School of Accounting

Internal audit quality and its association with financial distress: An Australian context

Kum Hong CHANG (Vincent)

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DECLARATION

To the best of my knowledge and belief this study contains no material previously published by any other person except where due acknowledgement has been made.

This study contains no material which has been accepted for the award of any other degree or diploma in any university.

Signature:_____

Date:____12th September 2017_____

ABSTRACT

This study examines the impact of an internal audit function (IAF) and internal audit quality (IAQ) attributes on financial distress measure computed by Altman Z2-Score and Zmijewski ZFC-Score. Within the institutional theory ontological premises, the hypotheses are developed to test three associations using a sample of: (1) 865 firm-years observations from 2012-2014; and (2) 43 firm-years observations using a survey instrument from 2013-2014. First, results suggest that firms with an IAF (before considering IAQ attributes) could likely suffer financial distress using both scores. Second, findings show that the composite IAQ measure computed using methods consistent with the Prawitt, Smith, and Wood (2009) model is both negatively and significantly associated with financial distress when the Altman Z2-Score is used but not when the Zmijewski ZFC-Score is used. Third, results suggest that those firms with an IAF which complete risk assessments will less likely to suffer financial distress using the Altman Z2-Score. These results suggesting non-enduring and possibly spurious relationships between IAF and IAQ attribute measures provide opportunities for future research and also have implications for regulators and the internal auditing professional bodies, investors, scholars and the internal audit profession.

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DEDICATION

To my wife (Lee Yen Chang (Vivien)), my children (Priscilia, Edward and Marcus), my son-in-law (Soon Chiang Yong), my grand-daughter (Aria Summer Yong), my father (See Wah Chang), and my mother (Keau Moi Pang). I apologise for the lack of opportunities to spend time with everyone while I was completing my thesis.

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ABBREVIATIONS

AAER	Auditing Enforcement Releases
AC	Audit Committee
AFA	ASEAN Federation of Accountants
ANN	Artificial Neural Networks
ANZUIAG	Australia and New Zealand Universities Internal Audit Group
ASA	Auditing and Assurance Standards
ASEAN	South East Asian Nations
ASIC	Australian Securities and Investments Commission
ASX	Australian Securities Exchange
ASX CGC	Australian Stock Exchange Corporate Governance Council
ASX ALL ORD	Australian Securities Exchange All Ordinaries Index
BSM-Prob	Black-Scholes-Merton option-pricing model
BoDs	Board of Directors
CA	Chartered Accountant
CAE	Chief Audit Executive
CCSA	Certification in Control Self-Assessment
CESR	Committee of European Securities Regulators
CEO	Chief Executive Officer
CFE	and Certified Fraud Examiner
CFSA	Certified Financial Services Auditor
CFO	Chief Financial Officer
CGAP	Certified Government Auditing Professional
CGC	Corporate Governance Code
CIA	Certified Internal Auditor
CISA	Certified Information Systems Auditor
CLERP 9	Corporate Law Economic Reform Program 9
COSO	Committee of Sponsoring Organisations
COO	Chief Operating Officer
CPA	Certified Practicing Accountant
CPE	Continuing Professional Education
CPM	Conditional Probability Models
CRSA	COSO control-risk-self-assessment
DCs	Domestic Corporations
DOW	US Dow Jones Index
EBIT	Earnings Before Income Tax
XBRL	eXtensible Business Reporting Language
ERM-IF	Enterprise Risk Management-Integrated Framework
ERC	(Earnings quality) Earnings Response Coefficient
EU	European Union
FASB	US Financial Accounting Standards Board
FCAG	Financial Crisis Advisory Group
FRP	Financial Reporting Panel
FRRP	Financial Reporting Review Panel
FV	Fair Value
GAIN	Global Auditing Information Network
GFC	Global Financial Crisis
IAAs	Internal Audit Activities
IAF	Internal Audit Function
IAQ	Internal Audit Quality
IASC	International Accounting Standards Committee

ICA	Institute of Chartered Accountants
ICT	Information and Communication Technology
IFIAR	International Forum of Independent Audit Regulators
IFRS	International Financial Reporting Standards
IIA	Institute of Internal Auditor
IIARF	Institute of Internal Auditor Research Foundation
IOSCO	International Organization of Securities Commissions
IPO	Initial Public Offerings
IPPF	International Professional Practices Framework
ISACA	Information Systems Audit and Control Association
KPIs	Key Performance Indicators
LA	Logit Analysis
LPM	Linear Probability Models
MD	Managing Director
MDA	Multivariate Discriminant Analysis
MNCs	Multinational Corporations
MPC	Management's Prospective Comments
MTG	management-training-ground
NASDAQ	National Association of Securities Dealers Automated Quotations
NYSE	New York Stock Exchange
OLS	Ordinary Least Squares
PA	Probit Analysis
PAT	Positive Accounting Theory
PCAOB	Public Company Accounting Oversight Board
QAIP	Quality Assurance And Improvement Program
QAR	Quality Assurance Review
RBA	Reserve Bank of Australia
ROA	Return on Asset
ROE	Return on Equity
SAS	Statement of Auditing Standards
SFAC No.1	Financial Accounting Concepts No. 1
SMEs	Small-and-Medium-sized Enterprises
SEC	US Securities and Exchange Commission
SPPIA	Standards for the Professional Practice of Internal Auditing
S&P	Standard & Poor's
UKFRC	UK Financial Reporting Council
UK	United Kingdom
US	United States of America
US SEC	United States of America's Security and Exchange Commission
VIF	Variance Inflation Factor

CHAPTER ONE:
INTRODUCTION

1.1   BACKGROUND AND MOTIVATION

A continuing and significant financial distress in a firm's financial position may result in insolvency and subsequently bankruptcy (Opler and Titman 1994; Baxter 2006). However, financial distress may not result in firm facing bankruptcy if its risks associated with financial distress are detected and managed effectively in a timely manner. Financial distress can erode shareholder wealth and reduce creditor and investor trust though. It imposes significant costs on stakeholders, including costs of restructuring firm's debt (Opler and Titman 1994; Gilson 1989). Business opportunity may be lost when corporate resources are diverted to debt restructuring processes rather than for the use of productive events (Gilson 1989). In a dynamic-contracting framework with moral hazard, mechanisms at the disposal of financially distressed firm can opt for recapitalization as an alternative to liquidation basing on a cost-benefit analysis (Moreno-Bromberg and Vo 2017). On the positive side, firms that can effectively manage financial distress can gain stakeholder confidence which is highly likely to lead to an improvement in market capitalisation (Wruck 1990).

Both financial distress and corporate governance related studies have increased since the late sixties due to the trend of corporate bankruptcy reported. Managing financial distress should be part of good corporate governance practice because weak governance can lead to financial distress and the firm governance structure, *inter-alia*, can be one of many solutions to financial distress (Wruck 1990). Many empirical evidences have pointed to a negative association between financial distress with effective corporate governance specifically with the quality of the audit committee (AC) and external auditor (Rahmat, Mohd Iskandar, and Mohd Saleh 2009; Chien, Mayer, and Sennetti 2010; Salloum, Azzi, and Gebrayel 2014). Internal audit has been considered by many researchers as a main player of the corporate governance mosaic and can play an important role in mitigating financial distress risks in its quest to contribute to the improvement of effective corporate governance (Bailey, Gramling, and Ramamoorti 2003; Wallace 2004; Cohen, Krishnamoorthy, and Wright 2004; Antoine 2004). Therefore, an examination of an internal audit function (IAF) with quality attributes alone is warranted for two reasons. First, IAF possessing internal audit quality (IAQ) attributes will likely influence audit committee's and the external auditor's assessment of internal control effectiveness with respect to financial reporting and, therefore, a contribution to effective corporate governance that legitimately requiring examination (Gramling and Vandervelde 2006). Second, the scrutiny that internal auditing received following accounting scandals in major companies provides compelling evidence that not only does internal auditing matter (DeFond and Francis 2005) but is an important part of the

corporate governance mosaic (Arena and Azzone 2009). This is evidenced in the evolution of the IAF role particularly in areas involving risk management, control and governance processes, that requires a redesign of IAF processes, competencies and roles (Spira and Page 2003; Arena and Azzone 2009).

Researchers cannot disassociate audit failures as being one of the main reason for these high profile accounting scandals (Fafatas 2010; Rasso 2014; Jamal, Liu, and Luo 2016).[1] The continued failures of corporate entities have resulted in increased societal demands for responsible corporate governance (which auditors are important players) and accountability requirements (Porter 2009). Effective corporate governance, and a strong and independent component of the "tripartite audit function" (or the "audit trinity" of external auditors, internal auditors, and audit committees) are needed to ensure extensive corporate accountability (Porter 2009, p. 156)[2]. Effective accountability requires an independent monitoring mechanism, and it was no surprise that the public also pointed fingers, rightly or wrongly, at the accounting professions (Low, Davey, and Hooper 2008; Guénin-Paracini and Gendron 2010) and/or audit failures.

Many researchers (Messier and Schneider 1988; Gramling et al. 2004; Mat Zain, Zaman, and Mohamed 2015) have reported that external auditors rely on internal auditors' work to improve both the audit quality and financial reporting quality. For instance, on the adequacy of controls over financial assertions such as total assets, revenue, expenditure and others. Norman, Rose, and Rose (2010) report that recent regulation (for example, PCAOB AS5, 2007) promotes greater reliance by external auditors on the risk assessments of internal auditors.[3]

Auditing standards AUS512 (Nature and Purpose of Analytical Procedures prepared by the Auditing Standards Board of the Australian Accounting Research Foundation) and ASA 520 (2015) (Analytical Procedures – Auditing Standards Made Under Section 336 of the Corporations Act (2001)) stipulate the assessment of industry information, such as a comparison of the entity's ratio with industry averages or with other entities of comparable size in the same industry. ASA 315 (2015) (Identifying and Assessing the Risks of Material

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[1] "Audit failure" is defined differently by different researchers. For example, Francis (2004 p.346) defines it as "when generally accepted accounting principles are not enforced by the auditor (GAAP failure); and when an auditor fails to issue a modified or qualified audit report in the appropriate circumstances (audit report failure)" and Rasso (2014 p.162) defines it "to issue a modified or qualified audit report in the appropriate circumstances such as when there is a fraudulent and material misstatement within the audit client's financial statements". Audit failure may or may not be the result of audit deficiencies which take many forms, and range from simple mathematical errors to complex procedural errors (Roybark 2006). One way to reduce the risk of audit failures is through increased monitoring over client accounting choices and/or potential financial reporting fraud (Cohen, Krishnamoorthy, and Wright 2004; Fafatas 2010).

[2] Accountability implies that "if people fail to satisfy their obligations, and fail to give a satisfactory account of their actions, they will be liable to sanction" (Porter 2009).

[3] In US, the external auditors rely on internal auditors, however, in Australia they don't.

Misstatement through Understanding the Entity and Its Environment – Auditing Standards Made Under Section 336 of the Corporations Act (2001)) stipulate that risk assessment procedures need to be performed to provide a basis for the identification and assessment of risks of material misstatement at the financial report and assertion levels. The Institute of Internal Auditor Research Foundation (IIARF) in 2004 issued a paper titled "Risk Assessment By Internal Auditors Using Past Research On Bankruptcy" (refer to section 2.6.4 for more discussion of this paper). Most of the models recommended in this paper to compute financial distress incorporate financial ratios as stipulated by ASA 315. Compliance with these standards will be viewed as internal audit's contribution to overall audit quality.

The associations of the existence of an IAF and those possessing quality attributes with financial distress warrants investigation due the absence of empirical evidence of such associations (to the best knowledge of the author). Hence, the motivation for this study is driven by the absence of empirical research that utilises a comprehensive set of attributes to measure IAQ and its impact on financial distress. It is also driven by a view that audit quality will be improved and hence improved corporate governance.

Does the existence of an independent IAF act to lessen financial distress and, if so, what characteristics, audit qualities or combination of qualities contribute most towards this end? This is the primary objective of this research and will be examined within a controlled test environment over a three year period and include a number of considerations: (1) Appropriate financial distress models (particularly those using financial ratios);[4] (2) The derivation of characteristics of IAQ; (3) The identification of business factors likely to impact financial distress levels in their own right and controlling for them; and (4) The construction of an IAQ function (individual and aggregate) that is capable of predicting levels of financial distress within listed companies.

A study about IAQ attributes in Australia is significant because new corporate governance legislations introduced in Australia such as the Corporate Law Economic Reform Program 9 (2004) (CLERP 9) and the Sarbanes-Oxley Act (2002) legislated in US have a profound impact on these attributes in particular audit independence and risk assessments. Australian firms issuing and registering securities in US have to comply with the Sarbanes-Oxley Act (2002) (Addison-Hewitt Associates 2002).

The inclusion of financial distress risks assessment in contemporary internal audit activities (IAAs) will help prevent and detect such risks. IAAs include the: (1) Assessment of the formal risk management process effectiveness; and (2) Performance of risk-based auditing which "helps firms to practice effective risk management because it incorporates principles of risk management throughout the audit process, both in the annual planning process, and in

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[4] A set of financial ratios would allow auditors of Italian local governments to get an indication of LGs' financial distress risk which will promptly detect financial distress (Cohen, Costanzo, and Manes-Rossi 2017).

planning each audit engagement" (Castanheira, Rodrigues, and Craig 2010 p.95). Part of audit planning is to understand the firm's business risks[5] and assess the significance of financial report material misstatement, which includes assessing key performance indicators and key ratios, trends and operating statistics to satisfy the objective relating to mitigating financial distress risks (ASA 315; Gay and Simnett 2010)[6].

1.2 RESEARCH QUESTIONS AND OBJECTIVES

At the turn of the 21st century, well-reported accounting scandals around the world (for example, Enron and Worldcom, in the United States of America (US); Shell and Centrica in the United Kingdom; Vivendi in France; Parmalat SpA in Italy; and HIH in Australia) have resulted in a renewed call for good (evolving) corporate governance (Cohen, Krishnamoorthy, and Wright 2004). These scandals are most often associated with poor financial reporting quality, earnings manipulation, financial statement fraud, and/or weak internal controls (Dechow, Sloan, and Sweeney 1996; Beasley 1996; Carcello and Neal 2000; Klein 2002a).

The need for effective accountability has broadened the role of the internal audit to embrace general corporate governance and accountability matters (Porter 2009). To contribute to the improvement of corporate governance and organizational effectiveness, IAFs in the form of in-house or outsourced operations must exhibit important quality attributes (Prawitt, Smith, and Wood 2009). This study examines the academic literature, professional standards, and global enforcement agency rules and presents a case for specific quality attributes, which are believed to improve corporate governance effectiveness.

In 2002, the US government enacted the most significant corporate governance related legislation to-date, the Sarbanes-Oxley Act (2002), which has since significantly elevated the importance of the role of IAFs in corporate governance. Consistent with the Sarbanes-Oxley Act (2002), the New York Stock Exchange (NYSE) requires its listed firms to maintain an IAF (New York Stock Exchange 2009). Consequently, most of the literature related to IAQ and effectiveness emanates from the US as do most of the triggers. Other jurisdictions have significantly less stringent requirements and the implementation of IAFs is voluntary, although encouraged. For example, in Australia, the vast majority of listed firms provides no such services and such ramifications are discussed in this study.

Bailey, Gramling, and Ramamoorti (2003) and Antoine (2004) suggest that IAFs play a role in improving the quality of corporate governance. Furthermore, as stated in section 1.2 above, an examination of IAQ is warranted for two reasons. The inclusion of financial distress risks assessment in contemporary IAAs will help prevent and detect such risks. IAAs include the: (1) Assessment of the formal risk management process effectiveness; and (2)

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[5] The risk associated with the entity's survival (Bell et al. 1997).
[6] Auditing and Assurance Standards

Performance of risk-based auditing which incorporates principles of risk management throughout the audit process, both in the annual planning process, and in planning each audit engagement, helps firms to practice effective risk management (Castanheira, Rodrigues, and Craig 2010). Part of audit planning is to understand the firm's business risks and assess the significance of financial report material misstatement, which includes assessing key performance indicators and key ratios, trends and operating statistics to satisfy the objective relating to mitigating financial distress risks (ASA 315; Gay and Simnett 2010).[7] Hence, the primary objective of this study is to first examine the association of financial distress and the existence of an IAF without considering IAQ attributes[8]. The secondary objective of this study is to examine the association of financial distress and the IAQ attributes possessed by an IAF. To address both the study's primary and secondary objectives respectively, the following are the two main research questions:

> ***RQ₁: Does the existence of an internal audit function influence the likelihood that a company will experience financial distress?***
>
> ***RQ₂: Does an internal audit function that embodies appropriate IAQ characteristics reduce financial distress?***

A number of other significant research objectives shall be investigated to answer the above research questions. Since the study uses survey completed by the Chief Audit Executives (CAEs) or equivalent to determine IAQ attributes, the findings can provide valuable insights on which IAQ attributes is of greater importance. The results can then be used to provide assistance to lower the likelihood of financial distress in firms listed in the Australian Securities Exchange (ASX).

Research on internal auditing have had predominantly used Agency theory. The dominant agency theory, informing internal auditing research, has fail to "adequately explain how internal auditing fits into the control framework of capitalist firms" (Mihret 2014 p.771). As a consequence, in the last few years, institutional theory has been used in some internal auditing research (Al-Twaijry, Brierley, and Gwilliam 2003; Christopher, Sarens, and Leung 2009; Lenz and Hahn 2015; Asiedu and Deffor 2017). The concept of relationship which is central to the agency theory ignores conflict of interest inherently embedded in firms' organizational structures simply by the mere involvement of management in providing resources to IAF. This study does not focus on issues pertaining to the presence or absence of IAF. It focuses on whether the presence of IAF with or with appropriate IAQ attributes as explained by the Institutional theory. This study will adopt Institutional theory's isomorphism

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[7] The risk associated with the firm's survival (Bell et al. 1997).
[8] This study does not compare the absence and presence of an IAF.

(that is, coercive, mimetic and normative) which explain on how organizational structures and practices of IAF are shaped through changes induced by normative pressures, including both external and internal sources such as laws and regulations, both accounting and auditing standards or by the professions (Mihret, James, and Mula 2010).

1.3 RESEARCH GAP IDENTIFICATION

The body of literature on both financial distress models and IAQ is growing but not on their association. Internal audit professional guidelines and standards continue to evolve and improve. Recent studies in internal auditing have evaluated extensively the role of internal auditing in corporate governance (Sarens 2009). However, as discussed in the above sections, there is no empirical research to date (to the best knowledge of the author) that has considered the impact on the likelihood of financial distress by the existence of an effective IAF and IAQ although IAF is fast becoming a major contributor within the governance process.

"Poor management decision making and weak governance can lead to financial distress" (Wruck 1990 p.433). Financial distress is not synonymous with corporate death because it may or may not lead to bankruptcy, or even trigger restructuring in management and governance. However, managers and directors can inhibit a firm's ability to recover and improve performance if new or special skills are required (Wruck 1990). The firm's "financing policy, governance structure, and compensation policies" can be solutions to manage financial distress risks (Wruck 1990 p.443). An IAF can play an important role in mitigating such risks in its quest to contribute to and improve effective corporate governance. As a consequence, a research gap is identified which requires answers to the following research question,

Does the existence of an independent IAF act to lessen financial distress and, if so, what characteristics, audit qualities or combination of qualities contribute most towards this end?

Should empirical evidence of this study provide indications to suggest that the existence of an IAF with quality attributes decreases the likelihood of financial distress, then the findings will suggest that an IAF: (1) Has effective accountability mechanisms that include the analysis of the financial statements which could reveal significant financial distress (Bessell, Anandarajan, and Umar 2003) suggesting that effective internal controls are in place (Krishnan 2005) to deal with market imperfections (Kraus and Litzenberger 1973; Scott 1976; Kim 1978) and to calm the market during uncertainty (Kwon and Wild 1994); and (2) Reports to an audit committee consisting of members with financial expertise (Altman and Levallee 1980; Rahmat and Iskandar 2009).

The selection of the financial distress prediction models to be used in this study are

consequential of Australian empirical evidence, for example Baxter (2006); Gharghori, Chan, and Faff (2007); Tanthanongsakkun, Pitt, and Treepongkaruna (2009), which have used models including the Altman Z-Score and Zmijewski ZFC-Score. The Altman Z-Score and the Zmijewski ZFC-Score models are two of the most common methods for predicting financial distress conditions and not bankruptcy. Considerable research has been undertaken to establish what business and economic factors are likely to exacerbate or mitigate financial distress in companies (for example, Tanthanongsakkun, Pitt, and Treepongkaruna (2009); and Wu, Gaunt, and Gray (2010)). These research conducted commonly referred to include these accounting-based models: (1) The Zmijewski ZFC-Score proposed by Zmijewski and Dietrich (1984); and (2) The modified Altman Z2-Score to include non-manufacturing industry firms (Altman, Haldeman, and Narayanan 1997; Altman et al. 2017).[9] However, there is no empirical research to date (to the best knowledge of the author) that has considered the impact of the IAF and IAF possessing high quality characteristics, which is fast becoming a major contributor within the governance process, on financial distress.

1.4 SIGNIFICANCE OF THE STUDY

This study make several important contributions. First, though there are extant of studies examining IAF and specific IAQ attributes, and financial distress in many countries, no published study to the author's knowledge, has undertaken a holistic examination of the causality relationship of an IAF possessing IAQ attributes and financial distress using a comprehensive range of IAQ attribute measures (IAF independent, auditor competence (proxied by IIA qualifications, years of experience and continuous professional education), IAF scope of work-perform risk assessment, IAF communication and monitoring, and IAF quality assurance review), particularly in Australia. Albeit providing valuable insights, a very narrow lens approach (that is, examining a single attribute and a few attributes in unison and in accord) are typically adopted in prior research that provide biased findings. Further, many empirical evidences reported effective corporate governance specifically the quality of the audit committee and external auditor have no impact on financial distress (Rahmat, Mohd Iskandar, and Mohd Saleh 2009; Salloum, Azzi, and Gebrayel 2014; Chien, Mayer, and Sennetti 2010). Internal audit has been considered by many researchers as a main player of the corporate governance mosaic (Bailey, Gramling, and Ramamoorti 2003; Wallace 2004; Cohen, Krishnamoorthy, and Wright 2004; Arena and Azzone 2009) and can play an important role in mitigating financial distress risks in its quest to contribute to the improvement of effective corporate governance. IAF possessing IAQ attributes will likely

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[9] An extension of the Altman's Z^1-Score model called Z^{11}-Score (Altman 2000). Z^1-Score was only used to make bankruptcy predictions in the manufacturing industry.

influence the audit committee's and the external auditor's assessment of internal control effectiveness with respect to financial reporting and, therefore, contributes to effective corporate governance (Gramling and Vandervelde 2006). Hence, this study's objective is to provide valuable insights on corporate governance mechanism (that is, the internal auditor being an important governance player (Cohen et al) and the audit trinity) since managing financial distress may improve the firm's firm performance.

Second, a study about IAQ attributes in Australia is significant because new corporate governance legislations introduced in Australia such as the CLERP 9 (2004) and the Sarbanes-Oxley Act (2002) legislated in US have a profound impact on IAF and IAQ attributes in particular audit independence and risk assessments. Internal auditing has not been mandated in Australia although encouraged. However, Australian firms issuing and registering securities in US have to comply with the Sarbanes-Oxley Act (2002) (Addison-Hewitt Associates 2002). Section 404 of Sarbanes-Oxley Act (2002) requires the management of companies to annually assess and assert as to the effectiveness of the firm's internal controls and its procedures for financial reporting. It also requires the external auditor to report on the effectiveness of these controls, and potentially on management's evaluation process. CLERP 9 (2004) promotes governance transparency, accountability and shareholder rights. Its aim is to enhance financial reporting quality.

Third, the scrutiny that internal auditing received following accounting scandals in major companies provides compelling evidence that internal auditing does matter (DeFond and Francis 2005). This is evidenced in the evolution of the IAF role particularly in areas involving risk management, control and governance processes, that requires a redesign of IAF processes, competencies and roles (Arena and Azzone 2009; Spira and Page 2003).

Fourth, research on external auditor's independence has been on-going. Certainly this has a ripple impact on the internal auditors' independence as defined by the IIA Attribute Standards 1220.A1 and 1220 (Institute of Internal Auditors 2002). The internal auditors' independence will also impact on the other two audit trinity members' (that is, audit committee and external auditor) effectiveness and the members' reliance on internal auditors' works. The ASX CGC's Principles of Good Corporate Governance and Best Practice Recommendations have been produced and revised to address CLERP 9 (2004) the requirements in relation to independent risks assessment (Institute of Internal Auditors and Protiviti 2010). The revised ASX Principle 7 – Recognise and Manage Risk has an implied impact on internal auditing where it requires the BoDs to disclose if it has received assurance from the: (1) Management that material risks are effectively managed; and (2) Chief Executive Officer (CEO) and Chief Financial Officer (CFO) (or equivalents) that the declaration provided in accordance with Section 295A of the Corporation Act (2001) is based on a sound system of risk management and internal control, and that the system is operating effectively

in all material aspects in relation to financial reporting risks (Institute of Internal Auditors and Protiviti 2010). Such assertions have to be attested by an independent function such as the IAF in accordance with the ASX Principle 4 – Safeguard Integrity in Financial Reporting.

Fifth, no prior studies has examined the IAFs' and internal auditor attributes' impact on financial distress in Australia that have primarily focused on time periods prior and after the CLERP 9 (2004)'s legislative requirements enforced on 1 July 2004, subsequently the 'Corporations Legislation Amendment (Simpler Regulatory System) Act 2007' passed on 28 June 2007. Albeit there are no requirements vis-à-vis in the observation window (1 January 2012 to 31 December 2014) of this study, there are requirements pertaining to the other two audit trinity members. Hence, this study's result may also be used to determine the extent to which CLERP 9 (2004) regulations have impacted firms' performances, while the Sarbanes-Oxley Act (2002) has mandated the presence of an internal auditing in the US. As mentioned above, no research has been completed examining the impact of an IAF and IAF possessing IAQ attributes on financial distress around the world.

Overall, a number of key stakeholders will benefit from this study. Regulators, and professional accounting and auditing will be able to ascertain the effectiveness and true impact of their standards and legislation to improve the quality and integrity of the financial reporting process. Quality financial report will subsequently benefit investors because symptoms of financial distress can potentially lower the risk of corporate failure. The internal auditing profession and members of the audit trinity (that is, audit committee, external auditor and internal auditor) will also be able to determine which IAQ attributes or combination of the IAQ attributes examined can assist them significantly to enhance audit quality and the performance of the firm. Finally, scholars will also benefit since this study will provide a contemporaneous update on IAQ attributes/financials in Australia and suggest directions for future research.

1.5 LIMITATIONS OF THE STUDY

While this study has various strengths, it is not without limitations which may cloud the interpretation of the results of this study. First, despite the pervasive use of accounting-based or financial ratios models by Altman and Zmijewski to determine financial distress and/or to predict bankruptcy risk of firms, prior literature have reported the performances of these models. There are extant of literature reporting that models such as Shumway (2001), Merton, and Black-Scholes-Merton (2010) outperform these accounting-based models in predicting bankruptcy (Vassalou and Xing 2004; Tanthanongsakkun, Pitt, and Treepongkaruna 2009; Wu, Gaunt, and Gray 2010). Despite these negative performances reporting, accounting-based models have been widely used to predict financial distress not bankruptcy. Over the last 45 years or so, many academic studies have been dedicated to

finding the best firm failure prediction model (Balcaen and Ooghe 2006). Unfortunately, over this period of time there has been a lack of unanimous agreement about the definition of firm failure let alone the empirical identification of the best prediction model. Amongst the accounting-based models, the Zmijewski ZFC-Score model out-performs the Altman Z-Score model during the 1970 (Wu, Gaunt, and Gray 2010). There is no empirical evidence that suggest that the Zmijewski ZFC-Score model or any other models out-performs the Altman Z2-Score model.

Second, the data for all of the variables apart for IAQ attributes used to test a hypothesis in this study are collected from databases and firms' annual reports which limit the amount and type of data that can be collected. For example, whilst alternative firm specific measures may be available, due to their proprietary nature such measures are excluded from this study.

Third, the data for all of the variables used for IAQ attributes and the IAQ composite measure in this study to test the hypotheses are collected from a survey completed by CAEs. The "single point in time" data collection technique puts pressure on the availability of data or the availability of the person to provide prior year data. As a consequence, the CAEs may not: (1) feel encouraged to provide accurate, honest answers, (2) be comfortable providing answers that present themselves in a unfavorable manner, (3) be fully aware of their reasons for any given answer because of lack of memory on the subject, or even boredom (London School of Hygiene and Tropical Medicine 2009), (4) wish to participate due to sensitive about both firm and client confidentiality, (5) wish to spend time completing the survey, and (6) have completed the survey with the same perceptions as this study . While subjective assessments are important for understanding current perceptions, relying exclusively on perceptions could be problematic when perceptions vary from actual research output (Stephens et al. 2011). The sample size obtained from the survey is extremely small which may be influencing the results and hence the impossibility of results generalizing (Cronbach 1975).

Fourth, in addition to the independent variables (IAF presence and IAQ attributes) there is a range of control variables included in the tests to control for further potential influencers of financial distress, it is highly likely that other factors not used in study may lower the likelihood of financial distress. Since the objective of this study does not include the causality tests, this issue may not affects the findings or has minor consequence on the relation between the IAF presence or IAQ attributes and financial distress.

Fifth, the results of this study may not be generalizable to countries with different institutional settings since the study is only using Australian firms' data. Further, the sample size of the IAQ attributes is somewhat small making the results less generalizable.

1.6 STUDY OUTLINE

In this study, the other six chapters will proceed as follows. Chapter Two provides an in-depth literature review on IAQ, and financial distress. This chapter first deals with what the literature says about the features and determinants of capital market and structure and risks, earnings quality, corporate failure prediction models and indicators, financial distress and capital markets, financial distress and quality financial reporting, corporate governance (that is, board of directors, audit committee, external auditor, IAF) and its members' relationships, and IAQ and its attributes.

Chapter Three discusses the theoretical underpinnings of this study by detailing institutional theory. The chapter begins by outlining the theoretical framework of internal auditing and discusses the five main underlying theories (that is, agency theory, resource dependency theory, and systems-oriented theories (legitimacy theory, stakeholder theory, institutional theory)). The empirical literature relating to each of the seven key IAQ attributes examined in this study (that is, IAF independence, internal audit competence, IAF scope of work, IAF communication and monitoring, and IAF quality audit review) are then discussed and a justification for each IAQ attributes' expected relationship to financial distress detailed. A conceptual schema is provided to illustrate the key relationships examined in this study.

Chapter Four outlines the research method for this study detailing the sample collection from various sources including the survey and selection process, and justifying the selection of the time period. This chapter also discusses the primary research methodology which is the use of multiple-regression. The measure of financial distress (dependent variable), the presence of an IAF or IAQ attributes (independent variables), and the use of control variables (all supported by prior empirical literature) are discussed. Finally, the related statistical tests and regression models adopted.

Chapter Five elaborates on the financial sample derived, descriptive statistics and univariate results. Before presenting the statistical results, this chapter discusses steps taken to "clean data". It is to test and outline normality of data collected and the validity of assumptions for the subsequent multiple regressions, including basic sample descriptive statistics (such as mean, median, standard deviation, 25 percentile, and 75 percentile) and two independent samples mean test. Chapter Five also discusses and reports results from Pearson's correlation analyses.

Chapter Six presents the results of the pooled ordinary least squares (OLS) logistic regressions examining the relationship between the presence of an IAF and the selected IAQ attributes (both in isolation and in unison) and selected financial distress. Examination of all findings and the applications on the derived hypotheses are also reported in this chapter.

Chapter Seven summarizes the key findings (that is, the acceptance and rejection of the hypotheses), implications, contributions, and limitations of this study. Finally, the entire

study and major findings are reviewed concluding with suggestions for future research directions.

CHAPTER TWO:
LITERATURE REVIEW

2.1   OVERVIEW OF THE CHAPTER

Chapter One provides the background and motivation for this study. It identifies the significance of this study and its anticipated limitations, and outlines the other six chapters of the study. The research questions and objectives of this study are also described in detail.

Chapter Two discusses the extant literature surrounding financial distress and IAQ attributes. The chapter begins by discussing the theoretical underpinnings of the capital market, capital structure, capital market risks, and the important role that quality financial reports play in the capital market particularly providing indications on whether firms are facing financial distress. A comprehensive overview is then provided of the key prior literature relating to financial distress including the firm failure prediction models. The link between capital market, quality financial reporting and corporate governance and its players are then discussed. Corporate governance and the associated regulatory environment are discussed in terms of its four major components: Board of Directors (BoDs), Audit Committee, External Auditor and IAF. Finally, a comprehensive overview is provided of the prior literature identifying the attributes of internal audit quality.

2.2   CAPITAL MARKETS

Capital markets, also known as securities markets, facilitate the sale and purchase of financial instruments for medium and long-term investments (maturity period longer than a year). Securities markets are divided into two segments: (1) The primary market is mainly used by issuers for raising fresh capital from the investors by making initial public offers (IPOs), rights issues or offers for sale of equity or debt; and (2) The secondary market provides liquidity to these instruments, through trading and settlement on the stock exchanges.

A vibrant and efficient capital market is the most important parameter for evaluating health of any economy. Fama (1970 p.383) asserts that an ideal capital market, based on the Efficient Markets Hypotheses, is where:

> "prices provide accurate signals for resource allocation: that is, a market in which firms can make production-investment decisions, and investors can choose among the securities that represent ownership of firms' activities under the assumption that security prices at any time 'fully reflect' all available information."

The primary role of the capital market is allocating ownership of the economy's capital stock (Fama 1970). That is, the capital market provides a means for issuers to raise capital from investors for capital formation and investments, and forms a very vital link for economic

development of any economy. The stock exchanges facilitate the use of capital market instruments, which in some way affect capital structure choice (Titman and Wessels 1988). The firms' capital structure determinants will be discussed in Section 2.2.1 below.

Based on the demand and supply theory, there is a rigorous process through which market preferences interact to determine an equilibrium interest rate and subsequently the determination of a market risk-premium with capital asset prices adjusted to account for risk differences (Sharpe 1964). "Consumption variability may induce capital stock variability whose magnitude depends on the degree of risk aversion" (Grossman and Shiller 1981 p.222) and the need for investors and firms to put in place risks mitigation strategies. Unfortunately, there are unpredictable swings in common stock price indices as witnessed in the past and of major concern is a financial crisis based on measurement of capital market performance. Although some researchers attempt to interpret such unpredictable swings by suggesting that stock price changes represent efficient discounting based on "new information", it has never been established what this information represents (Grossman and Shiller 1981 p.222). Nevertheless, firm losses in positions arising from market price changes are referred to as market risks which include: equity, interest rate, currency and commodity risks. These will be discussed in section 2.2.2 below.

In Australia, the capital market where trading is conducted via the ASX is regulated by two independent organisations - the Australian Securities and Investments Commission (ASIC) and the Reserve Bank of Australia (RBA) (Australian Securities Exchange Group 2013b). The ASX Compliance section: (1) Oversees compliance with the ASX operating rules; (2) Promotes standards of corporate governance among Australia's listed companies by helping to educate retail investors; and (3) Strives to assure: (i) deep and transparent markets for informed confident investors; and, (ii) clear and efficient regulation procedures.

Australia, a market-oriented economy (Cahill and Beder 2005), ranks the 13th largest in the world (measured by GDP), the third (3rd) largest in the Asia Pacific region and its market capitalisation is AUS$1.3 trillion with 2,184 firms listed in 2012 (Australian Securities Exchange Group 2013c). Australia's steady economic growth has been aided by a resources boom where fertile resources sector make up around 9.6% of Australia's total economy, with the remainder being comprised of financial services (11.0%), manufacturing (9.1%) and construction (7.7%), which broadly mirrors that of the Australian equity market, with the largest sectors being financial services (32%) and resources (31%) (Australian Securities Exchange Group 2013c). The Australian equity market is well placed in the global economy with a diverse investor group comprised of 40% foreign investors, 40% domestic institutional investors and 20% retail investors (Australian Securities Exchange Group 2013c).

