thus suggesting the existence of knowledge spill-overs between the two services (Bell et al, 2001; DeBerg et al, 1991; Davis et al, 1993; Palmrose, 1986; Simunic, 1984; Whisenant et al, 2003). Beck, Frecka and Solomon (1988a; 1988b) attribute this relationship to the differential benefits that arise from the provision of recurring non-audit services to the auditee. In fact, Jeppesen (1998),

cited by Ezzamel, Gwilliam, and Holland (2002), argues that the distinction between audit and non-audit services has become increasingly blurred as a result of accounting firms emphasing the value added by an audit.

In his (Simunic, 1984) later study, using a single equation estimation audit fee model, he proved that the cost functions of audit and non-audit service fees were not independent and concluded that the significant positive association between the two was the result of knowledge spill-overs between the two services. Simunic (1984) believes that cost efficiencies arise from reducing the fixed or marginal costs of either of the two services or of both. Hay et al (2006) point out that the internal dynamics in audit firms regarding partner remuneration has a bearing on the relationship between the two fees. Situations such as when an auditee purchases both audit and non-audit services may give rise to the arbitrary allocation of fees in the books of the auditee while there may also be incentives for the audit partners to misclassify the non-audit fees by classifying them with audit fees (Hay et al, 2006).

On the contrary, not all studies have found positive relationships between the two fees with Barfield, Gover, & O'Keefe (1993), Abdel-Khalik (1990) and O'Keefe, Simunic, & Stein (1994) reporting no significant relationship although Palmrose (1986) reported a weak, but statistically, significant relationship.

Obstacles to the study of the relationship between the two fees have been identified as: (1) arising from the possibility of differing interactions according to the nature of the service provided; and, (2) the perception of spillover effects where the non-audit services are provided by parties other than the incumbent auditor (Ezzamel et al, 2002). Other complications include possible time lags in any relationship such as the

one found between the introduction of a new management system, which would render an audit cheaper in the long term, but more expensive initially as a result of the additional work involved in ensuring the accuracy and integrity of the system (Ezzamel et al, 2002).

Regulators have always been wary of the effect of the relationship between the joint provision of audit and non-audit services on the independence of auditors (Ghosh, Kallapur, & Moon, 2009) with debates on the issue taking place in the United States of America, Australia and internationally (Craswell, Stokes, & Laughton, 2002). Umar and Anandarajan (2004) argue that the provision of non-audit services to clients increases the audit firm's economic dependence, rendering the firm incapable of, for example, disclosing possible aggressive accounting methods on the part of the client. This is because of the additional economic incentive to retain the client which, in turn, results in substantially increased threat to auditor independence (Basioudis, Papakonstantinou, & Geiger, 2008).

On the other hand, Lennox (1999) argues that the provision of non-audit services increases the auditors' knowledge of the client through the auditors' knowledge of any spill-over effects, thus enhancing the probability of detecting problems. Habib and Islam (2007) contend that all fees create economic bonding between the auditor and client. Nevertheless, prior research has not been conclusive in proving a negative association between non-audit services and audit quality (Kinney, Palmrose & Scholz, 2004; Omer, Bedard & Falsetta, 2006).

2.3 The seminal audit fee model of Simunic (1980)

According to Caneghem (2010), studies on audit fees are typically modelled on the seminal work conducted by Simunic (1980) whose seminal study is reviewed in the following paragraphs. Dan A. Simunic was associate professor at the University of British Columbia, Canada where he conducted his seminal study as part of his doctoral thesis with the University of Chicago in 1979. The study aimed to provide evidence that price competition existed in the market for the audits of public or listed companies regardless of the share of the market segment serviced by the BIG 8 firms. The research data consisted of 397 observations on audit fees and related variables obtained from listed companies in 1977. The sample size was based on both an informal assessment of the marginal benefits and costs of sampling and on an expected response rate of 30 to 40%.

Simunic's model included two dependent variables namely FEE (amount of current year's external audit fee) and ICOST (current year's salaries paid to internal auditors) while the independent variables were divided into three categories. The first category comprised of control variables for differences in loss exposure and included the auditee's ASSETS (Total assets at year-end), SUBS (Number of consolidated subsidiaries), DIVERS (Number of industry segments in which the auditee operates), FORGN (Foreign assets divided by total assets at year-end), RECV (Accounts, loans and notes receivable divided by total assets at year-end), and INV (Inventories divided by total assets at year-end).

The second category comprised of control variables for differences in the assessed loss-sharing ratio or alternative measures for auditee financial distress, represented by PROFITS (Net Income divided by total assets), LOSS (dummy variable of 1 if auditee had incurred a loss in any one of the previous three fiscal years, otherwise 0), and SUBJ (dummy variable of 1 if auditee had received a “subject to” qualified opinion, otherwise 0). The third category comprised of control variables for differences in the auditor production functions and included AUDITOR (dummy variable of 1 if auditor were a Big 8 firm, otherwise 0) and TIME (number of years auditee had used the current auditor).

Using a series of least squares regressions at the 95% confidence level, the study proved that all the control variables for differences in the loss exposure group were statistically significant in determining the level of audit fees but not the internal audit costs. Accordingly, the study accepted the hypothesis that liability avoidance was a major consideration in the design of financial reporting systems. The PROFIT variable was insignificant while the dummy variables LOSS and SUBJ were both significant, thus proving that the auditor’s perception of residual liability losses appears to increase with evidence of significant deterioration in the auditee’s operations or future. The study also proved and concluded that price competition prevailed throughout the market for audit services.

The next section will examine the fee model and its variables.

2.4 The audit fee model and the variables

Since the seminal study conducted by Simunic (1980), the majority of audit fee models tend either to replicate the same model or to incorporate some minor modifications. The model used for the purposes of this research study was an adaptation of the model proposed by Hay et al (2006) and is as folows:

$$\mathbf{Ln(AUDFEE)_{it} = \alpha + \beta_1 Ln(NASFEE)_{it} + \beta_2 Ln(TA)_{it} + \beta_3 INVREC_{it} + \beta_4 SQRTSUB_{it} + \beta_5 ROA_{it} + \beta_6 (TD/TA)_{it} + \beta_7 (CA/CL)_{it} + \beta_8 BIG4_{it} + \epsilon_{it}}$$

where:

Ln(AUDFEE)	Natural log of audit fees;
Ln(NASFEE)	Natural log of non-audit service fees;
Ln(TA)	Natural log of total assets;
INVREC	Ratio of the sum of inventory and accounts receivable to total assets;
SQRTSUB	Square root of the number of subsidiaries;
ROA	Ratio of EBIT to total assets;
TD/TA	Ratio of total debt to total assets;
CA/CL	Ratio of current assets to current liabilities;
BIG4	Big 4 audit firms in South Africa being PriceWaterHouseCoopers, KPMG, Ernst & Young and Deloitte;
ϵ	The error term, representing either a fee discount or premium.

The theoretical underpinning of the variables is discussed below. The variables may be divided into two broad categories representing either client attributes or audit firm attributes.

Client size is regarded as the most dominant determinant of audit fees (Caneghem, 2009; Charles et al, 2010; Hay et al, 2006) with size accounting for almost 70% of the cross-sectional variation in audit fees (Charles et al, 2010). As a result of their size, large firms require more audit effort as they typically have more transactions, larger balances, attract more public scrutiny as well as higher agency and political costs (Carnegem, 2009) and, therefore, they present a higher risk to the auditor (Naser & Nuseibeh, 2007). In addition, it would appear that the stock of assets is a better measure of exposure to the possibility of a firm making a loss as compared to an accounting flow measure such as revenue. Accordingly, several lawsuits have traditionally been linked to deficiencies in asset valuation (Simunic, 1980).

Receivables and inventories represent potentially greater loss exposure as they require specific auditing procedures while their valuation is a complex task which requires a forecast of future events (Simunic, 1980; Caneghem, 2009; Blankley et al, 2012). The complexity is a result of the nature of the transactions, the accounting standards on recognition and measurement and the professional judgement required to assess probable future outcomes (Thinggaard & Kiertzner, 2008). Simunic (1980) classifies receivables and inventories as comprising part of investments that are difficult-to-audit and are associated with companies that purchase management advisory services.

Complexity is represented by the number of subsidiaries in the audit fee model. As observed by Ireland and Lennox (2002), the distinction between complex and risky audits is somewhat blurred in view of the fact that complex audits pose higher levels of risk to the auditor in as much as risk may also emanate from other sources. Greater diversification and the decentralisation of the financial reporting entity points to higher loss exposure as a result of a number of dispersed decision centres (Simunic, 1980) as well as the increased volume of work and increased complexity associated with the entity's consolidated accounts (Ireland & Lennox, 2002). A greater number of subsidiaries also imply greater amount and scope of work in consolidation such as the elimination of inter-group transactions (Pong & Whittington, 1994).

Return on assets represents a measure of profitability. According to Charles et al, (2010) profitability measures the extent to which an auditor is exposed to liability in the event of the client becoming insolvent. Caneghem (2009) maintains that audit fees should be higher for poorly performing clients as such clients present a higher risk to the auditor. In their study, Blankley, Hurtt, & MacGregor (2012) included the return on assets variable as a control for audit risk.

Caneghem (2009) included the current ratio in his study as a proxy for short- term liquidity while Blankley et al (2012) included it as a control for audit risk. According to Simunic (1980), both leverage and liquidity represent the risk of an auditee failing and this inevitably potentially exposes the auditor to a loss.

Lastly, the size of the audit firm represents a factor in fee determination (Jaggi & Low, 2011). While the demand and suppy of audit services are both regarded as the

basic factors that determine audit fees (Simunic, 1980), on the supply side, factors such as the size of the audit firm, its resources, industry specialisation and audit quality as proxied by the BIG 4 play a significant role (Jaggi & Low, 2011). Certain studies have documented the fact that the BIG 4 charge a premium for their perceived higher quality audit services (Ashbaugh, LaFond, & Mayhew, 2003; Ireland & Lennox, 2002) although other studies have failed to provide evidence to affirm these findings (Chaney et al, 2004; Seetharaman, Gul, & Lynn, 2002).

In concluding the literature review section, the last section will examine the regulatory environment in South Africa and will include the development of corporate governance in South Africa especially as regards the aspect of IR. Sections in the Companies Act 71 of 2008 which relate to auditing and are relevant to this research study will also be covered.

2.5 The regulatory environment in South Africa

According to KPMG International (2012), it is incumbent on organisations in South Africa to meet their regulatory reporting requirements as stipulated in King-III, the Companies Act of 2008, International Financial Reporting Standards and the JSE Listing requirements as well as in terms of certain non-mandatory frameworks such as the Global Reporting Initiative, JSE Socially Responsible Index and others. The following section will focus on corporate governance in South Africa and, in particular, on integrated reporting as recommended in King-III as well as relevant provisions in the Companies Act of 2008. The section will conclude with a brief review of the Auditing Profession Act 26 of 2005.

2.5.1 Corporate governance in South Africa

South Africa re-entered the global economy in 1994 after the collapse of the apartheid government. In order to enable South African companies to compete in the global arena, it was imperative that the companies had to embrace improved standards of corporate governance (Vaughn & Ryan, 2006). In general, South African corporate structures resemble those of the United Kingdom as company law in South Africa was strongly influenced by the English Companies (Consolidation) Act of 1908 (West, 2009). The first corporate governance report, popularly referred to as King-I, was issued in 1994 under the chairmanship of Mervyn King and, following the release of the Cadbury Report in 1992 (West, 2009). King-I covered same issues as the Cadbury Report with special attention to the board of directors and protection of shareholders, but with very little attention being paid to non-financial matters and engagement with stakeholders (West, 2009).

In 2002, the second code of corporate governance in South Africa, King-II, was released. Its release was influenced by changes in the labour laws. In addition, it represented a response to accounting standards and developments in business in general. King-II emphasised the concept of stakeholders as opposed to the emphasis in King-I on shareholders (Gstraunthaler, 2010), and also addressed many of the corporate governance issues which had been highlighted in wake of the collapse of companies such as Enron, WorldCom and Parmalat, among others (West, 2009). In addition, King-II also recommended the notion of sustainability reporting although it was to be done separately from financial reporting (IOD, 2009). Again, as a result of changes in legislation, particularly the new Companies Act 71 of

2008, and in order to keep pace with international developments, King-II was revised with the release of King-III with effect from 1 March 2010 (IOD, 2009).

King-III focuses on three pillars namely leadership, sustainability and corporate citizenship (Gstraunthaler, 2010). Included in other changes to King-II, King-III introduced the concept of Integrated Reporting (IR) and, in fact, dedicates the whole of chapter 9 to the subject (IOD,2009). The following section will focus on the concept of IR.

2.5.2 Integrated reporting (IR)

The market capitalisation of a listed company equals its economic value and not its book value as the purchasers of stock assess the quality of the company's risk management and the way in which the company approaches sustainability issues pertinent to the business (IOD, 2009). Today's investors require forward-looking information and hence it is imperative that companies do win the trust and confidence of their stakeholders by issuing integrated reports. These in turn help stakeholders to make informed assessments of the economic value of a company (IOD, 2009).

The integrated report contains both financial and sustainability information as recommended in King-III. Thus, in accordance with King-III, financial disclosure includes (1) the annual financial statements (2) the board's commentary on the financial results – this should be sufficiently comprehensive to enable stakeholders to make an informed assessment of the company's economic value by disclosing the company's prospects as regards unlocking value in future, as well as the board's

assessment of the key risks facing the company, and, (3) the board's assessment of the going-concern status of the company and if there are any concerns, the board should disclose the reasons and steps it is taking to remedy the situation (IOD, 2009).

As regards sustainability disclosure, the report should (1) disclose how the company has made its money by placing the financial results into context by reporting on both the negative and positive impact the company's operations would have had on its stakeholders with a view to consolidating the positives and eliminating the negatives in the future (2) be holistic and report in an integrated manner on the strategic choices made by the board in the triple context of economic, social and environmental issues (3) recognise that sustainability (also known as non-financial) reporting is a critical element of reporting, and is increasingly formalised and sophisticated as is evident in the Global Reporting Initiative G3 guidelines and the ISO standard (26000) on social responsibility; and (4) recognise that sustainability parameters are not as standardised as is the case with financial reporting and therefore , it is essential that all performance indicators be clearly explained in terms of their implications and with reference to known benchmarks. The JSE Socially Responsible Investment (SRI) index criteria could be used as a guiding framework (IOD, 2009).