Established in 1980, the "barometer" of the Australian share market is called the All Ordinaries Index (that is, All ORDS) encompassing the 500 largest Australian listed companies (Australian Securities Exchange Group 2013a). In addition, the **S&P/ASX 200** Index consists of the top 200 companies by way of market capitalisation (Australian Securities Exchange Group 2013a).

Sections 2.2.1 and 2.2.2 discuss capital market determinants for funding and risks respectively.

2.2.1   Capital Structure Determinants

As discussed in section 2.2 above, the capital market instruments affect capital structure choice of the firms. The firms' capital structures provides a mean to raising funding for the firms' operations through raising capital from a mixed variety of distinct sources including via the primary capital market (Parsons and Titman 2008). To a large extent, the capital structure determinants of firms depend on which country that they are located, that is, either capital market-oriented economies in the UK, Australia and the US, or bank-oriented economies in France, Germany, and Japan (Antoniou, Guney, and Paudyal 2008). As a consequence, the degree and effectiveness of the determinants of the firms' capital structures are heavily influenced by the economic environments and their institutions, corporate governance practices (Gillan 2006), tax systems, the borrower-lender relations, exposure to capital markets, the level of investor protection in the countries in which the firms operate (Antoniou, Guney, and Paudyal 2008), tax benefits derived from debts, expenses for reorganisation or liquidation, and financial distress (Parsons and Titman 2008). There are also costs and benefits associated with various financing choices that resulted in the trade-offs between them that will subsequently result in a set of well-defined target debt-ratios for the firms (Parsons and Titman 2008). Other possible determinants impacting on firms' capital structure policy that required reporting are the: (1) Liquidity premium due to investors' anticipated losses to informed trading; (2) Operating efficiency improvement due to information revelation from the firm's security prices (Chang and Yu 2010); and (3) Financial distress itself (Wruck 1990; George and Hwang 2010). The existence of market imperfections such as corporate tax, bankruptcy and agency-related costs implies an optimal capital structure (Kim 1978). Other market imperfections such as flotation costs, adjustment costs and constraints may prevent firms from adjusting completely to their target capital structures offsetting the effects of events that help achieve target ratios (Ozkan 2001).

Debt-ratios may be related to firm size where larger firms are more diversified and are less prone to bankruptcy (Titman and Wessels 1988), and therefore have easier access to the capital markets (Ferri and Jones 1979). Multinational corporations (MNCs) tend to have

lower debt-ratios than domestic corporations (DCs) and do not have lower bankruptcy costs (Lee and Kwok 1988) particularly US based firms. European countries determine firms' capital structure choices by comparing the capital structures of small-and-medium-sized enterprises (SMEs) across countries and differences in country characteristics, asset structure, size, profitability, risk, growth institutional and financial characteristics, commonality of civil law systems, firm age and level of intangible activity (Psillaki and Daskalakis 2009; Bhaird and Lucey 2010).

In Australia, Akhtar (2005) finds that the level of leverage does not differ significantly between Australian MNCs and DCs. For both types of corporations, growth, profitability and size are significant determinants of leverage. Collateral value of assets is a significant determinant of leverage for DCs. For MNCs, bankruptcy costs and the level of geographical diversification are significant. For DCs, bankruptcy costs are not significant. Bankruptcy costs and profitability have significant interaction effects in explaining MNCs' leverage relative to DCs' leverage. Risk and signaling variables, represented by firm size, Altman Z-Score (a financial distress prediction model), operating risk and asset base help to explain capital structure choice. In relation to Australian trading banks, Sharpe (1995) finds that there is little support for the predictions of bankruptcy cost/tax benefit theory of optimal capital structure.

2.2.2   Capital Market Risks

The capital market risks affecting positions/target debt-ratios require firms to deal with shocks or deviations by considering the use of various financial and/or economic investment models. An important distinction between components of the market capitals' risks is that there is an unsystematic variation in general economic movements, and a component that varies systematically (Lubatkin and O'neill 1987). Sources of unsystematic variation risks include financial distress and/or bankruptcy, natural disasters, terrorist attacks, technological change, worker strikes and the death of a senior executive. There is a high likelihood that the existence of market imperfections may be due to unsystematic risks and such risks may prevent firms from achieving their target ratios (Kraus and Litzenberger 1973; Scott 1976; Kim 1978; Ozkan 2001). Examples of systematic or market related risk factors include changes in monetary and fiscal policies impacting on interest and currency rates, the cost of energy and commodities, tax laws and the capital market geographical location. To a large degree, unsystematic risks cannot be controlled and therefore, stockholders are only concerned with systematic risks and should price a security with expected return that varies with anticipated levels of systematic risks (Lubatkin and O'neill 1987). Efficiency in this respect is a function of information adequacy.

Although under capital market conditions of certainty investment models such as the Capital Asset Pricing Model (Lubatkin and O'neill 1987) and others provide many useful insights. Inherent risks associated with these models, however, may influence practitioners to adopt price behaviour models that are a little more than financial assertions (Bolton, Chen, and Wang 2011). The process in which individual preferences and physical relationships interact to determine an equilibrium interest rate is generally followed by the assertion that somehow a market risk-premium needs to be determined, with the prices of assets adjusting accordingly to account for differences in their risk-profile (Sharpe 1964; Ozkan 2001). For example, how firms should manage their cash holdings and which risks they should hedge and by how much, need to be accounted for (Bolton, Chen, and Wang 2011).

In order to react effectively and in a timely manner, firms need to, as part of their corporate governance frameworks, deal with complex and closely intertwined investments, financing, and risk management decisions in an attempt to formalize the relationships among these margins including target debt-ratios in a dynamic environment and how to translate these relationships into investment models and risk-profiles (Bolton, Chen, and Wang 2011). One very common capital market risks mitigation strategy is diversifying the firm's investments. Montgomery and Singh (1984 p.183) assert that "firms pursuing unrelated diversification rely largely on highly general financial or managerial/control competencies which are not directed specifically to critical success factors of a given market". For financially constrained firms, Bolton, Chen, and Wang (2011) propose a model of dynamic investment, financing, and risk management that highlights the central importance of the endogenous marginal value of liquidity (cash and credit line) guiding firms in the decision making process. One of the three findings in their model indicates that liquidity management and derivatives hedging are complementary risk management tools. This view is supported in the ~~recent~~ 2008 financial crisis where financially constrained firms planned deeper cuts in investment and spending, cash wastage, drew more credit from banks, and also engaged in more asset sales (Campello, Graham, and Harvey 2010).

Not only will the effectiveness of the firm's corporate governance framework play an important role in the success of implementing such strategies, there will also be a significant need of adequate dissemination of relevant capital market information. Therefore, there is a significant reliance on firms disclosing how they determine their target debt-ratios and risk-profiles by: (1) Choosing more conservative levels of debt; (2) Favouring less risky investment projects; and (3) Purchasing insurance and other financial hedges (Gilson 1989).

2.2.3 Financial Reporting Quality

Calls by regulators, legislators, financial statement users and researchers for

financial reporting quality is loud and clear, and in 2010 the Chairman of the Australian Financial Reporting Council, Jeffrey Lucy, asserts that:

> "A robust financial reporting and auditing framework plays a critical role in well-functioning capital markets. An independent and quality audit provides a necessary external check on the integrity of financial statements. Transparent and credible financial reporting together with an effective audit function underpins confidence in our financial system and is essential for sound economic growth" (Financial Reporting Council 2010a p.iii).

Quality in financial reporting is imperative because of the following reasons: (1) Any attempt by those who predict the behaviour of capital markets is thwarted due to an absence of a body of positive microeconomic theory dealing with conditions of risk (Bolton, Chen, and Wang 2011); and (2) As indicated in section 2.2 above, attempts to interpret unpredictable swings of the stock price changes that represent efficient discounting fail due to unanticipated "new information" (Grossman and Shiller 1981). The Chief Executive Officers' (CEOs) viewpoint (International Audit Networks 2006) suggests that the following will be vital: (1) Investor needs for information are well defined and accessible; (2) Business reporting models are continuously being enhanced to deliver relevant and reliable information in a timely way; and (3) Information is reported and audited in accordance with standards. The view on the vitality of these elements is consistent with the view of the Chairman of the Australian Financial Reporting Council (refer to Jeffrey Lucy's statement in first paragraph of this section). The US Financial Accounting Standards Board's (FASB) Statement of Financial Accounting Concepts No. 1 states that:

> "Financial reporting should provide information that is useful to present and potential investors, creditors and other users in making rational investment, credit and similar decisions. The information should be comprehensible to those who have a reasonable understanding of business and economic activities and are willing to study the information with reasonable diligence" (Financial Accounting Standards Board 1978 p.5).

FASB defines "quality" in relation to the usefulness of financial statements provided to the capital market participants and links "usefulness" in turn to constructs such as relevance and reliability (Ghosh and Moon 2005). Therefore, firms fulfilling the objective of the above statement will assist investors who in their attempts to make quality investment decisions are able to assess risks inherent to the capital market. The variations in relation to the disclosing of information to the investing public can somewhat impact the degree of success of these attempts because of the wide discretion of management with varying managerial philosophies (Singhvi and Desai 1971). As a consequence, all countries with active capital markets have

developed a framework guiding the financial reporting process that encompasses the following three groups: (1) Rule makers such as government and accounting standard setters; (2) Financial reporters such as owner (for example management or owner-manager for small firms) of firms' activities; and (3) Rule enforcers such as external auditors and regulatory bodies (Brown and Tarca 2005).

With the enactment of legislation like the US Sarbanes-Oxley Act (2002) fueled by the global financial crisis, auditors, audit committee members, and management are now struggling to define "quality of financial reporting" (Cohen, Krishnamoorthy, and Wright 2004). Regional trading blocs like the European Union (EU) and its economic alliances have made many changes to their respective financial reporting frameworks (Saudagaran and Diga 2000). The basis of the International Accounting Standards Committee (IASC) conceptual framework is now considered the referent authority of financial reports. The US Securities and Exchange Commission's (SEC) view and the increasing global integration of financial markets provide further incentives for International Financial Reporting Standards (IFRS) adoption in order to achieve effective independent enforcement (Brown and Tarca 2007). In the UK, the adoption of IFRS in 2005 is overseen by its national enforcement body, the Financial Reporting Review Panel (FRRP).

In Australia, the decision by ASIC on changes made to the Australian financial reporting framework occurred between 2002 and 2004, and these changes mostly arose from the adoption of IFRS within the CLERP 9 (2004) (Brown and Tarca 2005). Some of the requirements of CLERP 9 (2004) mirror those of the Sarbanes-Oxley Act (2002). For instance, the CEO and Chief Financial Officer (CFO) have to sign-off the financial reports by certifying that they have reviewed the financial statements and that the firm's internal control systems are adequate and effective (Brown and Tarca 2005). In accordance with the Australian Corporations Act, the CLERP 9 (2004) legislation may influence the firms' disclosure in many respects: (1) Breach of the ASX's continuous requirements as per Section 647 (2A) can extend liability to individuals such as directors and executives; (2) Disclosure to cover operations, financial position, business strategies and future prospects as per Section 299A; and (3) Disclosure relating to remunerations of directors and executives as per Section 300A, and non-audit services paid to external auditors as per Section 300 11B (a) and 11C (Treasury 2010). In addition, CLERP 9 (2004) also introduces a Financial Reporting Panel (FRP) to deal with any dispute between firms and ASIC (Treasury 2010). The Financial Crisis Advisory Group (FCAG) has also been formed to advise the IASB and the FASB about the standard-setting implications of the financial crises and potential changes in the global regulatory environment (Treasury 2010).

Brown and Tarca (2007) conclude that, albeit the potential for cross-country

differences in the interpretations of accounting standards persist, both the FRRP and ASIC are in a good position to contribute as national enforcement bodies. Their participation in regional and international forums organized by the EU's Committee of European Securities Regulators (CESR) or International Organization of Securities Commissions (IOSCO) is valuable.

As evidenced above, the extant literature attempts to answer the question raised by Grossman and Shiller (1981) in relation to the information requirements best characterising the stock price changes that represent efficient discounting. There exists various stakeholders (such as preparers, regulators, investors, standards setters and auditors) with their roles defined and their goals aligned and congruent, and supported by effective forums for continuous dialogue (International Audit Networks 2006). To satisfy the definition of an ideal capital market stated in section 2.2 above academically, quality financial reporting is about disclosing all available information particularly earnings quality (discussed in section 2.2.3.1 below) where investors can seek comfort in knowing that capital prices provide accurate signals for resource allocation by firms (Brown and Tarca 2005).

2.2.3.1   Earnings Quality

The attainment of high quality financial reports is affected by many factors including earnings quality (Cohen, Krishnamoorthy, and Wright 2004). Researchers have used various measures as indications of earnings quality and its definition is broad. These include earnings persistence, accruals, smoothness, timeliness, loss avoidance, investor responsiveness, external indicators such as restatements and enforcement agencies releases (Dechow, Ge, and Schrand 2010), and continuous disclosures regime (Debreceny and Rahman 2005). Using the US Financial Accounting Standards Board's (FASB) Statement of Financial Accounting Concepts No. 1 stated in section 2.2.3 above, Dechow, Ge, and Schrand (2010 p.344) define earnings quality as:

> "Higher quality earnings provide more information about the features of a firm's financial performance that is relevant to a specific decision made by a specific decision-maker".

This definition is conditional on the: (1) Decision-relevance of the information; (2) Quality of a reported earnings figure depends on whether it properly reflects the firm's financial performance, as many aspects are unobservable; and (3) Joint determination by: (i) the relevance of underlying financial performance to the decision; and (ii) the ability of the accounting system to measure performance. It is suggested that quality could be evaluated with respect to any decision that depends on an informative representation of financial performance. Earnings quality cannot be constrained to imply decision usefulness in the

context of equity valuation decisions (Healy and Wahlen 1999; Schipper and Vincent 2003; Lo 2008; Dechow, Ge, and Schrand 2010). Dechow, Ge, and Schrand (2010 p.344) "reach no single conclusion on what earnings quality is because 'quality' is contingent on the decision context." They also "point out that the 'quality' of earnings is a function of the firm's fundamental performance" and subject to its properties, determinants and consequences.

2.3   FINANCIAL DISTRESS AND BANKRUPTCY

Much of the literature (for example, Lubatkin and O'neill (1987); Gilson (1989); Pattenden (2006); and Dechow, Ge, and Schrand (2010)) discussed in the above sections on capital market, capital structure, capital market risks and earnings quality make reference to financial distress and/or bankruptcy. This section and its sub-parts discuss the definitions of financial distress and bankruptcy, and their associated prediction models.

As indicated in Chapter One, there are still attempts to unanimously agree on the definition of firm failure and the empirical identification of the best prediction model in recent times. The first documented researcher on firm failure prediction model, Beaver (1966 p.71), defines failure "as the inability of a firm to pay its financial obligations as they mature". In the majority of the early academic studies, a juridical definition of failure is used, mostly bankruptcy (Balcaen and Ooghe 2006).[10] The juridical definition of failure is popular because it provides an objective criterion that allows firms to be separated easily into two groups and the moment of failure can be objectively dated (Balcaen and Ooghe 2006). For example, two years after Beaver's definition, Altman (1968) defines failed firms as those that filed a bankruptcy petition under Chapter X of the US National Bankruptcy Act during the period 1946-1965. Ohlson (1980 p.111) is not concerned with "how bankruptcy (and/or failure) 'ought' to be defined". Again, Zmijewski (1984 p.63 & p.64) defines financial distress as the "act of filing a petition for bankruptcy. A firm is identified as bankrupt if it has filed a bankruptcy petition during this period and non-bankrupt if it did not". Grice, Stephen, and Ingram (2001) state that distressed firms were defined as those reported by Compustat as meeting one or more of the following conditions: (1) Chapter 11 bankruptcy; (2) Chapter 7 liquidation; (3) Bonds vulnerable to default; or (4) Low stock ratings.[11] Based on the definitions put forward by Altman (1968); Ohlson (1980); Zmijewski (1984) and Grice, Stephen, and Ingram (2001), it can be taken that financially distressed firms are also failed or bankrupt firms. Table 2.1 at the end of this chapter provides further details relating to the models developed by Beaver (1966); Altman (1968); Ohlson (1980); Altman (1983)[12] and

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[10] Balcaen and Ooghe (2006) provide some significant details in relation to the use of failure definitions.
[11] Compustat is a database created in 1962 providing financial, statistical and market information on active and inactive global companies throughout the world.
[12] The original Altman Z-Score (1968) is designed to predict bankruptcy for publicly traded companies and this modified Altman Z-Score (1983) was developed for private companies where the stock does not have a readily available market value.

Zmijewski (1984).

There are other definitions of financial distress and they include: (1) "When a firm's business deteriorates to the point where it cannot meet its financial obligations" (Baldwin and Scott 1983 p.505); (2) A firm is in financial distress at a given point in time when the liquid assets of the firm are not sufficient to meet the current liquidity requirements of its hard contracts (John 1993b); (3) "Failure as event as the date of occurrence of the Chapter 7 or Chapter 11 bankruptcy petition filing, or the date of initiation of an involuntary liquidation proceeding as provided by the Wall Street Journal Index" (Kane, Richardson, and Graybeal 1996 p.638); (4) Losses, selling shares to private investors, entering into a capital restructuring or a reorganization, a few years of negative shareholders' funds or accumulated losses (Mcleay and Omar 2000); (5) Several years of negative net operating income, suspension of dividend payments, major restructuring or layoffs (Platt and Platt 2002); and (6) Low interest coverage ratio, negative EBIT, negative net income before special items (Platt and Platt 2004).

DeFond and Francis (2005) define "financial risk" (or "financial distress risk") as a factor that is expected to be associated with litigation risk. The auditing literature generally defines financial risk (also known as client business risk) as the risk that the client's financial health will decline at some point in the future (DeFond and Francis 2005). Within an Australian context, Baxter (2006) defines firm insolvency risk as the probability that a firm will become insolvent in the next twelve months.

Keasey and Watson (1991) explicitly mentioned that the criterion of financial distress is "arbitrary in nature". Based on this statement, Beaver (1966)'s definition and the findings of the study by Rosner (2003)[13], the definition of financial distress in this study will adopt that given by Gilson (1989 p.243) which is an "inability to meet the fixed payment obligations on debt" because definitions on insolvency and bankruptcy are very different and cannot to be confused with financial distress (Wruck 1990). This definition is somewhat similar to the definition given by Baldwin and Scott (1983). "A firm in financial distress is insolvent on a flow basis, it is unable to meet current cash obligations" but not on "a stock basis" (Wruck 1990 p.421) which is consistent with the definition given by John (1993a). In a worst case scenario, after a period of financial distress and insolvency, firms are considered bankrupt when a court petition is filed (Gilson 1989) in accordance with the legislation of a country. To put these issues in perspective, it can then be posited that if financial distress risks are not resolved effectively in timely manner, then firms will face insolvency risks. Firms may have to file for bankruptcy subsequently when they are no longer able to deal with insolvency matters.

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[13] Please refer to section 2.5 below: "…the behaviour of failing firms that do not appear distressed on the basis of accrual data, but that show significant decreases in cash flows…".

2.3.1 Financial Distress and Bankruptcy Prediction and Indicators

As described in section 2.2 above, there could be unpredictable swings in common stock price indices and some firms could find themselves in a financial distress position. Consistent with the view of Bolton, Chen, and Wang (2011) discussed in section 2.2.2 above that derivatives hedging is a complementary risk management tool, the results of the study by Gigler, Kanodia, and Venugopalan (2007) indicate that in the derivatives market where financial distress is caused by moderate price increases, the mark-to-market reporting of the firm's derivatives position detracts from providing an early warning to outsiders. When there is a steep increase in the derivatives price and the firm takes an extreme speculative position on the wrong side of price movement, then the mark-to-market provides stronger signals of financial distress relative to historical cost.

The following are also important financial distress indicators that the capital market considers informative: (1) The excess returns to shareholders at announcement of a change of senior management (that is, position title) at a large distressed firm (Bonnier and Bruner 1989); (2) Failure to disclose any management's prospective comments (MPC). Firms which do not disclose any MPC are more likely to fail than firms that disclose MPCs. Firms that disclose pessimistic or mixed MPCs are as likely to fail. This suggests that financially distressed firms not only avoid disclosing MPCs (Boo and Simnett 2002), they are also likely to manipulate earnings (Charitou, Lambertides, and Trigeorgis 2007); (3) Firms are likely in distress when they report relatively lower earnings before interest and tax to total assets, a larger decline in net income, relatively low working capital to total assets, or high market-based leverage (that is, total liabilities to the market value of total assets) (Wu, Gaunt, and Gray 2010); (4) Firms are more likely to experience bankruptcy if the lagged stock returns are large and negative or the lagged volatility is relatively high; (5) *Ceteris paribus*, smaller firms and firms with fewer business segments are also more likely to experience bankruptcy, and firms with a higher implied probability of bankruptcy (estimated in relation to an option-pricing model) are also more likely to experience bankruptcy (Wu, Gaunt, and Gray 2010); (6) Opler and Titman (1994) find that firms with specialized products are especially vulnerable to financial distress. In industry downturns, financial condition is positively related to firm performance. For example, more highly leveraged firms tend to lose market share and experience lower operating profits than their competitors particularly for those firms with significant R&D expenditures and for those in more concentrated industries. The observed losses in sales are at least partially customer driven and competitor driven rather than being driven by cost-cutting managers optimally downsizing in declining industries. It is possible that financially distressed firms may change their operating strategies to raise efficiency. Unfortunately, these attempts can simultaneously cause substantial and costly losses of

business while promoting needed changes in operations; (7) Debt-related factors are important source of conditional conservatism-related asymmetric timeliness in earnings and the effect of financial distress does not significantly impair the reliability of the earnings-sensitivity difference as it is a reliable indicator of conditional conservatism (Hsu, O'Hanlon, and Peasnell 2011); (8) Technical default (violates an accounting-based or financing covenant) increases the likelihood of future debt service default and bankruptcy, and bankruptcy is more likely following debt service default. Technical default is a timely warning of further distress because the effects of debt service default announcements are attenuated if the announcement has been preceded by disclosure of technical default in the previous year (Beneish and Press 1995); (9) It would appear that in the presence of financial distress, the "Except for" qualified external audit report should not significantly influence perceptions of risk (Bessell, Anandarajan, and Umar 2003). Neither should the auditor's behavior or actions (e.g., increasing audit fees, increasing likelihood of giving a going-concern opinion) suggest that firms are in financial distress following a debt-convenant violation (Bhaskar, Krishnan, and Yu 2017) and; (10) Restructuring of debt-ratio (Wruck 1990).

In relation to earnings management, Beneish and Press (1995) find that: (1) Distressed firms manage earnings downwards one year prior to the bankruptcy-filing; (2) Firms receiving unqualified audit opinions in all 5 years prior to the bankruptcy-filing event manage earnings upwards in those same years (especially in years -5, -4, and -3); (3) Earnings-decreasing management behaviour seems to be related to qualified audit opinions rendered in the preceding year; (4) Firms with large negative long-term accruals one year prior to the bankruptcy-filing year have a greater chance to survive thereafter; and (5) More (negative) earnings management is associated with more negative (next year's) subsequent returns.

Tables 2.2, 2.3 and 2.4 at the end of this chapter provides a summary of research evidence relating to the application of firm failure prediction models, comparison of these models, and models' effectiveness respectively. These models and others are being used to further substantiate that firms are in fact facing financial distress has spilled into the commercial sector (Wu, Gaunt, and Gray 2010). This has resulted in numerous firm failure prediction models being developed or enhanced over the years applying various techniques and using in-sample and/or out-of-sample datasets. The use of financial ratios, financial data and/or non-financial data (that is, market variables) is the dominant feature of these models. Three broad methodological streams have been identified in which the first two could be regarded as traditional or structured whereas the third could be regarded as non-traditional or unstructured. The first and second streams rely on an inductive process because each hinges on objective data being input into the firm failure prediction model (that is, quantitative method) to signal potential firm collapse. The third stream uses a deductive process because

of its reliance on qualitative or subjective financial data.

Beaver (1966) defines a financial ratio as a quotient of two numbers consisting of financial statement items. He argues that its predictive ability is not defined and financial ratios collectively are not the only predictors of firm failure. He uses the theory of ratio analysis within the framework of a cash flow (that is, liquid-asset-flow) model as a vehicle for explaining the ratios being tested where the following four concepts are derived: (1) A firm is viewed as a reservoir of liquid assets, which is supplied by inflows and drained by outflows. The reservoir size is inversely proportional to the probability of failure. The reservoir serves as a buffer against variations in the flows. The solvency of the firm can then be defined in terms of the probability that the reservoir will be exhausted, at which point the firm is unable to pay its obligations as they mature (that is, in financial distress); (2) Net liquid-asset flow from operations (that is, cash flow) is inversely proportional to the probability of failure; (3) Amount of debt held is directly proportional to the probability of failure; and (4) The firm's operations expenditure fund size is directly proportional to the probability of failure. These four concepts are used to form predictions regarding the means values of six financial ratios: (1) Cash flow to total debt; (2) Net income to total assets; (3) Total debt to total assets; (4) Working capital to total assets; (5) Current ratios; and (6) The no-credit intervals (interval measures described by Sorter and Benston (1960 p.14)).

Balcaen and Ooghe (2006) believe that the most popular firm failure prediction models are the classic cross-sectional statistical methods that involve a classification procedure to group firms as either failing or non-failing (that is, dichotomising failure). However, they also indicate that no clear overview of classic statistical methods to business collapse prediction has been provided and their applications have not been discussed. The classic cross-sectional statistical methods have been widely used in the development of firm failure prediction models such as univariate models, risk index models, multivariate discriminant analysis (MDA) models, and conditional probability models (CPM) [for example, logit analysis (LA), probit analysis (PA) and linear probability models (LPM)]. MDA is by far the most dominant classic statistical method, followed by the LA method.[14]

In the period from 1966 to 2010, many studies can be found relating to firm failure prediction modelling. As explained in sections 1.4 and 2.3 above, researchers fail to empirically identify the best prediction model because the: (1) Definition of failure itself is arbitrary; (2) Dichotomising failure seems inappropriate; and (3) Classic statistical modelling techniques, which are based on a dichotomy assumption, are applied inappropriately and may

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[14] Two types of misclassifications can be made in the MDA method: (1) Type I error is made when a failing firm is misclassified as a non-failing firm;[14] (2) Type II error is made when a non-failing firm is wrongly assigned to the failing group.
In statistics, a Type I error is the incorrect rejection of a true null hypothesis. A Type II error is the failure to reject a false null hypothesis.

have serious consequences for the resulting failure prediction model (Balcaen and Ooghe 2006). As evidenced in Tables 2.3 and 2.4 at the end of this chapter, there is a bulk of the key empirical studies that attempt to test the effectiveness and to compare the performances of different models that may distinguish accurately between the arbitrarily chosen classes in the failure definition, but fail to do so between the classes of real interest.

Balcaen and Ooghe (2006 p.73) sum up some specific problems relating to the use of the word "bankruptcy" as a particular juridical definition of failure. They are: (1) Bankruptcy is declared using liquidity and/or solvency figures and samples may be contaminated by firms that are declared bankrupt (apparent) despite not showing any real signs of failure (actual); (2) Bankruptcy is one of many possible conclusions of the failure process; and (3) "Bankruptcy models do not account for the fact that there may be a long time lag between the moment when a firm experiences serious problems that make it impossible to operate in a normal way, or the moment when it ceases to record annual accounts, and the final juridical exit in the form of a bankruptcy".

Despite the difficulties in differentiating between financial distress, insolvency and bankruptcy, Balcaen and Ooghe (2006) highlight that the studies by Keasey and Watson (1991); Hill, Perry, and Andes (1996); Doumpos and Zopoudinis (1999); and Platt and Platt (2002) are based on the financial distress criterion. There are many other models that are also based on this criterion. The two popular accounting-based (that is, those using historical data) MDA financial distress prediction models are the Altman Z-Score and Ohlson O-Score (Grice, Stephen, and Ingram 2001; Wu, Gaunt, and Gray 2010). Almamy, Aston, and Ngwa (2015) modified the Altman Z-Score model by adding a sixth ratio (that is, cash Flow from operations/total liabilities). Altman et al. (2016) extended the test of the Altman Z-Score model using international data.

Other classical models published by US based researchers that are used to predict insolvency risk, financial distress and/or bankruptcy include: Wilcox (1973); Zavgren (1983); Gentry, Newbold, and Whitford (1985); Grice, Stephen, and Ingram (2001); Koh and Tan (1999); and Wallace (2000). Apart from the classical methods discussed above, there are also methods that use computer techniques such as survival analysis, machine-learning decision trees, expert systems and artificial neural networks (ANN) (Balcaen and Ooghe 2006; Mselmi, Lahiani, and Hamza 2017).

In Australia, there is extant of literature on firm failure predictions. For example, Hillegeist et al. (2004) and Chava and Jarrow (2004) use the Black-Scholes-Merton option-pricing (BSM-Prob), Shumway, Altman Z-Score and Ohlson O-Score models. Gharghori, Chan, and Faff (2007); and Tanthanongsakkun, Pitt, and Treepongkaruna (2009) use the Merton Altman Z-Score and Ohlson O-Score models to predict firm bankruptcy (rather than

financial distress). Wu, Gaunt, and Gray (2010) use Australian data to also predict bankruptcy using the Altman Z-Score, Ohlson O-Score, Zmijewski ZFC-Score, Shumway and the BSM-Prob (by Hillegeist et al. (2004) models. Other researchers using Australian data to predict bankruptcy include those by Moody's (2000b, 2000a); Jones and Hensher (2004); Hossari (2006); and Hensher, Jones, and Greene (2007). Baxter (2006) uses the Altman Z-Score and Ohlson O-Score models to develop an insolvency risk prediction model using tax return data instead of financial statements data.

2.4   FINANCIAL DISTRESS and CAPITAL MARKETS

The high book-to-market equity ratios (which capture firms' sensitivities to a systematic distress factor) predict poor future earnings, but the book-to-market factor in returns is related to the book-to-market factor in earnings (Fama and French 1993, 1995). Financial distress risk is priced by the ranking of firms (that is, using default probability or intensity of distress to measure the sensitivities of firms to such risk) (George and Hwang 2010). Many studies including Garlappi, Shu, and Yan (2008); and Chava and Purnanandam (2010) have confirm that such measures predict defaults for individual firms and are larger during recessions. However, most of the evidence indicates that returns are lower for firms with greater distress intensities which is called "distress risk puzzle" (George and Hwang 2010 p.61).

The evidence of market mispricing suggest that it is a puzzle because high distress intensity or nearness to default means the firm has exhausted its capacity to issue low-risk debt (George and Hwang 2010). Since leverage amplifies the exposure of equity to priced systematic risks, firms with high distress measures should be those which have their equity exposures are most amplified (Modigliani and Miller 1958). A firm's book-to-market equity ratio can be decomposed into asset and leverage components and that returns are positively related to the asset component of book-to-market, but negatively related to leverage (Penman, Richardson, and Tuna 2007) and such decomposition is analogous to the results of Modigliani and Miller's study because book-to-market equity ratios are treated as sensitivities to a priced systematic risk as suggested by the multi-factor model of Fama and French (1993), which is another puzzle (George and Hwang 2010).

Low-leverage firms have low distress probabilities and greater exposures to systematic risk than high-leverage firms which implies that expected returns are negatively related to leverage and the probability of distress (George and Hwang 2010). In addition, since leverage amplifies equity's exposure to priced risks, the negative relation between returns and leverage should appear stronger in returns that are adjusted for exposure to other measures of priced risk (George and Hwang 2010). If financial distress is costly and firms

make optimal capital structure decisions, then low-leverage firms are exposed to greater systematic risk than high-leverage firms. Firms with high costs choose low leverage to avoid distress, but they retain exposure to the systematic risk of bearing such costs in low states (George and Hwang 2010). When in distress, low-leverage firms suffer more than high-leverage firms as measured by a deterioration in accounting operating performance and heightened exposure to systematic risk (George and Hwang 2010).

Since studies including those by Dichev (1998); and Griffin and Lemmon (2002) find that the negative relation between returns and financial distress puzzling, it cannot serve as a basis for concluding whether book-to-market's significance is attributable to financial distress risk. According to George and Hwang (2010), what matters is financial distress costs, and both leverage and the probability of default are inverse measures of costs when firms choose capital structures optimally. The inclusion of leverage and distress probability in cross-sectional regressions did not change the significance of the book-to-market in explaining returns. Hence, the book-to-market is not a measure of financial distress risk but instead captures exposure to priced risk that is unrelated to capital structure.

In the capital market, there is existing evidence which shows that the performance of suppliers can be influenced major customers' financial conditions given that the suppliers' earnings are from major customers (Lian 2017). Lian (2017 p.397) reports that "the future distress risk of suppliers is positively related to the distressed major customers. The effect is persistent up to two years after major customers are financially distressed". The effect is more noticeable when: (1) the customer-supplier relationships are stronger, (2) major customers are more likely to fail in the future, and (3) when suppliers make specialized or unique products (Lian 2017).

2.5   FINANCIAL DISTRESS and FINANCIAL REPORTING QUALITY

Capital "market uncertainty is a fundamental determinant of the usefulness of corporate disclosure" (Kwon and Wild 1994 p.347). The period of financial distress, because of capital market's degree of uncertainty, affect the informativeness of annual reports (Kwon and Wild 1994). As a result, "the capital market reactions to annual reports substantially increase as financial distress nears" (Kwon and Wild 1994 p.346).

The capital market and its enforcement agency provides an alternative and potentially superior source of information regarding distressed firms (and the probability of bankruptcy) because it aggregates information from other sources in addition to data provided in the financial statements (Hillegeist et al. 2004). The potential for market-based variables to provide information about the probability of bankruptcy has long been recognised (Beaver 1966). However, a big hurdle with this recognition relates to the approach to extracting the

financial distress and/or probability of bankruptcy related information from market prices (Hillegeist et al. 2004).

At the market level, there have been a lot of comments made in relation to financial reporting contributing to the global financial crisis (GFC) particularly with the use of fair values (FVs) in reporting financial instruments in the balance sheets particularly the banks (Barth and Landsman 2010; Pinnuck 2012). Although the bank regulators and accounting standards setters are both important stakeholders in a financial reporting framework (Brown and Tarca 2005), Barth and Landsman (2010) assert that the bank regulators, not accounting standard setters, need to ensure the stability of the financial system because of the link of banks with GFC. Changes in financial reporting are needed for the banks to improve transparency of information provided to the capital markets because the objectives of bank regulation and financial reporting differ. However, both Barth and Landsman (2010); and Pinnuck (2012) conclude that FV accounting played little or no role in the 2007-2008 GFC. Further research is required to determine whether FV accounting in the years immediately preceding the crisis exacerbated the GFC (Pinnuck 2012) and the Australian government addressed this issue in its G-20 Action Plan (Treasury 2010).

Pinnuck (2012) points out that financial reports play a stewardship role although most commentators associate them to the valuation objective during the 2007-2008 GFC; and Barth and Landsman (2010) support this view by indicating that it is particularly true with the banks. The failure of financial reporting to satisfy the stewardship objective in the years preceding the GFC could have exacerbated the crisis (Barth and Landsman 2010; Pinnuck 2012).

At the firm level, Charitou, Lambertides, and Trigeorgis (2007) find that failing firms are more conservative in earnings management reported than non-failing firms, but have higher likelihood of material weaknesses (Doyle, Ge, and McVay 2007). Rosner (2003) also finds that the behaviour of failing firms that do not appear distressed on the accrual data basis but show significant decreases in cash flows, is consistent with material earnings overstatements in none going-concern years followed by overstatement reversals in going-concern years. Failing firms' pre-bankruptcy financial statements are more likely to reflect material earnings overstatements than those of non-stressed non-failing firms matched on year, industry, and size.

In the past Enron, Parmalat and WorldCom era, prior literature and anecdotal evidence suggest that failing firms may be motivated to engage in fraudulent financial reporting to conceal distress (Rosner 2003). Consistent with the findings of the study by Lee, Ingram, and Howard (1999), Rosner (2003) reports that failing firms' financial statements are more likely to exhibit signs of material income increasing earnings manipulation than those

of non-failing firms. Failing firms' financial statements reflect significantly greater material income-increasing accruals magnitudes in none going-concern year. The accruals behaviour of these firms resembles that of failing firms that the SEC has sanctioned for fraud. Like sanctioned firms, the non-failing firms display significantly greater (material) increases in receivables; inventory; property, plant, and equipment; sales; net working capital, current, and discretionary accruals. They also display significantly more negative changes in cash flows from operations and net cash, and a greater disparity between accrual-based net income and operating cash flows.

Corporate governance can play an effective role in ensuring the quality of the financial reporting process (Cohen, Krishnamoorthy, and Wright 2004) and hence identification of any symptoms of financial distress. Further, academic researchers [for example, Dechow, Sloan, and Sweeney (1996); Beasley (1996); Carcello and Neal (2000); and Klein (2002a)] have found an association between weaknesses in governance and poor financial reporting quality, earnings manipulation, financial statement fraud, and weaker internal controls.

2.6   CORPORATE GOVERNANCE

The expansion of capital markets in the 1990s and the globalisation of investors due to advancement of information and communication technology (ICT) increase the need for effective corporate governance mechanisms. These mechanisms facilitate effective decision making to enable the achievement of optimised value of the firm, which is an important factor contributing to the efficiency of the capital market (Fama 1970). As stated in section 2.2.3 above, a crucial element in achieving an efficient market is the provision of high quality financial information to the capital market participants and how they are presented (for example, the use of eXtensible Business Reporting Language (XBRL) – a legislative requirements in the US in accordance with the Sarbanes-Oxley Act (2002)). Lower financial reporting quality and earnings manipulation are often associated with weaknesses in governance structure, which Cohen (2002) links to the 1997 East Asia capital market collapse and the ~~recently~~ well-publicised spate of corporate scandals that sent significant ripples across the global capital markets.

Consistent with the view of Cohen (2002), Byard, Li, and Weintrop (2006) report that better quality corporate governance is associated with a key benefit to the end users of firm-provided financial disclosure, and as indicated in section 2.5 above, corporate governance can play an effective role in ensuring the quality of the financial reporting process. For example, financial analysts, one of the key group of users of firm-provided financial disclosures, will possess an increase in the overall quality of information for decision making.

The end result is that forecast accuracy will be improved.

The market can seek comfort that corporate governance frameworks, such as the Enterprise Risk Management-Integrated Framework (ERM-IF) published by the Committee of Sponsoring Organisations (COSO) of the Treadway Commission, have been designed as an authoritative guidance to manage risk including the accountability mechanisms of financial reporting, audit and internal control (Spira and Page 2003). For example, accountability mechanisms of financial reporting include the analysis of the financial statements by various corporate governance players, which would have revealed significant financial distress (Bessell, Anandarajan, and Umar 2003).

Reporting requirements of stock exchanges need to be complied with if firms wish to be listed in them. These reporting regimes are rigorous and enforced by dedicated agencies such as the US SEC and ASIC. The annual reports of these firms are expected to be better in content than those of the unlisted firms (Singhvi and Desai 1971). Pursuant to Section 769 of the Australian Corporations Act (2001), the ASX develops or adopts Listing Rules in the interests of the public thus making the ASX part of the regulatory regime within which listed firms disclose required financial information.

Gillan (2006 p.382) asserts that "the definition of corporate governance differs depending on one's view of the world", and cited views on the different perspectives particularly those from Zingales (1998) and Shleifer and Vishny (1997). Zingales (1998) views governance systems as the complex set of constraints that shape the ex post bargaining over the quasi-rents generated in the course of a relationship or contract whereas Shleifer and Vishny (1997 p.737) view corporate governance systems "as the ways in which suppliers of finance to corporations assure themselves of getting a return on their investment". Irrespective of the particular definition used, researchers often view corporate governance mechanisms as falling into one of two groups: those internal to firms (that is, Internal Governance - the BoDs and Executive Management) and those external to firms (that is, External Governance - shareholders and other stakeholders) (Gillan 2006). With regard to the relationship within the internal group, Cohen, Krishnamoorthy, and Wright (2004) suggest the following actors in a corporate governance "mosaic": (1) BoDs and audit committee; (2) External auditors; and (3) Internal auditors. Similarly, Gramling et al. (2004) suggest the following are corporate governance cornerstones: (1) Management; (2) audit committee; (3) External auditors; and (4) Internal auditors.

The mainstream accounting and finance literature define governance as "the range of control mechanisms that protect and enhance the interests of shareholders of business enterprises" (Baker and Owsen 2002 p.783). From a broad perspective, corporate governance is defined as the system of laws, rules, and factors that control operations in a firm (Gillan

and Starks 1998). One of the key legal features of a firm is that it acquires a separate and distinct legal personality (Farrar and Hannigan 1998), which has substantial legal significance since it has control over the collective property of its stakeholders (Lan and Heracieous 2010). It defines and legitimates the firm as "an autonomous economic being, and it grants the firm various rights, including constitutional rights" (Lan and Heracieous 2010 p.295).

From a theoretical perspective with respect to the virtue acquisition of a firm being a separate and distinct legal personality, agency theory has become a cornerstone of the corporate governance field, not only in terms of its impact on the literature but also in terms of policy and practice (Shleifer and Vishny 1997; Daily, Dalton, and Cannella 2003). Codes of good corporate governance practice, and composition and procedures of the BoDs have been influenced by the tenets of agency theory (McCarthy and Puffer 2008).

The self-interest-oriented assumptions of agency theory (Mizruchi 1983) are considered unsuitable for offering a complete understanding of corporate governance mechanisms that consist "collaborative behaviours or that operate in other contexts than mature market-oriented economies" and they are "unable to explain the complexities of real-world organizations", and "go against the behavioural assumptions held by most organization theorists" (Lan and Heracieous 2010 p.294). With a few assumptions and limitations considered, Lan and Heracieous (2010), and Heracieous and Lan (2012) draw from the legal theory to offer a fundamental rethinking of agency theory along three key dimensions redefining the: (1) Principal-agent relationships of the firm; (2) Status of the BoDs not as the shareholders' agents but autonomous fiduciaries; and (3) Role of the BoDs from monitors to mediating hierarchs to ensure maximising of principals' returns (Jensen and Meckling 1976). These dimensions contrast with the classic agency theory, offering further theorisation and empirical research in corporate governance. This new view of agency theory can be institutionally sensitive because it recognises various stakeholders as team members, rather than just adding specific institutional features as variables to the dominant conception of the agency theory (Heracieous and Lan 2012). In line with this view, Christopher (2010) suggests that a multi-theoretical approach is required to overcome the inadequacy of the agency-oriented concept of governance. Christopher (2010) links the agency theory that provides for the relationship between parties to be bound through the nexus of contractual obligations, with the ~~recent~~ well publicised corporate scandals.

From an Australian commercial perspective, the Australian Stock Exchange Corporate Governance Council (ASX CGC) designed its reforms in an attempt to rectify deficiencies in the corporate environment and follows some pivotal local firm collapses such as HIH, One-Tel Limited and Harris Scarfe (Singh 2010). ASX CGC issued the ten Principles of Good Corporate and Best Practice Recommendations because good governance, besides

creating value to stakeholders, provides accountability and control systems commensurate with the risks involved (Australian Securities Exchange Group 2003). One of these principles pertains to the recognition and management of risk and stipulates that "a sound system of risk oversight and management and internal control must be established which should identify, assess, monitor, and manage risk, and inform investors of material changes to the firm's risk-profile, and that the system is operating efficiently and effectively" (Mallin 2006 p.239). There is now an expectation that the corporate governance practices of listed Australian firms and the practices of audit firms will improve (Singh 2010).

2.6.1   Board of Directors

As stated in section 2.6 above, researchers often view corporate governance mechanisms as falling into one of two groups: those internal to firms and those external to firms. Gillan (2006) divides internal governance into five basic categories: (1) The BoDs (and their independence role, structure, and incentives); (2) Managerial Incentives; (3) Capital Structure; (4) Bylaw and Charter Provisions (or anti-takeover measures); and (5) Internal Control Systems.

The BoDs' independence role is important because it is the lynchpin of corporate governance given its fiduciary obligation to shareholders by ensuring the integrity of the financial accounting process and enhancing it, and its responsibility to provide strategic directions and monitoring. The BoDs has a broad role in overseeing all accountability activities including monitoring and disciplining senior management where larger boards with audit committee may increase the level of managerial monitoring (that is, a greater number of guards) (Anderson, Mansi, and Reeb 2004).

Researchers such as Beasley and Salterio (2001); Carcello et al. (2002); Anderson, Mansi, and Reeb (2004) and Bradbury, Mak, and Tan (2006) examine the association of corporate governance issues with BoDs' characteristics. The BoDs' characteristics include: (1) BoDs' independence, (2) BoDs' size, (3) Committee structure, and (4) Specific occupational characteristics or expertise of independent directors (Anderson, Mansi, and Reeb 2004). Other BoDs' characteristics include diligence, and expertise (Carcello et al. 2002). BoDs' independence is usually measured as the percentage of outside (that is, non-management) directors on the board, diligence is measured by referring to the number of BoDs' meetings that occur during the year, and expertise on the basis of the average number of other director positions held by independent directors (Carcello et al. 2002) or at least one member possesses an accounting professional qualification such as Certified Practicing Accountant (CPA) or Chartered Accountant (CA) (Krishnan and Visvanathan 2007). Director expertise or occupational characteristics can and should influence the board's ability to

effectively monitor management and the firm (Monks and Minow 1995; Beasley 1996). Anderson, Mansi, and Reeb (2004) finds a negative relation between the BoDs' size and the cost of debt financing, and suggests creditors are sensitive to BoDs' attributes that affect reporting validity since bondholders view the BoDs' independence as an important element in the pricing of the firm's debt.

The BoDs' accountability role includes promoting relations with the external auditors (Singh 2010), and/or an IAF and its independence while assisting to fulfil its roles (Anderson, Mansi, and Reeb 2004). However, given the broad scope and rigour of the BoDs' responsibilities, it often delegates accountability for the external and/or internal auditing to a sub-committee (or a "mini board"), the audit committee (DeFond, Hann, and Hu 2005b). This is because the BoDs is required to review the existence and functioning of the risk management and internal control system and it (or an appropriate committee, in most cases, the audit committee) establishes policies on risk oversight and management (Krishnan 2005; Sarens and Christopher 2010).

Since the auditor is to look to the BoDs as its client, it is reasonable to expect the BoDs to review the overall planned audit scope and proposed audit fee (Public Oversight Board 1994; Blue Ribbon Committee 1999). The BoDs also may influence audit quality through informal means. For example, the BoDs' commitment to vigilant oversight may signal to management and the auditor that the expectations placed on the audit firm are very high and demand a higher-quality audit (Anderson, Mansi, and Reeb 2004).

Major stock exchanges require that a minimum of three independent directors serve on the audit committee, which suggests that committee independence and size may be integral factors for firms in delivering meaningful financial reports (Klein 2002a).

2.6.2 Audit Committee

In 1999, the US SEC introduced new requirements for the audit committee composition and structure. As a result, all listed companies in the US DOW and NASDAQ indices must appoint an audit committee with the following characteristics: (1) At least three members; (2) All members (except in restricted circumstances) must be independent of management; and (3) At least one member with financial expertise. The audit committee assists firms to comply with legislations such as Sections 302 and 404 of the Sarbanes-Oxley Act (2002).

In Australia, there are no formal requirements for Australian firms which are not in the top ASX 300 based on market capitalisation to form an audit committee although encouraged. The audit committee independence is measured based on the definition of an independent director proposed by the ASX CGC (2014). Similar to the US DOW and

NASDAQ requirements, the ASX CGC (2013)'s Recommendation 4.1 of Principle 4 titled Safeguard integrity in corporate reporting stipulates that the BoDs should establish an audit committee. Furthermore, to strengthen the independence of the auditing functions, Listing Rule 12.7 Recommendation 4.3 states that the structure the audit committee consists of: (1) Only independent directors; (2) A majority of independent directors; (3) An independent chairperson, who is not chairperson of the BoDs; and (4) At least three members. Based on market capitalisation, the top 500 firms on the ASX must also comply with the audit committee requirements of the ASX Listing Rule 12.7, which requires any firm included in the Standard & Poors (S&P)/ASX 300 Index at the beginning of the firm's financial year to have an audit committee during that year. Further, the ASX CGC's Principles of Corporate Governance and Best Practice Recommendations 2003 and CLERP 9 (2004) are expected to have a wide and significant impact on the audit committee (and audit function) and on listed firms to implement effective controls over risk management and financial reporting processes.

The fifth basic category stated in section 2.6.1 above (that is, internal control systems) associates the audit committee (and internal auditors) with the BoDs, Executive Management, and the external auditor in the corporate governance framework. Even though the definitions of an effective audit committee vary (DeZoort et al. 2002), many researchers will agree that both audit committee composition and audit committee activities are relevant (which is consistent with both the SEC and the ASX CGC's Principle 4). The literature on corporate governance has generally supported the notion that the audit committee governance complements existing good governance (DeFond and Francis 2005). An audit committee is a corporate governance entity, which is considered an integral part of the financial reporting processes (Hoitash, Hoitash, and Bedard 2009; Barua, Rama, and Sharma 2010; Altamuro and Beatty 2010) and a well-functioning audit committee underpins the assurance that the BoDs give to stakeholders in relation to the firm's financial statements and the audit process (Treasury 2010). Klein (2002a) concludes that the central role of the audit committee is essentially to reduce the extent of accruals (both positive and negative) reported by firms, thereby, increasing the reported earnings quality.

As stated in section 2.3.1, one of the four factors that is consistently associated with the incidence of internal control problems is financial distress and the importance of the audit committee is supported by the results of research conducted by Krishnan (2005), that is: (1) A negative association between the presence of internal control problems and audit committee independence; and (2) a negative association between the presence of internal control problems and the number of audit committee members with financial expertise. Although not mandated by the SEC's rules that the audit committee has the responsibility to oversee internal controls over the achievement of quality financial reporting, anecdotal evidence (for example,

disclosures in proxy filings) and academic research suggest audit committees do view monitoring internal controls as one of their functions (Carcello, Hermanson, and Neal 2002; Xie, Davidson, and DaDal 2003).

The mere existence of an audit committee, however, does not mean that this key sub-committee is capable of undertaking the prescribed roles and responsibilities to improve the quality of the financial report. Researchers such as Carcello and Neal (2000); and Klein (2002a) have reported empirical evidence on audit committee composition whereas Krishnan (2005) reports on the audit committee composition and structure. According to Krishnan (2005), the quality of audit committee is measured using three dimensions: (1) Size; (2) Independence; and (3) Expertise. Audit committee size is positively related to: (1) fraudulent financial reporting risk assessment, (2) female audit committee participants and those serving on boards with greater independence are more likely to report engaging in audit committee activities to assess management integrity, and (3) audit committee's view is that external audit partner, Chief Financial Officer, and CIA should be assessing the risk of fraudulent financial reporting (Wilbanks, Hermanson, and Sharma 2017). The internal control problems are observed at two levels of increasing seriousness: (1) Reportable conditions; and (2) Material weaknesses. Krishnan (2005) indicates that independent audit committees and those with financial expertise are significantly less likely to be associated with the incidence of internal control problems.

There is also literature that suggests the quality of the audit committee is measured by: (1) Independence (Abbott, Parker, and Raghunandan 2003; Carcello et al. 2011; Alzeban and Sawan 2015); (2) Financial expertise (Defond, Hann, and Hu 2005a; Dhaliwal, Naiker, and Navissi 2010; Alzeban and Sawan 2015); (3) Experience (Beasley and Salterio 2001; Dhaliwal, Naiker, and Navissi 2010); and (4) Diligence (Abbott, Parker, and Raghunandan 2003; Abbott, Parker, and Peters 2004; Stewart and Munro 2007; Alzeban and Sawan 2015).

Rahmat and Iskandar (2009) find that financial distress is significantly associated with the financial expertise of audit committee members. Consistent with the view of Krishnan (2005), their results also show that the likelihood of financial distress is lower for companies with audit committee members who have financial expertise compared with companies whose audit committees are less knowledgeable in the area of accounting and finance.

The independence of audit committees in fulfilling their responsibilities, particularly with their effort to assist firms comply with legislation (for example, Sections 302 and 304 of the Sarbanes-Oxley Act (2002)), often rely on both the internal and external auditors (Barua, Rama, and Sharma 2010), for example, to verify the integrity of financial reports (Wallace 1980). An effective IAF can assist an audit committee with: (1) Assurances regarding

controls; (2) Independent evaluation of accounting practices and processes; (3) Risk analysis; and (4) Fraud analysis and special investigations (Hermanson and Rittenberg 2003b). Furthermore, the audit committees seek comfort, with respect to the control environment and internal controls effectiveness from the IAF because of the latter's unique knowledge of risk management and internal control, combined with appropriate interpersonal and behavioural skills (Sarens, De Beelde, and Everaert 2009).

2.6.3   External Auditor

Section 2.2.3 above discusses three of the six Chief Executive Officers' (CEOs') viewpoint needed for capital market quality financial reporting (International Audit Networks 2006).[15] The remaining three of the six vital elements are: (1) The auditing profession is independent and providing sufficient choice for all stakeholders in these markets; (2) Large, collusive frauds are being prevented; and (3) Information is reported and audited in accordance with standards.

As described in section 2.6.2 above, external auditors also play an important role in an effective corporate governance framework (Cohen, Krishnamoorthy, and Wright 2004). They are the rule enforcers of a financial reporting process framework (Brown and Tarca 2005), which is an important role in ensuring that the public interest of strengthening accountability is served thereby reinforcing trust and confidence in financial reporting. Not only will the external auditors provide assurance on the integrity of capital market information, they will also support the effectiveness of the firms' risk management processes. By providing assurance on the quality of publicly reported accounting information, external auditors assist in limiting a firm's ability to manipulate accounting information thereby enhancing economic prosperity by encouraging a growth in the variety, number and value of transactions that stakeholders are prepared to enter into with a firm (Leung, P. Coram, and Cooper 2007; Leung et al. 2015).

The firm's ability to attract the transfer of wealth from outside stakeholders has been reduced by questionable independent external audit providing assurance on the quality of public accounting information. ~~Recent~~ Reports of accounting irregularities increase the debate on auditor independence (Ghosh and Moon 2005). One main debate issue is that auditors are more likely to agree with managers on important reporting decisions as the length of the audit engagement increases (Ryan et al. 2001). Therefore, imposing mandatory limits on auditor tenure is expected to improve audit quality by reducing client firms' influence over auditors (Brody and Moscove 1998). However, there are other studies providing valuable insights into

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[15] Section 2.2.3 above discusses: (1) Investor needs for information are well defined and accessible; (2) Business reporting models are continuously being enhanced to deliver relevant and reliable information in a timely way; and (3) Information is reported and audited in accordance with standards.

the debate surrounding auditor tenure by examining the association between tenure and (1) accounting accruals, (2) analysts' forecast errors, and (3) the cost of debt. Longer auditor tenure reduces managerial discretion with accounting accruals, which suggests high audit quality (Myers, Myers, and Omer 2003). Accruals are larger and less likely to persist for firms with short audit-firm tenure (two to three years) relative to those with medium or long tenure (Johnson, Khurana, and Reynolds 2002). Mansi, Maxwell, and Miller (2004) find that the cost of debt declines with longer tenure, which suggests bondholders perceive audit quality as improving with extended tenure. There is a positive association between capital market participants' perceptions of earnings quality and tenure (Ghosh and Moon 2005). Capital market participants as well as information intermediaries perceive auditor tenure as improving audit quality. Results indicate that auditor tenure provides a continuous opportunity to note any instances of earnings manipulation to inflate the bottom line or to justify managerial incentive plans (Bushman and Smith 2001).

Both the external auditor and IAF are mechanisms to manage the agency costs that arise as a result of the differing interests of owners and managers of firms (Jensen and Meckling 1976; Collier and Gregory 1999). Internal auditors can further contribute to the external audit, and IAQ is positively associated with the size and the complexity of the organization (Prawitt, Sharp, and Wood 2011). Desai, Roberts, and Srivastava (2010) find that external auditors use a complex process when deciding whether or not to use the internal auditors as assistants. Further empirical evidence suggest that no one factor (that is, internal auditor work performance, competence and objectivity) dominates the strength judgment of the external auditor on their client's internal audit function (Desai et al. 2017).

Gramling et al. (2004) discuss the concept of IAQ as an aspect of internal control quality and largely relies on the external auditor assessment but most importantly contribute to effective corporate governance. Mat Zain, Zaman, and Mohamed (2015) reports that the interaction between IAF quality and IAF contribution to external audit suggests that higher quality IAF induces greater external auditor reliance on internal auditors' work and thus result in lower external audit fees.

While the GFC has exposed a number of problems with financial reporting, these are being addressed at the international level, primarily through the IASB. Both the IASC and the Australian FRC not only state that effective financial reporting depends on high quality accounting standards, it also depends on high quality auditing and others contributors. The Australia's audit regulation framework appears to be functioning effectively during the recent uncertain economic conditions (Treasury 2010). Treasury considers that the preparation of its strategic review of audit quality provides a timely opportunity to examine the implications of the GFC on audit quality in Australia and to undertake a "stress test" on the performance of

the Australia's audit regulation framework and the IAF during the financial crisis (Treasury 2010 p.1).

There are literature that use either discretionary accruals to measure or proxy for audit quality (Becker et al. 1998; Francis, Maydew, and Sparks 1999; Chung and Kallapur 2003; Myers, Myers, and Omer 2003) or discretionary accruals to measure or proxy for financial report quality (Francis 2011; Abbott et al. 2016).

As discussed in section 1.1 above, researchers cannot disassociate audit failures as being one of the main reason for these high profile accounting scandals which have resulted in increased societal demands for responsible corporate governance and accountability requirements. IAF with high-quality IAQ attributes could serve as an additional third-party monitor of management's actions on a year-round basis and SAS No. 65 encourages external auditor to consider internal auditor's work in a financial audit. For example, they can assist the external audit in their works such as moderating earnings management by minimizing managers' opportunities to manage earnings (Brown and Pinello 2007). Prawitt, Smith, and Wood (2009) find evidence that IAF quality is associated with a moderation in the level of earnings management (that is, as discussed, the audit quality and financial reporting quality) as measured by both (1) abnormal accruals and (2) the propensity to meet or barely beat analysts' earnings forecasts. In addition, IAF with high-quality IAQ attributes can reduce an overall control risk and detection risk in an audit risk model (Prawitt, Smith, and Wood 2009).

Albeit the services provided by IAF may have conflict with the broader governance role, it plays an active and independent role in implementing effective governance and controls while being asked to assess the effectiveness of management's control practices (Hermanson and Rittenberg 2003a).

2.6.4   Internal Audit Function

IAF's role is best illustrated by the IIA's definition:

"An independent, objective assurance and consulting activity designed to add value and improve an organization's operations. It helps an organization accomplish its objectives by bringing a systematic, disciplined approach to evaluate and improve the effectiveness of risk management, control, and governance processes" (Institute of Internal Auditors 2002).[16]

Academics observe that firms with an IAF are significantly larger (that is, firm size measured in market capitalisation, sales, number of employees and others), more highly regulated, more competitive, more profitable, more liquid, more conservative in accounting policies, more

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[16] Independence defined as: [. . .] freedom from material conflicts of interest that threaten objectivity of IAF – IPPF Attribute Standard 1100.

competent in their management and accounting personnel, subject to better management of risks and controls, or more complex with more reporting levels and international operations (Wallace and Kreutzfeldt 1991; Goodwin-Stewart and Kent 2006a; Hoitash, Hoitash, and Bedard 2009; Lin et al. 2011; Sarens and Abdolmohammadi 2011). Table 2.7 at the end of this chapter provides a list of key empirical evidence related to firm characteristics as the determinants of an IAF existence.

IAF is an important part of a firm's corporate governance structure and it is effective in preventing and detecting fraudulent financial reporting (Treadway 1987). IAF has now established its position within the corporate governance field because one unexpected outcome resulting from the recent well publicised wave of accounting scandals is an increased awareness that auditing matters (DeFond and Francis 2005) and various research studies recently have confirmed the importance of internal auditing in enhancing governance (Allegrini and D'Onza 2003; Gramling et al. 2004; Cooper and Schindler 2008; Hass, Abdolmohammadi, and Burnaby 2006; Sarens 2009). The increased attention to "good governance" is the change that is required in the critical role that IAF plays, supported by IIA's definition stated above, in the corporate governance arena (Bailey, Gramling, and Ramamoorti 2003; Antoine 2004; Archambeault, Zehoort, and Holt 2008; Sarens 2009). The role change is relevant to ensure compliance with the requirements of the new and/or amended legislations, for example, the Sarbanes-Oxley Act (2002) in the US, UK Corporate Governance Code, CLERP 9 (2004) in Australia, and also various corporate governance codes in Europe.

In the post-Enron era, the auditor's role in detecting fraudulent financial reporting is critically important and such a role can only be fulfilled by ensuring that established criteria of quality financial reports are complied with (Hoitash, Hoitash, and Bedard 2009). This is because investors in a competitive capital market price the firm based on an audit report (Pae and Yoo 2001). New legislations such as the Sarbanes-Oxley Act (2002) and CLERP 9 (2004) have introduced new complexities and risks at the same time they have also presented uncertainties for auditors (Cohen, Krishnamoorthy, and Wright 2004). As discussed in section 2.6 above, high quality financial information should be made available to the capital market participants and Sarbanes-Oxley Act (2002) enforces submission of financial information in XBRL format. There are "evidence that corporate governance quality is positively associated with IAF involvement with XBRL implementation" (Abdolmohammadi et al. 2017 p.45). Nonetheless, Sarens and Christopher (2010) conclude that the integrity of financial statements depends on the existence of a sound system of risk management and internal control, which are the two areas in which audit committees experience considerable discomfort. An independent assessment such as the IAF not only ensures that there exists an effective control

framework to assist a firm achieve its business objectives. It also provides comfort that an audit committee and/or the BoDs are seeking by providing objective assurance that the: (1) Major business risks are being managed appropriately; and (2) Risk management and internal controls are operating effectively. For example, Krishnan (2005) finds that financial distress is positively associated with weak internal controls and that IAF performs risk assessment that may implicitly and explicitly lower the likelihood of financial distress.

In Australia, Carey, Simnett, and Tanewski (2000) report that many listed companies do not appear to engage in internal auditing in spite of regulators' commitment to strong corporate governance. In addition, empirical evidence suggests that companies with IAFs differ from those without such functions on a variety of dimensions including experiencing significantly fewer adjusting journal entries and fewer material weaknesses (Wallace and Kreutzfeldt 1991). The CLERP 9 (2004) requirements in relation to independent risks assessment are addressed by the ASX CGC, which results in both the Principles of Good Corporate Governance and Best Practice Recommendations being produced and revised (Institute of Internal Auditors and Protiviti 2010). However, there is no specific provision relating to internal auditing as per CLERP 9 (2004). Likewise, the ASIC "have no direct jurisdictions over internal auditors" (Institute of Internal Auditors and Protiviti 2010 p.10). The revised ASX Principle 7 – Recognise and Manage Risk has an implied impact on internal auditing where it requires the BoDs to disclose if it has received assurance from the: (1) Management that material risks are effectively managed; and (2) CEO and Chief Financial Officer (CFO) (or equivalents) that the declaration provided in accordance with Section 295A of the Corporation Act (2001) is based on a sound system of risk management and internal control, and that the system is operating effectively in all material aspects in relation to financial reporting risks (Institute of Internal Auditors and Protiviti 2010). Such assertions have to be attested by an independent function such as the IAF in accordance with the ASX Principle 4 – Safeguard Integrity in Financial Reporting.

In its attempt to encourage auditors to assess financial distress related risks following the corporate scandals reported between 2001 and 2003 (for example, Enron, US-2001; HIH, Australia, 2001; WorldCom, US-2002; and Parmalat, EU-2003), the Institute of Internal Auditor Research Foundation (IIARF) in 2004 issued a paper titled "Risk Assessment By Internal Auditors Using Past Research On Bankruptcy" authored by Wallace (2004). This paper describes how models like the Altman Z-Score, Zmijewski ZFC-Score, Zavgren, Wilcox, Koh and Tan's Neural Network, and Wallace's Neural Network Analysis can be applied and encourages auditor to use these models. Consistent with the view of Balcaen and Ooghe (2006), there is merit to have an application of multiple methods in the monitoring process (that is, triangulation approach (Wallace 2004)). In addition, Hillegeist et al. (2004) suggest earnings management are promising areas that could be investigated using the BSM-

Prob model.

2.7   INTERNAL AUDIT QUALITY

To be an integral component of the network of parties having corporate governance responsibilities, the IAF must possess a certain quality in order to be able to contribute effectively. According to the Oxford dictionary, "quality" means "the standard of something as measured against other things of a similar kind; the degree of excellence of something" (Oxford 2012). The intent of the auditing process, which is a systematic and disciplined process where audit evidence is measured against established criteria, is to achieve audit quality by ensuring that there are adequate and effective management controls implemented in accordance with some established corporate governance criteria. According to Romney and Steinbart (2012 p.204), internal control objectives include: (1) Safeguarding of assets; (2) Maintaining sufficient records to report firms assets accurately and fairly; (3) Providing accurate and reliable information; (4) Preparing financial records in accordance with established criteria; (5) Promoting and improving operational efficiency; (6) Encouraging adherence to prescribed managerial policies; and (7) Complying with applicable laws and regulations.

The work by researchers such as Watkins, Hillison, and Morecroft (2004) indicates that the practitioner literature defines audit quality relative to the degree to which the audit conforms to applicable auditing standards. Francis (2004 p.346) indicates that it "can be conceptualized as a theoretical continuum ranging from very low to very high audit quality".

The Australian Department Treasury (2010) describes audit quality as involving a wide range of inter-related factors such as the legal framework relating to audit regulation (including the firm auditor registration system; the auditor independence regime in the Australian Corporations Act (2001), and the accounting and auditing standards); the ethical standards applying to the members by the professional accounting bodies (for example, IIA, Information Systems Audit and Control Association (ISACA), Institute of Chartered Accountants (ICA) and Certified Practicing Accountants (CPA)); the professional qualities and skills of auditors and their staff; and, the role and activities of the audit regulator (that is, ASIC) and other professional bodies involved in the audit review process. Table 2.6 at the end of this chapter provides a listing of key empirical studies relating internal auditing and legal matters.

Over time as the role of auditors changes due to definition, standards, practices and/or legislations particularly impacting on financial reporting framework, researchers have identified multiple dimensions of audit quality, and these dimensions have had led to different interpretations (Watkins, Hillison, and Morecroft 2004). For example, due to the recent

corporate scandals and financial crisis, Sarens (2009 p.1) defines IAF quality as "when IAF quality has a positive impact on the quality of corporate governance". Table 2.7 at the end of this chapter provides a list of key empirical studies relating to the roles internal auditors play in the corporate governance arena, including the provision of audit quality.

The recent collapse of large firms have demonstrated that one or more of the above corporate governance parties are not playing their roles accordingly. One specific issue identified is that external auditors have not uncovered material misstatements in the financial reports of these firms including signals of potential firm collapse. In the spirit of good corporate governance especially for those firms with an active audit committee and larger IAF that spend more on external auditing, there are indications to suggest that there is a demand for higher IAQ (Goodwin-Stewart and Kent 2006a).

Most IAQ research has embraced to a large extent the IIA's definition of internal auditing and criteria specified in its International Professional Practices Framework (IPPF) standard[17] and Standards for the Professional Practice of Internal Auditing (SPPIA). Goodwin-Stewart and Kent (2006b p.83) state that "this definition is designed to embrace the expanding role of internal audit which in recent years has evolved from a narrow focus on control to include risk management and corporate governance". The improvement of risk management, control, and governance processes is contingent on IAQ (Gramling et al. 2004) and vice-versa suggesting a high likelihood of a causal relationship. In these contexts, IAQ can be measured qualitatively by such descriptions as: (1) Objective assurance that the major business risks (such as social, ethical and environment as well as financial and operational) are being managed appropriately; and (2) Assurance that the risk management and internal control framework is operating effectively (Institute of Internal Auditors and Deloitte & Touche 2003).

Within US companies, IAAs development is now not only based on the standards compiled by IIA but is also dictated by new legislation such as the Sarbanes-Oxley Act (2002) and the Public Company Accounting Oversight Board (PCAOB) in 2004 (Burnaby et al. 2009). PCAOB Auditing Standard No. 2 states that IAQ is an important issue and "a low-quality IAF can constitute a material weakness in internal controls" (Gramling and Vandervelde 2006 p.26). Francis (2004) asserts that there could be merit in recent reforms such as the Sarbanes-Oxley Act (2002) in the US since he finds some indication that audit quality may have declined in the 1990s. He also finds that there is evidence of voluntary differential audit quality (above the legal minimum) along a number of dimensions such as

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[17] The Standards that address the characteristics of organizations and parties performing IAAs. The Standards consist of Attribute Standards (the 1000 Series) and Performance Standards (the 2000 Series). The Attribute Standards address the attributes of organizations and individuals performing internal auditing. The Performance Standards describe the nature of internal auditing and provide quality criteria against which the performance of these services can be measured. The Attribute and Performance Standards are also provided to apply to all internal audit services. (Institute of Internal Auditors 2005).

firm size, industry specialization, office characteristics, and cross-country differences in legal systems and auditor liability exposure.

In November 2006, the discussion paper "Promoting Audit Quality" released by the UK Financial Reporting Council (UKFRC) has received widespread support from UK stakeholders including the International Forum of Independent Audit Regulators (IFIAR) (Treasury 2010). The UK Corporate Governance Code (Financial Reporting Council 2010b) has made recommendations for publicly traded companies' to establish IAF. In Italy and Belgium, the Corporate Governance Code (CGC) dictates the establishment of IAF (Corporate Governance Code 2006).

Prawitt, Smith, and Wood (2009) report that IAF quality is negatively associated with earnings management, associated with smaller negative abnormal accruals and improves the likelihood of achieving or failing market analysts' earnings forecasts. Consistent with their 2009 results, Prawitt, Sharp, and Wood (2012) provide further evidence that higher quality in-house IAFs are positively associated with accounting quality. Last but not least, IAF quality can indeed contribute in ways that lead to lower external audit fees (Felix, Gramling, and Maletta 2001; Prawitt, Sharp, and Wood 2011; Mat Zain, Zaman, and Mohamed 2015). Table 2.8 at the end of this chapter provides a listing of key empirical studies relating to external auditors and internal auditors.

It is evident from the literature (for example, Selim and Yiannakas (2001); Allegrini and D'Onza (2003); Melville (2003); Paape, Scheffe, and Snoep (2003); Selim, Sudarsanam, and Lavine (2003); Sarens and De Beelde (2006a); Sarens and De Beelde (2006b)) that there are no in-depth studies about compliance with the IIA's Standards. In Italy, Arena and Azzone (2009) use a survey method to gather qualitative evidence to deduce IAF effectiveness. Arena and Azzone (2009) find that IAF effectiveness is influenced by: (1) Its characteristics; (2) IAAs; and (3) Organizational links. IAF effectiveness increases when the: (1) Ratio between the number of internal auditors and employees grows; (2) Chief Audit Executive (CAE) is affiliated to the IIA; (3) Firm adopts the COSO control-risk-self-assessment (CRSA) techniques; and (4) The audit committee is involved in the development and monitoring of IAAs.

For the global audience, Sarens (2009) asserts that, in theory, IAF quality positively influences the value of corporate governance. Sarens (2009) states the three components of IAQ that merit investigation are: (1) The characteristics of the IAF as a whole; (2) The characteristics of the individual internal auditor; and (3) The extent to which IAQ is associated with internal control and risk management quality. In relation to the characteristics of the IAF as a whole, previous studies are conducted by Bariff (2003) and Mutchler (2003). With regard to the characteristics of individual internal auditors, previous research was conducted by

Brody and Lowe (2000); Schneider (2003); and Ahlawat and Lowe (2004), which focus mainly on the objectivity of internal auditors. External auditors do attend to IAF quality differences and auditor judgments can be influenced by individual auditor differences (Brody, Golen, and Reckers 1998). In the recent Australian firm failures, there appear to be issues relating to an individual auditor's competence and professional judgment rather than any systemic problem within the auditing profession (Treasury 2010).