King-III also recommends that the board obtains assurance over the financial disclosure in the integrated report as King-III acknowledges that the assurance in respect of sustainability performance and reporting is more complex as is the case with financial reporting IOD, 2009).

The formalised review of the process of Integrated Reporting is contained in a discussion paper which was issued by the Integrated Reporting Committee (IRC) of South Africa for public comment by 25 April 2011. The salient features of the document are discussed in the following paragraphs.

In the introduction to the discussion paper, IRC (2011) indicate that current reporting is backward-looking and thus it fails to provide stakeholders with the information required to make a meaningful assessment of a company's ability both to create and sustain value in future. The JSE Listings Requirements

> *"require companies…to issue an integrated report for financial years starting on or after 1 March 2010, or to explain why they are not doing so"* IRC (2011).

According to IRC (2011), the benefits of IR include the following: (1) the leadership of the organisation gains an in-depth knowledge of the organisation's strategy and also how the company interacts with environmental, social, financial and economic issues; (2) a holistic picture of the organisation is provided which is useful to stakeholders in their making an informed assessment of the firm's ability to create and sustain value; (3) engender significant trust in the firm as a result of the transparency displayed in the report; (4) enhances risk-management strategies; (5) lowers the cost of capital as a result of the leadership of the company demonstrating to investors the company's effectiveness; (6) realise cost savings and process efficiencies by identifying resource constraints; (7) inculcate a culture of innovation and readiness to exploit new business opportunities; and, (8) ensures improved competitiveness in the market-place and enhanced brand value.

In order to increase credibility of the disclosure of the organisation's activities with regard to the accuracy, completeness and reliability of financial, social, environmental, economic or governance information, it is recommended that the report receives independent assurance (IOD, 2009; IRC, 2011). Nevertheless, the requirements for assurance in respect of the company's financial reporting remain unchanged regardless of the independent assurance of the report (IRC, 2011). Thus King-III recommends that the audit committee, as a board committee, should engage the external auditors to provide assurance on the summarised financial information in addition to independent assurance as regards the sustainability section of the report (IRC, 2011). The external auditors would report on such aspects in accordance with the International Standards on Auditing (ISAs). It is recommended by King-III that the strategy for providing assurance in respect of the integrated report should adhere to the principles of a combined model which take into account the assurance provided by management, the internal audit, the external audit, and any other external assurance providers, for example, for ISO and BEE certifications (IRC, 2011).

The IRC (2011) advises organisations to engage their auditors as well as other external and internal assurance providers at an early stage in order to determine in advance those areas of the report which will be subject to either an audit or assurance as well as the applicable financial reporting and sustainability or quality frameworks to be applied. Nonetheless, "developing the ideal integrated report will be a journey for many organisations and so will the extent and level of assurance" (IRC, 2011).

2.5.3 The Companies Act 71 of 2008 (the Act)

The opening sentence of King-III links the corporate governance code and the Act by stating that the former “became necessary because of the new Companies Act No.71 of 2008 (‘the Act’) and changes in international governance trends” (IOD, 2009). As pointed out by King-III (IOD, 2009), the governance of corporations may either be on a statutory basis (Companies Act, SOX) or on a voluntary basis through a code of principles and practices such as stipulated in King-III. King-III (IOD, 2009) further states that there is always a link between good governance and compliance with the law and, thus, it is not possible to separate the two. A comparison between the Act and King-III on the aspect of auditors will help to put into context this important corporate governance link.

Sections 90 to 94 of the Act deal with the appointment, resignation, rotation and rights of auditors respectively. King-II was the first code to recommend practices in respect of the appointment of auditors in 2002 and, subsequently, when the Act was revised in 2008, the provisions regarding the appointment of auditors were also incorporated and thus became mandatory for public companies.

Specific comparisons between the Act and King-III include the following: Section 90 of the Act requires a company to appoint audit committee members who must include at least three members with the necessary qualifications and experience, and must also be non-executive directors. King-III complements the Act by further recommending that the audit committee members appointed should also be independent.

In terms of section 90 of the Act, companies are required to appoint auditors. The appointed auditor is expected, amongst other criteria, to be approved by the Johannesburg Stock Exchange (King-III), in the case of listed companies and must also be acceptable to the company's audit committee (Companies Act, section 90.2).

Both the Act and King-III include specific provisions to guard against the erosion of auditor independence with the Act, in section 90(2), prescribing that an appointed auditor must not either be or do the following: (1) be a director or prescribed officer of the company; (2) be an employee or consultant company who has been engaged for more than a year in the maintenance of the company's financial records or statements; (3) be a person who alone, or with partners or employees, regularly performs the duties of an accountant or bookkeeper or related secretarial work for the company; (4) may not perform any duties that would place the auditor in a conflict of interest situation as prescribed by the Independent Regulatory Board for Auditors; and lastly, (5) may not perform any duties as determined by the company's audit committee. Section 92 further prescribes the rotation of auditors by requiring that an auditor shall not serve the same company for more than five consecutive years. In addition, section 93 of the Act also empowers auditors by conferring certain rights on them such as the right to apply to a court of law to enforce a company to allow the auditor access to accounting records and the right to attend any ordinary shareholder's meetings.

Apart from the specific provisions directed at the auditors in terms of their qualifications and conduct as outlined above, both the Act and King-III also ascribe statutory and fiduciary roles to the audit committee as regards to regulating the

activities and status of auditors. In the first instance, the Act in section 90 provides for public companies to have in place an audit committee as a statutory committee as opposed to the other board committees that King-III recommends as best practice.

The statutory roles of the audit committee include the nominations for appointment of a registered auditor who, in their opinion, is independent of the company, determining the auditors fees and terms of engagement as well as determining the nature and extent of any non-audit services that the auditor may provide or any service that the auditor may not offer to the company (Companies Act, section 94.7). King-III (IOD, 2009) further recommends that the audit committee defines the policy for the provision of non-audit services and the approval of such contracts. It is also recommended that all members of the committee should be non-executive directors and that the committee should meet at least once a year with both the internal and external auditors, but without the presence of management (IOD, 2009).

In concluding this chapter, a synopsis of the regulation of auditors in terms of the Auditing Profession Act 26 of 2005 follows in the next section.

2.5.4 The Auditing Profession Act 26 of 2005 (APA)

The APA makes provision for the establishment of the IRBA, a body which controls that aspect of the accountancy profession that is involved with the public sector in the Republic of South Africa. The public sector includes listed companies.

The functions of the IRBA include taking measures to promote the integrity of the auditing profession and prescribing the minimum requirements for the accreditation

and registration of auditors. The IRBA is also responsible for investigating alleged improper conduct and taking necessary disciplinary action, conducting practice reviews as well as setting the annual fees of registered auditors.

The IRBA reports to the Minister of Finance in terms of the Public Finance Management Act (Auditing Profession Act, 2005). The establishment of this body in South Africa is consistent with other forms of oversight bodies in countries such as Ireland, England, America, Australia and Canada (Odendaal & De Jager, 2008).

The IRBA was born out of a need to regulate the auditing profession which had been largely self-regulating world-wide prior to the world debacles which included companies such as Enron (Odendaal & de Jager, 2008). Thereafter, other attempts were made to restructure and regulate the profession in South Africa in the form of bodies and acts such as (1) the Public Accountants' and Auditors' Board Act of 1991; (2) The Accountancy Profession Bill of 1997; (3) the Draft Accountancy Bill of 2001; (4) the Nel Commission Report of 2002 and finally (5) the Auditing Profession Act of 2005. The IRBA, which replaced the Public Accountants' and Auditors Board, was established in terms of the APA (Odendaal & De Jager, 2008).

The independence of the IRBA has been questioned by some critics because approximately 40% of its members come from the audit profession but however, this has been countered by the fact that the independence of the IRBA is enhanced by the fact that the Auditor General represents the Minister of Finance on the board and that the members are appointed by the Minister for a maximum period of two years (Odendaal & De Jager, 2008).

2.6 Summary

The chapter commenced by highlighting the events that led to the enactment of SOX in America such as corporate governance failures at Enron and WorldCom. The benefits and criticisms of SOX then followed. Some of its benefits included the tightening of the corporate governance environment over reporting, the enhancement of the role of auditors in stemming fraud and theft and the strengthening of internal controls in firms. SOX came under fire for (1) raising compliance costs especially for the small firms, (2) and because of higher costs, resulted in smaller firms downgrading to smaller audit firms, and (3) curtailing the activities of public accounting firms in offering services in the area of non-audit services such as internal auditing.

In section 2.2.1, a review of the literature on the BIG firm audit fee premium was undertaken. On the global setting, the demise of Arthur Andersen in Australia increased the concentration in the market for audit services. This led to an increase in audit fees due to a niche segment that was created for the BIG firms. Other reasons cited for the increase in audit fees included (1) the change in regulation such as SOX and the Expectation Gap of 1988 (introduced by the Auditing Standards), (2) the size of the audit firm, (3) the size of the client, and 4) industry specialisation. The various variables such as assets and number of employees that determine both client and audit firm size were also covered.

The relationship between audit fees and non-audit services was explored in section 2.2.2. A number of studies hypothesised that the provision of both audit and non-

audit service fees resulted in knowledge spill-overs and, as a result, concluded that the determination of the fees was done simultaneously. Simunic (1984) believes that the cost efficiencies arise from the reduction of fixed or marginal costs of either of the two services or of both. On the contrary, a number of studies also documented the negative effects of the provision of the two services as leading to an erosion of auditor independence because of the additional economic incentives exerted on the auditor to retain the client, which leads the auditor not to disclose all the accounting irregularities.

In section 2.3, the seminal audit fee model by Simunic (1980) was analysed by looking at the model variables, leading to a review of the audit fee model for this research study in section 2.4. The chapter concludes by looking at the regulatory environment tin South Africa by specifically focusing on corporate governance, integrated reporting, the Companies Act 71 of 2008 and the Auditing Profession Act 26 of 2005.

CHAPTER 3 - METHODOLOGY

3.1 Introduction

The chapter revisits the purpose of the research study as well as presenting the research questions and research hypotheses. The chapter also contains an overview of the research methodology used in the study to address the research questions and research hypotheses. In addition, the chapter discusses specific areas dealing with the population and study sample, the sources of the data, the data collection as well as how the data will be managed and analysed. In conclusion, the chapter addresses the measures that were adopted to address the issues of the validity and reliability of the research results.

3.2 Research purpose and research questions

The purpose of the research was to evaluate whether the BIG4 audit firms were charging an audit fee premium as a result of the recommendations of King-III on integrated reporting for companies listed on the Johannesburg Stock Exchange.

Accordingly, the study sought to provide answers to the following questions:

3.2.1 Research question 1 and hypotheses

Post King-III, were the BIG4 audit firms in South Africa charging an audit fee premium in response to the recommendations of the code on integrated reporting?

H_0: Post King-III, there was no evidence that the BIG4 audit firms were charging an audit fee premium in response to the recommendations of the code on integrated reporting.

H_1: Post King-III, there was evidence that the BIG4 audit firms were charging an audit fee premium in response to the recommendations of the code on integrated reporting.

3.2.2 Research question 2 and hypotheses

Was there a relation between audit fees and non-audit service fees?

H_0: Post King-III, there was no significant relation between audit and non-audit service fees.

H_1: Post King-III, there was a significant relation between audit and non-audit service fees.

3.3 Overview of research method

The study adopted a quantitative research approach with multiple regression analysis (MRA) and Analysis of Variance (ANOVA) as the primary statistical techniques. Factor analysis will also be employed as a secondary tool to illustrate the existence of a relationship between audit fees and non-audit service fees. MRA was chosen because the technique enables a researcher to model a data set for predicting an outcome variable from one or more independent variables (Zikmund, 2003). The regression equation is commonly referred to as the model. The two types of models used included the yearly cross-sectional regressions for the years 2007 to

2012 and a pooled regression for the entire period under study. The pooled model was the main model while the former regressions were run to provide some perspective on the results and to corroborate the research results. The models were run in SPSS using the ordinary least squares (OLS) method.

The regressions models highlighted the relationship between audit fees, as the dependent variable, and non-audit service fees as the independent variable, together with other control variables that represent both client and audit firm characteristics. An audit fee model developed by Hay, Knechel and Li (2006) was adapted to suit the purpose of the research study as follows: (1) the OPINION variable was excluded as it was not one of the research objectives, (2) the LISTED variable was excluded altogether because the research sample consisted solely of listed companies, and (3) the BIG5 variable was substituted with a BIG4 variable, representing the number of the large international audit firms in South Africa. Unlike in the study by Hay et al (2006) where the BIG5 auditors were represented by a dummy variable of 1 if the firm was a member of the BIG5 and 0 (zero) if not, in this research study, each of the BIG4 auditor firms constituted a variable on its own and these were designated as FIRM1 to FIRM4. The main reason for disaggregating the BIG4 was to obtain a better understanding of which audit firm or firms among the BIG4 group was/were responsible for charging a premium.

Cross-sectional financial data for all the companies listed on the Johannesburg Stock Exchange (JSE) as at 31 October 2012 were downloaded from the OSIRIS financial database for the fiscal years 2007 to 2012. The data was pulled as at the end of the financial year end of every company in each of the years.

Excel was used to convert the data into SPSS-compatible format after which the data were fed directly into SPSS statistical package in order to run the regression models. A total of seven models were run and these fell into two categories. The first category consisted of six yearly cross-sectional regression models for each of the years 2007 to 2012. The reason for the cross-sectional estimation was because the dependent variable, AUDFEE, is said to be serially correlated (Ebrahim, 2010). This is corroborated by Hoitash et al. (2007), who estimated regressions separately for each year to avoid *t*-statistics being "unduly estimated due to time-series correlation." The six models tracked the existence of a BIG4 firm fee premium in the absence of the King3 variable. The second category, which comprised of the pooled model, assessed the impact of the recommendations of King-III on integrated reporting. In the latter model, the data was partitioned into two periods, namely, (1) the pre-King-III era from 1 January 2007 to 28 February 2010 and (2) the post-King-III from 1 March 2010 to 31 October 2012.