In Australia, the first study that identifies factors associated with the use of internal audit by Australian listed companies is by Goodwin-Stewart and Kent (2006b). They find that the firm size appears to be the dominant driver to engaging IAAs and there is a strong association between IAF and the level of commitment to risk management.

Also in Australia, Singh et al. (2014 p.27) find that, in explaining variations in audit fees, when the proxy sales variable is used for firm size, "internal auditing is insignificant but subsequently becomes significant when assets and employees are used". They conclude that the "previously reported relationships involving audit fees may be the outcome of the model adopted rather than the underlying relationship between the variable of interest and audit fees".

IAQ is affected by factors such as competence, objectivity and quality of work performance, that is, as stated in the Statement of Auditing Standard SAS 9 - The Effect of an Internal Audit Function on the Scope of the Independent Auditor's Examination (Schneider 1985; Gramling 1999; Salterio 1999). The concern relating to IAF objectivity has resulted in an increase in audit fees. There is a positive association between external audit fees and internal audit compensation based upon company performance and the association is acute to incentive-based compensation paid in stock or stock options as opposed to cash bonuses (Chen et al. 2017). In relation to the external auditor's assessments, in-house or outsourced IAF do not have any influence on IAQ (Abbott et al. 2007) and auditor independence is compromised through the provision of non-audit services (Watkins, Hillison, and Morecroft 2004).

Nelson (1988) reviews IAQ using five internal auditing standards: (1) Independence; (2) Professional proficiency; (3) Scope of work; (4) Performance of audit work; and (5) Management of the IAF. Prawitt, Smith, and Wood (2009) use the following six attributes based on external auditing standards: (1) Experience; (2) Certification; (3) Training; (4) Objectivity; (5) Audit work performance; and (6) IAF size.[18] Table 2.9 at the end of this chapter provides a listing of key empirical studies on internal audit quality attributes and auditing standards. The subsections below describe what the author believes are

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[18] Albeit its importance, the size of the IAF measured by budget allocated is dropped due to the inability to obtain access to IIA GAIN database to compute averages based on industry.

the various key IAQ attributes found in academic literature and the IIA's IPPF.

2.7.1   IAF Independence

The independence of the IAF is the cornerstone of the internal auditing profession (Spinks 2010). The IIA IPPF Attribute Standard[19] 1100 defines independence as "the freedom from conditions that threaten objectivity[20] or the appearance of objectivity. Such threats to objectivity must be managed at the individual auditor, engagement, functional and organizational levels". The lack of rules ensuring auditors' independence can compromise audit quality (Favere-Marchesi 2000).

The IPPF Attribute Standard 1100 is about the organizational independence of the internal auditor and requires the CAE report to a level in the organization that permits the IAF to fulfill its responsibilities (Institute of Internal Auditors 2002 para. 1110). Practice Advisory 1110-2 stresses that the CAE should ideally report to the audit committee, BoDs or other appropriate governing body, and "the IAF, in turn, assists the audit committee in ensuring quality reporting by management" (Institute of Internal Auditors 2002; Gramling et al. 2004 p.198). Furthermore, ASX Principle 3.4, when addressing the requirements of the CLERP 9's comprehensive auditor independence regime, states that all internal audit work should be reported to the audit committee (Institute of Internal Auditors and Protiviti 2010).

In addition, the ASIC has developed a wide-ranging Audit Inspection Program, including compliance with the Australian Corporations Act (2001), which encompasses all aspects of audit quality, including auditor independence (Treasury 2010). The FRC's annual Auditor Independence Report is largely based on the annual report that ASIC prepares on its Audit Inspection Program (Treasury 2010). Most of the auditor independence provisions are contained in Division 3 of Part 2M.4 of the Australian Corporations Act (2001). However, the requirements relating to the annual independence declaration and the disclosure requirements relating to non-audit services are contained in Divisions 1 and 3 of Part 2M.3, and the auditor rotation requirements are contained in Division 5 of Part 2M.4 (Treasury 2010).

To determine the appropriate level of reliance on the IAF's work, external auditors regard IAF independence as the most important criterion (Gramling et al. 2004). One important way that the IAF's independence can be determined is to ascertain to whom the CAE reports to since the "primary organizational aspect of IAF objectivity revolves around

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[19] The Standards that address the characteristics of organizations and parties performing IAAs. The Standards consist of Attribute Standards (the 1000 Series) and Performance Standards (the 2000 Series). The Attribute Standards address the attributes of organizations and individuals performing internal auditing. The Performance Standards describe the nature of internal auditing and provide quality criteria against which the performance of these services can be measured. The Attribute and Performance Standards are also provided to apply to all internal audit services. (Institute of Internal Auditors 2005).

[20] IIA defines professional objectivity as "... an independent mental attitude which internal auditors should maintain in performing audits" (IIA, 1981, pp. 100-102). Professional objectivity is associated with membership in a profession, which is frequently characterized by: (1) a belief in and acceptance of the goals and values of the profession, (2) a willingness to exert considerable effort on behalf of the profession, and (3) a desire to maintain membership in the profession.

the reporting status of the head of IAF, or chief audit executive (CAE)" (Prawitt, Smith, and Wood 2009 p.1261). Furthermore, the organisational independence of the IAF is premised on its relationship with the audit committee to which it reports to (Goodwin and Teo 2001; Gramling et al. 2004; Mat Zain, Subramaniam, and Stewart 2006; Prawitt, Smith, and Wood 2009; Leung, Cooper, and Perera 2011; Alzeban and Sawan 2015; Abbott et al. 2016). On the contrary, Norman, Rose, and Rose (2010) report that IAF reporting directly to the audit committee may threaten the internal auditors' independence or objectivity and claim that internal auditors decrease their risk assessments when the results are reported directly to the audit committee, relative to when the results are reported to management.

Goodwin and Teo (2001) find that where IAF is used as a training ground, the independence of IAF is enhanced if the audit committee is comprised of independent members. However, higher external auditor fees are imposed on firms that use IA as a management-training-ground (MTG). This is because external auditors perceive personnel employed in an IAF and then later deployed in other areas of the firm to be less objective. although These personnel may however be more competent than personnel confined to employment in an IAF that is not used as a MTG (William et al. 2011). Christ et al. (2015) find that rotational staffing model for the internal audit function have significantly lower financial reporting quality than companies that do not. Abbott et al. (2016 p. 6) find "lower occurrences of income-decreasing abnormal accruals as IAFs jointly reflect both greater competence and are *not* used as an MTG".

Christopher, Sarens, and Leung (2009) report that IAF independence can be compromised by the IAF's relationship with management by the following threats: (1) IAF being used as a stepping stone to other positions; (2) The IAF's budget being approved by CEO or CFO and the internal audit plan includes input from either; and (3) Internal auditor being considered to be a "partner". Other researchers who have assessed independence as a key IAQ attribute within the governance process include Harrell, Taylor, and Chewning (1989); Wallace and Kreutzfeldt (1991); Krishnamoorthy (2002); Francis (2004); Desai, Roberts, and Srivastava (2010); Desai, Gerard, and Ripathy (2011); William et al. William et al. (2011); (Pizzini, Lin, and Ziegenfuss 2015); and Abbott et al. (2016). Table 2.10 at the end of this chapter shows the key IAQ attributes empirical evidence using independence.

2.7.2   Auditor Competence

The IIA's Policy agenda issued in February 2010 recommends that "all Internal Auditors must be at a minimum IIA certified" (Institute of Internal Auditors and Protiviti 2010 p.4) and that "skill sets, experience and industry familiarity are crucial in order to exhibit competence, identify and address risks appropriately, and perform in a manner that provides value to the organisation" (Institute of Internal Auditors and Protiviti 2010 p.9).

Effective IAFs should be comprised of auditors who obtain and maintain at least one professional certification including, but not limited to, the Certified Internal Auditor (CIA), Certified Financial Services Auditor (CFSA), Certification in Control Self-Assessment (CCSA), Certified Government Auditing Professional (CGAP), Certified Practicing Accountant (CPA), Chartered Accountant (CA), Certified Information Systems Auditor (CISA) and Certified Fraud Examiner (CFE) (Institute of Internal Auditors and Protiviti 2010). All such professional certifications require annual Continuing Professional Education (CPE) training according to Attribute Standard 1230 so that the internal auditor knowledge, skills, and other competencies are maintained and enhanced (Institute of Internal Auditors 2005).

Example of some researchers who consider auditor competency as an important IAQ attribute include Krishnamoorthy (2002); Prawitt, Smith, and Wood (2009); Desai, Gerard, and Ripathy (2011); Lin et al. (2011); William et al. (2011); and Prawitt, Sharp, and Wood (2012).

Brown (1983); and Prawitt, Smith, and Wood (2009) find that the external auditor's evaluation of internal auditors is based on the IAF's emphasis on professional certifications, regular training program, and continuing professional education. Messier and Schneider (1988) report that the external auditor weighs IAF competence as the single most important factor, followed by objectivity and then work performance when placing reliance on work completed by the IAF. With regard to material weakness disclosures reported under Section 404 of the Sarbanes-Oxley Act (2002), Lin et al. (2011) report that among IAF attributes consisting of competence, IAF objectivity, and IAF investment measures, only the education level of the IAF is significantly associated with it.

As indicated above, there exists a relationship between competence, work performance, and objectivity that can affect the strength of the IAF (Table 2.11 at the end of this chapter include key empirical studies using these IAQ attributes). However, Krishnamoorthy (2002) reports that, when using the Bayesian probability model, it is futile to attempt to rank the three factors, objectivity, work performance and competence of internal auditors, since no single factor will dominate under all conditions. Desai, Roberts, and Srivastava (2010) report that when both inherent risk is high and objectivity of IAF is high, then external auditors consider the internal auditors' work performance. However when inherent risk is low, then there is no interaction effect between work performance and objectivity. For inherent risk conditions, competence is the most important factor, to be followed by objectivity and work performance (Desai, Roberts, and Srivastava 2010).

Harrell, Taylor, and Chewning (1989) report that internal control system evaluations reached by internal auditors who are not IIA members are biased by knowledge of

management's desired evaluation outcomes, which can imply that IIA membership may be an important determinant of internal auditors' professional objectivity.

By way of acquiring certification, it can posited that the internal auditor's skill sets, experience and industry familiarity are crucial in order to exhibit competence, identify and address risks appropriately, and perform in a manner that provides value to the organisation.

2.7.3   IAF Scope of Work – Perform Risk Assessment

Paragraphs 8 and 9 of the Auditing Standard (ASA)[21] 610 state that external auditors need to evaluate the nature of work completed by internal auditors in connection with the financial statement audit.[22] IAFs may perform, among other tasks, financial, operational, fraud and corruption, control, compliance, and/or system based audits as well as internal consulting projects for management (Anderson 1996; Klinkerman 1996; Thevenin 1997; Prawitt, Smith, and Wood 2009; Azim, Sheng, and Barut 2017; Asiedu and Deffor 2017). Messier and Schneider (1988) report that the scope of IAF audits is the most important criterion describing work performance. Attribute Standards 1220.A1 and 1220.A3 state that internal auditors must exercise due professional care by considering, among other things, the adequacy and effectiveness of governance, risk management and control processes, and internal auditors must be alert to the significant risks that might impact on the firm's objectives, operations, or resources respectively (Institute of Internal Auditors and Protiviti 2010). Implementing a sound corporate governance framework not only fulfills the requirements of these attribute standards, it also fulfills the requirements of the revised ASX Principle 7 Recognise and Manage Risk, which states that listed companies should establish a sound system of risk oversight, risk management and internal control (Institute of Internal Auditors and Protiviti 2010). The risk assessment requirements are further supplemented by the 2004 paper issued by the IIA Research Foundation (IIARF) encouraging internal auditors to apply bankruptcy models such as the Altman Z-Score, Ohlson O-Score, Zmijewski ZFC-Score models and others which use parameters such as "short-term liquidity and working capital, profitability or returns on investment, capital structure - including market capitalization and debt load, and asset mix" (Wallace 2004 p.1).

As described in section 2.6.4 above, the corporate governance framework assists the BoDs by disclosing if it has received assurance from the: (1) Management that material risks are effectively managed; and (2) CEO and CFO (or equivalents) that the declaration provided in accordance with Section 295A of the Australian Corporation Act (2001) is based on a sound

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[21] The Australian Auditing Standards (ASAs) made by the Auditing and Assurance Standards Board (AUASB) are legally enforceable legislative instruments under the *Legislative Instruments Act 2003.*

[22] The external auditor normally makes an assessment of internal auditor's work quality that is specifically relevant to the audit opinion. The IIA GAIN database includes data relevant to general nature and IAQ, but does not include quality assessments of specific work performed relative to particular engagements (Prawitt, Smith, and Wood 2009).

system of risk management and internal control, and that the system is operating effectively in all material aspects in relation to financial reporting risks (Institute of Internal Auditors and Protiviti 2010). Such assertions have to be attested by an independent function such as the IAF in accordance with the ASX Principle 4 Safeguard Integrity in Financial Reporting. Furthermore, in accordance with the Performance Standard 2120, the IAF is required to evaluate the effectiveness risk management processes and contribute to the improvement of these processes. The IAAs must evaluate risk exposures relating to the organization's governance, operations, and information systems regarding the achievement of the organization's strategic objectives such as: (1) Reliability and integrity of financial and operational information; (2) Effectiveness and efficiency of operations and programs; (3) Safeguarding of assets; and (4) Compliance with laws, regulations, policies, procedures, and contracts.

Norman, Rose, and Rose (2010) report that recent regulation (for example, PCAOB AS5, 2007) promotes greater reliance by external auditors on the risk assessments of internal auditors. Goodwin-Stewart and Kent (2006b) find that the association between IAF and the level of commitment to risk management is strong (see Table 2.12 at the end of this chapter). It can then be posited that IAF concentrating on risk management issues could result in identifying implicit and explicit indications of financial distress, or alternatively financial distress mitigation strategies. Sarens, Abdolmohammadi, and Lenz (2012) find that an IAF having an active role in corporate governance is significantly and positively associated with the use of a risk-based audit plan, and audit committee input to the audit plan.

2.7.4   IAF Communication and Monitoring

The outcome of risk assessments (described in Section 2.7.4) or audit findings generally needs to be communicated and monitored. Both the COSO models recognise communication as a crucial interrelated component (Committee of Sponsoring Organizations 2004). The IPPF Standard 2410 states that communications must include the internal audit engagement's objectives and scope as well as applicable conclusions, recommendations, and action plans. Furthermore, IPPF Standard 2500.A1 states that the CAE must establish a follow-up process to monitor and ensure that management actions have been effectively implemented or that senior management has accepted the risk of not taking action in accordance with the nature, scope and reporting lines as stated in the internal audit charter.[23]

Adams (1994); Sawyer (1995); Keating (1996); Walker (1996); Van Gansberghe (2005); and Mihret and Yismaw (2007) highlight the importance of audit communication and

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[23] IPPF Attribute standard 1000 requires the CAE to periodically review the internal audit charter and present it to senior management and the board for approval. This is supported by the audit committee (if present) (Institute of Internal Auditors and Protiviti 2010).

monitoring. Management support by providing resources and commitment to implement accepted IAF recommendations is essential (Mihret and Yismaw 2007). Subsequently, IAF needs to consider scheduling follow-up activities for findings of prior-period audits to ensure that management has implemented high-risk recommendations that are accepted (Keating 1996; Walker 1996). These activities are considered as an integral part of the annual audit work plan (Institute of Internal Auditors and Protiviti 2010) and control risk assessment for cyclical audits (Romney and Steinbart 2012). The need for an IAF follow-up is heightened by Brown (1983) who reports that the external auditor's level of satisfaction with IAF work is based on follow-up procedure, among other criteria. Furthermore, Lin et al. (2011) report that material weakness disclosures are negatively associated with the extent to which the IAF follows up on previously identified control problems. Table 2.13 at the end of this chapter provides a listing of key empirical evidence related to IAF communicating and monitoring.

2.7.5   IAF Quality Assurance Review

Attribute Standard 1312 requires that external assessments or quality assurance review (QAR) must be conducted at least once every five years by a qualified, independent reviewer or review team from outside the organisation. This review will include an assessment that the IAF is satisfactorily achieving a subset of key performance indicators (KPIs) put together by the Institute of Internal Auditors (2002).

The CAE needs to be able state to management, audit committee and/or the governing body that the IAAs "conform with the International Standards for the Professional Practice of Internal Auditing" (Institute of Internal Auditors and Protiviti 2010 p.27) assuming the results of the review support this assertion. Such conformity provides indications to suggest that IAF is effective and has attained the expected quality imposed by IIA standards, thereby has the independence, objectivity and competence to assess business risks and identify symptoms of financial distress, among other tasks.

One influence of IAF effectiveness is the affiliation of the CAE to the IIA (Arena and Azzone 2009). Sarens, Abdolmohammadi, and Lenz (2012) find that having a quality assurance and improvement program (QAIP) in place is significantly and positively associated with the IAF having an active role in corporate governance. There appears to be little or no testing of this IAQ measure within the literature, and it could be considered a useful proxy for audit competency in conjunction with more traditional measures. It would be interesting to determine the efficacy of QARs, depending on the frequency of their application within listed firms and whether the independent assessments add value to a firm's audit effectiveness at any level.

Favere-Marchesi (2000) reports that some Association of the South East Asian

Nations (ASEAN) countries do not provide an incentive for statutory auditors to provide quality audit services. In line with the international standards of auditing which would result in a more uniform audit quality throughout ASEAN which subsequently increase investors' confidence in the fair play of the ASEAN financial markets, there should be tightening of national laws and regulations based on the recommendation of the ASEAN Federation of Accountants (AFA) which include quality review (see Table 2.14 at the end of this chapter).

2.8   SUMMARY

Chapter Two began with a general discussion on capital market, capital structure and capital market risks; and the important role that quality financial reports play in the capital market particularly in the provision of quality information in a controlled and regulated environment. The chief concern is financial distress and how it might be defined and measured empirically. Key academic literature related to financial distress are identified, summarized and tabulated in Appendices A1 to A4.

The provision of quality financial reports requires good corporate governance practices to be adopted by firms. The contribution to good corporate governance practices by the four main components of corporate governance (that is, BoDs, audit committee, internal audit and external audit) are discussed individually by considering mainly the regulatory environments of the US and Australia. Key empirical research highlighting the establishing of an IAF based on firm characteristics is summarised in Table 2.5 at the end of this chapter. Here the chief discussion emphasis is the internal audit function (IAF) and internal audit quality (IAQ) attributes. The IAQ attributes are then discussed with details provided based on the IIA's IPPF, IIARF's published papers and published key empirical research (which are identified, summarized and tabulated in Tables 2.5 to 2.14).

Chapter Three will provide an insight on other theoretical perspective to this study by outlining the main theory, institutional theory. Chapter Three will also provide a more focused discussion (by reference to prior empirical literature) of specific IAQ attributes. Subsequently, the seven main hypotheses of this study are outlined and the rationale for each IAQ attribute discussed (that is, IAF Independence, Auditor Competence, IAF Perform Risk Analysis, IAF Communication and Monitoring, and IAF Quality Assurance Review).

Table 2.1:
Summary of Prior Studies on New Firm Failure Prediction Models: Chronological Date Order

No.	Author/s (Year)	Country	Period of Study	Sample Size	Design	Key Accounting Information	Objective/Research Questions(s)	Main Results
1	Beaver, W.H (1966)	US	5 years before failure (roughly between 1953-1964)	Total: 158 (79 failed; 59 bankrupt; 16 non-payment of pref stock dividends; 3 bond defaults; and 1 o/drawn bank acc.)	Use (30) financial ratios	Financial data for independent variables. Control variable: Industry type and asset size.	Using financial ratios to predict firm failure.	Many factors have prevented a measurement of a "true" predictive ability of ratios. The sample is biased because some failed firms selected which "illnesses" are not identified using ratios. The usefulness of ratios is understated because there may be some "ill" firms which may have been saved through the use of ratios; overstated when credit-worthiness of borrowers are used over different financial periods. The cash-flow to total-debt ratio has the ability to correctly classify both failed and non-failed firms to a much greater extent than would be possible through random prediction. Ratios must be used with discretion.
2	Altman, E.I (1968)	US	1946-1965	66 firms	F-test	Working capital /Total assets; Retained Earnings /Total assets; Earnings before interest and Taxes /Total assets; Market value equity /Book value of total debt; and Sales /Total assets.	Assess the quality of ratio analysis as an analytical technique. A set of financial and economic ratios will be investigated in a bankruptcy prediction context wherein a multiple discriminant statistical methodology is employed.	Ratios analysed within a multivariate framework take on greater statistical significance than the common technique of sequential ratio comparisons. The discriminant-ratio model proved to be extremely accurate in predicting bankruptcy correctly in 94 per cent of the initial sample with 95 per cent of all firms in the bankrupt and non-bankrupt groups assigned to their actual group classification. Furthermore, the discriminant function was accurate in several secondary samples introduced to test the reliability of the model. Investigation of the individual ratio movements prior to bankruptcy corroborated the model's findings that bankruptcy can be accurately predicted up to two years prior to actual failure with the accuracy diminishing rapidly after the second year.
3	Ohlson, J.A (1980)	US	1970-1976	105 bankrupt firms and 2,058 non-bankrupt firms	Probabilistic Model of Bankruptcy	1.*SIZE* = log(tot assets/GNP price-level index). 2.Total liabilities divided by total assets. 3.Working capital divided by total assets.4.Current liabilities divided by current assets.5. "1" if total liabilities exceeds total assets, "0" otherwise. 6.Net income divided by total assets.7. Funds provided by operations divided by total liabilities.	Presents some empirical results of a study predicting corporate failure as evidenced by the event of bankruptcy.	First, the predictive power of any model depends upon when the information (financial report) is assumed to be available. Second, the predictive powers of linear transforms of a vector of ratios seem to be robust across (large sample) estimation procedures. Hence, more than anything else, significant improvement probably requires additional predictors.
4	Zmijewski, M.E (1984)	US	1972-1978	All firms listed on the American and New York Stock Exchanges	Probit	Net income to total assets (return on assets), total debt to total assets (financial leverage), current assets to current liabilities (liquidity).	Examine conceptually and empirically two estimation biases which can result when financial distress (FD) models are estimated on non-random samples.	Both biases result in asymptotically biased parameter and probability estimates. The existence of a bias for choice-based samples when unadjusted probit is used, decreases in the bias as the sample composition approaches the population composition, and the elimination of the bias using the adjustment procedure. However, the bias does not, in general, affect the statistical inferences or the overall classification rates for the FD model and the samples tested. Qualitatively similar to the choice-based sample results in that a bias is clearly shown to exist, but, in general, it does not appear to affect the statistical inferences or overall classification rates.

Table 2.2:
Summary of Prior Studies on the Application of Existing Firm Failure Prediction Models: Chronological Date Order

No.	Author/s (Year)	Country	Period of Study	Sample Size	Design	Key Accounting Information	Objective/Research Questions(s)	Main Results
1	Chalos, P (1985)	US	1974-1975	72 firms	Bayesian model	As required by the model.	Compare loan default predictions of individual loan officers, loan review committees, and a statistical model.	Significant differences in loan default judgments were found between individual officers and interacting loan review committees. Interacting group performance was superior to the statistically aggregated judgments of individuals, but the difference was not statistically significant.
2	Bonnier, K. and Bruner, R (1989)	US	1969-1983	70 firms – 87 management change	Returns-generating model	Total daily return, relative firm size and title of officer.	Analyse excess returns to shareholders at announcement of a change of senior management of distressed firms.	Two positive and significant interaction effects were found: (a) title and origin and (b) title and size. Through these interaction effects, title emerges even more powerfully as an explanation of cross-sectional variation in returns. The positive interaction between size and title is consistent with the existence of systems of internal control in large firms which serve to heighten the effectiveness of the CEO. The positive interaction between origin and title suggests that an outside appointment to CEO amplifies the benefits from a break with the firm's past policies
3	Wruck, K.H (1990)	US	Various prior studies	Total 134 (98 - Chap 11 under reorganization plans, 11 merge with other firms, and 25 liquidate under Chap 7)	Beaver (1966), Altman (1968), Gilson, John and Lang (1990), Hoshi, Kashyap, and Scharfstein (1990) model	Cash Flow, firm's capital structure decision, liquidation and bankruptcy costs.	Examine financial distress (FD) and its effect on organisational efficiency.	Estimates of indirect costs are less reliable in determining FD. FD affects more than the firm's financial structure. FD triggers changes in management and governance. Although the benefits of distress have not yet been quantified, turnover in top management and changes in governance indicate the corporate insiders are disciplined for poor performance. The legal rules of the game in bankruptcy create conflict of interest among claimholders. The conflicts lead to complex information and inference problems for claimholders trying to value a distressed firm. Imperfect and conflicts of interest among the firm's claimholders influence the outcome of FD. New tax laws further damage distress companies.
4	Kennedy, D. B. and Shaw, W.H (1991)	US	1973-1985	165 firms	Casey, McGee, and Stickney (1986) model	As required by the model.	Examine the ability of the audit opinion to predict FD resolution by comparing the audit opinion to the resolution of a bankruptcy filing to determine whether prior claims of audit failures might be due to the auditor's focus on FD resolution rather than the act of filing for bankruptcy.	Similar to prior studies on bankruptcy filings, the audit opinion is found to be a significant variable in a probit analysis of bankruptcy resolution indicating some incremental explanatory power over financial statement data, only in instances in which the audit report is timely as would be argued in SAS No. 59. The predictive ability of the model does not change under the new bankruptcy laws.
4	DeAngelo, H. and DeAngelo, L (1994)	US	1980-1985	76 firms	No model used	Earnings, operating cash flow, book value of stockholders' equity, sales, current liabilities.	Investigates accounting choice in 76 financially troubled New York Stock Exchange firms, about 40% of which had binding debt covenants at the time.	The accounting choices made by managers of 76 troubled firms primarily reflect recognition of their firms' financial difficulties, rather than systematic attempts to inflate earnings to avoid debt covenant violations or to otherwise portray the firm as less troubled.

Table 2.2 (continued):
Summary of Prior Studies on the Application of Existing Firm Failure Prediction Models: Chronological Date Order

No.	Author/s (Year)	Country	Period of Study	Sample Size	Design	Key Accounting Information	Objective/Research Questions(s)	Main Results
5	Kwon, S.S. and Wild, J.J (1994)	US	1989-1991	100 firms	Abnormal stock returns model	Market returns for example stock price reaction to earnings, length of listing.	Investigate the informativeness of annual reports in light of temporal variation in the level of market uncertainty regarding future firm prospects.	The informativeness of annual reports and market uncertainty regarding future firm prospects are significantly intertwined. Specifically, market reactions to annual reports substantially increase as financial distress nears. The evidence is consistent with the notion that market uncertainty is a fundamental determinant of the usefulness of corporate disclosure.
6	Opler, T.C. and Titman, S (1994)	US	1972-1991	46,799 firm-years	Maksimovic and Zech-ner (1991), Shleifer and Vishny (1992), Myers (1977), Myers and Majluf (1984), Ross (1977), Grossman and Hart (1982) models	Sales growth, stock returns, and changes in operating income relative to industry averages.	Examines the indirect costs of financial distress in a way that minimizes the problem of reverse causality.	There is a positive relationship between financial condition and firm performance in industry downturns. During downturns, more highly leveraged firms tend to lose market share and experience lower operating profits than their competitors.
7	Beneish, M.D. and Press. E (1995)	US	1983-1987	159 incidents for 134 firms	Measure of violation severity using the violation ratio (VRAT)	The ratio of book value of debt in default to total debt in the year of violation.	Investigate the valuation effects of technical default, debt service default, and bankruptcy, and provides evidence of their interrelation.	The conditional probabilities of distress subsequent to technical default could be overstated if the sample of technical defaults only represents firms for which the default event warranted disclosure. By contrasting technical default, debt service default, and bankruptcy and establishes that their effects are value relevant and increasingly severe, results showed that the events are interrelated; that is, technical default increases the likelihood of future debt service default and bankruptcy, and bankruptcy is more likely following debt service default. Technical default is a timely warning of further distress: the effects of debt service default announcements are attenuated if the announcement has been preceded by disclosure of technical default in the previous year.
8	Raghunandan, K. and Rama, D.V (1995)	US	1987-1988	174 and 188 non-bankrupt but financially stressed companies from the pre- and post-SAS No. 59 periods, respectively	Logistic regression	Current ratio, proportionate change in current ratio from prior year, Recurring loss from operations, Cash flow from operations/Total liabilities, Leverage (measured as the ratio of total liabilities to total assets), Natural log of sales, and Time period (pre-SAS No. 59, or post-SAS No. 59), Financial factors and size.	Examine two issues related to audit reporting and Statement on Auditing Standards (SAS) No. 59. RQs: (1) Are auditors more likely to issue going-concern modified reports for financially stressed companies after SAS No. 59 became effective? and (2) Are auditors more likely to issue going-concern modified reports for companies that subsequently failed (prior going-concern reports) after SAS No. 59 became effective?	The going-concern modified reports are significantly more likely to be issued in the post-SAS No. 59 period than in the pre-SAS No. 59 period, after controlling for financial factors and size.

Table 2.2 (continued):

Summary of Prior Studies on the Application of Existing Firm Failure Prediction Models: Chronological Date Order

No.	Author/s (Year)	Country	Period of Study	Sample Size	Design	Key Accounting Information	Objective/Research Questions(s)	Main Results
9	Carcello, J.V. and Neal, T.L (2000)	US	1994	223	Logistic regression	Type of audit report,, AC members affiliations, debt default, prior year going-concern audit opinion, client-size and client's FD position.	Examine the relation between the composition of financially distressed firms' audit-committees (ACs) and the likelihood of receiving going-concern reports.	The greater the percentage of affiliated directors on AC, the lower the likelihood of receiving a going-concern report.
10	LeClere, M.J (2000)	US	1968 - 1999	Not applicable	Synthesis of various techniques using survival analysis	Measurement of time, continuous time, discrete time.	Review survival analysis and the manner in which has been used in accounting research.	Given that FD does not occur instantaneously but is preceded by deterioration in a firm's financial health over a number of years, survival analysis has the ability to incorporate changes in the covariates of interest to model FD. It provides an estimate of hazard rate and quantifies the probability of FD for firms that survive until a given point in time.
11	Routledge, J. and Gadenne, D (2000)	Australia	1993-1995	20 reorganised and 20 liquidated firms	Logistic regression models (multivariate tests)	(1) Earnings Prospects operating = profit/ total assets; (2) Liquidity (pay-off rate) current assets/ current liabilities; (3) Leverage (free assets) total assets/ total liabilities; (4) Equity Commitment positive owners' equity; (5) Debt Structure existence of chargeholder.	Investigate whether firms that reorganise can be distinguished from those that liquidate under voluntary administration (VA). In addition, performance of reorganised firms examined to determine variables that distinguish 'successful' from 'unsuccessful' reorganisations.	First, the analyses and results lend support to the coalition behaviour theory of reorganisation choice. This provides a basis for further development of a parsimonious bankruptcy reorganisation prediction model based on a theoretical background. The reorganisation decision model developed could be applied to data from other jurisdictions to further test the validity of analysing coalition behaviour as a means of understanding how insolvency law affects the decision making process.
12	Dugan, M.T. and Zavgren, C.V (2001)	US	Nil	No	Nil	Nil	Describe how the results and implications of bankruptcy prediction research may be used in graduate and undergraduate accounting courses.	The pedagogical approach suggested was designed to ensure that the problems addressed in the following caveats discussed by Beaver (1984) would not arise: (1) Never introduce the research in isolation; (2) Stress the findings implications rather than the research methods; (3) Avoid overly technical explanations; and (4) Stress the tentative nature of the research findings.
13	Boo, E and Simnett, R (2002)	Australia	1990-1991	140 listed firms in the ASX	Hopwood and Ohlson models	MPC classes, firm size, ratios from Hopwood and Ohlson models.	Investigate whether disclosure of management's prospective comments (MPCs) in the annual reports of companies experiencing financial distress (FD) is informative with regard to their future viability.	Firms which did not disclose any MPCs were more likely to fail than firms that disclose any MPCs, they were as likely to fail as firms that disclosed pessimistic or mixed MPCs. This suggests that financially distressed firms avoid disclosing MPCs in the absence of an optimistic outlook.

Table 2.2 (continued):
Summary of Prior Studies on the Application of Existing Firm Failure Prediction Models: Chronological Date Order

No.	Author/s (Year)	Country	Period of Study	Sample Size	Design	Key Accounting Information	Objective/Research Questions(s)	Main Results
14	Rosner, R.L (2003)	US	Not specified	293 bankrupt firms	McKeown, Motchler, and Hopwood (1991) on stress classification	Year of filing bankruptcy form, industry and firm size.	RQs: (1) Are failing firms more likely to engage in material income-increasing earnings manipulation than non-failing firms; (2) Are the financial statements of firms that auditors perceive to be failing more likely to reflect reversals of previous income-increasing earnings manipulation than the financial statements of firms that auditors do not perceive to be failing.	Bankrupt firms' pre-bankruptcy financial statements are more likely to reflect material earnings overstatements (that is exhibit significantly higher and income-increasing mean and median magnitudes of earnings manipulation proxy variables) than those of non-stressed non-bankrupt control firms matched on year, industry, and size. Failing firms does not overstate earnings by significantly understating payables, accrued expenses, cost of goods sold or operating expenses. There is material fraud/manipulation rather than immaterial earnings management in fraud years/non-going-concern years of SEC-sanctioned/non-sanctioned nonstressed/bankrupt firms.
15	Coulter, J.M. and Vogel, T.J (2004)	US	2000	One firm case study	Altman Z-Score	Working capital /Total assets (TA); Retained Earnings /TA; Earnings before interest and taxes /TA; Market value equity /Book value of total debt; and Sales /TA.	A case study assessing financial performance and business risks disclosures.	The case used is ideal for an auditing class as it provides a background to examine how going concern and fraud risks impacting on auditing decisions.
16	DeFond, M.L. (2004)	US	1985-1999	Nil	Critique of Choi, Doogar, and Ganguly (2004) (CDG) paper	Nil	Assess whether auditors manage risk at the client portfolio level potentially provides additional insights into how client risk factors influence auditor behaviour, particularly the limitations of the report named "The riskiness of large audit firm client portfolios and changes in audit liability regimes: Evidence from the US audit market" (Choi, Doogar, and Ganguly (2004)).	The CDG [Choi, Doogar, and Ganguly (2004)] paper does an excellent job by documenting changes in the financial distress characteristics of large US auditors' client portfolios between 1985 and 1999. CDG, however, also have many important limitations, specifically: The (1) Paper's measure of "financial distress risk" is likely to capture "litigation risk" with a significant amount of noise, making it difficult to discern whether client portfolio "litigation risk" actually changed over the period examined; (2) Analysis omits factors such as stock price behaviour that may mitigate (or exacerbate) client financial risk; (3) Reliance on public data to construct auditors' client portfolios means that the paper is unable to assess the riskiness of the majority of the auditors' clients and the reasons behind changes in portfolio financial risk (for example, whether it is client- or auditor-motivated); and (4) Paper does not adequately articulate how or why its findings differ from the extant literature, making it difficult to assess the paper's contribution to the literature.

No.	Author/s (Year)	Country	Period of Study	Sample Size	Design	Key Accounting Information	Objective/Research Questions(s)	Main Results
17	Charitou, A, Lambertides, N. and Trigeorgis, L (2007)	US	1986-2001	455 distressed firms	Hypotheses testings	Discretionary and non-discretionary, current and long-term accruals.	Examine the earnings management behaviour of distressed US firms that filed for bankruptcy	(1) Managers of distressed firms manage earnings downwards 1 year prior to the bankruptcy-filing; (2) Firms receiving unqualified audit opinions in all 5 years prior to the bankruptcy-filing event manage earnings upwards in those same years (especially in years -5, -4, and -3); (3) Earnings-decreasing management behaviour seems to be related to qualified audit opinions rendered in the preceding year, (4) Firms with large negative long-term accruals 1 year prior to the bankruptcy-filing year have a greater chance to survive thereafter; and (5) More (negative) earnings management is associated with more negative (next year's) subsequent returns.
18	Gigler, F., Kanodia, C. and Venugopalan, R (2007)	US	Nil	No	Danthine hedging model	Transaction dates-real future and derivative price change.	RQs: (1) How do outsiders rationally interpret a reported loss on derivatives; and (2) Given such rational interpretation, when does mark-to-market accounting facilitate and when does it detract from the objective of providing an early warning of potential financial distress?	Because of the mixed attribute problem, the mark-to-market accounting information content is related to the historical cost accounting which allows the identification of the circumstances under which mark-to-market accounting facilitates and when it detracts from the objective of providing an early warning of potential financial distress. The reporting of an impending derivative loss by a distressed firm can actually lead outsiders to infer that the firm is in a better financial position than what they would have inferred under the silence associated with historical cost accounting. Without the mixed attribute problem, mark-to-market accounting would always yield more accurate assessments of the firm's financial position.
19	Kato, P. and Hagendorff, J (2010)	US	1998-2007	226 bank holding firms	Black and Scholes (1973) and Merton's (1974)	Non-performing loans, ratio of reserve loan losses to total assets, Non-interest income, Cash and marketable securities over deposits. Capital (ratio of the book value of equity to total assets). Leverage proxy- the market value of common equity and the book value of preferred stock, Return on assets.	Analyse the extent to which distance to default based on market data can be explained using accounting-based indicators of risk.	Showed that for banks that issue subordinated debt, a larger number of accounting metrics are related to distance-to-default (DD). The importance of private monitoring for unsecured bank creditors in institutions that issue subordinated debt increases the informational efficiency of bank fundamentals. For banks that issue sub-debt, both higher charter values and lower bank capitalizations further increase the power of bank fundamentals to predict bank default risk. As bank failures carry large negative externalities and bailouts by policymakers are very costly, ways to improve the ability of book-based measures to forecast bank distress are desirable. The infusion of greater levels of market discipline, via the issuance of subordinated debt to investors, improves the informational efficiency of bank fundamentals.

Table 2.2 (continued):
Summary of Prior Studies on the Application of Existing Firm Failure Prediction Models: Chronological Date Order

No.	Author/s (Year)	Country	Period of Study	Sample Size	Design	Key Accounting Information	Objective/Research Questions(s)	Main Results
20	Ahmad-Zaluki, N.A., Campbell, K. and Goodacre, A (2011)	Malaysia	1990-2003	250 firms	Univariate analysis and multiple discriminant analysis. Earnings management (EM) – "Modified Jones" model	As required by the models.	Investigate the pervasiveness of EM across IPOs and the specific factors that affect decisions to manage earnings.	Income-increasing EM in the IPO year. Overall results appear to be driven mainly by IPOs during 1997 and 1998, two years reflecting the coincidence of the East Asian crisis. Income-increasing EM is not a general phenomenon. A positive relationship between retained ownership and EM is consistent with owners having concerns about post-IPO control of the company and does not suggest "opportunistic" EM to protect owners' wealth or owners seeking to signal IPO quality. Older companies and those audited by a prestigious (that is, Big 5) audit firm exhibit lower levels of income-increasing EM, consistent with arguments that high-quality audits reduce opportunities for managers to manipulate earnings.
21	Hsu, A. W., O'Hanlon, J. and Peasnell, K (2011)	US	1989-2005	21,513 firm year	Regression models and Hillegeist et al. BSM (2004)	Change in CFO and FD score.	Examine the association between financial distress (FD) and the earnings-sensitivity difference (ESD) for US non-financial firms.	Positive sensitivity difference (SD) for earnings before extraordinary items (EBEI) is found: comprises significant SDs for both the accruals component of EBEI and the CFO component. The SD for CFO suggests that the ESD arises to a significant degree from factors other than conditional conservatism (CS). A positive association between each of the measures of FD and the ESD is also found. There is some weak evidence that this association arises in part from the CFO component of earnings, but it arises predominantly from the accruals component. This is consistent with the association arising primarily from a relatively high degree of CS in relatively financially distressed firms rather than from other sources of financial-distress-related non-linearity in the relationship between equity return and earnings. The results are consistent with prior evidence that debt-related factors are an important source of CS-related asymmetric timeliness in earnings. The inference that there is a positive association between financial distress and CS is supported by evidence from measures of CS other than the ESD.
22	Khalil, S.K., Cohen, J.R., and Schwartz, K.B (2011)	US	2003-2008	216 auditor resignations	OLS regression analysis	Zmijewski model - Proxy for client business risk, audit risk, and auditor business risk. Industry type, Ops performance, Sales growth, firm size, stock price volatility, A/Cs receivable and inventory as a percentage of total assets, internal controls weaknesses, Management integrity issues, engagement timing, additional billing opportunities, audit firm and auditor's expertise in a certain industry.	Investigates whether client engagement risks lengthen the client acceptance phase for audit firms and result in a longer auditor search period for their clients.	The length of the audit search period is associated with proxies for client business risk (FD), audit risk (weaknesses in internal controls), and auditor business risk (auditor specialization). Auditors proactively adapt to engagement risks by adjusting the amount of data collected and requesting more approvals during the client acceptance process. They complement prior research related to audit firms' information gathering and analysis for clients having higher risk profile, documenting that audit firms commonly rely on a wide variety of sources to assess the riskiness of a prospective client, including firms' financial statements; Dun and Bradstreet reports; communication with the predecessor auditor; in-house and external investigative agencies; and the prospective client's legal counsel, bankers, former employees, among others. They are also consistent with the auditor-client pairings argument that the alignment between industry and audit firms' expertise increases the attractiveness of a prospective new client.

No.	Author/s (Year)	Country	Period of Study	Sample Size	Design	Key Accounting Information	Objective/Research Questions(s)	Main Results
23	Almamy, J., Aston, J., and Ngwa, L.N. (2015)	UK	2000-2013	90 failed companies	OLS regression analysis	Altman Z-Score model & J-UK model (an extension of Z-Score by adding a sixth ratio, variable-cash flow (operations/total liabilities)).	Investigates the extension of the Z-score model in predicting the health of UK companies; using discriminant analysis, and performance ratios to test which ratios are statistically significant in predicting the health of UK companies from 2000 to 2013. Purpose is to contribute towards Altman's (1968) original Z-score model by adding a new variable.	Cash flow when combined with the original Z-score variable is highly significant in predicting the health of UK companies. A J-UK model was developed to test the health of UK companies. When compared to the Z-score model, the predictive power of the model was 82.9%, which is consistent with Taffler's (1982) UK model. Furthermore, to test the predictive power of the model before, during and after the financial crisis period; results show that J-UK model had higher accuracy to predict the health of UK companies than the Z-score UK model. Thus, the extension of Altman's Z score model leads to better results and assists users such as researchers, managers, regulators and other practitioners to manage their risk profile more effectively..
24	Altman, E.I., Iwanicz-Drozdowska, M., Laitinen, E.K., and Suvas, A. (2017)	International	2002 - 2010	Estimation sample includes data from 2,602,563 non-failed and 38,215 failed firms from 28 European and three non-European countries	Hypotheses testing	Z-Score model.	Assess the classification performance of the Z-Score model in predicting bankruptcy and other types of firm distress, especially banks that operate internationally and need to assess the failure risk of firms. Analyse the performance of the Z-Score model for firms from 31 European and three non-European countries using different modifications of the original model, except for the United States and China, the firms in the sample are primarily private, and include non-financial companies across all industrial sectors.	While there is some evidence that Z-Score models of bankruptcy prediction have been outperformed by competing market-based or hazard models, in other studies, Z-Score models perform very well. Without a comprehensive international comparison, however, the results of competing models are difficult to generalize. This study offers evidence that the general Z-Score model works reasonably well for most countries (the prediction accuracy is approximately 0.75) and classification accuracy can be improved further (above 0.90) by using country-specific estimation that incorporates additional variables.

Table 2.2 (continued):
Summary of Prior Studies on the Application of Existing Firm Failure Prediction Models: Chronological Date Order

No.	Author/s (Year)	Country	Period of Study	Sample Size	Design	Key Accounting Information	Objective/Research Questions(s)	Main Results
25	Mselmi, N. Lahiani, A. Hamza, T. (2017)	France	2010 to 2013	106 distressed firms and 106 non-distressed firms	Application of different financial distress models	Logit model, Artificial Neural Networks, Support Vector Machine techniques, Partial Least Squares, and a hybrid model integrating Support Vector Machine with Partial Least Squares.	To predict the financial distress of French small and medium firms.	For one year prior to financial distress, Support Vector Machine is the best classifier with an overall accuracy of 88.57%. Meanwhile, in the case of two years prior to financial distress, the hybrid model outperforms Support Vector Machine, Logit model, Partial Least Squares, and Artificial Neural Networks with an overall accuracy of 94.28%. Distressed firms are found to be smaller, more leveraged and with lower repayment capacity. Moreover, they have lower liquidity, profitability, and solvency ratios. Besides the academic research contribution, our findings can be useful for managers, investors, and creditors. With respect to managers, our findings provide them with early warnings signals of performance deterioration in order to take corrective actions and reduce the financial distress risk. For investors, understanding the main factors leading to financial distress allows them to avoid investing in risky firms. Creditors should correctly evaluate the firm financial situation and be vigilant to signs of impending financial distress to avoid capital loss and costs related to counterpart risk.

Table 2.3:
Summary of Prior Studies on Comparing Firm Failure Prediction Models: Chronological Date Order

No.	Author/s (Year)	Country	Period of Study	Sample Size	Design	Key Accounting Information	Objective/Research Questions(s)	Main Results
1	Mensah, Y.M (1984)	US	January 1972- June 1980	110 pairs of mining and manufacturing firms	Multiple discriminant analysis	Cash flow generation, sales generation, liquidity, financial leverage, inventory intensiveness, coverage of short-time debt, maturity and return on sales, fixed asset turnover, return on equity and turnover of equity.	Examination of the stationarity of multivariate bankruptcy prediction models.	(1) The accuracy and structure of predictive models differ across different economic environments. The former may improve if the models are re-estimated over different time periods, assuming the data are available; and (2) Different prediction models seem appropriate for companies in different industrial sectors even for the same economic environment.
2	Chalos, P (1985)	US	1974-1975	72 firms	Bayesian model	As required by the model.	Compare loan default predictions of individual loan officers, loan review committees, and a statistical model.	Significant differences in loan default judgments were found between individual officers and interacting loan review committees. Interacting group performance was superior to the statistically aggregated judgments of individuals, but the difference was not statistically significant.
3	Kane, G.D, Richardson, F.M and Graybeal, P (1996)	US	1968-1990	2000 "failed" and 2000 "non-failed" firms	F-test	(1) Negative working capital in current year; (2) Loss from operations in any of the 3 years prior to failure; (3) Retained earning deficit in the third year prior to failure; or (4) Loss in overall net income in any of the three years prior to failure.	Examine whether the occurrence of recession-induced stress is an incrementally informative factor contributes to the predictive and explanatory power of accounting-based failure prediction models.	Accounting-based statistical models used to predict corporate failure are sensitive to the occurrence of a recession. After controlling intertemporally unconditioned "stressed" and "unstressed" types of corporate failure, models conditioned on the occurrence of a recession still add incremental explanatory power in predicting the likelihood of corporate failure.
4	Hillegeist, S.A., Keating, E.K., Cram, D.P. and Lundstedt, K.G (2004)	US	1980-2000	78,100 firm-year observations representing 14,303 individual firms	BSM-Prob, Altman Z-Score, Ohlson O-Score, Discrete Hazard and Vuong's logit-based version (1989) models	Financial and market data for the models listed.	Empirically compare the performance of Black–Scholes–Merton (BSM)-Prob to four accounting-based Probability of Bankruptcy measures: Altman (1968)'s Z-Score and Ohlson (1980)'s O-Score using the original coefficients and Z-Score and O-Score using updated, but out-of-sample, coefficient estimates.	The market-based BSM-Prob provides significantly more information about the probability of bankruptcy than do either of the popular accounting-based measures. It is robust to various modifications of the Z- and O-Scores, including the use of updated coefficients based on the sample, adjusting for industry effects, and separating the measures into their lagged level and changes components.

No.	Author/s (Year)	Country	Period of Study	Sample Size	Design	Key Accounting Information	Objective/Research Questions(s)	Main Results
5	Balcaen, S; Ooghe, H (2006)	Global	1966-2005	Using "in-sample" and "out-of-sample"	(1) Univariate analysis (2) Risk index (3) Multivariate discriminant analysis (MDA) and (4) Conditional probability	Financial data that are used by the various models of the type stated in the previous column.	Elaboration on the performances of the prediction models stated on the "Model/s" column.	The MDA models is very popular but with several problems related to their applications: (1) The MDA and logit analysis fail to take into account some of important aspects of real problem of business failure prediction; (2) Concerns about non-stationarity and data instability. Neglect of the time dimension of failure particularly when one single observation only (that is one annual account – retrospective data) is used which may result in bias predictions; (3) No consensus on the superior predictor variables or methods; (4) Others such as the use of a linear classification rule, the use of annual account information, and neglect of the multidimensional nature of failure.
6	Baxter, R.A., Gawler, M. and Ang, R (2007)	Australia	Since 2003	Covers about one million firms. Use out-of-sample	Using Altman Z-Score and Ohlson O-Score		(1) Test whether corporate insolvency prediction was possible using the available income tax return data; (2) Test the feasibility of a model designed to risk score across the full spectrum of companies (as opposed to constraining the target field to industry sector, for example); and (3) Identify a preferred regression method after assessing logistic regression, ADA boost, and random forests.	Data sources have been found to be suitable for corporate insolvency prediction and a single predictive model can be built for all corporations. The ensemble methods slightly outperform logistic regression. Although test data variability need to be checked, logistic regression is preferred for its convenience of deployment as SQL in a data warehouse environment.
7	Tanthanongsakkun, S; Pitt, D; and Treepongkaruna, S (2009)	Australia	1990-2003	6,530 firmyear observations including 93 bankruptcies from 1,144 firms	Merton, Altman (1968), Zmijewski (1984), and Shumway (2001) models	Working capital, total assets, retained earnings, earnings before interest and taxes, market value of equity, total liabilities, sales to total assets, current assets, current liabilities and net income the relative firm size, the past year excess returns, and std. deviation of stock returns.	Comparison of Corporate Bankruptcy Models in Australia: The Merton vs. Accounting-based Models (Altman (1968), Zmijewski (1984), and Shumway (2001).	The Merton model is found to be the most informative model in explaining corporate bankruptcy. The Shumway model becomes the second best candidate. Furthermore, the ratio of total liabilities to total assets (TL/TA) results also confirms the performance of the Merton model. The model has the highest Type I accuracy and performs relatively well in predicting Type II accuracy. The default likelihood indicator (DLI) computed from the Merton model has the most explanatory power to predict corporate bankruptcy in Australia. The plausible explanation is that the Merton model incorporates correct variables (default risk determinants) into the model and uses the right functional form to estimate default probability. The results also suggest that market-based variables perform more favourably than accounting variables. However, TL/TA is the only financial ratio that still seems to be a very significant variable in a bankruptcy model.

No.	Author/s (Year)	Country	Period of Study	Sample Size	Design	Key Accounting Information	Objective/Research Questions(s)	Main Results
8	Wu, Y; Gaunt, C; Gray, S (2010)	US	1980-2006	887 bankrupt firms. Series of in-sample and out-of-sample	(1) Altman (2) Ohlson (3) Zmijewski (4) Shumway and (5) Hillegeist et al. models	Profitability, liquidity, and leverage. Also, market data, and firm-characteristics.	Compare the performance of the models.	Firms are more likely to experience bankruptcy if: (1) They have relatively lower earnings before interest and tax to total assets, a larger decline in net income, relatively low working capital to total assets, or high market-based leverage – total liabilities to the market value of total assets; (2) The lagged stock returns are large and negative or the lagged volatility is relatively high. Smaller firms and firms with fewer business segments are also more likely to experience bankruptcy, other things equal; (3) Firms with a higher implied probability of bankruptcy (estimated in relation to an option-pricing model). The MDA model of Altman (1968) performs poorly relative to other models. The accounting based models of Ohlson (1980) and Zmijewski (1984) perform adequately during the 1970 but their performance has deteriorated over more recent periods. The hazard model of Shumway (2001), which includes market data and firm-characteristics, generally outperforms models that are based on accounting information only. The use of option-implied probability proposed by Hillegeist et al. (2004) performs adequately but is generally inferior to the Shumway model.
9	Mselmi, N. Lahiani, A. Hamza, T. (2017)	France	2010 to 2013	106 distressed firms and 106 non-distressed firms	Application of different financial distress models	Logit model, Artificial Neural Networks, Support Vector Machine techniques, Partial Least Squares, and a hybrid model integrating Support Vector Machine with Partial Least Squares.	To predict the financial distress of French small and medium firms.	For one year prior to financial distress, Support Vector Machine is the best classifier with an overall accuracy of 88.57%. Meanwhile, in the case of two years prior to financial distress, the hybrid model outperforms Support Vector Machine, Logit model, Partial Least Squares, and Artificial Neural Networks with an overall accuracy of 94.28%. Distressed firms are found to be smaller, more leveraged and with lower repayment capacity. Moreover, they have lower liquidity, profitability, and solvency ratios. Besides the academic research contribution, our findings can be useful for managers, investors, and creditors. With respect to managers, our findings provide them with early warnings signals of performance deterioration in order to take corrective actions and reduce the financial distress risk. For investors, understanding the main factors leading to financial distress allows them to avoid investing in risky firms. Creditors should correctly evaluate the firm financial situation and be vigilant to signs of impending financial distress to avoid capital loss and costs related to counterpart risk.

No.	Author/s (Year)	Country	Period of Study	Sample Size	Design	Key Accounting Information	Objective/Research Questions(s)	Main Results
1	Beaver, W.H (1966)	US	5 years before failure (roughly between 1953-1964)	Total: 158 (79 failed firms; 59 bankrupt; 16 non-payment of preferred stock dividends; 3 bond defaults; and 1 overdrawn bank account.)	Use (30) financial ratios	Financial data for independent variables. Control variable: Industry type and asset size.	Using financial ratios to predict firm failure.	Many factors have prevented a measurement of a "true" predictive ability of ratios. The sample is biased because some failed firms selected which "illnesses" are not identified using ratios. The usefulness of ratios is understated because there may be some "ill" firms which may have been saved through the use of ratios; overstated particularly when credit-worthiness of borrowers are used over different financial periods. The cash-flow to total-debt ratio has the ability to correctly classify both failed and non-failed firms to a much greater extent than would be possible through random prediction. Ratios must be used with discretion.
2	Altman, E.I (1968)	US	1946-1965	66 firms	F-test	Working capital /Total assets; Retained Earnings /Total assets; Earnings before interest and Taxes /Total assets; Market value equity /Book value of total debt; and Sales /Total assets.	Assess the quality of ratio analysis as an analytical technique. A set of financial and economic ratios will be investigated in a bankruptcy prediction context wherein a multiple discriminant statistical methodology is employed.	Ratios analysed within a multivariate framework take on greater statistical significance than the common technique of sequential ratio comparisons. The discriminant-ratio model proved to be extremely accurate in predicting bankruptcy correctly in 94 per cent of the initial sample with 95 per cent of all firms in the bankrupt and non-bankrupt groups assigned to their actual group classification. Furthermore, the discriminant function was accurate in several secondary samples introduced to test the reliability of the model. Investigation of the individual ratio movements prior to bankruptcy corroborated the model's findings that bankruptcy can be accurately predicted up to two years prior to actual failure with the accuracy diminishing rapidly after the second year.
3	Ohlson, J.A (1980)	US	1970-1976	105 bankrupt firms and 2,058 non-bankrupt firms	Probabilistic Model of Bankruptcy	1. *SIZE* = log(total assets/GNP price-level index). 2. Total liabilities divided by total assets. 3. Working capital divided by total assets.4. Current liabilities divided by current assets.5. One if total liabilities exceeds total assets, zero otherwise. 6. Net income divided by total assets.7. Funds provided by operations divided by total liabilities.	Presents some empirical results of a study predicting corporate failure as evidenced by the event of bankruptcy.	First, the predictive power of any model depends upon when the information (financial report) is assumed to be available. Second, the predictive powers of linear transforms of a vector of ratios seem to be robust across (large sample) estimation procedures. Hence, more than anything else, significant improvement probably requires additional predictors.

No.	Author/s (Year)	Country	Period of Study	Sample Size	Design	Key Accounting Information	Objective/Research Questions(s)	Main Results
4	Zmijewski, M.E (1984)	US	1972-1978	All firms listed on the American and New York Stock Exchanges	Probit	Net income to total assets (return on assets), total debt to total assets (financial leverage), current assets to current liabilities (liquidity)	Examine conceptually and empirically two estimation biases which can result when financial distress (FD) models are estimated on non-random samples.	Both biases result in asymptotically biased parameter and probability estimates. The existence of a bias for choice-based samples when unadjusted probit is used, decreases in the bias as the sample composition approaches the population composition, and the elimination of the bias using the adjustment procedure. However, the bias does not, in general, affect the statistical inferences or the overall classification rates for the FD model and the samples tested. Qualitatively similar to the choice-based sample results in that a bias is clearly shown to exist, but, in general, it does not appear to affect the statistical inferences or overall classification rates.
5	Tuttle, B. M. and Stocks, M.H (1998)	US	1966-1997	32 hypothetical companies using the six FD ratios	Hypotheses testing using doubly-multivariate repeated measures ANOVA	Firm size, Cash/ Assets, Earnings/ Sales, Assets/ Long Term Debt, Earnings/ Assets, Working Capital /Sales.	Examine the use of outcome feedback and task property information by subjects with relevant domain knowledge to predict the likelihood of financial distress (FD) for various hypothetical companies.	The difference between this and studies that have failed to show performance improvements with outcome feedback may be attributed to the ability of the subjects to use their accounting-domain knowledge to bring meaning to task.
6	Grice, J.S. and Ingram, R.W (2001)	US	1985-1987	148 distressed and 824 non-distressed	Altman Z-Score	Working capital /Total assets; Retained Earnings /Total assets; Earnings before interest and taxes /Total assets; Market value equity /Book value of total debt; and Sales /Total assets.	(1) Is Altman's original model as useful for predicting bankruptcy in recent periods as it was for the periods in which it was developed and tested by Altman? (2) Is the model as useful for predicting bankruptcy of non-manufacturing firms as it is for predicting bankruptcy of manufacturing firms? (3) Is the model as useful for predicting financial stress conditions other than bankruptcy as it is for predicting bankruptcy?	Altman's model was sensitive to industry classifications in the sample used. The overall accuracy of the model was significantly higher for manufacturing firms (69.1%) than for the entire sample (57.8%) that included non-manufacturing firms. Altman's model was not sensitive to type of financial distress. Also, results of recent studies that have used Altman's model to estimate financial distress of sample firms should be interpreted cautiously. The ability of the model to accurately classify firms as being financially distressed is likely to differ considerably from that assumed by those employing the model.

No.	Author/s (Year)	Country	Period of Study	Sample Size	Theory/Design	Auditing Standards/ IAQ Attributes	Objective/Research Question(s)	Main Results
1	Wallace, W.A. and Kreutzeeedt, R. W (1991)	US	1983	260 firms	Agency theory	Independence, objectivity, competence.	RQ1: Do significant differences exist between entities that have an internal audit function (IAF) and those that do not with respect to size, external environment, profitability and liquidity, management environment, and management control? RQ2 Is there a significant difference between the number of misstatements, or their magnitude, deflated by materiality, that are reported by external auditors for engagements in which an internal audit department (IAD) is present and those in which no IAD exists? RQ3 Does the number or magnitude of errors reported by external audit engagement teams and the quality of the control environment, as assessed by the external audit teams, move systematically with qualitative attributes of internal auditing? RQ4 Can a discriminant model with environmental, company-specific, and external audit-related variables provide practically significant power in classifying companies with IADs as distinct from those IADs?	Competition, regulation, available resources, higher quality management environment, and better management controls are common characteristics shared by entities that have created an IAD. Concurrently, when such a department is created, the number and magnitude of errors are observed to be substantially lower, relative to having no such department. An added advantage of creating an IAD is increased flexibility available to the external auditor to incur audit hours that are off peak. This is expected, in turn, to lead to audit fee savings by clients.
2	Goodwin-Stewart, J. and Kent, P (2006)	Australia	October 2000	490 firms	Questionnaires and hypotheses testings using 3 models	AC existence, AC independence, AC expertise.	Examine whether the existence of an audit committee (AC), AC characteristics and the use of internal audit are associated with higher external audit fees.	Existence of an AC is associated with a higher level of audit fees which is consistent with a demand by ACs for higher quality auditing. More frequent AC meetings are associated with higher audit fees, suggesting that the diligence of the AC might influence the demand for a higher quality audit. Increased committee expertise is associated with higher audit fees only when both meeting frequency and independence are low which is consistent with AC members with accounting and finance expertise demanding a higher quality audit in these circumstances. This points to a complementary relationship between independence, expertise and frequency of meetings and that the role that these characteristics play in enhancing AC effectiveness with respect to the external audit is a complex one. Firms with higher audit fees are also more likely to use a greater level of internal auditing. ACs, internal audit and external audit are complementary mechanisms within the governance framework. Firms with large internal audit functions (IAFs) also engage in a higher overall level of monitoring.

Table 2.5 (continued):
Summary of Prior Studies on Internal Audit Quality: Chronological Date Order

No.	Author/s (Year)	Country	Period of Study	Sample Size	Theory/Design	Auditing Standards/ IAQ Attributes	Objective/Research Question(s)	Main Results
3	Hoitash, R., Hoitash, U. and Bedard, J.C (2008)	US	15thNov 2004 – October 2005		Ge and McVay (2005) topology	Sections 404 and 302 of the Sarbanes-Oxley Act (SOX). Significant deficiencies (SD) , material weaknesses (MW), disclosure problems, management issues, accounts classification issues.	Extend prior research on audit risk adjustment by examining the association of audit pricing with problems in internal control over financial reporting, disclosed under Sections 404 and 302 of the SOX.	Audit pricing for firms with internal control problems varies by problem severity, when severity is measured either as material weaknesses versus significant deficiencies, or by nature of the problem. While audit fees increase during the 404 period, less relative risk adjustment under Section 404 than under Section 302 in the prior year. Examination of intertemporal effect finds that firms disclosing internal control problems under Section 302 continue to pay higher fees the following year, even if no problems are disclosed under Section 404.
4	Sarens, G., De Belle, I. and Everaert, P (2009)	Belgium	Interviews conducted from June through September 2005	Not stated	Agency theory, make implicit reference to legitimacy theory, nursing and comfort theory. Interviews lasted from 60 to 120 mins	EU Directive on Statutory Audit (2006). Internal auditing definition.	Provides insights on: (1) what drives the audit committee (AC) to look for the support of the internal audit function (IAF); and (2) what makes the IAF an expert at providing comfort to the AC.	ACs seek comfort, with respect to the control environment and internal controls - 2 ACs discomfort areas. IAF involvement in improving internal controls provides a significant level of comfort to the AC. Internal auditors' unique knowledge about risk management and internal control, combined with appropriate inter-personal and behavioural skills, enables them to provide this comfort. Besides, their internal position, their familiarity with the company, and their position close to people across the company facilitate internal auditors being a major source of comfort for the AC. Formal audit reports and presentations, together with informal contacts, seem to be important symbols of comfort. The overall level of comfort to the AC can be enhanced via collaboration between internal and external auditing.

No.	Author/s (Year)	Country	Period of Study	Sample Size	Theory/Design	Auditing Standards/ IAQ Attributes	Objective/Research Question(s)	Main Results
5	Lin, S., Pizzini, M., Vargus, M. and Bardhan, I.R (2011)	Global Auditing Information Network (GAIN) survey data	2003-2004	1,356 responses	Questionnaire	Section 404 of the Sarbanes-Oxley Act. Experience, education, certification, training, CAE reports to AC, CAE Officer, iasize, fieldworkqa, iagrade, financialfocus, followup, coordination.	Investigates the role that a firm's internal audit function (IAF) plays in the disclosure of material weaknesses (MW) reported under Section 404 of the Sarbanes-Oxley Act of 2002.	The nature and scope of IAF activities are more strongly associated with MW disclosures than the IAF attributes of competence, objectivity, and investment. Among IAF attribute measures, only the education level of the IAF is significantly associated with MW disclosures. Regarding IAF activities, MW disclosures are negatively associated with the extent to which the IAF uses QA techniques in fieldwork, audits activities related to financial reporting, and follows up on previously identified control problems. The year-end timing of most Section 404 work and the nature of follow-up procedures suggests that these activities are more likely to be preventative rather than detective. MW disclosures are positively related with both IAF grading of audit engagements and external-internal auditor coordination. These activities increase the effectiveness of Section 404 compliance processes by facilitating risk assessment, consistent with the risk-based approach promoted by regulatory guidance (SEC 2007; PCAOB 2005, 2007a).
6	Sarens, G. and Abdolmohammadi, M.J. (2011)	Belgian	2005-2006	73 responses	Agency theory, Questionnaire (follow up with emails and phone calls)	IVs: No. of internal auditors, IAF staff vs staff ratio, total assets, diffusion of ownership, management share ownership, leverage, percentage of ind. board members, AC activity, and control environment.	(1) whether agency variables are associated with the relative size of the IAF in Belgian companies; (2) whether the IAF is complementary to other monitoring mechanisms such as independent board members and an active audit committee, and (3) the impact of the control environment on the relative size of the IAF.	IAF plays a role in corporate governance monitoring. The relative IAF size is positively related to management share ownership. A substitution effect between independent board members and the IAF. A supportive control environment also has a positive impact on the relative size of the IAF.

Summary of Prior Studies on Relationship of Audit Quality with Legal Matters & Legislations: Chronological Date Order

No.	Author/s (Year)	Country	Period of Study	Sample Size	Theory/Design	Auditing Standards/ IAQ Attributes	Objective/Research Question(s)	Main Results
1	Favere-Marchesi, M (2000)	Association of Southeast Asian Nations (ASEAN)		15 professional and governmental bodies and ASEAN Federation of Accountants	Questionnaire		Explores audit quality (AQ) in ASEAN from an analysis of the legal environment faced by statutory auditors.	In ASEAN countries, many differences were observed in the competence requirements of auditors, the requirements regarding the conduct of statutory audits, and the reporting obligations. AQ in some countries is seriously compromised due to a lack of rules ensuring auditors' independence. Some ASEAN countries do not provide an incentive for statutory auditors to provide quality audit services.
2	Pae, S. and Yoo, S (2001)	US	Not specified	Not relevant	Model similar to Schwartz (1997)	Focus on the economic consequences of auditors' legal liability.	Present a model in which a firm's owner, an auditor and outside investors strategically interact.	An imperfect model where an audit benefits the owner because it increases the ex-ante market value of the firm by detecting an unprofitable project. Distinguishing feature is that informativeness of audit projects depends not only on auditor's effort, but also on owner's costly investment in the internal control system. If auditor's expected liability loss is sufficiently large, owner under-invests in the internal control system and auditor's overinvests effort, leading to an efficiency loss. While reducing auditor's legal liability improves social efficiency by alleviating the misallocation of owner's and auditor's investments, insofar as the owner's and auditor's incentive problems arise from their joint production of information, regulators cannot completely eliminate the efficiency loss by changing legal liability alone. Recent changes in the regulatory environment can be interpreted in the context of this model. If auditors' legal liability was excessive, then Private Securities Litigation Program Act of 1995 (which reduces auditors' legal liability) may enhance social efficiency. The SEC's recent effort to enhance corporate internal controls may be beneficial if excessive auditors' legal liability has led firms to underinvest in the internal control systems.
3	Lin, S., Pizzini, M., Vargus, M. and Bardhan, I.R (2011)	Global Auditing Information Network (GAIN) survey data	2003-2004	1,356 responses	Questionnaire	Section 404 of the Sarbanes-Oxley Act. Experience, education, certification, training, CAE reports to AC, CAE Officer, iasize, fieldworkqa, iagrade, financialfocus, followup, coordination.	Investigates the role that a firm's internal audit function (IAF) plays in the disclosure of material weaknesses (MW) reported under Section 404 of the Sarbanes-Oxley Act of 2002.	The nature and scope of IAF activities are more strongly associated with MW disclosures than the IAF attributes of competence, objectivity, and investment. Among IAF attribute measures, only the education level of the IAF is significantly associated with MW disclosures. Regarding IAF activities, MW disclosures are negatively associated with the extent to which the IAF uses QA techniques in fieldwork, audits activities related to financial reporting, and follows up on previously identified control problems. The year-end timing of most Section 404 work and the nature of follow-up procedures suggests that these activities are more likely to be preventative rather than detective. MW disclosures are positively related with both IAF grading of audit engagements and external-internal auditor coordination. These activities increase the effectiveness of Section 404 compliance processes by facilitating risk assessment, consistent with the risk-based approach promoted by regulatory guidance (SEC 2007; PCAOB 2005, 2007a).

Table 2.6 (continued):
Summary of Prior Studies on Relationship of Audit Quality with Legal Matters & Legislations: Chronological Date Order

No.	Author/s (Year)	Country	Period of Study	Sample Size	Theory/Design	Auditing Standards/ IAQ Attributes	Objective/Research Question(s)	Main Results
4	Hoitash, R., Hoitash, U. and Bedard, J.C (2008)	US	15thNov 2004 – October 2005		Ge and McVay (2005) topology	Sections 404 and 302 of the Sarbanes-Oxley Act (SOX). Significant deficiencies (SD) , material weaknesses (MW), disclosure problems, manageemnt issues, accounts classification issues.	Extend prior research on audit risk adjustment by examining the association of audit pricing with problems in internal control over financial reporting, disclosed under Sections 404 and 302 of the SOX.	Audit pricing for companies with internal control problems varies by problem severity, when severity is measured either as material weaknesses versus significant deficiencies, or by nature of the problem. While audit fees increase during the 404 period, tests show less relative risk adjustment under Section 404 than under Section 302 in the prior year. Examination of intertemporal effect finds that companies disclosing internal control problems under Section 302 continue to pay higher fees the following year, even if no problems are disclosed under Section 404. Overall, findings provide detailed insight into audit risk adjustment during the initial period of SOX implementation.
5	Feng, M., Li, C. and McVay, S (2009)	US	2004-2006	2994 firm years	Heckman (1979) two-stage model to control for the endogeneity. Hausman test.	Section 302 and 404 of the Sarbanes-Oxley Act.	Examine the relation between internal control quality and the accuracy of management guidance.	Firms reporting ineffective internal controls issue less accurate management guidance.
6	Prawitt, D.F., Sharp, N.Y. and Wood, D.A (2012)	US	2000-2002	353 firm-year observations from 166 companies in 38 different two-digit SIC code industries	Regression model	The Sarbanes-Oxley Act (SOX) (Title II of the Act). IAF competence and objectivity, and outsourcing issues.	Investigate whether companies that outsourced their internal audit function (IAF) to their external auditor pre-SOX had a higher risk of misleading or fraudulent external financial reporting (accounting risk).	Results do not provide support for SOX's prohibition of outsourced internal auditing services to external auditors.