In line with the adapted model of Hay et al (2006), the models incorporated independent variables which controlled for client size, complexity of the audit, audit effort, client risk, client profitability and liquidity. The models and their respective variables were as follows:

Cross-sectional models for years 2007 to 2012:

$$Ln(AUDFEE)_{it} = \alpha + \beta_1 Ln(NASFEE)_{it} + \beta_2 Ln(TA)_{it} + \beta_3 INVREC_{it} + \beta_4 SQRTSUB_{it} + \beta_5 ROA_{it} + \beta_6 (TD/TA)_{it} + \beta_7 (CA/CL)_{it} + \beta_8 BIG4_{it} + \epsilon_{it}$$

The pooled model:

$$Ln(AUDFEE)_{it} = \alpha + \beta_1 Ln(NASFEE)_{it} + \beta_2 Ln(TA)_{it} + \beta_3 INVREC_{it} + \beta_4 SQRTSUB_{it} + \beta_5 ROA_{it} + \beta_6 (TD/TA)_{it} + \beta_7 (CA/CL)_{it} + \beta_8 BIG4_{it} + \beta_9 King3 + \epsilon_{it}$$

Where;

Ln(AUDFEE)	Natural log of audit fees;
Ln(NASFEE)	Natural log of non-audit service fees;
Ln(TA)	Natural log of total assets;
INVREC	Ratio of the sum of inventory and accounts receivable to total assets;
SQRTSUB	Square root of the number of subsidiaries;
ROA	Ratio of EBIT to total assets;
TD/TA	Ratio of total debt to total assets;
CA/CL	Ratio of current assets to current liabilities;
BIG4	A dummy variable of 1 if the auditor is one of the Big 4 audit firms (PriceWaterHouseCoopers, KPMG, Ernst & Young and Deloitte) in South Africa, otherwise 0 (zero);
King3	A dummy variable of 1 if the data is post-King-III, otherwise 0;
ϵ	The error term, representing either a fee discount or a premium.

The variables were consistent with prior research by Ireland and Lennox (2002), Cameran (2005) and Hay et al (2006). Regression diagnostic tests were carried out to ensure that the models did not violate the assumptions of MRA as regards linearity, independence of errors, homoskedasticity of the errors and the normality of the distribution of the errors. Limited by the availability of complete data, the size of the regression models varied in size from year to year with the number of observations being 93 in 2007, 166 in 2008, 172 in 2009, 163 in 2010, 143 in 2011 and 48 in 2012.

In order to mitigate the shortcomings of a small sample in 2012, the concept of bootstrapping (Efron, 1979) was employed. Bootstrapping is a computer-intensive resampling method which draws repeated samples of the same size from the population of interest. In this respect, the re-sampling process was repeated 1000 times.

3.3.1 Assumptions of multiple regression analysis (MRA)

MRA is a statistical technique for modelling the relationship between variables although it does not imply a cause-and-effect relationship (Montgomery, Peck, & Vining, 2006). There are four assumptions that must be met in order to be able to draw inferences from a regression model. According to Sheather (2009), these include the following: (1) there must be a linear relationshp between the dependent variable/s ($Y_{1...n)}$ and the independent variable/s ($X_{1...n);}$ (2) the errors must be independent of each other; (3) the errors must have a common variance (homoskedaciticity); and (4) the errors must be normally distributed with a mean of 0.

In order to ensure the linearity of data by limiting the effect of both outliers and leverage points, the variables AUDFEE, NASFEE and TA were transformed into their natural logarithmic form while the number of subsidiaries variable (SQRTSUB) was transformed into its square root form. The transformation of certain variables was necessary as this ensured that the error of variances became constant (Sheather, 2009). The linearity of both the dependent and independent variables was tested by observing scatter plots of standardized residuals against the predicted values. A non-discernible pattern in the plots of the residuals would indicated that the models were valid (refer appendices 1a to 1g).

In order to address the problem of the data collected from one year to the other becoming serially correlated, also termed autocorrelation, and which would violate the assumption of the independence of errors, the Durbin-Watson statistic calculated in SPSS was observed. The values of the Durbin-Watson statistic range from 0 to 4 and as a general rule, the residuals are uncorrelated if the value is approximately 2, a value close to 0 indicates a strong negative correlation while a value of 4 indicates a strong positive correlation.

Another critical assumption of regression analysis is that the errors must have constant variance otherwise all the inferential statistics such as p-values, confidence intervals and prediction intervals are rendered invalid (Sheather, 2009). The violation of this assumption is referred to as the heterogeneity of variance or heteroscedasticity (Gamst, Meyers, & Guarino, 2008). The problem, however, may be overcome by methods such as the transformation of data. Accordingly, certain variables were transformed into their square root or natural logarithmic forms. In

order to test for homoscedasticity, scatterplot of the standardised residuals were plotted against the predicted values of the audit fees. The results thereof are shown in appendices 1a to 1g. Any pattern formed by the plots would have indicated the existence of heteroscedasticity.

The normality of errors was tested by using a normal probability plot (P-P) of the standardised residuals and the histograms of the residuals (refer appendices 1a to 1g). Plots in an almost straight line were assumed to be evidence of data consistent with that from a normal distribution. In the case of a histogram, the empirical distribution of the data should be bell-shaped and it should resemble the normal distribution.

Lastly, multicollinearity was observed through Variance Inflation Factors (VIFs) computed by SPSS. Multicollinearity is a situation which arises in regression analysis when strong correlations exist among the independent variables. This may, in turn, result in incorrect regression coefficient signs and statistically insignificant independent variables despite the fact that the F-test may be highly significant. Five is the acceptable cut-off point often used in practice (Sheather, 2009) and implies that any VIF above 5 is indicative of strong correlation between the respective variables, which in turn leads to poorly estimated regression coefficients (Sheather, 2009).

3.3.2 Analysis of variance (ANOVA)

ANOVA is a statistical technique which is used to evaluate the size of differences between two or more sets of data (Gamst et al, 2008). This technique was used to

test the research hypotheses and to decide whether to accept or reject the null hypotheses. In order to test the hypotheses, ANOVA computes an F ratio which divides the area under the F distribution into two parts: one containing 95% of the area (the region in which the null hypothesis is accepted as true) and the other 5% of the area (the region in which the null hypothesis is rejected) (Gamst et al, 2008). The probability level at the point of separation of the two parts is known as the alpha level or statistical significance level with ratios falling under the 5% (.05) area being referred to as statistically significant. The alpha level of .05 is standard across scientific disciplines (Gamst et al, 2008) and was therefore used for running ANOVA in SPSS for the purposes of this study.

According to Gamst et al (2008), ANOVA analysis assumes the following three assumptions namely: (1) the error components of the of the scores of the dependent variable are independent of each other, (2) the errors are normally distributed and, (3) the variances across the groups of the independent variable are equal. The way in which these three assumptions were addressed was explained in section 3.3.1 and the results of the tests are shown in appendices 1a to 1g.

3.3.3 Measure of association – the Pearson Correlation Coefficient

The Pearson Correlation Coefficient (*r*) is a statistical measure of the covariation or association between two variables assuming any values between +.1.0 to -1.0 (Zikmund, 2003). If the value of *r* is 1.0 this means that there is a perfect positive linear or straight line relation between the variables while at the other extreme end, an *r* value of -1.0 signifies a perfect negative linear relationship or a perfect inverse relationship. An *r* value of 0 is indicative of the absence of a relationship between the

variables. The Pearson Correlation Coefficient was therefore used to measure the relationship between audit and non-audit service fees.

3.3.4 Factor analysis

Factor analysis is applied in reducing a mass of information to an economical description or to define relationships and/or to make inferences (Rummel, 1970). The technique was used as a secondary means to test the relationship between audit fees and non-audit service fees by determining whether they fall into a similar component or factor. Factor analyses are carried out by examining the pattern of correlations, whether negatively or positively, between the observed variables with highly correlated variables interpreted as likely to be influenced by the same factors (De Coster, 1998). The interpretation of factor loadings against a variable is usually by rule of thumb, with loadings ranging from as low as 0.40 and as high as 0.70 and above being interpreted as represented by the respective factor. Results of factor analysis are shown in table 4.9.

3.4 Population and study sample

Zikmund (2003) defines a population or universe as a complete group of entities that shares some common set of characteristics. For the purposes of this research study, the financial statements and data of all the JSE-listed companies constituted the relevant population as at 31 October 2012, the date of downloading the data. On this date, there were 527 listed companies on the OSIRIS database, and depending on the date of the listing of the company, all the financial statements were available. Although, if a company had, for example, been listed only in the previous two years,

then the database would still bring up the company name in all the years of inquiry but it would then populate the data fields with zero values for the years the company had not yet either been listed or included on the database. Thus, a total of 3 162 records were downloaded into Ms Excel representing the six years from 2007 to 2012.

In certain instances, some of the company records did not contain all the information required for this study and, thus, it was necessary to adopt a particular sampling method. As observed by Welman and Kruger (2001), most research projects rely on samples due to the size of the population which renders it impractical and uneconomical to involve all the members of the population. While there are advantages to sampling which include lower costs compared to dealing with an entire population as well as less labour requirements, sampling does, however, lend itself to the disadvantages of sampling error (Zikmund, 2003). Nevertheless, sampling error may be minimized by choosing a sample that is deemed representative of the population in question.

Despite the fact that all the 3 162 records were inputted into the SPSS statistical package, only 785 of the company records contained all the relevant data elements required for the purposes of this research study and thus, by default, this became the sample size. This accidental type of sampling method has been adopted in prior studies conducted by Caneghem (2009), Kim, Liu, and Zheng (2012) and Hay et al (2006). This type of sampling method is termed convenience or accidental sampling (Zikmund, 2003). The major diasadvantage of this sampling method is that it is a

nonprobability type of sampling and, thus, it is not possible to generalise the results obtained to the population in question.

3.5 Sources of data

In view of the fact that financial information on unlisted companies is not easily obtainable, the research was limited to listed companies whose data is available on public electronic databases such as OSIRIS. The OSIRIS financial database provides secondary data in the form of audited financial statements for all the JSE-listed companies in South Africa and is accessible to all the students of the University of the Witwatersrand. The data selected for this research study was therefore downloaded from the OSIRIS financial database and exported into Microsoft Excel.

The advantages of using secondary data include the ease of collection, it is less expensive to gather compared to primary data and the fact that the researcher is saved from “reinventing the wheel” as is often the case with primary data collection (Zikmund, 2003). The disadvantages include the fact that the data may have been collected for purposes other than for the purpose of the research in question (Zikmund, 2003). Notwithstanding the disadvantages, the data collected was deemed relevant for this study because historical information is static and it was available for the period of study.

3.6 Collection of data

The data was exported from the OSIRIS financial database directly into Microsoft Excel. A sample of the collection instrument containing the search criteria is shown in Appendix 2. The search criteria resulted in a total of 3 162 companies' records being downloaded for the fiscal periods commencing 1 January 2007 and ending 31 October 2012. The data was downloaded into six separate Excel worksheets in one workbook with each worksheet containing the data for one fiscal year. The method of exporting directly into Excel saved a lot of valuable time that would have been spent in transcribing the data. The major advantage of the method of direct export into Excel was that it eliminated the possibility of making transcription errors.

3.7 Data management

All the data conversion into a format suitable for uploading into the SPSS statistical package was carried out in Excel using advanced Excel formulae and manipulation procedures. This included rounding off financial figures to the nearest R1000, sorting the data into the respective fiscal years, computing the square roots of the number of subsidiaries and calculating the natural logarithms (to the base of 10) of certain variables. All the data conversion was carried out in a separate worksheet in order to preserve the original data as was downloaded from OSIRIS.

Using the Data-Sort functionality in Excel, the data was sorted firstly into company name order (i.e.: alphabetical order) and then into the "Closing date" order. Two extra columns were inserted next to the "Auditor Name" and "Closing date" variables. In the one column titled BIG4, a dummy variable of 1 was placed against the name

of the auditor firm if it belonged to the BIG4 and 0 if it did not. In the second column, titled Year, the fiscal year in which the final closing date fell was inserted, for example, a closing date of 31 March 2008, the Year applicable variable was 2008.

The details of the data conversion included the following: the variable Audit Fees (sub) th LCU in the original file was converted into a natural logarithm value to the base of 10 using the Excel formula Log10 (number) represented by Ln(AUDFEE) in the model. The same log operation was performed on Auditors Consulting Fees (sub) th LCU and Total Assets th LCU thus creating new variables which were termed Ln(NASFEE) and Ln(TA) respectively. The column INVREC contained a ratio which had been created by dividing the sum of the variables Stock th LCU and Debtors th LCU by Total Assets th LCU. Column SQRTSUB contained the square root of the No. of Rec. Subsidiaries variable while in ROA, EBIT th LCU was divided by Total Assets th LCU. In TD/TA, Total Liabilities & Debt th LCU was divided by Total Assets th LCU while in CA/CL, Total Current Assets th LCU was divided by Total Liabilities th LCU. Other non-computational columns were copied across as follows: Company Name, Auditor Firm, Closing Date, Currency, Listed/unlisted/delisted and Industry Sector. In addition, the following two columns were added: the BIG4 variable of 1 if the audit firm was a member of the BIG4 or 0 if otherwise and the Year variable being the fiscal year containing the Closing Date.

3.8 Data analysis

Data analysis consists of summarising, rearranging, ordering or manipulating data in order to render the data easy to understand and interpret (Zikmund, 2003). The

SPSS statistical package was used to analyse the data with the package producing both descriptive and inferential statistics. Both types of statistics describe the properties of a population. Descriptive statistics provide a description or summary of the information pertaining to the population while on the other hand, inferential statistics, are used to make inferences or deductions about a population based on sample observations (Wegner, 2001; Zikmund, 2003).

The data was presented in the following formats: tabulations indicating measures of central tendency and dispersion such as means, medians, standard deviations and ranges; graphs in the form of histograms, normal P-P plots and scatter plots; percentage distributions analysing market shares and other tabulations containing information on ANOVA results, factor analysis, and regression models. Measures of dispersion such as the standard deviation and range provide useful information on the location of the mean with widely dispersed observations indicating low reliability (Wegner, 2001). Graphs were used to provide a visual representation of the compliance of the data with both MRA and ANOVA assumptions namely the independence of errors, homoscedasticity and normality.