Table 2.7:
Summary of Prior Studies on Internal Auditing and Corporate Governance, and Audit Quality: Chronological Date Order

No.	Author/s (Year)	Country	Period of Study	Sample Size	Theory/Design	Auditing Standards/ IAQ Attributes	Objective/Research Question(s)	Main Results
1	Spira, L.F. and Page, M (2003)	UK	Not specified	Not needed	Epistemological approaches to risk on a continuum ranging from a realist position (risk is seen as objective) and measurable to a strong constructionist "position which argues that nothing is a risk in itself". Risk is constructed through social, political and historical perspectives	Risk management (RM) concepts.	Explores change, using sociological perspectives on risk audits conceptualisation to frame the debate about internal control and risk management within the UK corporate governance arena - the most recent manifestation of an ongoing competition for the control of economic and social resources.	RM has become central to the competition since it defines the accountability of the management of the organisation. Risks are mutable and continue to evolve. Perception of appropriate regulation of risk will vary that suggests that interest groups may seek power in organisations by asserting their own conceptions of risk and how it should be managed. Rapid changes in information technology and managerial practices in many organisations were forcing moves away from rigid, documented control to situations where responsibility for control was being pushed down the organisation hierarchy and where oversight by management could not be achieved through traditional, compliance based internal audit. RM has become closely aligned with internal control suggests that the extent to which risks are managed has now been annexed as a form of accountability, rather than its focus as a yardstick against which a dimension of performance is measured. This redefinition offers a new view of RM as part of the accountability process, implying a shift which blurs the distinction between responses to risk, through RM systems, and accountability for risk, supporting Beck's thesis that, despite extended regulation, specific accountability is difficult to attribute to individuals or institutions; the possibility arises that RM has been adopted as much for its potential for blame avoidance as for improved accountability. The rhetoric of RM has become a source of organisational power and opportunity. Internal audit faces both threats and opportunities from the changing shape of organisational process.
2	Francis, J.R (2004)	Mainly US	Not specified	Not needed	Only a review	Various.	Reviews empirical research over the past 25 years, mainly from the United States, in order to assess what researchers currently know about audit quality with respect to publicly listed companies.	Outright audit failure rates are infrequent, far less than 1% annually, and audit fees are quite small, less than 0.1% of aggregate client sales. An acceptable level of audit quality at a relatively low cost. Evidence of voluntary differential audit quality (above the legal minimum) along a number of dimensions such as firm size, industry specialization, office characteristics, and cross-country differences in legal systems and auditor liability exposure. While recent reforms have scaled back the scope of non-audit services due to independence concerns, audit quality will always be somewhat suspect if other services are provided that are perceived to potentially compromise the auditor's objectivity and skepticism. Hence, public confidence in audit quality may be increased by proscribing all non-audit services for audit clients.

Table 2.7 (continued):
Summary of Prior Studies on Internal Auditing and Corporate Governance, and Audit Quality: Chronological Date Order

No.	Author/s (Year)	Country	Period of Study	Sample Size	Theory/Design	Auditing Standards/ IAQ Attributes	Objective/Research Question(s)	Main Results
3	Watkins, A.L., Hillison, W. and Morecroft, S.E (2004)	Mainly US	Not specified	Not needed	A synthesis. Contingency theory implied. Agency theory	Audit quality (AQ), Drivers for audit quality and Supply Drivers. Demand for AQ. Client Risk Strategies. Agency conflicts.	Reviews and evaluates the theory and empirical research on audit quality.	Prospective investors' evaluations of the usefulness of reported earnings for predicting future cash flows may be influenced by the auditor brand name. Earnings management (EM), if done with the intent of affecting outsiders' perceptions, would prove most beneficial to clients hiring auditors characterised by strong brand name but low monitoring strength. The relation of components of AQ indicates that, although clients audited by brand name auditors may have greater incentives to EM, those brand name auditors appear to restrain EM. AQ studies focus on incentives that drive the demand for quality-differentiated audits and those that affect the supply of AQ. A common challenge to demand-side is the lack of direct measures of monitoring strength. Brand name audit provides greater auditor monitoring strength have provided inconsistent results may be because of restrained demand due to the higher costs of audits provided by brand name auditors risky clients and the reluctance of brand name auditors to accept risky clients in more litigious audit markets. Although a positive relation between agency conflict and demand for brand name auditors, the association appears sensitive to choice of the AQ proxy. Brand name auditors may provide greater monitoring strength through risk management strategies. No evidence that auditor independence is compromised through the provision of non-audit services.
4	Krishnan, J (2005)	US	1994-2000	128 firms	Logistic regression model	Audit committee (AC) quality is measured in three dimensions: its size, its independence, and its expertise.	Examine the association between audit committee quality and the quality of corporate internal.	Independent ACs and ACs with financial expertise are significantly less likely to be associated with the incidence of internal control problems. When the internal control problems are partitioned into less severe (reportable conditions) and more severe (material weaknesses) problems, the AC associations reported above hold for both levels of problems in the basic model are found. In sensitivity analyses, the negative significance of AC independence persists in all cases. AC expertise is significant for at least one of the 2 levels of internal control problems in all sensitivity exercises. The results are consistent with the current policy emphasis on the independence and expertise of AC members.

Table 2.7 (continued):
Summary of Prior Studies on Internal Auditing and Corporate Governance, and Audit Quality: Chronological Date Order

No.	Author/s (Year)	Country	Period of Study	Sample Size	Theory/Design	Auditing Standards/ IAQ Attributes	Objective/Research Question(s)	Main Results
5	Byard, D., Li, Y. and Weintrop, J (2006)	US	1999-2000	2,887 firm years	Economic theory	Corporate governance quality- CEO is also the chair of the board, board size, board independence, AC independence. Also determinants of analysts' forecast accuracy.	Examine the association between corporate governance (CG) and the quality of information available to financial analysts - tested using four measures of CG quality the independence of the: (1) Board; and (2) AC, the size of the board, and the presence or absence of a dual CEO. The analysts' forecast accuracy is used as a proxy for the quality of a firms' information environment, because analysts are key users of firms' financial disclosures.	The quality of financial analysts' information about upcoming earnings increases with the quality of CG. The analysts' forecast accuracy is positively related to firms' governance quality, after controlling for firms' ownership structure and other determinants of analysts' forecast accuracy. The analyst forecast accuracy increases with the independence of the board, decreases with board size, and decreases when the CEO also serves as chairman of the board.
6	Goodwin-Stewart, J. and Kent, P (2006)	Australia	October 2000	490 firms	Questionnaires and hypotheses testings using 3 models	AC existence, AC independence, AC expertise.	Examine whether the existence of an audit committee (AC), AC characteristics and the use of internal audit are associated with higher external audit fees.	Existence of an AC is associated with a higher level of audit fees which is consistent with a demand by ACs for higher quality auditing. More frequent AC meetings are associated with higher audit fees, suggesting that the diligence of the AC might influence the demand for a higher quality audit. Increased committee expertise is associated with higher audit fees only when both meeting frequency and independence are low which is consistent with AC members with accounting and finance expertise demanding a higher quality audit in these circumstances. A complementary relationship between independence, expertise and frequency of meetings and that the role that these characteristics play in enhancing AC effectiveness with respect to the external audit is a complex one. Firms with higher audit fees are also more likely to use a greater level of internal auditing. ACs, internal audit and external audit are complementary mechanisms within the governance framework. Firms with large internal audit functions (IAFs) also engage in a higher overall level of monitoring.
7	Abbott, L.J., Parker, P., Peters, G.F. and Rama, D.V (2007)	US	2000	219 survey responses from *Fortune* 1000 companies	Survey and hypotheses testings	Sarbanes-Oxley Act compliance. Assets, R&D sales and expenditure ratio, accounts receivable and inventory as a percentage of total assets, industry type, asset growth rate, ROA, CG factors.	Extend current literature related to non-audit services by investigating internal audit outsourcing to the external auditor.	Effective ACs is negatively associated with the outsourcing of routine internal audit activities to the external auditor. No association between effective ACs and the outsourcing of specialized, non-recurring IA activities to the external auditor or the outsourcing of any IA activity to an outside service providers. Effective ACs being able to discern between both outsourcing vendor and outsourcing activity - an effective AC may be an appropriate arbiter of the amount and nature of outsourcing and that consequently it may be appropriate to reconsider the current restrictions related to IA outsourcing. Weak corporate governance, the current SOX restrictions may effectively prevent firms from making outsourcing decisions that are independence impairing.

No.	Author/s (Year)	Country	Period of Study	Sample Size	Theory/Design	Auditing Standards/ IAQ Attributes	Objective/Research Question(s)	Main Results
8	Doyle, J., Ge, W. and McVay, S (2007)	US	August 2002-2005	779 firms disclosing material weaknesses (MW)	Shumway (2001) hazard model	Firm size, measured by market value of equity, firm age, financial health, complexity, rapid growth, restructuring charges; and corporate governance.	Examine the determinants of weaknesses in internal control over financial reporting. Investigate whether MW in internal control are associated with: (1) firm size, measured by market value of equity; (2) firm age, measured by the number of years the firm has CRSP data; (3) financial health, measured by an aggregate loss indicator variable and a proxy for the likelihood of bankruptcy based on the Shumway's hazard model; (4) financial reporting complexity, measured by the number of special purpose entities reported, the number of segments reported, and the existence of a foreign currency translation; (5) rapid growth, measured by merger and acquisition expenditures and extreme sales growth; (6) restructuring charges; and (7) corporate governance, measured using the developed by Brown and Caylor's (2006) model.	Firms that disclose material weaknesses tend to be smaller, younger, financially weaker, more complex, growing rapidly, or undergoing restructuring. Firms with more serious entity-wide control problems are smaller, younger and weaker financially, while firms with less severe, account-specific problems are healthy financially but have complex, diversified, and rapidly changing operations. The determinants also vary based on the specific reason for the material weakness, consistent with each firm facing their own unique set of internal control challenges.
9	Brennan, N. M. and Solomon, J (2008)	Global	Not specified	Use extant of literature	Framework based on theory, accountability, methodology, business context, globalisation and time horizon	Nil	Review traditional corporate governance and accountability research, to suggest opportunities for future research.	Encourages broader approaches to corporate governance and accountability research beyond the traditional and primarily quantitative approaches of prior research. Broader theoretical perspectives, methodological approaches, accountability mechanism, sectors/contexts, globalisation, and time horizons are identified.

#	Author	Country	Period	Sample	Theory/Method	Focus	Research Question	Findings
10	Hoitash, R., Hoitash, U. and Bedard, J.C (2008)	US	15thNov 2004 – October 2005		Ge and McVay (2005) topology	Sections 404 and 302 of the Sarbanes-Oxley Act. Significant deficiencies (SD), material weaknesses (MW), disclosure problems, management issues, accounts classification issues.	Extend prior research on audit risk adjustment by examining the association of audit pricing with problems in internal control over financial reporting, disclosed under Sections 404 and 302 of the SOX.	Audit pricing for companies with internal control problems varies by problem severity, when severity is measured either as material weaknesses versus significant deficiencies, or by nature of the problem. While audit fees increase during the 404 period, tests show less relative risk adjustment under Section 404 than under Section 302 in the prior year. Examination of intertemporal effect finds that companies disclosing internal control problems under Section 302 continue to pay higher fees the following year, even if no problems are disclosed under Section 404. Overall, findings provide detailed insight into audit risk adjustment during the initial period of SOX implementation.
11	Christopher, J. Sarens, G. and Leung, P (2009)	Australia	Not stated	34 CAE responses	Agency theory and institutional theory. Questionnaire	Aspects of: (1) Management; and (2) Audit committee, including their relationship.	Critically analyse the independence of the internal audit function (IAF) through its relationship with management and the audit committee (AC).	The IAF's relationship with management, threats identified include: using the IAF as a stepping stone to other positions; having the chief executive officer (CEO) or chief finance officer (CFO) approve IAF's budget and provide input for the internal audit plan; and considering the internal auditor to be a "partner", especially when combined with other indirect threats. Relationship with the AC: significant threats identified include CAEs not reporting functionally to the AC; the AC not having sole responsibility for appointing, dismissing and evaluating the CAE; and not having all AC members or at least one member qualified in accounting.
12	Hoitash, U., Hoitash, R. and Bedard, J.C (2009)	US	Nov 2004-May 2006	5,480 firm-year	Logistic regression	AC-financial expert, qualification, size. BoD-size, independence, tenure, no of meetings, average: independent directors.	RQ1: Examine the association of several corporate governance mechanisms with internal quality as measured by MW disclosures. RQ2: Are differential associations of MW disclosure with corporate governance quality in the Section 302 and 404 regimes?	Higher quality corporate governance is associated with more effective internal controls, but this association is only detectable under Section 404. Firms with weaker governance environments are not detecting or disclosing their MW under Section 302, without Section 404's mandatory testing and the threat of an adverse auditor's opinion. Both the accounting and supervisory expertise are associated with higher quality internal controls in the Section 404 environment.
13	Sarens, G., De Beelde, I. and Everaert, P (2009)	Belgium	Interviews conducted from June through September 2005	Not stated	Agency theory, make implicit reference to legitimacy theory, nursing and comfort theory. Interviews lasted from 60 to 120 mins	EU Directive on Statutory Audit (2006). Internal auditing definition.	Provides insights on: (1) what drives the audit committee (AC) to look for the support of the internal audit function (IAF); and (2) what makes the IAF an expert at providing comfort to the AC.	ACs seek comfort, with respect to the control environment and internal controls - 2 ACs discomfort areas. IAF involvement in improving internal controls provides a significant level of comfort to the AC. Internal auditors' unique knowledge about risk management and internal control, combined with appropriate inter-personal and behavioural skills, enables them to provide this comfort. Besides, their internal position, their familiarity with the company, and their position close to people across the company facilitate internal auditors being a major source of comfort for the AC. Formal audit reports and presentations, together with informal contacts, seem to be important symbols of comfort. The overall level of comfort to the AC can be enhanced via collaboration between internal and external auditing (the so-called 'joint audit approach').

No.	Author/s (Year)	Country	Period of Study	Sample Size	Theory/Design	Auditing Standards/ IAQ Attributes	Objective/Research Question(s)	Main Results
14	Altamuro, J. and Beatty, A (2010)	US	1986-1992	FDICIA's internal control provisions applied only to those firms with assets exceeding $500 million – 16,191 bank years.		Federal Depository Insurance Corporation Improvement Act (FDICIA).	Internal control regulation effectiveness remains controversial given the recent financial crisis. Study examines the financial reporting effects of the FDICIA internal control provisions.	Improvements in internal control monitoring and reporting lead to improvements in the quality of financial reporting in the banking industry.
15	Barua, A, Rama, D.V. and Sharma, V (2010)	US	August 2001-July 2002	2998 public listed US firms	Institutional theory normative isomorphic force implied. OLS regression.	IA budget, firm total assets, inventory/ assets, long term debt/ assets, cash flow/ assets, AC review budget, Percentage of outsourced IA work, restatement, industry type, AC size, AC independence, AC expertise, AC members directorship, Ac tenure, AC meetings.	Internal audit budget relationship with the audit committee (AC) expert type. Internal audit budget relationship AC directors. Investment in internal auditing with the tenure of AC directors? Investment in internal auditing relationship number of AC meetings.	The internal audit budget is negatively related to the presence of an auditing expert on the AC and the average tenure of AC. The AC members' expertise in auditing and their firm-specific knowledge (brought forth by longer tenures) may have substitution effects on the investment in internal auditing. The internal audit budget is positively related to the number of AC meetings. A diligent AC is more supportive of internal auditing thus leading to a higher internal audit budget. ACs that meets more frequently, to manage the risk of financial misreporting, also demand a higher internal audit budget.
16	Norman, C.S., Rose, A.M. and Rose, J.M (2010)				Wilks and Zimbelman (2004). Interview -triangulation	Professional guidance developed by the Institute of Internal Auditors (Attribute Standard 1110) states that the Chief Audit Executive should report directly to the audit committee (AC).	Examine the effects of internal audit reporting lines on fraud risk assessments made by internal auditors when the level of fraud risk varies.	Requiring the IAF of an organization to report directly to the AC may not be a wise solution for internal auditor independence or objectivity threats. Internal auditors decrease their assessments of risk when the results of risk assessments are reported directly to the AC, relative to when the results are reported to management. Internal auditors believe that management poses the greatest threats when internal auditors report high levels of risk to the AC without first working with management to mitigate the risks. Taken together, internal auditors' beliefs and perceptions lead them to be more concerned about reporting risk to the AC than they are concerned about reporting risk to management.

Table 2.8:
Summary of Prior Studies on External Auditors and Internal Auditing: Chronological Date Order

No.	Author/s (Year)	Country	Period of Study	Sample Size	Theory/Design	Auditing Standards/ IAQ Attributes	Objective/Research Question(s)	Main Results
1	Brody, R.G., Golen, S.P. and Reckers, P.M.J (1998)	US	Not specified	107 audit seniors from one Big Six firm attending a training seminar	Hypotheses testing using ANOVA on strength of IAF-objectivity, competence, and work performance.	SAS 53 & 65.	Investigate the impact of internal audit department quality differences on auditors' willingness to place reliance on the work performed by internal auditors.	Auditors attend to internal audit department quality differences and that individual auditor differences exhibit significant influence over auditor judgments.
2	Felix , W.L. Jr., Gramling, A.A. and Maletta, M.J (2001)	US		Fortune 1000 firms. 603 responded.	Surveys and publicly available information	External auditor assessment of percentage of internal audit contribution to financial statement audit work, extent to which external auditors agree that the internal audit department has time available to assist in the performance of the financial statement audit, external auditor assessment of overall internal audit quality, external auditor assessment of relationship with internal auditors, risk of material mis-statement occurring in the client's financial statements, in the absence of controls (inherent risk),	Is internal audit contribution is a significant determinant of the external audit fee? Test whether internal audit contribution is influenced by internal audit quality and, conditional on the level of inherent risk, internal audit availability and the extent of coordination between internal and external auditors.	Internal audit contribution is a significant determinant of the external audit fee. The greater the contribution of the internal auditors to the financial statement audit, the lower the audit fee. Examination of the factors influencing internal audit contribution suggests that internal audit contribution is influenced by internal audit quality. As inherent risk increases, the effect of internal audit availability on contribution diminishes, while the effect of coordination on contribution increases. Overall, findings suggest that internal audit contribution can result in reduced external audit fees, and that client firms can potentially affect internal audit contribution by investing in internal audit quality, managing availability, and facilitating coordination between the internal and external auditors.
3	Rittenberg, L. and Covaleski, M.A (2001)	US	Not specified	Qualitative analysis of archival material from both side of professional dispute	Implicit institutional theory	Two major forces: inter-professional competition and organizational imperatives - Sociology of professions and outsourcing literature.	Examine the recent trend towards the outsourcing of internal audit services to the public accounting profession.	The profession of knowledge work was highly abstract and reliant on a series of societally prized, though vaporous, even mythical terms that have become institutionalized in their own right as demonstrating organizational/professional progressivism. The views from both sides of the professional arguments implied that surely a professional must be engaged (from an external source per the public accounting profession, from an internal source per the internal auditing profession) to assist the client survive in this new era of global relations and rapidly changing conditions.

Table 2.8 (continued):
Summary of Prior Studies on External Auditors and Internal Auditing: Chronological Date Order

No.	Author/s (Year)	Country	Period of Study	Sample Size	Theory/Design	Auditing Standards/ IAQ Attributes	Objective/Research Question(s)	Main Results
4	Gramling, A.A., Maletta, M.J., Schneider, A. and Church, B.K (2004)	Global	Prior 2004	Not relevant	Synthesis of academic articles relating to internal audit quality. Institutional theory implicitly used.	Independence, work performance, competence, external auditor's view. Corporate governance players' relationships.	Synthesise Internal Audit Quality (IAQ) by examining: (1) Quality of the IAF (that is IAQ); (2) Relationship between IAF and the external auditor; (3) Relationship between the IAF and the AC and executive management.	(1) IAF Quality: Independence is viewed as the most important criterion describing objectivity. With two exceptions, the quality of work performance was found to be of greater importance in assessing IAF quality than objectivity or competence. There is evidence of bias or lack of ethics in internal auditors' judgments and decisions, while other studies have suggested that professional certification, membership in the IIA, and public accounting experience are associated with higher internal audit judgments and decisions. It is apparent that the literature on IAF quality has almost exclusively been examined from the view of the external auditor. (2) Relationship between IAF and the external auditor: Literature has highlighted the contingent and complex nature of the reliance decision. The significance of the reliance decision of the IAF quality factors varies depending on the type of reliance decisions being made. (3) Relationship between the IAF and the audit committee (AC) and executive management: Much of the research examining these relationships is comprised of surveys of internal auditors. It is noted that various characteristics of the AC (that is independence, financial expertise) and management (that is reporting relationship of the controller, management support for the IAF) are associated with the nature of the relationship with the IAF, and the quality of the IAF.
5	Watkins, A.L., Hillison, W. and Morecroft, S.E (2004)	Global	Prior 2004	Not relevant	A synthesis. Contingency theory implied. Agency theory.	Audit quality (AQ), Drivers for audit quality and Supply Drivers. Demand for AQ. Client Risk Strategies. Agency conflicts.	Reviews and evaluates the theory and empirical research on audit quality.	Prospective investors' evaluations of the usefulness of reported earnings for predicting future cash flows may be influenced by the auditor brand name. Earnings management (EM), if done with the intent of affecting outsiders' perceptions, would prove most beneficial to clients hiring auditors characterised by strong brand name but low monitoring strength. The relation of components of AQ indicates that, although clients audited by brand name auditors may have greater incentives to EM, those brand name auditors appear to restrain EM. AQ studies focus on incentives that drive the demand for quality-differentiated audits and those that affect the supply of AQ. A common challenge to demand-side is the lack of direct measures of monitoring strength. Brand name audit provides greater auditor monitoring strength have provided inconsistent results may be because of restrained demand due to the higher costs of audits provided by brand name auditors risky clients and the reluctance of brand name auditors to accept risky clients in more litigious audit markets. Although a positive relation between agency conflict and demand for brand name auditors, the association appears sensitive to choice of the AQ proxy. Brand name auditors may provide greater monitoring strength through risk management strategies. No evidence that auditor independence is compromised through the provision of non-audit services.

No.	Author/s (Year)	Country	Period of Study	Sample Size	Theory/Design	Auditing Standards/ IAQ Attributes	Objective/Research Question(s)	Main Results
6	Desai, V., Roberts, R.W. and Srivastava, R (2010)	US	Not specified	Previous studies of external auditor assessment on SAS 65	Dempster-Shafer (DS) theory.	SAS 65 - objectivity, competence, and work performance. Section 302 of Sarbanes-Oxley Act.	The external auditor's assessment of three IA quality factors—internal auditor objectivity, competence, and work performance.	External auditors use a complex process when deciding whether or not to use the internal auditors as assistants, and there is a relationship among the three factors affecting the strength of the IA function (competence, work performance, and objectivity), indicated that when inherent risk is high, auditors consider the work performance of the internal auditors only when objectivity is high. However, no interaction effects between work performance and objectivity were observed when inherent risk was low. Further, across all inherent risk conditions, competence was the most important factor, followed by objectivity and work performance.
7	Desai, N.K., Gerard, G.J. and Tripathy, A (2011)	US	Not stated	108 experienced CPAs from one Big4 and a number of regional accounting firms	Surveys during training forum.	Objectivity, competence, technical skills, control risk, overall audit risk, extent of internal auditors acquiesce to management, and extent of reliance placed on IAF for the high-risk and low-risk areas.	Explore the effect of these sourcing arrangements on the external auditor's assessed quality and reliance on the IAF.	The quality of the IAF affects external auditors' assessments of reliance on the IAF and related ratings of effort only for the high-risk areas. In a cosourcing arrangement, the presence of independent outside IA personnel during the audit of high-risk areas (despite the presence of in-house IA personnel) mitigates the probability of the external auditors attributing the work of the IAF to incentives to please or align with management. Hence, it could be beneficial for firms to have some independent outside firm personnel be part of the IA personnel who provide IA services for high inherent risk areas.
8	Prawitt, D.F., Sharp, N.Y. and Wood, D.A (2011)	GAIN	2001-2006 annual reports	235 companies (572 firm-year responses) in 47 different two-digit SIC code	"Audit Fee Model Specification for Computation of Unexpected Audit Fees" and "Unexpected Audit Fee Model for Testing IAF Contribution to the External Audit"	Parameters for these two models.	Examine the internal audit (IA) contribution to the external audit (EA) fee relation using direct measures of the amount of time In Auditors directly assist Ex Auditors, and the amount of time internal auditors spend performing tasks upon which the Ex Auditor is likely to rely, (2) Test which of these two methods of reliance results in a greater reduction in EA fees, and (3) Provide evidence with respect to the divergent findings between the experimental and archival studies in this area.	(1) Archival proxies for the contribution of internal audit based on Statement of Auditing Standards (SAS) No. 65 are associated with lower unexpected external audit fees. (2) Proxies used in prior archival studies are limited in their ability to capture the IAF's potential contribution to external auditing, and suggest that the lack of high-quality proxies could help explain the divergent findings of experimental and survey-based studies in relation to archival studies in this area. (3) Fee reductions are associated with the direct assistance of, but not with reliance on, work previously performed by the internal auditor. Consistent with external auditing standards and with results from prior experimental and survey studies suggesting that IAFs can indeed contribute in ways that lead to lower external audit fees.
9	William F. Messier, W.F. Jr., Reynolds, J.K., Simon, C.A. and Wood, D.A (2011)	GAIN	Not stated	65% of Fortune 1000	Surveys	External auditor fees model variables. IAQ independence.	Examines how using the internal audit function (IAF) as a management training ground (MTG) affects external audit fees and the external auditors' perceptions of the IAF on two issues.	External auditors charge higher fees to companies that use the IAF as a MTG. External auditors perceive internal auditors employed in an IAF used as a MTG to be less objective but not less competent than internal auditors employed in an IAF not used as a MTG. This results in higher audit fees.

Table 2.8 (continued):
Summary of Prior Studies on External Auditors and Internal Auditing: Chronological Date Order

No.	Author/s (Year)	Country	Period of Study	Sample Size	Theory/Design	Auditing Standards/ IAQ Attributes	Objective/Research Question(s)	Main Results
10	Singh, H., Woodliff, D., Sultana, D., Newby, R (2014)	Australia	2005	300 firms	Hypotheses testing	AAS610; SAS 65 & 78.	Examining the relationship between a firm's internal audit (IA) function and its audit fees.	In explaining variations in audit fees, when the proxy sales variable is used for firm size, internal auditing is insignificant but subsequently becomes significant when assets and employees are used. Previously reported relationships involving audit fees may be the outcome of the model adopted rather than the underlying relationship between the variable of interest and audit fees.
11	Mat Zain, M., Zaman, M. and Mohamed, Z (2015)	Malaysia	2005	74 completed questionnaire	Regression		Extend prior research which is based mainly on internal auditors' assessment and conducted predominantly in highly developed markets.	A positive relationship between IAF quality and audit fees as well as a reduction in audit fees as a result of external auditors' reliance on IAF. The interaction between IAF quality and IAF contribution to external audit suggests that higher quality IAF induces greater external auditor reliance on internal auditors' work and thus result in lower external audit fees.
12	Desai, R., Desai, V., Libby, T., and Srivastava, R.P. (2017)	US	2017	109 auditors	Survey	Work performance, competence and objectivity.	Examine empirically whether the Desai et al. (2010) theoretical model is reflective of how auditors make judgments about the strength of their client's internal audit function in practice. Specifically, external auditors with evidence about internal auditor work performance, competence and objectivity in a manner consistent with the structure of evidence evaluation implied by the Desai et al. (2010) model. Compare the auditors' actual strength judgments to the strength levels predicted by the model and evaluate similarities and differences.	No one factor dominates the strength judgment in all cases. In addition, EAs do not weigh negative evidence as heavily as does the model. When the evidence about the three factors is conflicting, external auditors have difficulty incorporating them in a consistent way into the calculation of their overall strength judgment. Finally, results consistent with prior research indicating auditors tend to be more sensitive to negative than positive evidence. Also, it is harder to move auditors' beliefs away from a negative position with positive evidence than to move those beliefs away from a positive position with negative evidence. Results suggest that additional training and use of a decision aid structured according to the Desai et al. (2010) model would be especially useful when evidence about internal auditors' work performance, competence and objectivity is conflicting.
13	Chen, L.H., Chung, H.H., Peters, G.F. and Wynn, J.P. (2017)	US	2003	183 firms	Survey and archival. Hypothesis	IAF objectivity.	The potential impact of internal audit incentive-based compensation (IBC) linked to company performance on the external auditor's assessment of internal audit objectivity.	Positive association between external audit fees and internal audit compensation based upon company performance. The association is acute to IBC paid in stock or stock options as opposed to cash bonuses. Also find evidence consistent with the IBC associations being mitigated by the company's financial reporting risks.

Table 2.9:
Summary of Prior Studies on Internal Audit Quality Attributes and Auditing Standards: Chronological Date Order

No.	Author/s (Year)	Country	Period of Study	Sample Size	Theory/Design	Auditing Standards/ IAQ Attributes	Objective/Research Question(s)	Main Results
1	Schneider, A (1985)	US	Not specified	20 auditors	Measure of reliance, Strength IAF evaluated	SAS No. 9 - competence, objectivity, and work.	Determine both the extent to which auditors would rely on the IA function (IAF), and the relationship between their reliance decisions and their evaluations of IA strength. Also levels of importance.	Auditors generally relied on internal auditing to reduce their external audit work. Although correlation coefficients implied a moderate degree of inter-auditor consensus on reliance, other analysis revealed some diversity. As the strength of the IA profiles increased, response variability also increased. Consistency between auditors' evaluation judgments and reliance decisions was very high, measured both across auditors and across case profiles. Finally, the relative importance weights of the three SAS No. 9 factors were approximately the same for the reliance decisions and for the evaluation judgments.
2	Harrell, A., Taylor, M. and Chewning, E (1989)	US	Not specified	58 participants	Institutional theory implicitly used	Independence and objectivity.	Can a firm's management bias the professional objectivity of the firm's internal auditors?	The internal control system evaluations reached by internal auditors who were not members of IIA were biased by knowledge of management's desired evaluation outcomes. IIA members, however, resisted management's efforts to bias their evaluations.
3	Wallace, W.A. and Kreutzeeedt, R. W (1991)	US	1983	260 firms	Agency theory	Independence, objectivity, competence.	RQ1: Do significant differences exist between entities that have an internal audit function (IAF) and those that do not with respect to size, external environment, profitability and liquidity, management environment, and management control? RQ2 Is there a significant difference between the number of misstatements, or their magnitude, deflated by materiality, that are reported by external auditors for engagements in which an internal audit department (IAD) is present and those in which no IAD exists? RQ3 Does the number or magnitude of errors reported by external audit engagement teams and the quality of the control environment, as assessed by the external audit teams, move systematically with qualitative attributes of internal auditing? RQ4 Can a discriminant model with environmental, company-specific, and external audit-related variables provide practically significant power in classifying companies with IADs as distinct from those without such departments?	Competition, regulation, available resources, higher quality management environment, and better management controls are common characteristics shared by entities that have created an IAD. Concurrently, when such a department is created, the number and magnitude of errors are observed to be substantially lower, relative to having no such department. An added advantage of creating an IAD is increased flexibility available to the external auditor to incur audit hours that are off peak. This is expected, in turn, to lead to audit fee savings by clients.

No.	Author/s (Year)	Country	Period of Study	Sample Size	Theory/Design	Auditing Standards/ IAQ Attributes	Objective/Research Question(s)	Main Results
4	Lampe, J.C. and Sutton, S.G (1994)	UK, US and Canada	Not specified	Six internal audit groups	Expectancy Theory foundations	SAS 500.	Compare the UK's Accounting Practices Board Statement of Auditing Standard 500 with similar standards promulgated by international, Canadian and US societies.	(1) Many of the considerations listed in SAS 500 are confirmed by the empirical data collected from internal auditors; (2) Some of the items suggested in SAS 500 and the other SASs are not considered critical by internal auditors-efficiencies may be gained if these factors are not evaluated by external auditors; and (3) Several factors that internal auditors strongly influence the quality of their work are not suggested by SAS 500-audit effectiveness may be improved if these factors are evaluated.
5	Brody, R.G., Golen, S.P. and Reckers, P.M.J (1998)	US	Not specified	107 audit seniors from one Big Six firm attending a training seminar	Hypotheses testing using ANOVA on strength of IAF-objectivity, competence, and work performance.	SAS 53 & 65.	Investigate the impact of internal audit department quality differences on auditors' willingness to place reliance on the work performed by internal auditors.	Auditors attend to internal audit department quality differences and that individual auditor differences exhibit significant influence over auditor judgments.
6	Gramling, A.A (1999)	US	Not specified	112 responses	Hypotheses using experiment and ANOVA	Competence, objectivity, and work.	RQ1: Is there an interactive effect of client fee pressure and related audit partner preferences on audit managers' decisions regarding the extent of reliance to place on the work performed by a client's internal audit? RQ2: In an environment where client fee pressures and related partner preferences exist, will the order in which audit managers receive information about internal audit quality influence their internal audit reliance decisions?	Audit managers encountering clients who impose a high level of fee pressure rely on the internal audit's work to a greater extent than do audit managers encountering clients who emphasize a concern for audit quality. Partner preferences also influence audit managers' reliance decisions; however, the results do not provide evidence of an interactive effect of client fee pressure and partner preferences on managers' reliance decisions.
7	Salterio, S.E (1999)	US	Not specified	112 responses	Ctitique	Competence, objectivity, and work.	Examine the paper by Gramling (refer to 6 above) in the context of previous client-preference research and the reliability of Gramling's result via an examination of the operationalization of the hypothesis, an evaluation of measurement issues, and considering the audit effective-ness significance of the result.	The research reported by Gramling (1999) presents a solid contribution by suggesting that previous research that showed effects of client preference for an accounting treatment on auditor judgment generalizes to other areas of the audit where the client has a preference for how the auditor does his/her work. This entire line of research suggests that auditors need to continue to search for ways to ensure that they remain objective when dealing with strongly held client preferences in areas where there is some ambiguity about what is appropriate. The auditor may need to explicitly consider why the client has formed a preference and whether the auditor by responding to this preference is reducing his/her chance of finding material error in the financial statements.

Table 2.9 (continued):
Summary of Prior Studies on Internal Audit Quality Attributes and Auditing Standards: Chronological Date Order

No.	Author/s (Year)	Country	Period of Study	Sample Size	Theory/Design	Auditing Standards/ IAQ Attributes	Objective/Research Question(s)	Main Results
8	Favere-Marchesi, M (2000)	Association of Southeast Asian Nations (ASEAN)		15 professio-nal and governmental bodies plus the ASEAN Federation of Accountants	Questionnaire	Quality Annual Review (QAR).	Explores audit quality (AQ) in ASEAN from an analysis of the legal environment faced by statutory auditors.	In ASEAN countries, many differences were observed in the competence requirements of auditors, the requirements regarding the conduct of statutory audits, and the reporting obligations. AQ in some countries is seriously compromised due to a lack of rules ensuring auditors' independence. Some ASEAN countries do not provide an incentive for statutory auditors to provide quality audit services.
9	Krishnamoorthy, G (2002)	US	Not specified	Not relevant	Contingency theory implied. Bayesian probability theory	Multistage structure for evaluation of the IAF examines the dependence and independence of the three factors (that is objectivity, work performance and competence).	RQ: To what extent, if any, does the strength of the IA function (IAF) vary due to interrelation-ships among the three factors (objectivity, work performance, competence) identified by auditing standards and by prior research?	The value of evidence relating to the three factors depends on the nature of evidence (convergent or conflicting) and is contingent on the interrelationships among the three factors. In the Bayesian context, it is futile to attempt to ranking of the three factors since no single factor will dominate under all conditions.
10	Francis, J.R (2004)	Mainly US	Not specified	Not needed	Only a review		Reviews empirical research over the past 25 years, mainly from the United States, in order to assess what researchers currently know about audit quality with respect to publicly listed companies.	Outright audit failure rates are infrequent, far less than 1% annually, and audit fees are quite small, less than 0.1% of aggregate client sales. An acceptable level of audit quality (AQ) at a relatively low cost. Evidence of voluntary differential AQ (above the legal minimum) along a number of dimensions such as firm size, industry specialization, office characteristics, and cross-country differences in legal systems and auditor liability exposure. While recent reforms have scaled back the scope of non-audit services due to independence concerns, AQ will always be somewhat suspect if other services are provided that are perceived to potentially compromise the auditor's objectivity and skepticism. For this reason public confidence in AQ may be increased by proscribing all non-audit services for audit clients.