After the data conversion, the raw data was fed into SPSS statistical package, which uses the ordinary least squares method, to analyse the data. The output from SPSS included both descriptive and inferential statistics.

3.9 Validity and reliability

3.9.1 Validity

Zikmund (2003) describes validity as “the ability of a measure … to measure what it is supposed to measure” while Bryman & Bell (2007) contend that validity is concerned with the integrity of the results of a research study. There are two types of validity namely external and internal (Creswell, 2009). External validity or population validity is concerned with the generalisability of the results of a study to the population to which the research hypothesis applies (Welman & Kruger 2001; Creswell 2009). In view of the fact that the sample used in this study was selected by default, using a non-probability sampling method, the results will not be generalizable to the population of listed companies.

On the other hand, the internal validity of a conclusion refers the extent to which it accurately attributes the changes in the dependent variable to the independent variable and not to any other factors (Welman & Kruger, 2001). For the purposes of this study, various regression diagnostics such as tests for normality, heteroscedasticity and multicollinearity were carried out to enhance the validity of the regression models.

3.9.2 Face or content validity

Zikmund (2003) defines face or content validity as the the subjective agreement among experts, in an area of knowledge, that a scale logically measures what it purports to measure while providing adequate coverage of the concept. In regression

modelling, the model fitness is measured by R^2, which is termed the coefficient of determination (Zikmund, 2003). R^2 explains the proportion of variation in the dependent variable which is explained by the independent variables with values close to 1 implying that most of the variability in the dependent variable is explained by the regression model (Montgomery et al., 2006). R^2 is also known as the correlation ratio. The interpretation of whether a ratio is either high or not is relative depending on the context of the research and, thus, it is a subjective evaluation based on theory and prior research within a particular area of study (Gamst et al, 2008).

Prior research studies on audit fees have yielded a range of results for R^2. Ebrahim (2010) recorded model fitness for the years covered by his study ranging from 0.73 to 0.81; Hay et al. (2006), accepted adjusted R^2 ranging from 0.77 to 0.79; Ireland and Lennox (2002), recorded R^2 ranging from 0.82 to 0.86 while Cameran (2005) recorded an R^2 of 0.74 and an adjusted R^2 of 0.73.

3.9.3 Construct validity

Construct validity refers the degree to which the results of a research study conform to a network of related hypotheses which are generated from the relevant theory on the concepts on which the study in question focuses. Construct validity is established during statistical analysis (Zikmund, 2003). According to Zikmund (2003), if the measure behaves in an expected manner and displays a pattern of inter-correlation with other variables, then this confirms the existence of construct. In this research study, two hypotheses were formulated and were tested using regression models run

in SPSS. The ANOVA test was also used to test the hypotheses. The results are discussed in detail in chapter 4.

3.9.4 Reliability

In quantitative research, the issue of reliability is concerned with whether the research study can be replicated over time using the same group of respondents (Zikmund, 2003). The replicability of this research study was assured in that the secondary data used was static and is available on the OSIRIS database for future research. Also reliability is derived on the integrity of all listed companies to comply with the IFRS framework, the requirements of the Companies Act, the corporate governance principles contained in King-III and the specific requirements of the JSE. Lastly, the regression models were run using only companies with relevant and complete data.

3.10 Assumptions, limitations and delimitations

In view of the fact that a nonprobability sample was used in the research study, the research results are not generalisable to all listed companies on the JSE. The scope of the research was also limited to the impact of one of the changes in King-III namely the introduction of an Integrated Report and, thus, the results of the research may not be interpreted as to cover the entire spectrum of the changes indicated in King-III as compared to King-II. In addition, the research sample assumed that data completeness meant that a company would have incurred both audit and non-audit service fees. In real life, this is not always true as some of the consultancy services

that auditors usually offer may be “in-sourced” to the internal audit department in other companies. The research also assumed that the statutory auditor was also the provider of non-audit service fees. Since the concept of integrated reporting is still in its infancy stages, coupled with the fact that compliance is voluntary, the research results may be affected by the rate of uptake of the new concept by the listed companies. Lastly and quite importantly, the results have to be interpreted with the full knowledge that MRA does not imply a cause-and-effect relationship between audit fees and non-audit service fees.

CHAPTER 4 - RESULTS AND DISCUSSION

4.1 Introduction

This chapter presents and discusses the results of the regression models. The descriptive statistics in respect of the variables used in the models will be presented first. These will be followed by a discussion of the regression diagnostics which were carried out to ensure that the underlying assumptions of multiple regression analysis (MRA) were not violated in order not to invalidate the research results. The empirical results of the pooled regression and the cross-sectional models then follow and are discussed in relation to the research questions and accompanying hypotheses. For reasons of confidentiality, the BIG4 audit firms in South Africa will be referred to in the report as Firm 1, Firm 2, Firm 3 and Firm 4.

4.2 Descriptive statistics

Table 4.1 presents the descriptive statistics pertaining to the raw data before any transformation was undertaken on some of the variables.

Descriptive statistics are used to summarise information about a population (Zikmund, 2003) by conveying more precise information about the behaviour of the random variables through measures of central location *(the mean and the median)* and also measures of dispersion *(the standard deviation and the range)* (Wegner, 2001). The measures reduce huge volumes of data into a simple format to enable the understanding of a population sample.

Table 4.1: Descriptive statistics

VARIABLES	Year	Mean	Median	Standard Deviation	Minimum	Maximum	N
AUDFEE (R 000)	*2007*	5,197	1,200	10,328	2	86,000	140
	2008	5,452	1,341	10,758	3	75,000	246
	2009	9,409	1,844	50,441	8	794,000	260
	2010	6,492	1,927	14,696	123	160,000	255
	2011	8,222	1,802	32,227	50	471,654	244
	2012	10,682	1,826	46,173	94	444,906	98
NASFEE (R 000)	*2007*	2,604	555	8,842	3	76,000	93
	2008	2,466	355	11,706	1	149,000	169
	2009	4,718	595	26,404	1	309,900	180
	2010	4,152	574	24,494	2	322,000	179
	2011	4,629	578	24,662	1	303,000	161
	2012	7,561	382	41,916	4	315,000	57
TA (R 000)	*2007*	7,582,554	945,367	17,557,296	8,390	119,065,000	140
	2008	7,899,322	812,614	19,108,669	13,058	170,106,000	246
	2009	7,769,205	862,834	18,390,186	12,586	156,237,000	260
	2010	7,715,801	984,600	18,572,968	3,006	155,873,000	255
	2011	8,443,589	1,116,032	21,390,618	1,683	181,408,000	244
	2012	8,254,445	1,120,868	23,811,649	100	203,753,000	98
INVENTORY (R 000)	*2007*	849,021	81,118	1,830,246	77	14,399,000	118
	2008	873,547	86,033	2,084,315	-	20,088,000	203
	2009	800,583	92,423	1,758,544	18	14,589,000	210
	2010	827,991	106,659	1,927,389	-	16,472,000	207
	2011	915,716	113,459	2,266,116	-	18,512,000	196
	2012	974,656	105,420	2,708,175	74	20,668,000	73
ACCOUNTS	*2007*	788,570	112,442	1,866,210	101	14,733,000	135
RECEIVABLES	*2008*	785,344	91,309	1,961,177	-	18,720,000	240
(R 000)	*2009*	707,561	100,571	1,547,381	-	11,794,000	250
	2010	741,566	101,615	1,714,864	-	17,074,000	247
	2011	813,836	101,076	2,066,040	-	20,398,000	232
	2012	1,045,047	112,483	2,734,081	-	21,157,000	92
NO.OF	*2007*	20		34	-	355	140
SUBSIDIARIES	*2008*	19		29	-	355	246
	2009	19		28	-	355	260
	2010	18		27	-	355	255
	2011	18		28	-	355	244
	2012	16		16	-	79	98
EBIT	*2007*	1,162,255		3,730,245	-3,337,000	26,120,000	138
	2008	1,084,215		3,912,632	-16,709,000	33,770,000	245
	2009	816,533		2,897,845	-1,815,000	31,720,000	260
	2010	1,049,315		4,316,873	-3,460,200	45,495,000	253
	2011	1,038,849		4,123,807	-1,519,860	39,283,000	243
	2012	1,102,795		4,207,064	-514,871	36,994,000	95

The mean audit fees increased by 105.56% from R5,197,000 in 2007 to R10,682,000 in 2012. The year-on-year mean growth was 5% in 2008 as compared to 2007, 73% in 2009, a drop of 31% in 2010 and then growing again by 27% and 30% in 2011 and 2012 respectively. The growth in non-audit service fees mirrored a similar pattern of growth of 5% in 2008 (same as audit fees), registering the highest rate of 91% in 2009, experiencing negative growth in 2010 and then growing by 11% and 63% in 2011 and 2012 respectively. It would appear that the negative growth in 2010 was in tandem with the negative decline of minus 1.5% recorded by the economy of South Africa in the same year (African Economic Outlook, 2013).

While both audit fees and non-audit service fees registered huge increases of 73% and 191% respectively in 2009, the rest of the variables experienced a decline in the growth of their mean values as follows: Total Assets, -2%; Inventory, -8%; Accounts Receivables, -10%; and EBIT, -25%. The majority of studies confirm a high correlation between audit fees and the size of the client as measured by Total Assets. In contrast, the growth of the mean of Total Assets did not conform to this correlation as growth was significantly more erratic and also smaller as compared to audit fees as follows: 4% in 2008; -2% in 2009; -1% in 2010; 9% in 2011 and another decline of -2% in 2012. Over the period of the study, the maximum audit fees charged by the auditors increase by 417% from R86 million in 2007 to R444.9 million in 2012, while Total Assets grew by only 71% from R119 million in 2007 to R203 million in 2012.

The average number of subsidiaries over the period was between 18 and 19 with the maximum number of subsidiaries between 2007 and 2011 being 355. In 2012 this

maximum declined to 79 and this could be as a result of the fact that less data was available for 2012 as it was not a full fiscal year at the date of downloading the data. The growth in EBIT was 42% over the period of study and this clearly lagged behind the growth in both audit and non-audit service fees.

Table 4.2: King-III regression data: distribution by audit firm type

YEAR	BIG4	% of TOTAL	Non-BIG4	% of TOTAL	TOTAL
2007	65	70%	28	30%	93
2008	121	73%	45	27%	166
2009	127	74%	45	26%	172
2010	121	74%	42	26%	163
2011	106	74%	37	26%	143
2012	35	73%	13	27%	48
TOTAL	**575**	73%	**210**	**27%**	**785**

Table 4.2 analyses the 785 companies' data which were used in the regression models, classified according to the type of audit firm (BIG4 or Non-BIG4) that the companies in question engaged. In 2007, 65 companies were audited by the BIG4, constituting 70% of the 93 companies' data in that year. In all the subsequent years, the proportion improved to above 70%. The total market share of the BIG4 for the period comprised 575 companies or 73% of the market.

Table 4.3: Analysis of companies before and after King-III

Period	Number of companies	%
Pre-King-III	453	58%
Post King-III	332	42%
TOTAL	**785**	**100%**

Table 4.3 shows that there were 453 and 332 companies' data in the regression model pre and post King-III respectively. The disparity was mainly as a result of the fact that there was more fiscal years pre-King-III in the period covered by the study. Nevertheless, the difference is not that significant despite the post King-III period being considerably shorter than the pre-King-III period. It would appear that this information confirms that companies have become more aware of the importance of complying with corporate governance principles.

Table 4.4: BIG4 market share analysis

	Firm 1		Firm 2		Firm 3		Firm 4		Total	
2007	23	35%	6	9%	20	31%	16	25%	65	100%
2008	38	31%	13	11%	32	27%	38	31%	121	100%
2009	43	34%	11	9%	35	27%	38	30%	127	100%
2010	42	35%	12	9%	31	26%	36	30%	121	100%
2011	33	31%	12	11%	25	24%	36	34%	106	100%
2012	12	34%	2	6%	11	31%	10	29%	35	100%
Total	**191**	**33%**	**56**	**10%**	**154**	**27%**	**174**	**30%**	**575**	**100%**

Table 4.4 analyses the market share occupied by each of the BIG4 audit firms during the period 2007 to 2012. During this period, Firm 1 was the most dominant as it occupied the top position in 2007, 2009, 2010, and 2012 with market shares of 35,

34, 35 and 34% respectively. Firm 4 was the second highest during the period although it was the highest in 2011 with 34% of the market share, and shared the highest position with Firm 1 in 2008, with both firms achieving 31% respectively. The average market shares for the period shows the ranking, in order of market share, as follows: Firm 1 (33%), Firm 4 (30%), Firm 3 (27%) and Firm 2 (10%).

4.3 Regression diagnostics

Regression diagnostic are tests which are performed on data to ensure that the results of regression models are not invalidated as a result of violating the key assumptions of MRA. According to Sheather (2009), multiple regression analysis has the following four underlying assumptions: (1) there must be a linear relationshp between the dependent variable/s ($Y_{1...n)}$ and the independent variable/s ($X_{1...n);\ (2)}$; (2) the errors must be independent of each other; (3) the errors must have a common variance (homoscedaciticity); and (4) the errors must be normally distributed with a mean of zero (0).

Assumption one and three on linearity and the common variance of errors were tested using scatter plots (See Appendices 1a to 1g). The scatter plots for all the cross-sectional models from 2007 to 2012 as well as the pooled model showed no discernible pattern in the plotted values. This demonstrates that the data did not violate the assumptions of MRA as regards linearity and the variance of errors. Any discernible patterns would have indicated an uneven distribution of the residuals about the regression line.

The second assumption that the errors must be independent of each other was tested by computing the both the Durbin-Watson and the Variance Inflation Factor (VIF) statistics for each model. Both statistics were computed as part of the SPSS package output and are summarised in tables 4.5 and 4.6 below. All the cross-sectional regression models were characterised by Durbin-Watson statistics in the range >1 and <3, thus, suggesting that there was no correlation among the variables. Values of the Durbin-Watson statistic range from 0 to 4 and as a general rule, the residuals are uncorrelated if the value of the statistic is approximately 2, with a value close to 0 indicating a strong negative correlation while a value of 4 indicates a strong positive correlation. The independence of errors was also confirmed by the VIFs as depicted in table 4.6.

Table 4.5: Durbin-Watson statistics

Year	Durbin-Watson statistic
2007	2.040
2008	1.756
2009	2.049
2010	1.858
2011	1.786
2012	1.776
Pooled	1.318

Table 4.6: Variance Inflation Factors

VARIABLE	2007	2008	2009	2010	2011	2012	POOLED MODEL
Ln (NASFEE)	2.161	2.15	1.833	1.687	1.977	3.117	1.888
INVREC	1.162	1.094	1.181	1.14	1.237	1.388	1.114
Ln (TA)	2.538	2.498	2.481	2.22	2.715	4.342	2.497
ROA	1.083	1.081	1.142	1.18	1.278	1.309	1.093
SQRTSUB	1.58	1.556	1.556	1.475	1.536	1.967	1.536
TD/TA	1.609	1.346	1.512	1.457	1.181	2.142	1.101
CA/CL	1.714	1.305	1.454	1.514	1.209	1.805	1.036
Firm 1	1.695	1.854	1.744	1.722	1.726	2.062	1.727
Firm 2	1.339	1.308	1.303	1.338	1.374	1.291	1.294
Firm 3	1.386	1.475	1.477	1.573	1.473	1.785	1.453
Firm 4	1.569	1.66	1.643	1.668	1.729	1.921	1.634
King3							1.095

A VIF is a measure of how much the variance of an estimated regression coefficient increases if the independent variables are correlated. VIFs are used to check for the existence of multicollinearity in regression variables. Multicollinearity arises in regression analysis when strong correlations exist among the independent variables. This results in incorrect regression coefficient signs as well as to statistically insignificant independent variables. The highest VIF of 4.342 was recorded against the variable Ln (TA) in 2012 while the lowest VIF of 1.036 was recorded against the variable CA/CL in the pooled model.

As depicted in table 4.6, all the VIFs were well below a value of 5, which, according to Sheather (2009), is the acceptable cut-off point. Hay et al (2006) accepted VIFs

below a value of 10 and it would appear that this is also the acceptable norm in practice. It may therefore be safely concluded that multicollinearity was not a problem in all the regression models which were run in this research study, otherwise the models would have been poorly estimated.

The fourth and final assumption of MRA being that the errors must be normally distributed with a mean of zero (0) was tested by observing the histograms and normal probability plots of the residuals (See Appendices 1a to 1g). A visual inspection of the histograms showed that the data for all the years followed a normal distribution while the normal probability plots showed that all data points were almost in a straight line. It was therefore evident that both the histograns and normal probability plots confirmed the normality of the data.

4.4 OLS regression results

4.4.1 Pooled regression model

A pooled regression model was run with the log of audit fees as the dependent variable. The results of the model are presented in table 4.7.

Table 4.7:

Panel A: Pooled regression model results

Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.	Collinearity Statistics	
	B	Std. Error	Beta			Tolerance	VIF
(Constant)	0,943	0,141		6,695	0,000		
Ln (NASFEE)	0,138	0,015	0,205*	9,400	0,000	0,530	1,888
INVREC	0,111	0,053	0,035*	2,109	0,035	0,898	1,114
Ln (TA)	0,474	0,019	0,630*	25,154	0,000	0,401	2,497
ROA	-0,183	0,062	-0,049*	-2,967	0,003	0,915	1,093
SQRTSUB	0,037	0,005	0,147*	7,497	0,000	0,651	1,536
TD/TA	0,172	0,056	0,051*	3,071	0,002	0,908	1,101
CA/CL	0,000	0,000	0,004	0,221	0,825	0,965	1,036
Firm 1	0,055	0,029	0,039	1,891	0,059	0,579	1,727
Firm 2	0,252	0,042	0,107*	5,946	0,000	0,773	1,294
Firm 3	0,091	0,029	0,06	3,141	0,002	0,688	1,453
Firm 4	0,035	0,029	0,024	1,172	0,242	0,612	1,634
King3	0,052	0,032	0,027	1,619	0,106	0,913	1,095

**** Significant at p-value <0.05***

Panel B: Pooled model summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Durbin-Watson
1	0,898	0,806	0,803	0,2682047	1,318

Panel C: Pooled model ANOVA results

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	230,636	12	19,22	267,186	0,000
	Residual	55,533	772	0,072		
	Total	286,169	784			

The pooled regression sought to answer research question 1 as to whether Post King-III, auditors in South Africa were charging an audit fee premium in response to the recommendations of the code on integrated reporting. The model showed a good fit with an R^2 of 80.6% and adjusted R^2 of 80.3%. The high coefficient of determinations means that the model was well specified and accounted for 80.3% of the change in the dependent variable. This compares favourably with prior studies which were conducted by Jaggi and Low (2009). Their three models showed adjusted R^2 of 66.75%, 66.88% and 66.26% respectively, while the OLS regressions of Hay et al (2006) achieved adjusted R^2 of 77.6%, 77.4% and 79.2% respectively.

The ANOVA test in Panel C shows a significant F-statistic of 267.186 ($p<0.05$) thus indicating that the null hypothesis was not true. The alternate hypothesis was therefore accepted. Thus the implication is that post King-III, the BIG4 audit firms were charging an audit fee premium as compared to the non-BIG4 firms. This was clearly evidenced by the statistically significant coefficients for both Firms 2 and 3 as was measured by the t-statistics of 5.946 and 3.141 (both at $p<0.05$) respectively. Firms 1 and 4 both had positive coefficients, thus implying that they were charging higher fees as compared to the non-BIG4 although the premium was not statistically significant.

The King3 variable, which indicated whether a company's data had been audited either before or after the introduction of King-III, also showed a positive effect on audit fees although it was not statistically significant with a t-statistic of 1.619 ($p>0.05$). This indicated that the King3 variable contributed positively to the audit fees charged by auditors post the introduction of King-III.

All the other independent variables displayed statistical significance with audit fees except for CA/CL (current ratio). This contradicts the findings of other research studies conducted by Whisenant et al (2003) and Hoitash et al (2007) who found the current ratio to be statistically significant with audit fees. But, the findings of this current study are consistent with the results of Hay et al (2006) who did not find any statistical significance between audit fees and the current ratio. Nevertheless, the mixed results on the variable may indicate a lack of consensus as to whether the variable measures either liquidity or risk. Caneghem (2009) included the ratio in his study as a proxy for short-term liquidity while Blankley et al (2012) included it as a control for audit risk. The coefficients of the rest of the variables are explained in the next paragraphs.

Consistent with studies conducted by Ebrahim (2010) and Hoitash et al (2007), this study found that profitability, as measured by ROA, was negatively correlated with audit fees with a significant coefficient of -0.049 ($p<0.05$). This appears to resonate with reality in that profitable companies tend to be perceived as less risky compared to non-profitable companies and hence, they attract lower audit fees. The contrary is true of less profitable companies which tend to attract higher audit fees as their perceived risk is also higher, even though this contradicts with the results found by

Simunic (1980), who found the PROFIT variable to be insignificantly correlated to audit fees.

Total Assets, represented by Ln (TA), with a t-statistic of 25.154 ($p<0.05$), were found to be statistically significantly correlated with audit fees. This is confirmed by a majority of studies which found a statistically significant relationship between size of the auditee as measured by Total Assets and audit fees (Jaggi & Low, 2011; Hay et al 2006; Hoitash et al, 2007; Charles et al, 2010; Caneghem, 2009). According to Charles et al (2010), size accounts for close to 70% of the cross sectional variation in audit fees as large firms require more audit effort, as they have more transactions, larger balances and higher agency costs, as well as attracting more public scrutiny. Accordingly, they present a higher risk to the auditor (Naser & Nuseibeth, 2007).

Prior studies (Bell et al, 2001; De Berg et al, 1991; Palmrose, 1986; Simunic, 1984) also recorded a significant positive association between audit fees and non-audit service fees. This finding was confirmed in this research study with the significant t-static of 9.400 ($p<0.05$). Thus, this confirms the finding of prior studies which posited that the positive association between audit fees and non-audit service fees was a result of the existence of knowledge spill-overs between the two services as well as the increasingly blurred identities of the two services resulting from, among other reasons, the arbitrary allocation of fees in the books of the auditee as well as incentives for audit partners to misclassify non-audit fees by grouping them together with audit fees (Hay et al, 2006).

All the four auditor firm variables displayed positive coefficients thus attesting to the existence of an audit fee premium in the model. Firms 2 and 3 displayed statistically

significant relationship with audit fees as measured by the t-statistics of 5.946 and 3.141 ($p<0.05$) respectively. This may, in turn, be as a result of the BIG4 auditors being the natural choice of large clients (Carson, 2009), who require the services of the BIG firms to meet their needs. Maybe, as a result, in such cases, the BIG4 audit firms tend to justify their higher fees on the premise that they are able to provide higher audit quality, better auditor independence as well as advanced and varied audit techniques as compared to the smaller audit firms (Chaney et al, 2004; DeAngelo, 1981; Ireland & Lennox, 2002).

Both INVREC and SQRTSUB displayed positive significant relationships with audit fees with t-statistics of 2.109 and 7.497 ($p<0.05$) respectively. The existence of a number of subsidiaries leads to greater diversification and decentralisation of the financial reporting entity points (Simunic, 1980) as well as increasing the volume of work and complexity associated with consolidated accounts (Ireland & Lennox, 2002). On the other hand, huge stocks of inventories often mean that the audit is complex as a result of both the nature of the transactions and the complicated standards on recognition and measurement, as well as the use of professional judgement to assess probable future outcomes (Blankley et al, 2012).

Finally, the variable TD/TA displayed a significant relationship with audit fees with a t-statistic of 3.071 ($p<0.05$). According to Simunic (1980), measures of leverage represent the risk of an auditee failing and this, inevitably, potentially exposes the auditor to loss.

4.4.2 Cross-sectional regression model results

The results of the cross-sectional regressions from 2007 to 2012 are shown in table 4.8: Panel A and B.

Table 4.8:

Panel A: Cross-sectional models: coefficients and p-values

INDEPENDENT VARIABLES	2007		2008		2009		2010		2011		2012	
	Coefficient	*p-value*	Coefficient	*p-value*	Coefficient	*p-value*	Coefficient	*p-value*	Coefficient	*p-value*	Coefficient	*p-value*
Intercept		*0.005*		*0.014*		*0.004*		*0.000*		*0.000*		*0.130*
Ln (NASFEE)	0.458*	*0.000*	0.080	*0.066*	0.257*	*0.000*	0.183*	*0.000*	0.185*	*0.000*	0.087	*0.431*
INVREC	-0.052	*0.388*	0.058	*0.063*	0.074*	*0.047*	0.002	*0.956*	0.037	*0.343*	0.131	*0.080*
Ln (TA)	0.362*	*0.000*	0.757*	*0.000*	0.608*	*0.000*	0.629	*0.000*	0.648	*0.000*	0.785*	*0.000*
ROA	0.012	*0.832*	-0.070*	*0.024*	-0.039	*0.277*	-0.012	*0.742*	-0.023	*0.561*	-0.035	*0.625*
SQRTSUB	0.130	*0.064*	0.116	*0.002*	0.125*	*0.003*	0.181*	*0.000*	0.188	*0.000*	0.051	*0.562*
TD/TA	0.022	*0.752*	0.042	*0.225*	-0.024	*0.564*	0.078	*0.064*	0.071	*0.062*	-0.159	*0.086*
CA/CL	-0.079	*0.275*	-0.044	*0.195*	-0.087*	*0.034*	-0.056	*0.189*	0.010	*0.801*	-0.244*	*0.006*
Firm 1	0.003	*0.965*	0.083*	*0.039*	0.051	*0.257*	0.042	*0.355*	0.051	*0.260*	0.015	*0.870*
Firm 2	0.086	*0.181*	0.123*	*0.000*	0.150*	*0.000*	0.083*	*0.039*	0.075	*0.067*	0.048	*0.495*
Firm 3	0.161*	*0.015*	0.106*	*0.003*	0.053	*0.202*	0.001	*0.973*	0.058	*0.172*	0.032	*0.702*
Firm 4	-0.039	*0.573*	0.000	*0.998*	0.062	*0.157*	0.011	*0.812*	0.027	*0.550*	0.100	*0.247*
R^2		0.753		0.866		0.817		0.820		0.844		0.863
Adjusted R^2		0.719		0.857		0.805		0.807		0.830		0.822
F-Statistic	22.425*	0.000	90.749*	0.000	65.014*	0.000	62.423*	0.000	64.190*	0.000	20.666*	0.000
No. of observations		93		166		172		163		143		48

Note: * Significant at p <=0.05 (two-tailed test)

Panel B: Cross-sectional models: t-statistics

Variable	2007	2008	2009	2010	2011	2012
(Constant)	2,853	2,478	2,955	4,119	4,061	1,548
Ln (NASFEE)	5,644	1,853	5,624	4,085	3,805	0,796
INVREC	-0,868	1,87	2,002	0,055	0,952	1,800
Ln (TA)	4,113	16,262	11,425	12,214	11,383	6,110
ROA	0,213	-2,282	-1,09	-0,329	-0,583	-0,493
SQRTSUB	1,878	3,144	2,965	4,323	4,387	0,585
TD/TA	0,318	1,219	-0,578	1,869	1,884	-1,768
CA/CL	-1,099	-1,302	-2,142	-1,318	0,253	-2,941
Firm 1	0,043	2,081	1,139	0,927	1,132	0,165
Firm 2	1,35	3,654	3,88	2,084	1,845	0,689
Firm 3	2,478	2,971	1,28	0,034	1,373	0,385
Firm 4	-0,566	-0,002	1,424	0,239	0,600	1,176

Cross sectional regressions were run for each of the years 2007 to 2012 in order to track if any of the BIG4 audit firms had been charging a fee premium prior to the introduction of King-III. The cross sectional regressions also presented a degree of triangulation of the pooled regression model results.

As shown in table 4.8: Panel A, all the models were well specified as shown by the high Adjusted R^2. The Adjusted R^2 ranged from the lowest specification of 71.9% in 2007 to the highest of 85.7% in 2008. The other years were as follows: 2009, 80.5%; 2010, 80.7%; 2011, 83% and 2012, 82.2%. The F-statistics for all the models were significant at $p<0.05$.

The following variables recorded interesting associations with audit fees. The NASFEE variable was positive throughout the years but was significant only in 2007,

2009, 2010 and 2011. The variable Ln (TA) was consistent with the pooled model as it was positive and significant throughout the years proving that client size was in fact the most dominant determinant of audit fees (Caneghem, 2009).