No.	Author/s (Year)	Country	Period of Study	Sample Size	Theory/Design	Auditing Standards/ IAQ Attributes	Objective/Research Question(s)	Main Results
11	Gramling, A.A., Maletta, M.J., Schneider, A. and Church, B.K (2004)	Global	Not specified	Not needed	Synthesis of academic articles relating to internal audit quality. Institutional theory implicitly used.	Independence, work performance, competence, external auditor's view. Corporate governance players' relationships.	Synthesise Internal Audit Quality (IAQ) by examining: (1) Quality of the IAF (that is IAQ); (2) Relationship between IAF and the external auditor; (3) Relationship between the IAF and the AC and executive management.	(1) IAF Quality: Independence is viewed as the most important criterion describing objectivity. Further, with two exceptions, the quality of work performance was found to be of greater importance in assessing IAF quality than objectivity or competence. There is evidence of bias or lack of ethics in internal auditors' judgments and decisions, while other studies have suggested that professional certification, membership in the IIA, and public accounting experience are associated with higher internal audit judgments and decisions. It is apparent that the literature on IAF quality has almost exclusively been examined from the view of the external auditor. (2) Relationship between IAF and the external auditor: Literature has highlighted the contingent and complex nature of the reliance decision. Further, the significance of the reliance decision of the IAF quality factors varies depending on the type of reliance decisions being made. (3) Relationship between the IAF and the audit committee (AC) and executive management: Much of the research examining these relationships is comprised of surveys of internal auditors. It is noted that various characteristics of the AC (that is independence, financial expertise) and management (that is reporting relationship of the controller, management support for the IAF) are associated with the nature of the relationship with the IAF, and the quality of the IAF.
12	Carcello, J. V. Hermanson, D. R. and Raghunandan, K. (2005)	US	August 2001 to July 2002	217 firms	Survey	*Leverage*, *Stock Issue*, *Debt Issue*, *Financial*, *Service*, *Utility*, *Rec/ Asset*, *Inv/Asset. For. Subs*, *Restatement*, *Current Ratio*, *ROA*, *CFO/ Assets*, *Sales Growth*, *Budget AC*, *outsource*, *Audit Fee*.	Examine factors associated with US public companies' investment in internal auditing.	Internal audit budgets are positively related to firm size, leverage, financial service, and utility industries, relative amount of inventory, operating cash flows, and audit committee review of the internal audit budget. Total internal audit budgets are negatively related to the percentage of internal auditing that is outsourced.
13	Goodwin-Stewart, J. and Kent, P (2006)	Australia	October 2000	490 firms	Questionnaires and hypotheses testings using 3 models	AC existence, AC independence, AC expertise.	Examine whether the existence of an audit committee (AC), AC characteristics and the use of internal audit are associated with higher external audit fees.	Existence of an AC is associated with a higher level of audit fees which is consistent with a demand by ACs for higher quality auditing. More frequent AC meetings are associated with higher audit fees, suggesting that the diligence of the AC might influence the demand for a higher quality audit. Increased committee expertise is associated with higher audit fees only when both meeting frequency and independence are low which is consistent with AC members with accounting and finance expertise demanding a higher quality audit in these circumstances. This points to a complementary relationship between independence, expertise and frequency of meetings and that the role that these characteristics play in enhancing AC effectiveness with respect to the external audit is a complex one. Firms with higher audit fees are also more likely to use a greater level of internal auditing. ACs, internal audit and external audit are complementary mechanisms within the governance framework. Firms with large internal audit functions (IAFs) also engage in a higher overall level of monitoring.

14	Prawitt, D.F.,Smith, J.L. and Wood, D.A (2009)	Global	Fiscal years 2000 to 2005	528 firm-year observations (218 unique companies)	Ordinary least squares (OLS) regression	Auditor-experience, Certification, CAE reports to AC. Time spent on financial audit, training, and IA size.	Examine whether a high-quality IAF is associated with lower levels of earnings management.	IAF quality is negatively associated with earnings management. Firms with higher-quality IAFs are associated with smaller negative abnormal accruals and are more likely to just miss analysts' earnings forecasts.
15	Desai, V., Roberts, R.W. and Srivastava, R (2010)	US	Not stated	Not specified	Dempster-Shafer (DS) theory	SAS 65 - objectivity, competence, and work performance. Section 302 of Sarbanes-Oxley Act.	The external auditor's assessment of three IA quality factors—internal auditor objectivity, competence, and work performance.	External auditors use a complex process when deciding whether or not to use the internal auditors as assistants, and there is a relationship among the three factors affecting the strength of the IA function (competence, work performance, and objectivity), indicated that when inherent risk is high, auditors consider the work performance of the internal auditors only when objectivity is high. However, no interaction effects between work performance and objectivity were observed when inherent risk was low. Further, across all inherent risk conditions, competence was the most important factor, followed by objectivity and work performance.
16	Norman, C.S., Rose, A.M. and Rose, J.M (2010)				Wilks and Zimbelman (2004). Interview-triangulation	Professional guidance developed by the Institute of Internal Auditors (Attribute Standard 1110) states that the Chief Audit Executive should report directly to the audit committee (AC),	Examine the effects of internal audit reporting lines on fraud risk assessments made by internal auditors when the level of fraud risk varies.	Requiring the IAF of an organization to report directly to the AC may not be a wise solution for internal auditor independence or objectivity threats. Internal auditors decrease their assessments of risk when the results of risk assessments are reported directly to the AC, relative to when the results are reported to management. Internal auditors believe that management poses the greatest threats when internal auditors report high levels of risk to the AC without first working with management to mitigate the risks. Taken together, internal auditors' beliefs and perceptions lead them to be more concerned about reporting risk to the AC than they are concerned about reporting risk to management.
17	Carpenter, T.D., Reimers, J.L. and Fretwell, P.Z (2011)	US	Not stated	162 internal auditors	Psychology theory. Extend the work of Carpenter (2007), who examined SAS No. 99	SAS No. 99.	Investigate whether the group interaction associated with brainstorming is necessary to reap the benefits of brainstorming for internal auditors' fraud judgments.	Internal auditors who brainstorm in groups identify fewer fraud risks (that is, quantity) than nominal groups of individual auditors who brainstorm alone, but brainstorming groups identify more quality fraud risks than nominal groups. Further, study finds that auditors who assess risk qualitatively generally provide higher fraud risk assessments than those auditors who assess risk quantitatively. However, after group brainstorming this bias is reduced.

No.	Author/s (Year)	Country	Period of Study	Sample Size	Theory/Design	Auditing Standards/ IAQ Attributes	Objective/Research Question(s)	Main Results
18	Desai, N.K., Gerard, G.J. and Tripathy, A (2011)	US	Not stated	108 experienced CPAs from one Big4 and a number of regional accounting firms	Surveys during training forum	Objectivity, competence, technical skills, control risk, overall audit risk, extent of internal auditors acquiesce to management, and extent of reliance placed on IAF for the high-risk and low-risk areas.	Explore the effect of these sourcing arrangements on the external auditor's assessed quality and reliance on the IAF.	The quality of the IAF affects external auditors' assessments of reliance on the IAF and related ratings of effort only for the high-risk areas. In a cosourcing arrangement, the presence of independent outside IA personnel during the audit of high-risk areas (despite the presence of in-house IA personnel) mitigates the probability of the external auditors attributing the work of the IAF to incentives to please or align with management. Hence, it could be beneficial for firms to have some independent outside firm personnel be part of the IA personnel who provide IA services for high inherent risk areas.
19	Lin, S., Pizzini, M., Vargus, M. and Bardhan, I.R (2011)	Global Auditing Information Network (GAIN) survey data	2003-2004	1,356 responses	Questionnaire	Section 404 of the Sarbanes-Oxley Act. Experience, education, certification, training, CAE reports to AC, CAE Officer, iasize, fieldworkqa, iagrade, financialfocus, followup, coordination.	Investigates the role that a firm's internal audit function (IAF) plays in the disclosure of material weaknesses (MW) reported under Section 404 of the Sarbanes-Oxley Act of 2002.	The nature and scope of IAF activities are more strongly associated with MW disclosures than the IAF attributes of competence, objectivity, and investment. Among IAF attribute measures, only the education level of the IAF is significantly associated with MW disclosures. Regarding IAF activities, MW disclosures are negatively associated with the extent to which the IAF uses QA techniques in fieldwork, audits activities related to financial reporting, and follows up on previously identified control problems. The year-end timing of most Section 404 work and the nature of follow-up procedures suggests that these activities are more likely to be preventative rather than detective. MW disclosures are positively related with both IAF grading of audit engagements and external-internal auditor coordination. These activities increase the effectiveness of Section 404 compliance processes by facilitating risk assessment, consistent with the risk-based approach promoted by regulatory guidance (SEC 2007; PCAOB 2005, 2007a).
20	William F. Messier, W.F. Jr., Reynolds, J.K., Simon, C.A. and Wood, D.A (2011)	GAIN	Not stated	65% of Fortune 1000	Surveys	External auditor fees model variables. IAQ independence.	Examines how using the internal audit function (IAF) as a management training ground (MTG) affects external audit fees and the external auditors' perceptions of the IAF on two issues.	External auditors charge higher fees to companies that use the IAF as a MTG. External auditors perceive internal auditors employed in an IAF used as a MTG to be less objective but not less competent than internal auditors employed in an IAF not used as a MTG. This results in higher audit fees.
21	Prawitt, D.F., Sharp, N.Y. and Wood, D.A (2012)	US	200-2002	353 firm-year observations from 166 companies in 38 different two-digit SIC code industries	Regression model	The Sarbanes-Oxley Act (SOX) (Title II of the Act). IAF competence and objectivity, and outsourcing issues.	Investigate whether companies that outsourced their internal audit function (IAF) to their external auditor pre-SOX had a higher risk of misleading or fraudulent external financial reporting (accounting risk).	SOX's prohibition of outsourced internal auditing services to external auditors is not supported.

Table 2.10:
Summary of Prior Studies on Internal Audit Quality Attributes – Independence: Chronological Date Order

No.	Author/s (Year)	Country	Period of Study	Sample Size	Theory/Design	Auditing Standards/ IAQ Attributes	Objective/Research Question(s)	Main Results
1	Harrell, A., Taylor, M. and Chewning, E (1989)	US	Not specified	58 participants	Institutional theory implicitly used	Independence and objectivity.	Can a firm's management bias the professional objectivity of the firm's internal auditors?	The internal control system evaluations reached by internal auditors who were not members of IIA were biased by knowledge of management's desired evaluation outcomes. IIA members, however, resisted management's efforts to bias their evaluations.
2	Wallace, W.A. and Kreutzeeedt, R. W (1991)	US	1983	260 firms	Agency theory	Independence, objectivity, competence.	RQ1: Do significant differences exist between entities that have an internal audit function (IAF) and those that do not with respect to size, external environment, profitability and liquidity, management environment, and management control? RQ2 Is there a significant difference between the number of misstatements, or their magnitude, deflated by materiality, that are reported by external auditors for engagements in which an internal audit department (IAD) is present and those in which no IAD exists? RQ3 Does the number or magnitude of errors reported by external audit engagement teams and the quality of the control environment, as assessed by the external audit teams, move systematically with qualitative attributes of internal auditing? RQ4 Can a discriminant model with environmental, company-specific, and external audit-related variables provide practically significant power in classifying companies with IADs as distinct from those without such departments?	Competition, regulation, available resources, higher quality management environment, and better management controls are common characteristics shared by entities that have created an IAD. Concurrently, when such a department is created, the number and magnitude of errors are observed to be substantially lower, relative to having no such department. An added advantage of creating an IAD is increased flexibility available to the external auditor to incur audit hours that are off peak. This is expected, in tum, to lead to audit fee savings by clients.
3	Favere-Marchesi, M (2000)	Association of Southeast Asian Nations (ASEAN)	Not stated	15 professio-nal and governmental bodies plus the ASEAN Federation of Accountants	Questionnaire	Quality Review.	Explores audit quality (AQ) in ASEAN from an analysis of the legal environment faced by statutory auditors	In ASEAN countries, many differences were observed in the competence requirements of auditors, the requirements regarding the conduct of statutory audits, and the reporting obligations. AQ in some countries is seriously compromised due to a lack of rules ensuring auditors' independence. Some ASEAN countries do not provide an incentive for statutory auditors to provide quality audit services.

No.	Author/s (Year)	Country	Period of Study	Sample Size	Theory/Design	Auditing Standards/ IAQ Attributes	Objective/Research Question(s)	Main Results
4	Krishnamoorthy, G (2002)	US	Not specified	Not relevant	Contingency theory implied. Bayesian probability theory	Multistage structure for evaluation of the IAF examines the dependence and independence of the three factors (that is objectivity, work performance and competence).	RQ: To what extent, if any, does the strength of the IA function (IAF) vary due to interrelation-ships among the three factors (objectivity, work performance, competence) identified by auditing standards and by prior research?	The value of evidence relating to the three factors depends on the nature of evidence (convergent or conflicting) and is contingent on the interrelationships among the three factors. In the Bayesian context, it is futile to attempt to ranking of the three factors since no single factor will dominate under all conditions.
5	Francis, J.R (2004)	Mainly US	Not specified	Not needed	Only a review		Reviews empirical research over the past 25 years, mainly from the United States, in order to assess what researchers currently know about audit quality with respect to publicly listed companies.	Outright audit failure rates are infrequent, far less than 1% annually, and audit fees are quite small, less than 0.1% of aggregate client sales. An acceptable level of audit quality at a relatively low cost. Evidence of voluntary differential audit quality (above the legal minimum) along a number of dimensions such as firm size, industry specialization, office characteristics, and cross-country differences in legal systems and auditor liability exposure. While recent reforms have scaled back the scope of non-audit services due to independence concerns, a case can be made that audit quality will always be somewhat suspect if other services are provided that are perceived to potentially compromise the auditor's objectivity and skepticism. For this reason public confidence in audit quality may be increased by proscribing all non-audit services for audit clients.
6	Gramling, A.A., Maletta, M.J., Schneider, A. and Church, B.K (2004)	Global	Not specified	Not needed	Synthesis of academic articles relating to internal audit quality. Institutional theory implicitly used.	Independence, work performance, competence, external auditor's view. Corporate governance players' relationships.	Synthesise Internal Audit Quality (IAQ) by examining: (1) Quality of the IAF (that is IAQ); (2) Relationship between IAF and the external auditor; (3) Relationship between the IAF and the AC and executive management.	(1) IAF Quality: Independence is viewed as the most important criterion describing objectivity. Further, with two exceptions, the quality of work performance was found to be of greater importance in assessing IAF quality than objectivity or competence. Finally, there are evidence of bias or lack of ethics in internal auditors' judgments and decisions, while other studies have suggested that professional certification, membership in the IIA, and public accounting experience are associated with higher internal audit judgments and decisions. It is apparent that the literature on IAF quality has almost exclusively been examined from the view of the external auditor. (2) Relationship between IAF and the external auditor: Literature has highlighted the contingent and complex nature of the reliance decision. Further, the significance of the reliance decision of the IAF quality factors varies depending on the type of reliance decisions being made. (3) Relationship between the IAF and the audit committee (AC) and executive management: Much of the research examining these relationships is comprised of surveys of internal auditors. It is noted that various characteristics of the AC (that is independence, financial expertise) and management (that is reporting relationship of the controller, management support for the IAF) are associated with the nature of the relationship with the IAF, and the quality of the IAF.

No.	Author/s (Year)	Country	Period of Study	Sample Size	Theory/Design	Auditing Standards/ IAQ Attributes	Objective/Research Question(s)	Main Results
7	Desai, V., Roberts, R.W. and Srivastava, R (2010)	US	Not stated	Not specified	Dempster-Shafer (DS) theory	SAS 65 - objectivity, competence, and work performance. Section 302 of Sarbanes-Oxley Act.	The external auditor's assessment of three IA quality factors—internal auditor objectivity, competence, and work performance.	External auditors use a complex process when deciding whether or not to use the internal auditors as assistants, and there is a relationship among the three factors affecting the strength of the IA function (competence, work performance, and objectivity), indicated that when inherent risk is high, auditors consider the work performance of the internal auditors only when objectivity is high. However, no interaction effects between work performance and objectivity were observed when inherent risk was low. Further, across all inherent risk conditions, competence was the most important factor, followed by objectivity and work performance.
8	Norman, C.S., Rose, A.M. and Rose, J.M (2010)				Wilks and Zimbelman (2004). Interview -triangulation	Professional guidance developed by the Institute of Internal Auditors (Attribute Standard 1110) states that the Chief Audit Executive should report directly to the audit committee (AC).	Examine the effects of internal audit reporting lines on fraud risk assessments made by internal auditors when the level of fraud risk varies.	Requiring the IAF of an organization to report directly to the AC may not be a wise solution for internal auditor independence or objectivity threats. Internal auditors decrease their assessments of risk when the results of risk assessments are reported directly to the AC, relative to when the results are reported to management. Internal auditors believe that management poses the greatest threats when internal auditors report high levels of risk to the AC without first working with management to mitigate the risks. Taken together, internal auditors' beliefs and perceptions lead them to be more concerned about reporting risk to the AC than they are concerned about reporting risk to management.
10	Desai, N.K., Gerard, G.J. and Tripathy, A (2011)	US	Not stated	108 experienced CPAs from one Big4 and a number of regional accounting firms	Surveys during training forum	Objectivity, competence, technical skills, control risk, overall audit risk, extent of internal auditors acquiesce to management, and extent of reliance placed on IAF for the high-risk and low-risk areas.	Explore the effect of these sourcing arrangements on the external auditor's assessed quality and reliance on the IAF.	The quality of the IAF affects external auditors' assessments of reliance on the IAF and related ratings of effort only for the high-risk areas. In a cosourcing arrangement, the presence of independent outside IA personnel during the audit of high-risk areas (despite the presence of in-house IA personnel) mitigates the probability of the external auditors attributing the work of the IAF to incentives to please or align with management. Hence, it could be beneficial for firms to have some independent outside firm personnel be part of the IA personnel who provide IA services for high inherent risk areas.
11	William F. Messier, W.F. Jr., Reynolds, J.K., Simon, C.A. and Wood, D.A (2011)	GAIN	Not stated	65% of Fortune 1000	Surveys	External auditor fees model variables. IAQ independence.	Examines how using the internal audit function (IAF) as a management training ground (MTG) affects external audit fees and the external auditors' perceptions of the IAF on two issues.	External auditors charge higher fees to companies that use the IAF as a MTG. External auditors perceive internal auditors employed in an IAF used as a MTG to be less objective but not less competent than internal auditors employed in an IAF not used as a MTG. This results in higher audit fees.

Table 2.10 (continued):
Summary of Prior Studies on Internal Audit Quality Attributes – Independence: Chronological Date Order

No.	Author/s (Year)	Country	Period of Study	Sample Size	Theory/Design	Auditing Standards/ IAQ Attributes	Objective/Research Question(s)	Main Results
12	Roussy, M. and Brivot, M. (2015)	Canada	2010	56 Interviews	Meta-analysis of extant literature	Independence and Competence.	To characterize how those who perform (internal auditors), mandate (audit committee (AC) members), use (AC members and external auditors) and normalize (the Institute of Internal Auditors (IIA)) internal audit work, respectively make sense of the notion of "internal audit quality" (IAQ)	Four interpretative schemes (or frames) emerge from the analysis, called "manager," "éminence grise," "professional" and "watchdog." They respectively correspond to internal auditors', AC members', the IIA's and external auditors' viewpoints and suggest radically different perspectives on how IAQ should be defined and controlled (via input, throughput, output or professional controls).
13	Abbott, L.J., Daugherty, B., Parker, S. and Peters, G.F. (2016)	US	2009	189	Survey	Independence and Competence – joint.	Whether IAF quality-and its ability to foster higher quality financial reporting-can be reasonably characterized as a joint function of both competence and independence.	The overall results provide evidence consistent with the hypothesis that the combined presence of both competence and independence is a necessary antecedent to effective IAF financial reporting monitoring. With respect to the IAF characteristics, results are consistent with independence being enhanced by relatively greater degrees of audit committee oversight of the IAF, versus management oversight.

No.	Author/s (Year)	Country	Period of Study	Sample Size	Theory/Design	Auditing Standards/ IAQ Attributes	Objective/Research Question(s)	Main Results
1	Schneider, A (1985)	US	Not specified	20 auditors	Measure of reliance, Strength IAF evaluated	SAS No. 9 - competence, objectivity, and work.	Determine both the extent to which auditors would rely on the IA function (IAF), and the relationship between their reliance decisions and their evaluations of IA strength. Also levels of importance.	Auditors generally relied on internal auditing to reduce their external audit work. Although correlation coefficients implied a moderate degree of inter-auditor consensus on reliance, other analysis revealed some diversity. As the strength of the IA profiles increased, response variability also increased. Consistency between auditors' evaluation judgments and reliance decisions was very high, measured both across auditors and across case profiles. Finally, the relative importance weights of the three SAS No. 9 factors were approximately the same for the reliance decisions and for the evaluation judgments.
2	Messier, W. F. J., and Schneider, A (1988)	US	Not specified	22 audit supervisors and manager of Big 8	Questionnaire & Analytic Hierarchical Process	Strength of IAF - Competence, objectivity, and work.	External auditors' evaluation of the internal audit function (IAF) in greater detail than that provided by previous studies.	IAF competence as the single most important factor, followed by objectivity and then work performance. However, Auditors do not agree on which attributes are most important in evaluating the strength of the internal audit function.
3	Harrell, A., Taylor, M. and Chewning, E (1989)	US	Not specified	58 participants	Institutional theory implicitly used	Independence and objectivity.	Can a firm's management bias the professional objectivity of the firm's internal auditors?	The internal control system evaluations reached by internal auditors who were not members of IIA were biased by knowledge of management's desired evaluation outcomes. IIA members, however, resisted management's efforts to bias their evaluations.
4	Wallace, W.A. and Kreutzeeedt, R. W (1991)	US	1983	260 firms	Agency theory	Independence, objectivity, competence.	RQ1: Do significant differences exist between entities that have an internal audit function (IAF) and those that do not with respect to size, external environment, profitability and liquidity, management environment, and management control? RQ2: Is there a significant difference between the number of misstatements, or their magnitude, deflated by materiality, that are reported by external auditors for engagements in which an internal audit department (IAD) is present and those in which no IAD exists? RQ3: Does the number or magnitude of errors reported by external audit engagement teams and the quality of the control environment, as assessed by the external audit teams, move systematically with qualitative attributes of internal auditing? RQ4: Can a discriminant model with environmental, company-specific, and external audit-related variables provide practically significant power in classifying companies with IADs as distinct from those without such IADs?	Competition, regulation, available resources, higher quality management environment, and better management controls are common characteristics shared by entities that have created an IAD. Concurrently, when such a department is created, the number and magnitude of errors are observed to be substantially lower, relative to having no such department. An added advantage of creating an IAD is increased flexibility available to the external auditor to incur audit hours that are off peak. This is expected, in turn, to lead to audit fee savings by clients.

No.	Author/s (Year)	Country	Period of Study	Sample Size	Theory/Design	Auditing Standards/ IAQ Attributes	Objective/Research Question(s)	Main Results
5	Lampe, J.C. and Sutton, S.G (1994)	UK, US and Canada	Not specified	Six internal audit groups	Expectancy Theory foundations	SAS 500.	Compare the UK's Accounting Practices Board Statement of Auditing Standard 500 with similar standards promulgated by international, Canadian and US societies.	(1) Many of the considerations listed in SAS 500 are confirmed by the empirical data collected from practicing internal auditors; (2) Some of the items suggested in SAS 500 and the other SASs are not considered critical by internal auditors-efficiencies may be gained if these factors are not evaluated by external auditors; and (3) Several factors that internal auditors believe to strongly influence the quality of their work are not suggested by SAS 500-audit effectiveness may be improved if these factors are evaluated.
6	Brody, R.G., Golen, S.P. and Reckers, P.M.J (1998)	US	Not specified	107 audit seniors from one Big Six firm attending a training seminar	Hypotheses testing using ANOVA on strength of IAF-objectivity, competence, and work performance.	SAS 53 & 65.	Investigate the impact of internal audit department quality differences on auditors' willingness to place reliance on the work performed by internal auditors.	Auditors attend to internal audit department quality differences and that individual auditor differences exhibit significant influence over auditor judgments.
7	Gramling, A.A (1999)	US	Not specified	112 responses	Hypotheses using experiment and ANOVA	Competence, objectivity, and work.	RQ1: Is there an interactive effect of client fee pressure and related audit partner preferences on audit managers' decisions regarding the extent of reliance to place on the work performed by a client's internal audit? RQ2: In an environment where client fee pressures and related partner preferences exist, will the order in which audit managers receive information about internal audit quality influence their internal audit reliance decisions?	Audit managers encountering clients who impose a high level of fee pressure rely on the internal audit's work to a greater extent than do audit managers encountering clients who emphasize a concern for audit quality. Partner preferences also influence audit managers' reliance decisions; however, the results do not provide evidence of an interactive effect of client fee pressure and partner preferences on managers' reliance decisions.
8	Salterio, S.E (1999)	US	Not specified	112 responses	Critique	Competence, objectivity, and work.	Examine the paper by Gramling (refer to 6 above) in the context of previous client-preference research and the reliability of Gramling's result via an examination of the operationalization of the hypothesis, an evaluation of measurement issues, and considering the audit effective-ness significance of the result.	The research reported in Gramling presents a solid contribution by suggesting that previous research that showed effects of client preference for an accounting treatment on auditor judgment generalizes to other areas of the audit where the client has a preference for how the auditor does his/her work. This entire line of research suggests that auditors need to continue to search for ways to ensure that they remain objective when dealing with strongly held client preferences in areas where there is some ambiguity about what is appropriate. The auditor may need to explicitly consider why the client has formed a preference and whether the auditor by responding to this preference is reducing his/her chance of finding material error in the financial statements.

No.	Author/s (Year)	Country	Period of Study	Sample Size	Theory/Design	Auditing Standards/ IAQ Attributes	Objective/Research Question(s)	Main Results
9	Krishnamoorthy, G (2002)	US	Not specified	Not relevant	Contingency theory implied. Bayesian probability theory	Multistage structure for evaluation of the IAF examines the dependence and independence of the three factors (that is objectivity, work performance and competence).	RQ: To what extent, if any, does the strength of the IA function (IAF) vary due to interrelation-ships among the three factors (objectivity, work performance, competence) identified by auditing standards and by prior research?	The value of evidence relating to the three factors depends on the nature of evidence (convergent or conflicting) and is contingent on the interrelationships among the three factors. In the Bayesian context, it is futile to attempt to ranking of the three factors since no single factor will dominate under all conditions.
10	Francis, J.R (2004)	Mainly US	Not specified	Not needed	Only a review		Reviews empirical research over the past 25 years, mainly from the United States, in order to assess what researchers currently know about audit quality with respect to publicly listed companies.	Outright audit failure rates are infrequent, far less than 1% annually, and audit fees are quite small, less than 0.1% of aggregate client sales. An acceptable level of audit quality at a relatively low cost. Evidence of voluntary differential audit quality (above the legal minimum) along a number of dimensions such as firm size, industry specialization, office characteristics, and cross-country differences in legal systems and auditor liability exposure. While recent reforms have scaled back the scope of non-audit services due to independence concerns, a case can be made that audit quality will always be somewhat suspect if other services are provided that are perceived to potentially compromise the auditor's objectivity and skepticism. For this reason public confidence in audit quality may be increased by proscribing all non-audit services for audit clients.
11	Gramling, A.A., Maletta, M.J., Schneider, A. and Church, B.K (2004)	Global	Not specified	Not needed	Synthesis of academic articles relating to internal audit quality. Institutional theory implicitly used.	Independence, work performance, competence, external auditor's view. Corporate governance players' relationships.	Synthesise Internal Audit Quality (IAQ) by examining: (1) Quality of the IAF (that is IAQ); (2) Relationship between IAF and the external auditor; (3) Relationship between the IAF and the AC and executive management.	(1) IAF Quality: Independence is viewed as the most important criterion describing objectivity. Further, with two exceptions, the quality of work performance was found to be of greater importance in assessing IAF quality than objectivity or competence. Finally, there are evidence of bias or lack of ethics in internal auditors' judgments and decisions, while other studies have suggested that professional certification, membership in the IIA, and public accounting experience are associated with higher internal audit judgments and decisions. It is apparent that the literature on IAF quality has almost exclusively been examined from the view of the external auditor. (2) Relationship between IAF and the external auditor: Literature has highlighted the contingent and complex nature of the reliance decision. Further, the significance of the reliance decision of the IAF quality factors varies depending on the type of reliance decisions being made. (3) Relationship between the IAF and the audit committee (AC) and executive management: Much of the research examining these relationships is comprised of surveys of internal auditors. It is noted that various characteristics of the AC (that is independence, financial expertise) and management (that is reporting relationship of the controller, management support for the IAF) are associated with the nature of the relationship with the IAF, and the quality of the IAF.

No.	Author/s (Year)	Country	Period of Study	Sample Size	Theory/Design	Auditing Standards/ IAQ Attributes	Objective/Research Question(s)	Main Results
12	Prawitt, D.F.,Smith, J.L. and Wood, D.A (2009)	Global	Fiscal years 2000 to 2005	528 firm-year observations (218 unique companies)	Ordinary least squares (OLS) regression	Auditor-experience, Certification, CAE reports to AC. Time spent on financial audit, training, and IA size.	Examine whether a high-quality IAF is associated with lower levels of earnings management.	IAF quality is negatively associated with earnings management. Companies with higher-quality IAFs are associated with smaller negative abnormal accruals and are more likely to just miss analysts' earnings forecasts.
13	Desai, V., Roberts, R.W. and Srivastava, R (2010)	US	Not stated	Not specified	Dempster-Shafer (DS) theory	SAS 65 - objectivity, competence, and work performance. Section 302 of Sarbanes-Oxley Act.	The external auditor's assessment of three IA quality factors—internal auditor objectivity, competence, and work performance.	External auditors use a complex process when deciding whether or not to use the internal auditors as assistants, and there is a relationship among the three factors affecting the strength of the IA function (competence, work performance, and objectivity), indicated that when inherent risk is high, auditors consider the work performance of the internal auditors only when objectivity is high. However, no interaction effects between work performance and objectivity were observed when inherent risk was low. Further, across all inherent risk conditions, competence was the most important factor, followed by objectivity and work performance.
14	Norman, C.S., Rose, A.M. and Rose, J.M (2010)				Wilks and Zimbelman (2004). Interview-triangulation	Professional guidance developed by the Institute of Internal Auditors (Attribute Standard 1110) states that the Chief Audit Executive should report directly to the audit committee (AC).	Examine the effects of internal audit reporting lines on fraud risk assessments made by internal auditors when the level of fraud risk varies.	Requiring the IAF of an organization to report directly to the AC may not be a wise solution for internal auditor independence or objectivity threats. Internal auditors decrease their assessments of risk when the results of risk assessments are reported directly to the AC, relative to when the results are reported to management. Internal auditors believe that management poses the greatest threats when internal auditors report high levels of risk to the AC without first working with management to mitigate the risks. Taken together, internal auditors' beliefs and perceptions lead them to be more concerned about reporting risk to the AC than they are concerned about reporting risk to management.
16	Desai, N.K., Gerard, G.J. and Tripathy, A (2011)	US	Not stated	108 experienced CPAs from one Big4 and a number of regional accounting firms	Surveys during training forum	Objectivity, competence, technical skills, control risk, overall audit risk, extent of internal auditors acquiesce to management, and extent of reliance placed on IAF for the high-risk and low-risk areas.	Explore the effect of these sourcing arrangements on the external auditor's assessed quality and reliance on the IAF.	The quality of the IAF affects external auditors' assessments of reliance on the IAF and related ratings of effort only for the high-risk areas. In a cosourcing arrangement, the presence of independent outside IA personnel during the audit of high-risk areas (despite the presence of in-house IA personnel) mitigates the probability of the external auditors attributing the work of the IAF to incentives to please or align with management. Hence, it could be beneficial for firms to have some independent outside firm personnel be part of the IA personnel who provide IA services for high inherent risk areas.

No.	Author/s (Year)	Country	Period of Study	Sample Size	Theory/Design	Auditing Standards/ IAQ Attributes	Objective/Research Question(s)	Main Results
17	Pizzini, M., Lin, S. and Ziefenfuss, D.E. (2015)	US	2000 to 2004	293 firms	Regression	Competence, objectivity, Fieldwork quality, scope and investment.	Association of IAQ and audit delay	Firms with higher quality IAFs experience significantly shorter audit delays. The negative relation between IAF quality and audit delay is primarily driven by the competence of internal audit staff and the quality of their fieldwork. Objectivity and IAF investment are also negatively associated with audit delay, but significance levels are sensitive to sample period and model specification. Contrary to predictions, the scope of IAF activities is not significantly associated with delay. Regarding IAF contribution, audit delay is shorter when the external auditor uses independently performed IAF work to complete the audit, but not when internal auditors serve as direct assistants to the external auditor. Moreover, IAF quality is significantly and positively (negatively) associated with contribution when it takes the form of independently performed audit work (direct assistance). Together, these results indicate that the nature of the IAF's contribution to the financial statement audit (independent work versus direct assistance) is a critical factor in understanding how IAF contribution influences the financial statement audit.
18	Omar, H.M. and Stewart, J. (2015)	Malaysia			Experimental approach	Objectivity.	Examine whether IBC paid to IAs based on company performance and individual performance does impact their objectivity. Also, investigates whether the cultural background of IAs affects their objectivity in the context of IBC by examining whether those from an individualist culture (Australia) differ in their responses to those from a collectivist culture (Malaysia).	Incentive-Based Compensation (IBC is a threat to internal auditors' objectivity when it is based on company performance, but is less of a threat when it is based on individual performance. Culture does not appear to impact perceptions of internal auditors' behaviour but does affect perceptions of the appropriateness of adverse Behaviour.

Table 2.11 (continued):
Summary of Prior Studies on Internal Audit Quality Attributes – Competence, Objectivity, and Work: Chronological Date Order

No.	Author/s (Year)	Country	Period of Study	Sample Size	Theory/Design	Auditing Standards/ IAQ Attributes	Objective/Research Question(s)	Main Results
16	Lin, S., Pizzini, M., Vargus, M. and Bardhan, I.R (2011)	Global Auditing Information Network (GAIN) survey data	2003-2004	1,356 responses	Questionnaire	Section 404 of the Sarbanes-Oxley Act. Experience, education, certification, training, CAE reports to AC, CAE Officer, iasize, fieldworkqa, iagrade, financialfocus, followup, coordination.	Investigates the role that a firm's internal audit function (IAF) plays in the disclosure of material weaknesses (MW) reported under Section 404 of the Sarbanes-Oxley Act of 2002.	The nature and scope of IAF activities are more strongly associated with MW disclosures than the IAF attributes of competence, objectivity, and investment. Among IAF attribute measures, only the education level of the IAF is significantly associated with MW disclosures. MW disclosures are negatively associated with the extent to which the IAF uses QA techniques in fieldwork, audits activities related to financial reporting, and follows up on previously identified control problems. The year-end timing of most Section 404 work and the nature of follow-up procedures are more likely to be preventative rather than detective. MW disclosures are positively related with both IAF grading of audit engagements and external-internal auditor coordination. These activities increase the effectiveness of Section 404 compliance processes by facilitating risk assessment, consistent with the risk-based approach promoted by regulatory guidance (SEC 2007; PCAOB 2005, 2007a).
17	William F. Messier, W.F. Jr., Reynolds, J.K., Simon, C.A. and Wood, D.A (2011)	GAIN	Not stated	65% of Fortune 1000	Surveys	External auditor fees model variables. IAQ independence.	Examines how using the internal audit function (IAF) as a management training ground (MTG) affects external audit fees and the external auditors' perceptions of the IAF on two issues.	External auditors charge higher fees to companies that use the IAF as a MTG. External auditors perceive internal auditors employed in an IAF used as a MTG to be less objective but not less competent than internal auditors employed in an IAF not used as a MTG. This results in higher audit fees.
18	Prawitt, D.F., Sharp, N.Y. and Wood, D.A (2012)	US	200-2002	353 firm-year observations from 166 companies in 38 different two-digit SIC code industries	Regression model	The Sarbanes-Oxley Act (SOX) (Title II of the Act). IAF competence and objectivity, and outsourcing issues.	Investigate whether companies that outsourced their internal audit function (IAF) to their external auditor pre-SOX had a higher risk of misleading or fraudulent external financial reporting (accounting risk).	SOX's prohibition of outsourced internal auditing services to external auditors is not supported.