ROA had a positive coefficient only in 2007, though not significant, with the rest of the years recording insignificant negative association with audit fees except in 2008, when the association was significant. Consistent with the result in the pooled model, ROA was negatively associated with audit fees in all the years except in 2007. The result largely confirms the finding of a negative association between audit fees and ROA. Caneghem (2009) confirms this finding by stating that audit fees ought to be higher for clients with poorer performance as compared to the audit fees charged to better performing clients, as the former pose a higher risk to the auditor.

The coefficients of all the BIG4 variables were positive throughout the years, again confirming the charging of an audit fee premium by the big four firms, although they were intermittently significant throughout the period. Of interest, Firm 4 did not record any significant association in any of the years. Firm 1 was significant only in 2008 while Firm 2 was significant for three consecutive years namely 2008, 2009 and 2010. Firm 3 was significant in the two consecutive years of 2007 and 2008. In the pooled model, Firms 2 and 3 were the only BIG4 firms with positively significant coefficients, and they were also the only two firms which were significant for at least two consecutive years in the cross sectional models.

4.4.3 Factor Analysis

Table 4.9: Rotated component matrix

	Component						
	1	2	3	4	5	6	7
Ln (AUDFEE)	0.899	-0.031	0.041	0.030	0.142	0.168	-0.044
Ln (TA)	0.875	-0.125	0.110	0.123	0.176	0.118	-0.078
SQRTSUB	0.780	0.093	-0.151	-0.019	-0.158	-0.086	0.007
Ln (NASFEE)	0.756	-0.078	0.088	0.021	0.094	0.288	0.051
INVREC	-0.213	0.870	0.114	0.169	-0.008	0.080	0.024
TD/TA	0.355	0.550	-0.249	-0.311	0.015	-0.219	-0.192
INDUSTRY SECTOR	0.059	0.031	0.973	0.021	-0.034	-0.016	-0.014
ROA	0.113	0.071	0.015	0.954	0.050	-0.004	-0.014
King3	0.121	0.001	-0.037	0.048	0.976	0.039	0.014
BIG FOUR FIRM	0.272	0.012	-0.020	0.003	0.040	0.918	-0.048
CA/CL	-0.020	-0.036	-0.012	-0.006	0.014	-0.040	0.988

A factor analysis was carried out to identify the underlying factors that influenced the results of the pooled model as well as to explore further whether there was any relationship between audit fees and non-audit service fees. The variables with loadings or correlations above 0.50 with each factor are highlighted in red ink for ease of reference. Using principal component analysis and varimax rotation, it was found that seven components explained 85.05% of the variation among the variables and hence may be used to identify the underlying components which are key in determining audit fees.

The main purpose of the rotated component matrix was to show the degree of correlation between each variable and the underlying component. Consistent with

the findings of Hay et al (2006), component 1 was predominantly correlated with the variables measuring size and these were total assets, number of subsidiaries, audit fees and non-audit service fees. Component 2 appeared to be associated with the ability of a company to meet its long term liabilities as measured by inventories and receivables (INVREC) as well as the level of gearing (TD/TA). Component 3 was linked to the industry sector while component 4 was correlated with profitability. Component 5 was influenced by timeframe and that was whether the audit took place before or after the introduction of King-III. Component 6 was associated with the size of the audit firm while component 7 was correlated to short-term liquidity.

The results of factor analysis, particularly in relation to component 1, show that (1) audit fees and non-audit service fees are correlated, and (2) both audit and non-audit service fees are correlated with measures of size as measured by the number of SQRTSUB and Ln (TA) in this research study. The results reject the null hypothesis by accepting the alternate hypothesis which states that post King-III, there was a significant relation between audit and non-audit service fees. According to Hay et al (2006), their research study results showed that audit and non-audit service fees were in fact jointly determined with the determining factor being the size of the client.

4.4.4 Relation between audit and non-audit service fees

Table 4.10: Pearson Correlation Coefficients

	2007	2008	2009	2010	2011	2012
Pearson Correlation Coefficient	0.758	0.693	0.720	0.638	0.682	0.719
Significance (2-tailed)	.000	.000	.000	.000	.000	.000

The Pearson Correlation Coefficient between Ln (AUDFEE) and Ln (NASFEE) as summarised in table 4.10, showed that in the cross-sectional models run, the relationship between the two variables was highly significant throughout the years at $p<0.05$. The lowest coefficient was 0.638 in 2010 while the highest was 0.758 in 2007. The results corroborate the results of the factor analysis as well as the significant positive correlation recorded in the pooled model.

4.5 Summary

This chapter presented and discussed the descriptive statistics pertinent to the study. Tables summarising the distribution of clients between the BIG4 and non-BIG4 firms, analysing the number of companies before and after the introduction of King-III as well as the BIG4 market share completed the section on descriptive statistics. The empirical section presented the results of the regression diagnostics which were carried out to ensure that the regression results were not invalidated as a result of violation of the MRA assumptions. The chapter then concluded by presenting and analysing the results of both the pooled and cross-sectional models, including the results of the ANOVA tests, the results of the factor analysis and the Person Correlation Coefficients between audit and non-audit service fees.

The next chapter concludes the research report by drawing conclusions on the research findings and, based on those conclusions, makes recommendations on areas for future research.

CHAPTER 5 - SUMMARY AND CONCLUSIONS

5.1 Summary

The purpose of the empirical study was to evaluate the impact of integrated reporting, as recommended in King-III, on the level of both audit and non-audit service fees charged by the BIG4 audit firms to companies listed on the JSE. The study adopted a quantitative approach. Using the multiple regression analysis technique, the relationship between audit fees, as the dependent variable, and selected independent variables was evaluated. The fee model was adapted from a study conducted by Hay et at (2006), which, like all other audit fee models in prior studies, was a derivation from the seminal study of Simunic (1980).

In order to explore the research phenomena, two research questions were formulated. The first question sought to ascertain whether, post King-III, the BIG4 audit firms in South Africa were charging an audit fee premium in response to the recommendations of the code (King-III) on integrated reporting. The second research question sought to determine whether there was a correlation between audit fees and non-audit service fees as it has been empirically proven that the spill-over effects between the two services tend to make the allocation of the fees an arbitrary allocation exercise (Hay et al, 2006).

A review of the relevant literature on the research topic was carried out in chapter 2 in order to provide a theoretical underpinning to the research study. A brief overview of the seminal study conducted by Simunic (1980) led to a discussion of the regression model for this study and its variables. The regulation of auditors by both

the IRBA and the provisions of the Companies Act as well as the principles recommended in King-III were explored. It appeared from the literature review that there are no prior studies undertaken to date, post King-III, in South Africa that have attempted to determine the impact of integrated reporting on the level of both the audit fees and non-audit service fees being charged by the BIG audit firms.

The research methodology used in the study was discussed in chapter 3. The discussion focused on the population of the study, how the data was collected and analysed, including the regression diagnostics which were carried out to ensure that the results were valid and reliable.

Chapter 4 presented the findings of the research study. The research results confirmed that post King-III, auditors were charging an audit fee premium with two of the firms displaying statistically significant coefficients at $p<0.05$, while, although the other two firms displayed positive coefficients, these were not statistically significant. Thus, these findings attested to the existence of a BIG4 audit fee premium after the introduction of integrated reporting in King-III. The research findings also proved the existence of a strong correlation between audit fees and non-audit service fees.

5.2 Conclusion

The regression diagnostics confirmed that the assumptions of both multiple regression analysis and ANOVA were not violated for all the years of the study and, thus, in that respect, all the models were valid and well specified *(all adjusted R^2 were above 70%).* The models are therefore worthy of being considered for predictive purposes of audit fees as their explanatory threshold is quite high.

In order to address the first research question as to whether post King-III, auditors in South Africa were charging an audit fee premium in response to recommendations of the code (King-III) on integrated reporting, both a pooled regression and an ANOVA test were carried out. The ANOVA test was significant at p<=0.05 and thus, the null hypothesis was rejected and the alternate hypothesis, which stated that, post King-III, there was evidence that the BIG4 audit firms were charging an audit fee premium in response to the recommendations of the code on IR, was accepted.

The pooled regression displayed an adjusted R^2 of 0.803, thus, confirming that the independent variables were responsible for 80.3% of the changes in audit fees. All the coefficients on the BIG4 audit firms' variables were positive, thus confirming that the BIG4 audit firms were all charging an audit fee premium as compared to the non-BIG4 audit firms, although only the coefficients of auditor variables Firm 2 and Firm 3 were significant at the 5% level of significance. The highest coefficient on variable Firm 2 confirmed that Firm 2 was charging the highest premium. Thus, the results appear to confirm the long-held view of the existence of a BIG Firm audit fee premium. This research finding also corroborates the findings of studies on the introduction of SOX in America (Griffin & Lont, 2007; Charles et al, 2010; Ebrahim, 2010; Ciesielski & Weirich, 2006) which found the existence of a SOX-related premium. The coefficient of the King3 variable was also positive although not significant but was sufficient to prove that the introduction of King-III had been a positive factor in determining audit fees.

In response to the second research question as to whether audit fees were related to non-audit service fees, the coefficient of the variable Ln (NASFEE) was positive and

significant at $p<0.05$, thus confirming that the two fees were correlated. This finding was further corroborated by high and significant Pearson Correlation Coefficients for all the years (See table 4.10). A further test in the form of factor analysis was also carried out to confirm this relationship. The results, displayed in table 4.9, especially as regards component 1, proved that both the audit fee and non-audit service fee variables were associated with measures of size. Thus, the relationship confirms that audit fees and non-audit fees are correlated and are, therefore, jointly determined (Hay et al, 2006).

The research results appear to confirm that the improvement in the corporate governance framework, in response to global changes, has resulted in auditors in South Africa increasing the scope of their work. The provision of assurance services with regards to the forward-looking information as contained in the sustainability section of the IR, and the attendant processes thereof could bears testimony to this observation. In addition, the research study also confirmed the old-age perception that there is a relationship between audit fees and non-audit service fees which has been empirically proven to lead to an erosion of both auditor independence and audit quality. It may be that, as both the legal and corporate governance landscapes have continued to evolve, company boards and management have had to rely increasingly on the expert advice of consultants to ensure that their companies remain compliant with the JSE-listing rules, the law and best-in-class corporate governance practices and principles. In order to fully unpack the exact nature of the non-audit services that are being offered by auditors, further detailed research is required.

5.3 Areas for future research

Desktop empirical results alone cannot suffice to provide all the answers into such a broad area of study. It would, thus, be more beneficial if the research could be extended to include non-listed companies so that a more generalisable view of the auditor market in South Africa could be obtained. Desktop results would also need to be complemented by surveys directed at senior management working in both the audit profession and private corporate organisations.

Future areas of research could also attempt to quantify the percentage increase in the audit fee premium following the introduction of King-III. In order to build on the findings of this research study, more up-to-date data could be collected and analysed, using the same methodology as followed in this research study, so that the results can be comparable. In addition, since it has long been proven empirically that spill-over effects exist between audit and non-audit service fees, it is also recommended that future studies could consider combining audit fees and non-audit service fees and consider them as a composite fee. The cost of the internal audit department should also be considered in such research studies as a lot of valuable information seems to be lost if it is excluded as other companies, especially the big firms, “in-source” non-audit services and consultancy from their internal audit departments. A worthy triangulation of the research in this area would be to approach the subject by analysing the fees from the books of the audit firms, hoping that there is better allocation of costs in the books of the firms as they are the gatekeepers of global accounting standards.

In conclusion, it must be mentioned that, in view of the fact that King-III is still in its infancy in terms of being fully embraced and implemented by all companies in South Africa, and the fact that its application is on a voluntary basis, it is not possible to regard the results of this research study as conclusive at this stage. Nevertheless, the study does provide a very sound foundation and tone for future research in this interesting area.

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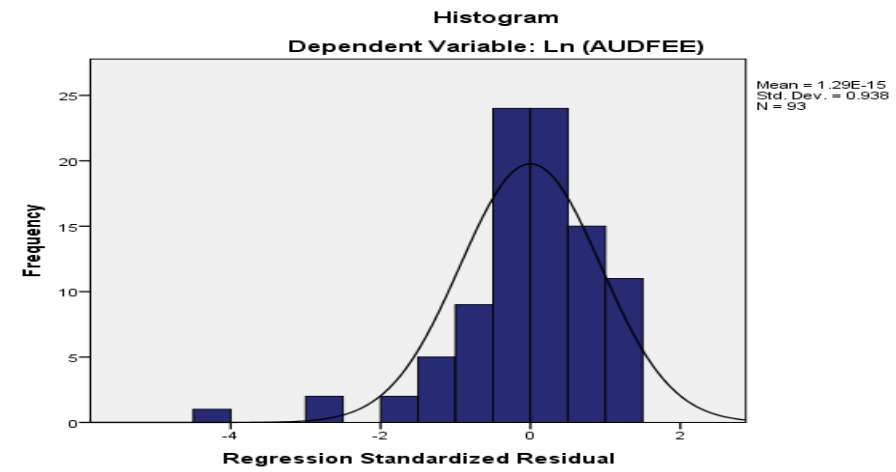
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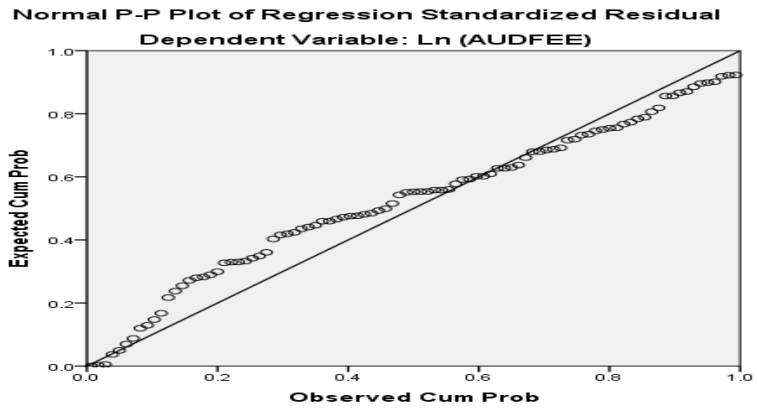
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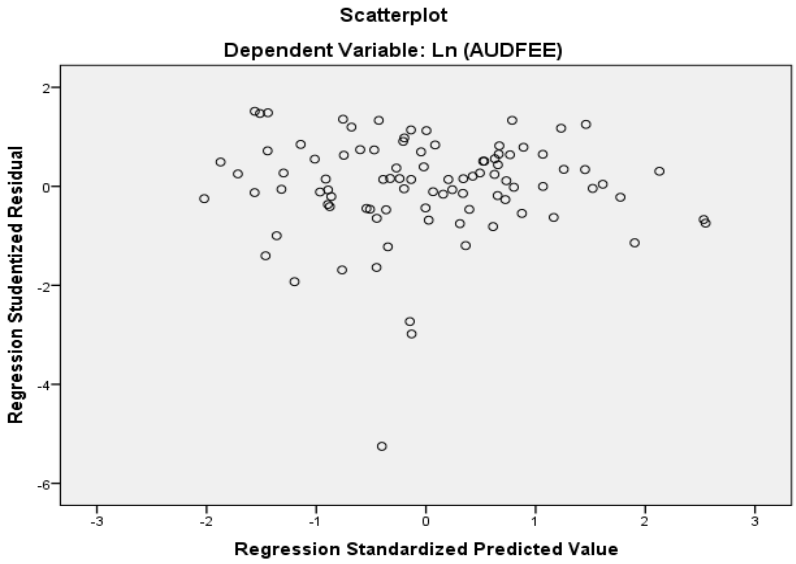
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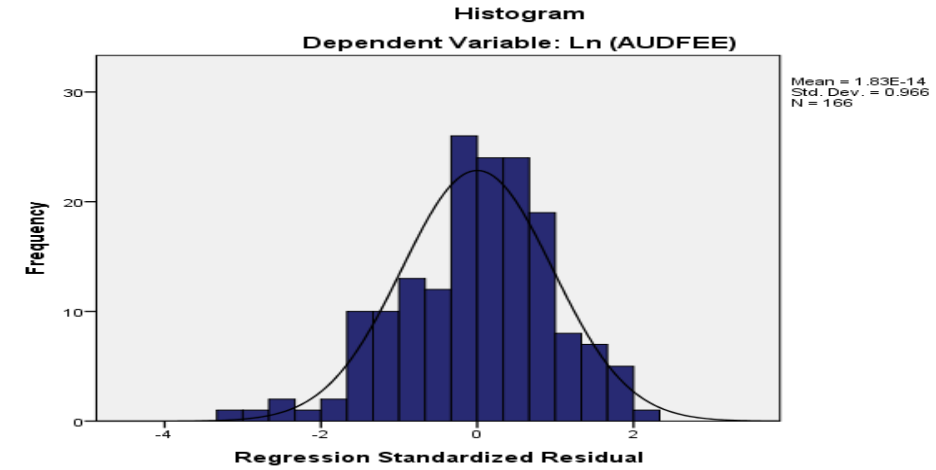
APPENDIX 1a: REGRESSION DIAGNOSTICS for 2007

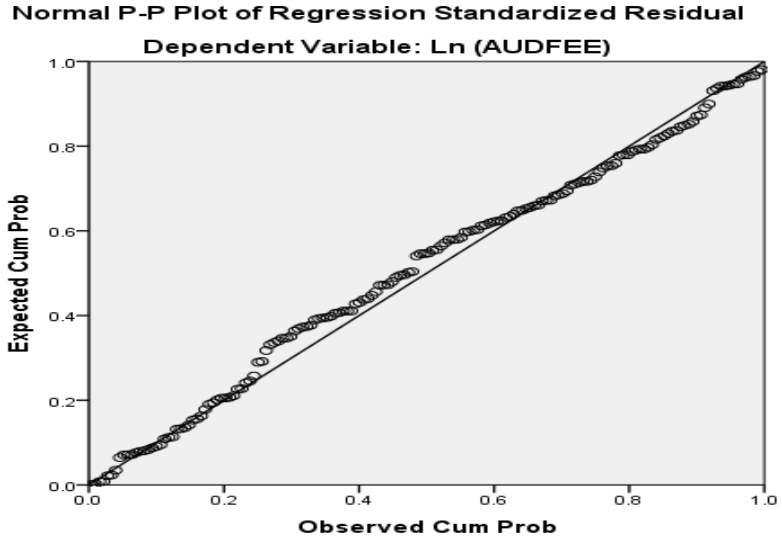


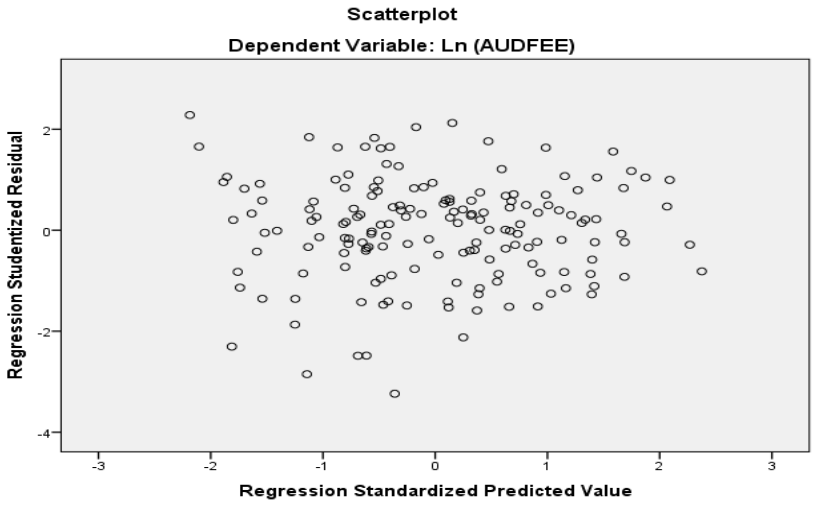




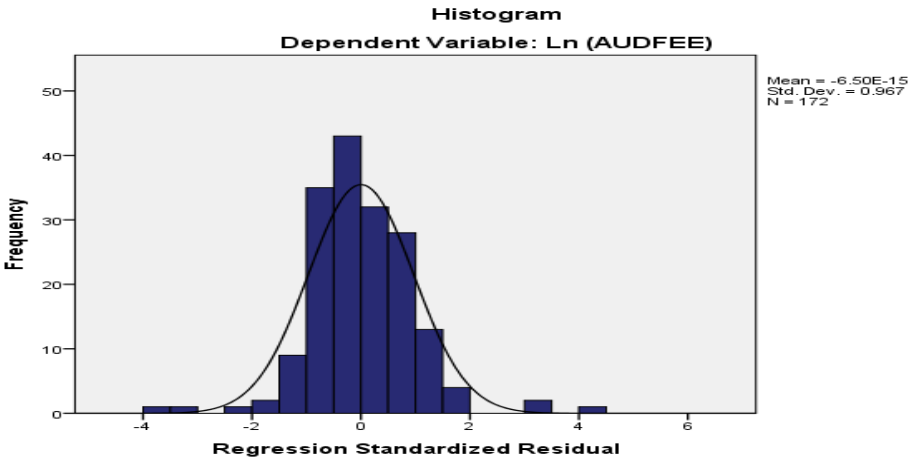
APPENDIX 1b: REGRESSION DIAGNOSTICS for 2008

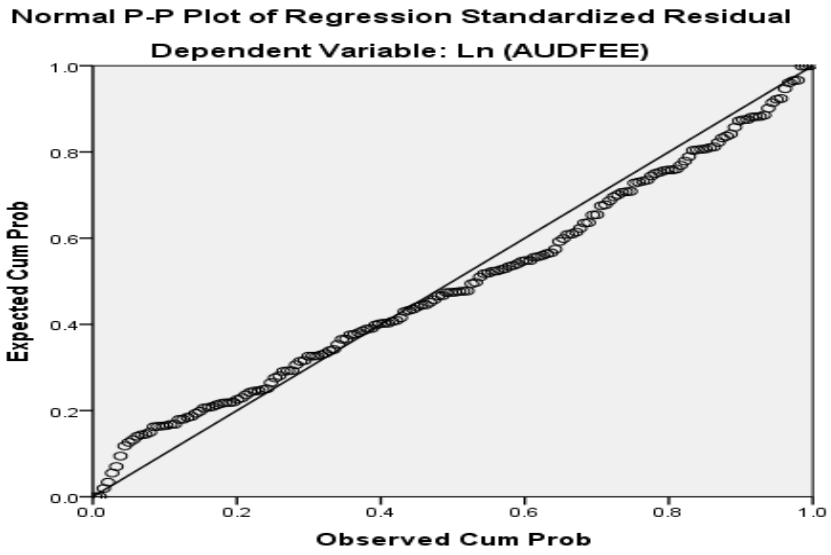


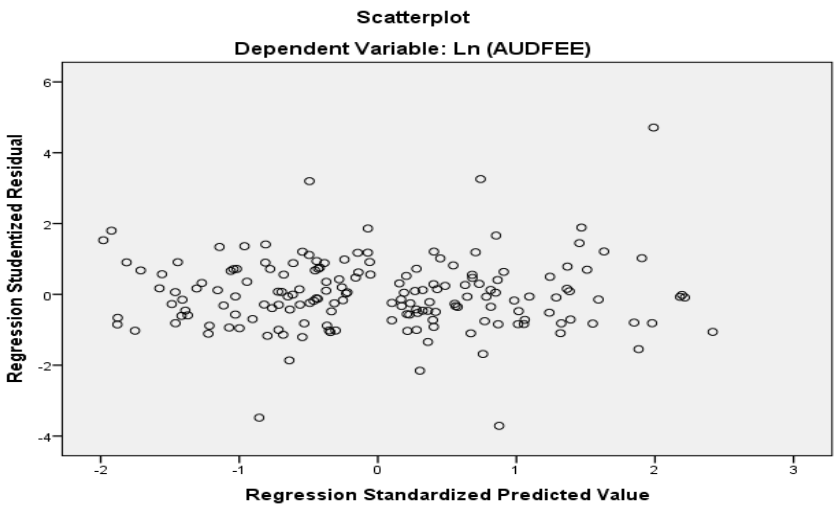




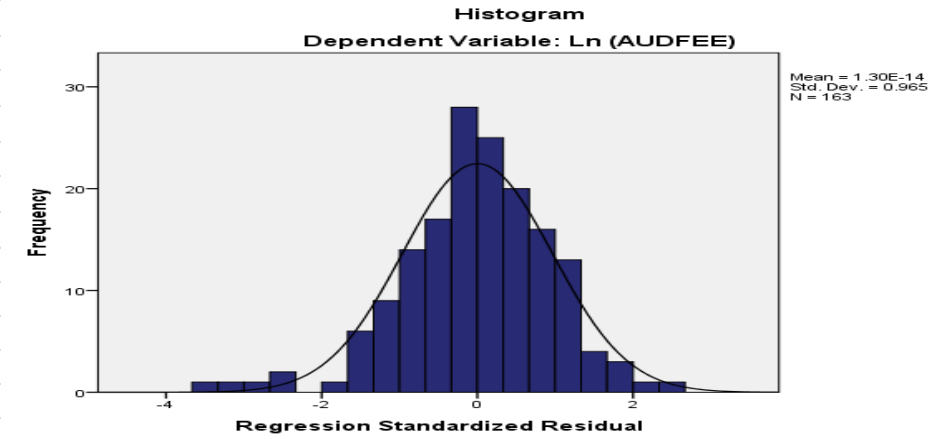
APPENDIX 1c: REGRESSION DIAGNOSTICS for 2009

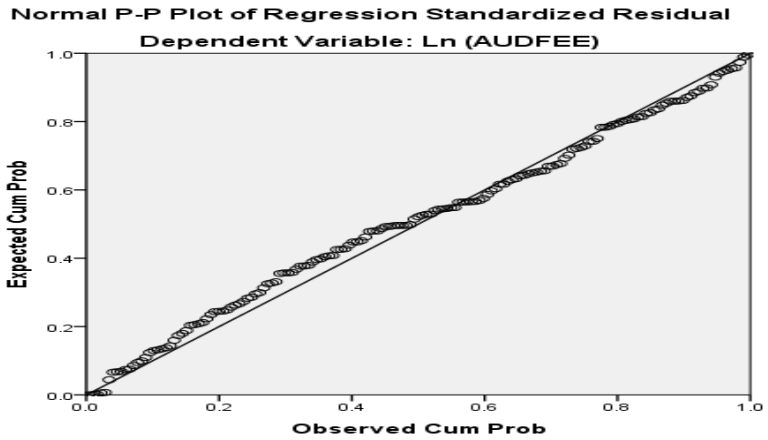


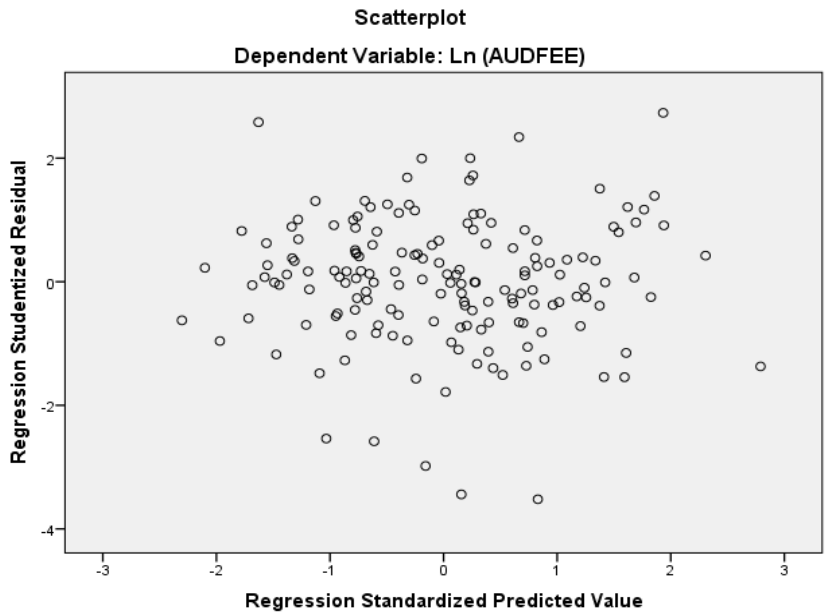




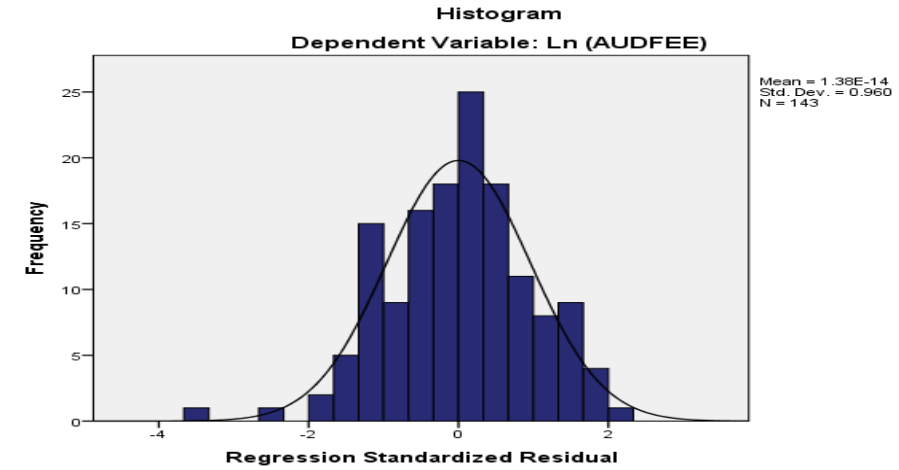
APPENDIX 1d: REGRESSION DIAGNOSTICS for 2010

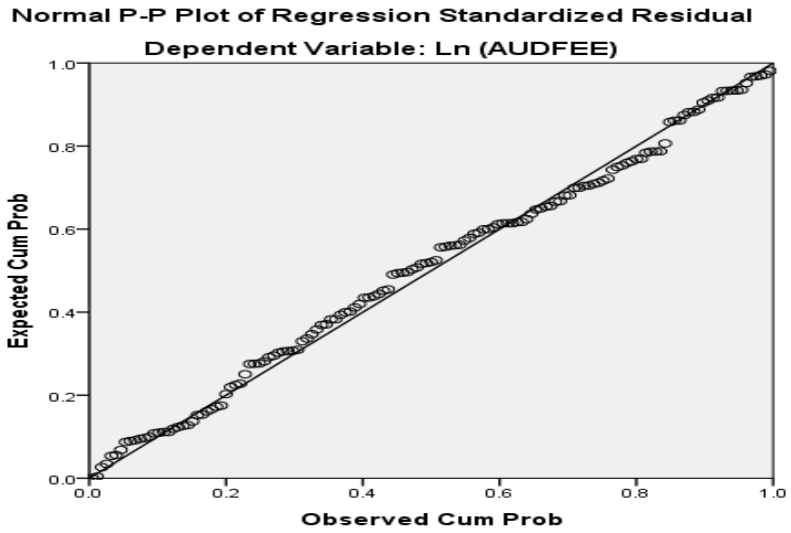


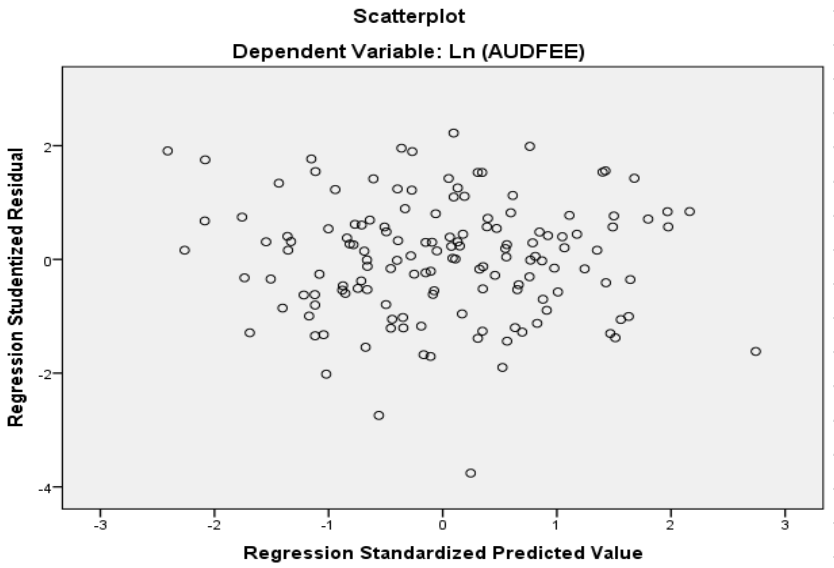




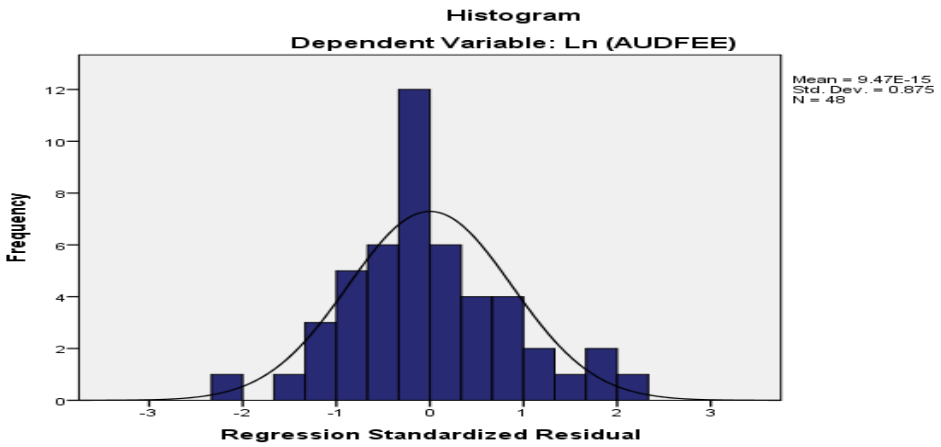
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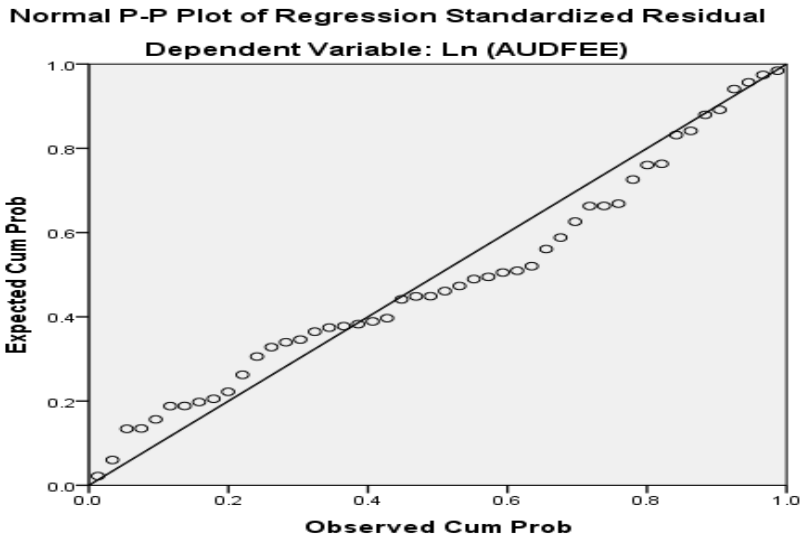


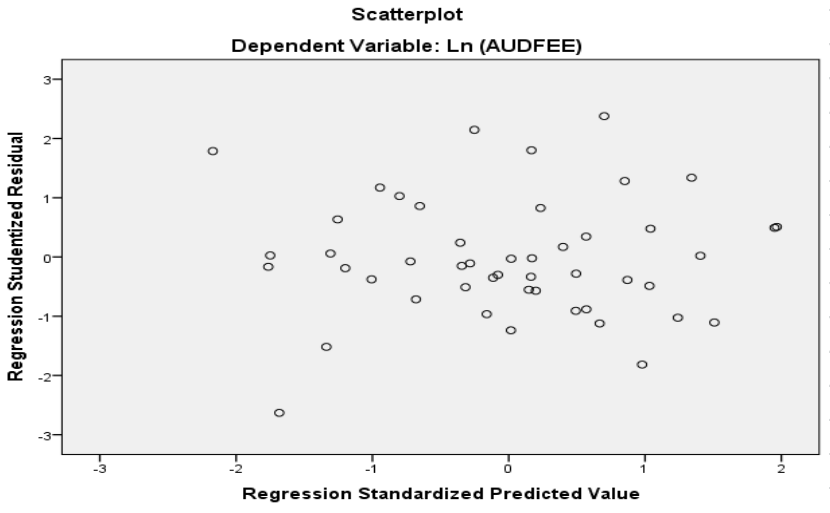




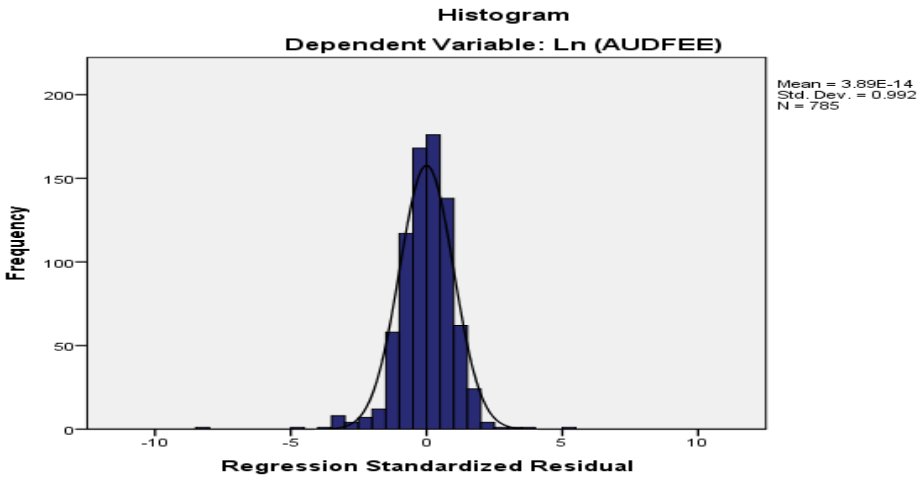
APPENDIX 1f: REGRESSION DIAGNOSTICS for 2012

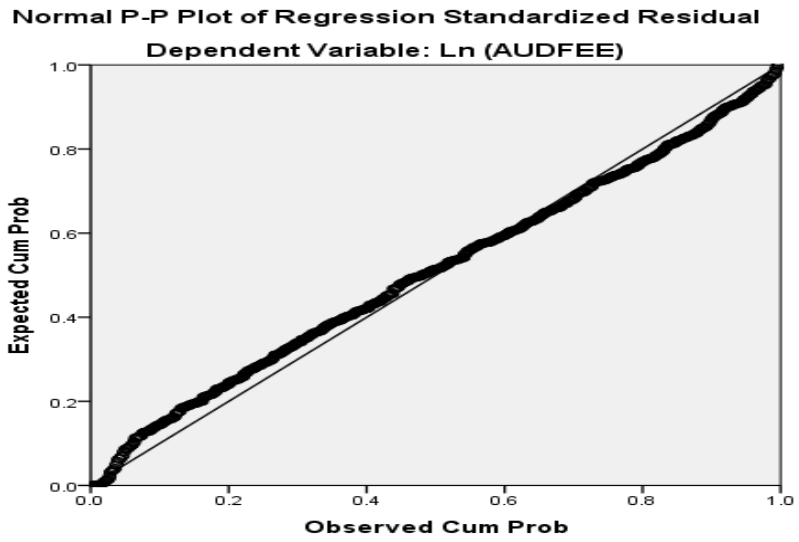


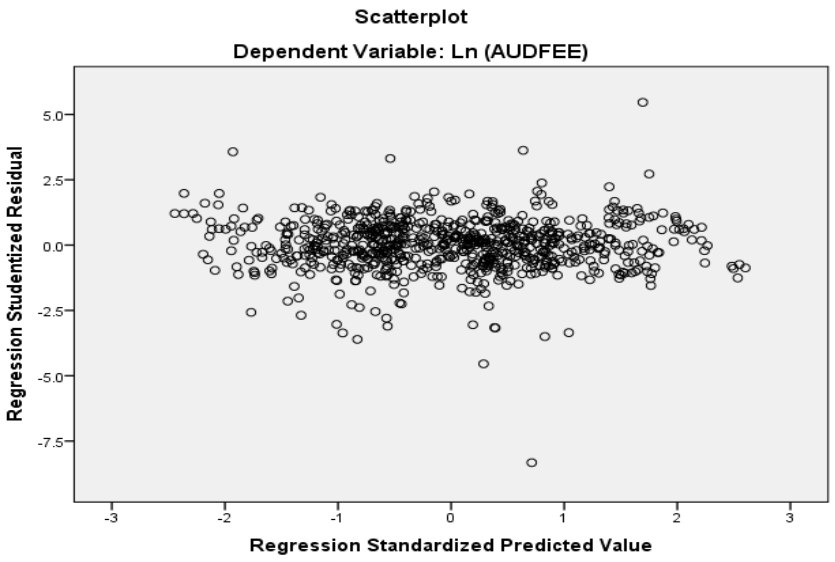




APPENDIX 1g: REGRESSION DIAGNOSTICS - POOLED MODEL







APPENDIX 2: DATA COLLECTION INSTRUMENT

	Original Columns	Inserted Columns	Type of data
1	Company Name		
2	BVD ID Number		Unique company ID on the database
3	Listed/Unlisted/Delisted		Current status on the exchange
4	FT Industry Class		Industry sector
5	Auditor Name		
6	Currency of the Statement		
7	Closing Date		Year end date of the financials
8	Audit Fees (sub) th LCU		
9	Auditors Consulting Fees (sub) the LCU		Non-audit service fees
10	Total Assets th LCU		
11	Stock the LCU		The term Inventory was used in the research
12	Debtors the LCU		The term Accounts Receivable was used in the research
13	No. of rec. subsidiaries		Number of recorded subsidiaries
14	EBIT the LCU		
15	Total Liabilities & Debt the LCU		
16	Total Current Assets th LCU		
17	Total Current Liabilities th LCU		
18		BIG4	A dummy variable of 1 if auditor firm is one of the BIG4 otherwise 0
19		Year	The fiscal year in which the year end lies