Table 2.12:
Summary of Prior Studies on Internal Audit Quality Attributes – Risk Assessment: Chronological Date Order

No.	Author/s (Year)	Country	Period of Study	Sample Size	Theory/Design	Auditing Standards/ IAQ Attributes	Objective/Research Question(s)	Main Results
1	Goodwin-Stewart, J. and Kent, P (2006)	Australia	October 2000	490 firms	Questionnaires and hypotheses testings using 3 models	AC existence, AC independence, AC expertise.	Examine whether the existence of an audit committee (AC), AC characteristics and the use of internal audit are associated with higher external audit fees.	Existence of an AC is associated with a higher level of audit fees which is consistent with a demand by ACs for higher quality auditing. More frequent AC meetings are associated with higher audit fees, suggesting that the diligence of the AC might influence the demand for a higher quality audit. Increased committee expertise is associated with higher audit fees only when both meeting frequency and independence are low which is consistent with AC members with accounting and finance expertise demanding a higher quality audit in these circumstances. A complementary relationship between independence, expertise and frequency of meetings and that the role that these characteristics play in enhancing AC effectiveness with respect to the external audit is a complex one. Firms with higher audit fees are also more likely to use a greater level of internal auditing. ACs, internal audit and external audit are complementary mechanisms within the governance framework. Firms with large internal audit functions (IAFs) also engage in a higher overall level of monitoring.
2	Norman, C.S., Rose, A.M. and Rose, J.M (2010)				Wilks and Zimbelman (2004). Interview - triangulation	Professional guidance developed by the Institute of Internal Auditors (Attribute Standard 1110) states that the Chief Audit Executive should report directly to the audit committee (AC).	Examine the effects of internal audit reporting lines on fraud risk assessments made by internal auditors when the level of fraud risk varies.	Requiring the IAF of an organization to report directly to the AC may not be a wise solution for internal auditor independence or objectivity threats. Internal auditors decrease their assessments of risk when the results of risk assessments are reported directly to the AC, relative to when the results are reported to management. Internal auditors believe that management poses the greatest threats when internal auditors report high levels of risk to the AC without first working with management to mitigate the risks. Taken together, internal auditors' beliefs and perceptions lead them to be more concerned about reporting risk to the AC than they are concerned about reporting risk to management.

Table 2.13:
Summary of Prior Studies on Internal Audit Quality Attributes – IAF Communication and Monitoring: Chronological Date Order

No.	Author/s (Year)	Country	Period of Study	Sample Size	Theory/Design	Auditing Standards/ IAQ Attributes	Objective/Research Question(s)	Main Results
1	Lin, S., Pizzini, M., Vargus, M. and Bardhan, I.R (2011)	Global Auditing Information Network (GAIN) survey data	2003-2004	1,356 responses	Questionnaire	Section 404 of the Sarbanes-Oxley Act. Experience, education, certification, training, CAE reports to AC, CAE Officer, iasize, fieldworkqa, iagrade, financialfocus, followup, coordination.	Investigates the role that a firm's internal audit function (IAF) plays in the disclosure of material weaknesses (MW) reported under Section 404 of the Sarbanes-Oxley Act of 2002.	The nature and scope of IAF activities are more strongly associated with MW disclosures than the IAF attributes of competence, objectivity, and investment. Among IAF attribute measures, only the education level of the IAF is significantly associated with MW disclosures. MW disclosures are negatively associated with the extent to which the IAF uses QA techniques in fieldwork, audits activities related to financial reporting, and follows up on previously identified control problems. The year-end timing of most Section 404 work and the nature of follow-up procedures suggests that these activities are more likely to be preventative rather than detective. MW disclosures are positively related with both IAF grading of audit engagements and external-internal auditor coordination. These activities increase the effectiveness of Section 404 compliance processes by facilitating risk assessment, consistent with the risk-based approach promoted by regulatory guidance (SEC 2007; PCAOB 2005, 2007a).

Table 2.14:
Summary of Prior Studies on Internal Audit Quality Attributes – Quality Review: Chronological Date Order

No.	Author/s (Year)	Country	Period of Study	Sample Size	Theory/Design	Auditing Standards/ IAQ Attributes	Objective/Research Question(s)	Main Results
1	Favere-Marchesi, M (2000)	Association of Southeast Asian Nations (ASEAN)	Not stated	15 professio-nal and governmental bodies plus the ASEAN Federation of Accountants	Questionnaire	Quality Review.	Explores audit quality (AQ) in ASEAN from an analysis of the legal environment faced by statutory auditors.	In ASEAN countries, many differences were observed in the competence requirements of auditors, the requirements regarding the conduct of statutory audits, and the reporting obligations. AQ in some countries is seriously compromised due to a lack of rules ensuring auditors' independence. Some ASEAN countries do not provide an incentive for statutory auditors to provide quality audit services.
2	Sarens, G., Abdolmohammadi, M.J., Lenz, R(2012)	US	2006	782 CAEs from CBOK	Hypotheses tests	IIA.	Investigate several variables that are theoretically associated with the IAF having an active role in corporate governance.	An IAF having an active role in corporate governance is significantly and positively associated with the use of a risk-based audit plan, existence of a quality assurance and improvement program, and audit committee input to the audit plan. Control variables such as stock exchange listing, firm size, the existence of an internal control framework, and a CAE with an internal auditing qualification also are positively associated with the IAF having an active role in corporate governance.

CHAPTER THREE:
THEORETICAL AND HYPOTHESES DEVELOPMENT

3.1   OVERVIEW OF THE CHAPTER

Chapter Two reviews the IAQ attributes in mitigating financial distress risks and identifies the underpinning institutional theory to this study. It also provides the background to the association between internal auditing and the regulatory environment in Australia before detailing the prior literature on financial distress and internal audit quality attributes.

This chapter discusses the theoretical framework of this study and the empirical literature relating to the research questions. The theories underpinning the concept of internal auditing are discussed and compared: namely agency theory; resource dependency theory; and "systems-oriented theories" (that is, legitimacy theory, stakeholder theory and institutional theory). Subsequently, the influence of five selected IAQ attributes (there are seven proxies since one attribute (that is, auditor competence) has three proxies) on financial distress is outlined before the research questions of this study provided. The empirical literature relating to each of the five key IAQ attributes (one has three proxies) examined in this study is then discussed and the justification for each auditor attributes expected relationship to audit fees detailed. Subsequently, a conceptual schema is provided outlining the key relationships examined in this study.

3.2   THEORETICAL PERSPECTIVE – INTERNAL AUDITING

"The establishment, growth, and evolution of the contemporary internal auditing profession is closely intertwined with the history of the IIA, an organisation founded in the United States in 1941" (Ramamoorti 2003 p.2). There is evidence to suggest that systems of checks and balances, and counter-checks existed as far back as the Zhou dynasty (周朝) in China (1046-256 BC), in Babylonia, Greece, the Roman Empire, and the City States of Italy institutionalised by the respective governments (Ramamoorti 2003). The "emergence of double-entry bookkeeping in the Fifteenth Century can also be directly traced to the critical need for exercising stewardship and control" (Ramamoorti 2003 p.3).

Within the six decades after the IIA's incorporation, it appears that "academic researchers have largely ignored internal audit as an organizational control function" (Spraakman, 1997 p.323) despite its acceptance in professional practice. This lack of research interest has impeded the establishment of a collective theory (or theories) (Spraakman 1997 p.323). "Compared to external audit, internal audit has been charged with having no theory to guide academic research and practice" (Spraakman 1997 p.323).

In 2002, the IIA revised the definition of internal auditing in its IIA's Professional

Practices Framework to state:

> "Internal auditing is an independent, objective assurance and consulting activity designed to add value and improve an organization's operations. It helps an organization accomplish its objectives by bringing a systematic, disciplined approach to evaluate and improve the effectiveness of risk management, control, and governance processes."

This definition suggests that internal auditors accept broad responsibility towards the firm and its stakeholders including the other two players in the tripartite audit function (Institute of Internal Auditors 2002). In order to assist firms to achieve their business and control objectives (measures of corporate effectiveness), internal auditors as stakeholders must have access to the necessary quality attributes institutionalized within the IIA Charter, and other professional and legislative enforcement agencies in order to fulfill their responsibilities.

There are three principal theories underpinning the internal audit quality research literature: agency theory, resource dependency theory, and "systems-oriented theories" (that is, legitimacy theory, stakeholder theory and institutional theory) (Deegan 2009). The following sub-sections discuss each theory and their links with the internal auditing.

3.2.1 Agency Theory

Brennan and Solomon (2008) observe that agency theory is predominantly referred to in relation to the following post 1941 global IAQ studies: Wallace and Kreutzfeldt (1991); Adams (1994) and Christopher, Sarens, and Leung (2009). In the US, Wallace and Kreutzfeldt (1991) use agency theory to identify characteristics that could potentially influence the choice to create an IAF because this theory explains why managers, as well as third parties, require monitoring. Adams (1994) uses agency theory to explain the provision of an independent assurance role and responsibilities assigned by the IAF similar to the role of external auditor. Spraakman (1997 p.323) applies transaction costs economics theory, a variation of agency theory, to deduce the effectiveness of IAF "arguing that internal audit assists managers in cost economizing".

Agency theory, a part of the positivist group of theories which is derived from the financial economics literature, applies to any relationship between a person who delegates work (principal) and the person to whom the work is delegated (agent) (Jensen and Meckling 1976; Eisenhardt 1989). There is a possibility that interests of the principal and agent will diverge resulting in under-performing of the agent, which is termed an agency loss (Jensen and Meckling 1976). Adverse selection arises when the principal/owner(s) does not have access to all available information at the time a decision is made by a manager (that is, information asymmetry) and is thus unable to determine whether the manager's action is in

the best interests of the firm (Scapens 1985).

Corporate governance structures (example, BoDs, audit committees and the external auditor) are mechanisms to reduce agency conflicts by operating to reduce agency costs and protect shareholders from conflicts of interest (Fama and Jensen 1983). Internal audit, together with other mechanisms, (for example, audit committees) bond the contractual relationship between principals and agents. While the independent external auditors provide assurance to the shareholders on the quality of the financial statements, it is the independent IAF that provides assurance to the BoDs, via the audit committee (Christopher, Sarens, and Leung 2009). It is in this context that agency theory provides the basis for explaining the independent role and responsibilities assigned to the IAF (Adams 1994). Internal audit can also help principals to overcome the information asymmetry problem and to monitor the activities of agents businesses cost-efficiently (Adams 1994).

As discussed in section 2.6 above and the findings by Brennan and Solomon (2008), the IAQ literature predominantly uses agency theory. For example, Wallace (1980); Wallace and Kreutzfeldt (1991); Watkins, Hillison, and Morecroft (2004); Hoitash, Hoitash, and Bedard (2009); and Christopher, Sarens, and Leung (2009).

3.2.2   Stewardship Theory

Derived from psychology and sociology, stewardship theory provides a theoretical concept to examine the circumstances related to managers' motivation as faithful "stewards" (that is, perform in the best interests of principals or loyal managers' objectives are aligned with that of the principals') (Donaldson and Davis 1991; Davis, Schoorman, and Donaldson 1997). Distinct from agency theory, stewardship theorists posit that executive managers want to be good stewards of a firm's resources rather than capitalizing from opportunities while in the position of power, which implied that the absence of inner motivational problems among executives (Donaldson and Davis 1991; Davis, Schoorman, and Donaldson 1997). Stewardship theory highlights the "organisational role-holders are conceived as being motivated by a need to achieve, to gain intrinsic satisfaction through successfully performing inherently challenging work, to exercise responsibility and authority, and thereby to gain recognition from peers and bosses" (Donaldson and Preston 1995).

3.2.3   Resource Dependency Theory

Albeit there are some who regard corporate governance as an unavoidable annoyance (that is, the hegemonic perspective), there are others who present a resource dependence perspective (Baker and Owsen 2002). Resource dependency theory maintains that key corporate governance mechanisms such as the BoDs, audit committee, and external

auditor are essential links between a firm and the essential resources which the firm needs to maximize performance and thus considered key determinants of success (Pfeffer and Salancik 1978; Hillman and Dalziel 2003). There is a clear theoretical argument that a BoDs with high levels connections to the external environment will provide the firm with a higher level of access to various important and necessary resources (Singh 2010).

While agency theorists "assert that effective monitoring is a function of a board's incentives", resource dependence theorists contend that "the provision of resources is a function of board capital" (Hillman and Dalziel 2003 p.383). Agency theory's value lies in justifying the context of relationships between the corporate governance schema while the resource dependency theory's governance schema is largely embedded in another theoretical context (Udayasankar 2008). The resource dependence view of corporate governance is that various elements of corporate governance, including internal audit, can act as critical resources for a firm leading to the generation of or enhancing access to resources (Pfeffer and Salancik 1978; Udayasankar 2008). The existence of an IAF is dependent of resources provided by management and relatively well-funded IAFs should have greater ability to monitor firm transactions (Prawitt, Smith, and Wood 2009).

3.2.4 Systems-Oriented Theory

As discussed in Chapter Two, the capital market knowledge is dependent on firms disclosing information about their target debt-ratios, risk-profile and any other information that may lead to the determination of financial distress risks. There are a number of theoretical arguments explaining the reasons why firms might choose to do so, which are grounded within the Watts and Zimmerman (1990)'s Positive Accounting Theory (PAT).[24] A system-based perspective could be used to further explain these phenomena (Deegan 2009). Within a system-based perspective, the firm is assumed to be influenced by, and in turn to have an influence on, the society in which it operates. According to Gray, Owen, and Adams (1996 p.45) (cited byDeegan 2009 p. 320), "…a systems oriented view of the firm and society…permits us to focus on the role of information and disclosure in the relationship(s) between firms, the State, individuals and groups". In this context, legitimacy theory, stakeholder theory and institutional theory are sometimes referred to as "systems-oriented theories" (which are also referred to as "open-system theories") (Deegan 2009).

3.2.4.1 Legitimacy Theory

Suchman (1995 p. 574) defines legitimacy as "a generalized perception or assumption that the actions of an entity are desirable, proper, or appropriate within some

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[24] The development of PAT is crucial to the work related to Efficient Markets Hypotheses by Fama (1970).

socially constructed system of norms, values, beliefs and definitions". Legitimacy theory relies on the notion that there is a non-definable social contract between the firm in question and the society in which it operates (Deegan 2009). Rather, the employment of legitimation strategies to deal with legitimation threats with an aim to either gain, maintain or repair legitimacy (Lindblom 1994).

In ensuring their survival and their legitimacy, firms have access to resources and must conform to rules and regulations (Al-Twaijry, Brierley, and Gwilliam 2003). These rules and regulations, though, do not necessarily ensure that they continue to operate efficiently (Meyer and Rowan 1977; DiMaggio and Powell 1983; Scott and Meyer 1983). But, what society desires is that a "firm's profit is viewed as an all-inclusive measure of organisational legitimacy, however, society expectations have undergone significant change in recent decades" (Deegan 2009 p.325).

Consistent with resource dependency theory, the supply of legitimate resources is vital to firm survival (Pfeffer and Salancik 1978) and as a result, it will continue to adopt strategies to ensure that there is a continuous supply of resources. As an entity within a firm, the IAF, to obtain access to the firm's resources which is not an inherent right, needs to contribute to the effectiveness of corporate governance which in turn can impact positively on financial reporting quality.

3.2.4.2 Stakeholder Theory

Agency theorists view the firm in the context of the manager serving the shareholder, while stakeholder theorists debate that managers of firms have a number of additional relationships (that is, stakeholders) to serve. Stakeholder theory has both an ethical (moral) or normative branch (also considered prescriptive) and a positive (managerial) branch (Deegan 2009). The ethical or moral branch argues that all stakeholders have the right to be treated fairly by a firm, and individual stakeholder power is irrelevant (Deegan 2009). Unlike legitimacy theory, which discusses societal expectations, the positive (managerial) branch considers the firm from a much broader perspective including other potential stakeholders such as creditors, employees, regulators and public opinion as a whole. Each has the potential to impact the firm and be impacted by it. The fundamental argument is that society provides the social structure and framework in which firms can prosper, and in return firms that ignore society or key members of society will threaten the equilibrium between the firm and society (Donaldson and Preston 1995; Deegan 2009). The central core of stakeholder theory assumes that managers and other agents act as if all stakeholder interests have intrinsic though not necessarily equal value (Donaldson and Preston 1995). Consequently, stakeholder theory rejects the assumption that the sole important relationship is that between principals (owners)

and agents (managers) because it offers a framework for determining the structure and operation of the firm that is cognisant of the numerous co-contributors who seek multiple and sometimes diverging goals (Donaldson and Preston 1995). In such a stakeholder setting, internal audit plays an important role in the firm's corporate governance practices and therefore is one of the key strategies to help firms recognise, appreciate and effectively manage different stakeholder relationships.

3.2.4.3 *Institutional Theory*

DiMaggio and Powell (1991), rejecting the rational-actor models/theories of classical economics, define new institutionalism as an emerging perspective in organization theory and sociology. By analysing the properties that cannot be reduced to aggregations or direct consequences of individuals' attributes or motives, new institutionalism seeks cultural explanations of social and organisational phenomena. That is, institutional theory focuses on institutional factors or pressures that lie beyond organizational boundaries rather than individual self-interest motives per se (Hoffman 1999). These factors or environmental pressures, which the managers within firms are powerless to resist over the long-term, even where the self-interest motives of managers are opposed to the decision imposed by the institutional environment (Singh 2010). By focusing on the deeper and more resilient aspects of social structure, institutional theory considers the processes by which structures, including schemas, rules, norms, and routines, become established as authoritative guidelines for social behaviour (Scott 1995). Different components of institutional theory explain how these elements are created, diffused, adopted, and adapted over space and time; and how they fall into decline and disuse.

There are two dimensions to institutional theory: isomorphism and decoupling (Deegan 2009). DiMaggio and Powell (1983 p.149) define isomorphism as "a constraining process that forces one unit in a population to resemble other units that face the set of environment conditions". They assert that a process of isomorphism can take place in three ways: coercive isomorphism, mimetic isomorphism and normative isomorphism. Isomorphic forces on firms include: (1) To adopt similar characteristics through the desire to organise themselves in a manner that is similar to other firms in the same environment; and (2) As operating within a nexus of norms, values and assumptions about what constitutes appropriate or acceptable economic behaviour (Oliver 1997).

Scott (1987) identifies four formulations of institutional theory based primarily on the work of earlier theorists: (1) Process of instilling value in a firm (Selznick 1957); (2) Process of creating a social reality, which is seen as validly independent of an individual's own accepted views (Meyer and Rowan 1977; Zucker 1987); (3) Premise that firms conform

to multiple institutionalised belief systems because they are rewarded for doing so with increased legitimacy, resources and survival capabilities (DiMaggio and Powell 1983; Scott and Meyer 1983); and (4) Traditional view of institutions, which focuses on patterned human activities that arise and persist in all situations (Scott 1987). In order to survive, firms must conform to the rules and belief systems prevailing in the environment (Meyer and Rowan 1977; DiMaggio and Powell 1983) because institutional isomorphism, both structural and procedural, will earn the organisation legitimacy (Dacin 1997). Social, economic, and political factors constitute an institutional structure of a particular environment, which provides firms with advantages for engaging in specific types of activities. Businesses tend to perform more efficiently if they receive institutional support. It is expected that companies operating in different countries with varying institutional environments will face a diverse range of institutional pressures.

The key attribute of institutional theory lies in its ability to highlight the distinction between what organizations actually accomplish and what their structures suggest to the external environment they should accomplish for legitimacy conferment (Fogarty 1996; Deegan 2009). Firms may be decoupled, whereby they exhibit to the external environment that they are operating in line with expectations; whereas internally they are not actually following the operating procedures expected by the external environment (Meyer and Rowan 1977). Decoupling is distinguished between the concepts of tight-coupling and loose-coupling (Orton and Weick 1990).

Although the study by Sarens, De Beelde, and Everaert (2009) uses comfort theory and nursing theory, it makes reference to institutional theory and agency theory. Examples of studies on IAQ that use institutional theory are by Al-Twaijry, Brierley, and Gwilliam (2003); and Christopher, Sarens, and Leung (2009).

Al-Twaijry, Brierley, and Gwilliam (2003 p.507) use institutional theory to interpret the inadequate development of internal audit and suggest that (in Saudi Arabia) the "state should play a more coercive role by encouraging organizations to establish internal audit departments and organize their activities in the manner specified in internal audit standards" (p.507).

In the US, the IIA standards, the enactment of the Sarbanes-Oxley Act (2002) and the listing requirements imposed by NYSE and NASDAQ institutionalise the necessary skills that internal auditors should acquire to be effective. The outsourcing and co-sourcing of IAA arrangements that commonly occur may suggest that there is a combination of explanatory processes, namely agency, stakeholder and stewardship theories, with the over-arching of

institutional theory, processes that draw on the expertise and experience of external auditors.[25] Within a corporate context, internal audit fulfils its role (i.e., supports effectiveness in its various guises) as part of a tripartite governance function. At the same time, the underlying theoretical constructs provide an even broader associative connection, namely with management, with which it has been traditionally bonded.

3.2.5   Critical Analysis of Institutional Theory with Other Theories

Theories are only abstractions of reality and therefore a particular theory or theories cannot be expected to provide a full account or complete description of particular behaviour (or simply a partial view) (Deegan 2009). With this assertion, the justification of the use of institutional theory, rather than others (that is, agency theory, resource dependency theory, legitimacy theory or stakeholder theory) in this study depends primarily on a desire to determine whether the presence of an IAF adopting the appropriate IAQ attributes promoted by professional bodies and practices will help to lower the likelihood of financial distress within particular institutions. Both IAQ attributes and financial distress models have been institutionalised by the IIA and IIARF, suggesting their adoptions are crucial to improve the effectiveness of the IAF.

3.2.5.1 Financial Distress

The use of financial ratios in predicting business failure admittedly lacks any theory that could guide the selection of financial ratios to be entered in a failure model (Ball et al. 1982; Gilbert, Menon, and Schwartz 1990), let alone a theory that could be established to justify the use of firm failure prediction models. However, ratios utilisation can be viewed from normative and positive perspectives (Courtis 1996) where the normative approach focuses on measurement and comparison of financial ratios, and the positive approach focuses on applying financial ratios for obtain signals about possible firm collapsing. The positive approach also focuses on applying financial ratios to obtain indications to suggest that firms have effectively managed financial distress gain stakeholder confidence which is highly likely to lead to an improvement in market capitalisation.

3.2.5.2 Internal Audit Quality

Although there is a body of literature that has used agency theory to examine the role of the external auditor, ~~only a few researchers have applied~~ research in internal auditing

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[25] The IIA's governance definition: Governance processes deal with the procedures utilized by the representatives of the organization's stakeholders to provide oversight of risk and control processes administered by management. The **monitoring** of organizational **risks** and the **assurance** that **controls** adequately mitigate those risks both contribute directly to the achievement of organizational **goals** and the preservation of organizational **value**. Those performing governance activities are **accountable** to the organization's **stakeholders** for effective **stewardship** (Hermanson and Rittenberg 2003a).

is predominantly using agency theory and institutional theory (Adams 1994; Carcello, Hermanson, and Raghunandan 2005; Mihret and Yismaw 2007; Sarens and Abdolmohammadi 2011). In recent time, there are calls to use multi-theoretical or non-agency theoretical framework in internal auditing research (Fadzil, Haron, and Jantan 2005; Mihret, James, and Mula 2010; Mihret 2014). Agency theory is criticised because within it a well-functioning firm as per the Efficient Markets Hypotheses (refer to section 2.2 above) is assumed to minimise agency costs (Deegan 2009). As discussed in Chapter Two, researchers such Lan and Heracieous (2010), and Christopher (2010) have reported problems with the use of agency theory specifically relating to managers pursuing their own interests rather than the interests of the shareholders. While the independent external auditors provide assurance to the shareholders on the quality of the financial statements, it is the independent IAF that provides assurance to the BoDs, via the audit committee. The agency problem of corporate governance arises from the separation of ownership and control in modern listed firms (Jensen and Meckling 1976) that may impact on the independence and hence the objectivity of the IAF.

Resource dependency theory suggests that internal resource allocations and senior management coalitions are important aspects of organisational effectiveness and the provision of a "window into the organization for increasing transparency, legitimacy and trust…" and "institutional theory suggests that firms conform to external expectations by developing formal rules and guidelines as well as isomorphic structures" (Griffin and Dunn 2004 p.197). Combining resource dependency and institutional theories allows an examination of how internal resources and structures shape the "boundary-spanning activities" of a firm's governance relating to transparency, legitimacy and trust (Griffin and Dunn 2004 p.197).

In relation to corporate social responsibility disclosure, the stakeholder theory's managerial variety does not prescribe what useful information should be disclosed about the firm as an on-going concern (Deegan 2009). Such an assertion is consistent with the view of (Singhvi and Desai 1971) who report that there are variations in relation to the disclosure of information to the investing public because of the wide discretion of management drawing on a variety of managerial philosophies. The social expectations in response to recent corporate scandals has increased the pressure on management to ensure that a firm is governed efficiently, effectively and economically for the benefit of shareholders especially through the efforts by the government and professional bodies (Christopher, Sarens, and Leung 2009). Based on this argument, the firm management and control structures tend to conform to social expectations through the implementation of a range of control and compliance requirements. An important component of the management control structure is an IAF with the appropriate quality attributes, which is used by the BoDs (through the audit committee) and management to fulfil responsibilities in line with social expectations (Christopher, Sarens, and Leung

2009).

Ever since first labelled by Meyer and Rowan (1977), institutional theory has been applied to a variety of studies related to corporate governance (Singh 2010), accounting issues (Fogarty 1996) including auditing (Rollins and Bremser 1997; Al-Twaijry, Brierley, and Gwilliam 2003; Christopher, Sarens, and Leung 2009). Institutional theory considers how environmental influences, institutional and firm pressures, which can be political, regulatory or legal in nature (Singh 2010), constrain a manager's selection of accounting processes. Constraints exist on the choices that managers make in the accounting arena and there can be institutional pressures to conform or resist accounting and auditing practices endorsed by the profession.

Institutional theory provides a complementary perspective to both legitimacy theory and stakeholder theory to researchers particularly in understanding how firms respond to changing social and institutional pressures and expectations (Rollins and Bremser 1997; Deegan 2009). During market uncertainties in particular, DiMaggio and Powell (1983) suggest that, as a result of institutional pressures, organizations adopt similar characteristics through the desire to organize themselves in a manner that is similar to other organizations in the same environment.

Coercive isomorphism consists of those pressures exerted to establish quality IAFs within organizations (Al-Twaijry, Brierley, and Gwilliam 2003) and *coercive forces* are related to the compliance with laws and regulations (Lenz and Hahn 2015). Coercion takes place through mechanisms of authority, legitimation and the power to compel firms to establish quality IAFs that not only review the adequacy of internal control systems but also engage in a wider review of the economy, efficiency and effectiveness of the organization's activities and their effect on organizational performance (Al-Twaijry, Brierley, and Gwilliam 2003). In Australia, through enforcement bodies such as the ASX CGC, a principles-based approach to governance has emerged that encourages strong corporate governance processes, which permits companies the scope to decide whether or not to create IAFs and to this date a large numbers of listed companies in Australia appear to have taken this path (Carey, Simnett, and Tanewski 2000).

DiMaggio and Powell (1983) argue that mimetic isomorphism is a process of change initiated internally by the firm. In the context of this study, mimetic isomorphism will take place when firms perceive that the IAF with the appropriate quality attributes will contribute to an improvement in operations that will have a positive impact on performance leading to IAF recommendations being adopted (Al-Twaijry, Brierley, and Gwilliam 2003). As a result, mimetic isomorphism will take place when IAFs perceive that their IAAs contribute in assisting the firm and its BoDs (and audit committee) achieving its control objectives and

fulfilling their fiduciary duties respectively.

Normative isomorphism relates to the pressures arising from group norms to adopt institutional practices (Deegan 2009). In the case of internal auditing, *Normative forces* show their impact through the degree of conformance with the IIA IPPF there is an expectation that auditors will comply with standards when fulfilling their roles in a professional and ethical manner (Lenz and Hahn 2015). To legitimise IAAs, professional bodies expect their members will demonstrate their expertise to the benefit of others (Al-Twaijry, Brierley, and Gwilliam 2003). For firms facing financial distress, IAAs that are not standards compliant and/or common practices may attract criticism and/or considered non-legitimate. In this way the IIA can carry out the process of institutionalization through the diffusion of information pertinent to internal auditing for the benefit of users.

3.2.5.3   *Selection of Theory*

At best, the "studies of auditing that draw on wider theoretical resources can help to position auditing in the wider space of the social sciences" (Power and Gendron 2015). The theory most relevant to the current study is institutional theory given that the focus is on examining the extent of the association between internal auditor quality attributes and financial distress. The core benefit from an internal audit is the ability auditor to provide independent assurance to a client on the integrity and fairness of the presented financial information. The existence of an IAF is strongly premised on agency theory, based on the concern about information asymmetry arising between principals and agents, and the differing interests (such as financial rewards and employment opportunities). As a consequence, agents may pursue self-interest motives to the detriment of the firm and the principals (Jensen and Meckling 1976). However, this study's epistemological approach is not primarily about addressing information asymmetries and differing motivations between the agent and the principal.

The resource dependency theoretical approach may be relevant to this study since it is viewed as a "potent form of coercive institutional pressure for change" that was associated to the US GAAP (Carpenter and Feroz 2001). However, institutional theory is considered the more dominant theory because it is "complementary to economic theory in general and resource dependency theory in particular" (Carpenter and Feroz 2001 p.565). The major concern in this study is the establishment of an IAF with IAQ attributes likely to assist the BoDs (through the audit committee) and management in discharging their fiduciary duties. As the literature on IAF suggests, the recent well publicised wave of accounting scandals confirm that auditing matters (DeFond and Francis 2005) and various research studies recently have also confirmed the importance of internal auditing in enhancing governance. It can then

be argued that not only the institutionalization of the IAF within firms to meet social expectations has resulted from coercive isomorphism, IAFs endeavour to become more effective in the corporate governance arena by adopting IAQ attributes encouraged by professional bodies is therefore presented as an argument in favour of mimetic and normative isomorphism. The interests of shareholders have been strengthened over time, especially through efforts by the government and professional bodies (Christopher, Sarens, and Leung 2009).

For internal auditing to be a value-added activity, it is important the IAAs are institutionalised in terms of complying with professional accounting, information systems and auditing standards issued by the various professional bodies such as the CA/CPA, IIA, and ISACA.[26] Since internal auditing is not mandated in Australia, the ASX listed firms that are also listed in the US stock exchanges are required to set up IAFs to comply with the Sarbanes-Oxley Act (2002). It can then be posited that institutional theory (rather than agency, stewardship and stakeholder theories) has greater ontological significance. For an IAF to be legitimately recognised as a value-adding function to the firm, it is imperative that it complies with various internal auditing standards to enhance effectiveness. Likewise, for a firm to be demonstrating societal norms (e.g., regulations and standards), a process of isomorphism takes place whereby firms assume similar characteristics through coercive, mimetic and normative forces (DiMaggio and Powell 1983). Meyer and Rowan (1977); DiMaggio and Powell (1983); and Scott (1987), draw on institutional theory and posit that organisational management and control structures tend to conform to social expectations due to the escalated demand of accountability of shareholders in response to the accounting scandals. Institutional theory provides an explanation of the understanding of conforming and legitimating processes of internal auditing standards compliance, which can justify the establishment of an IAF possessing appropriate IAQ attributes. Christopher, Sarens, and Leung (2009) uses Australian firm data to highlight the agency theory related problem when arguing that the influence of management on the IAFs, for example, in approving IAF budgets and plans, may threaten the IAFs' independence.

3.2.6   Epistemological Foundations

The avoidance of financial distress does not necessary imply that an IAF need to be institutionalised within a firm. Effective corporate government mechanisms may be acting independently to mitigate risks associated to financial distress. Therefore, it is not necessary or sufficient that the physical presence of an IAF will reduce the likelihood of financial distress because some companies do have an IAF for a variety of reasons.

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[26] Internal auditors to comply with the Standards for the Professional Practice of Internal Auditing (SPPIA).

To address the research questions, the epistemological stance is one requiring a pragmatic paradigm because data collection process to be utilised is based on a "mixed method research".[27] First, the research will involve a subjective analysis of social phenomena and include the study of what is happening in a workplace environment. A conceptual model (see Figures 3.1, 3.2 and 3.3 in Section 3.5 below) is fashioned and examined within a realistic context involving the IAF and IAQ attributes of a sample of firms with IAF. To this end, the investigation is in-depth and qualitative. Saunders, Lewis, and Thornhill (2009 p.121) describe such an investigative approach as "…understanding the fundamental meanings of organisational life". The qualitative data collected individually as IAQ attributes, if any, will be "quantified" (Saunders, Lewis, and Thornhill 2009 p.153) into a form that can be used to provide "a priori" for subsequent IAQ measurement. The financial data (that is, quantitative data) of firms that will be extracted from proven available databases will depend on a firm's response to the survey. This will enable the IAQ measurements to be compared with the financial distress measurements on a firm to firm basis. Sections 3.3 and 3.4 below discuss the form and nature of the research instrument that will be used to address the principal question and will take into consideration the IAQ attributes.

Table 3.1 at the end of this chapter provides evidence on various ontological premises that determine the way IAF and IAQ, and firm effectiveness factors are evaluated and that certain factors are interrelated in terms of their influence on performance depending on the objectives they serve. For example, the IAQ factor audit independence serves to identify probable performance measures, regardless of whether agency or institutional theory is used to underpin the empirical investigation and analysis. Table 3.1 connects the IAQ related academic literature (discussed in this chapter) to the relevant epistemological foundations and tests the effectiveness of internal audits based on IAQ constructs (or attributes). It lists the theories, IAQ attributes and constructs (that is, independent variables), effectiveness of firm performance (that is, dependent variables), methodology and related research. Before discussing the attributes of IAFs in detail, it would be useful to reflect on the apparent range and scale of the responsibilities borne by an effective IAF. As reflected in the ontological arguments presented in Table 3.1 and demonstrated by the applicable theoretical premises, the bailiwick of an IAF is expansive. Therefore, it is appropriate to view IAFs as making a realistic contribution to corporate effectiveness that is necessarily supported and encouraged by the other members of the audit trinity. There are limited benefits associated with IAFs acting alone.

The various ontological premises listed in Table 3.1 provide an array of possibilities

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[27] "Uses quantitative and qualitative data collection techniques and analysis procedures…one after another…" (Saunders, Lewis, and Thornhill 2009 p.152).

that affect the way IAQ attributes (independent variables) and firm effectiveness (dependent variables) factors are evaluated, and indicate that certain factors are interrelated in terms of their influence on firm performance, depending on the objectives they serve. Although Table 3.1 suggests various models, these are not meant to be exhaustive. For example, the role of the risk management committee (if it exists) may contribute significantly to ensuring internal controls are optimized with or without IAF involvement. In some instances, risk management functions may be embedded within the organization or alternatively within the IAF itself. They may play a major role in establishing strategies to avoid financial mismanagement and distress and must be considered within the mix of particular research agendas.

3.3 INFLUENCE OF INTERNAL AUDIT QUALITY ATTRIBUTES ON FINANCIAL DISTRESS

Prawitt, Smith, and Wood (2009) present a set of IAQ attributes, as per US Statement of Auditing Standards (SAS) No. 65, in the belief that there are the drivers associated with earnings management. The IIA has established the IPPF and has over time improved it. Recent IAQ research has embraced to a large extent the criteria specified in IPPF standard because of the expanding role of internal audit, which in recent years has evolved from a narrow focus on control to include risk management and corporate governance (Goodwin-Stewart and Kent 2006b). This study adopts a similar expansive analysis, using a number of attributes to proxy for IAQ.

As highlighted in section 1.3 above, given the gaps in the literature in relation to examining IAQ attributes and financial distress from a composite perspective and using a longitudinal time horizon, the results from this study will provide good indications as to whether the presence of an IAF, which possesses quality attributes will reduce the likelihood of financial distress.

This study investigates in Australia context both the association between: (1) an existence of an IAF and financial distress during a three-year time frame; and (2) IAQ attributes and financial distress during a two-year time frame, to determine if there is any evidence that the presence of an IAF or an IAF with quality attributes reduces the likelihood of financial distress. A two-year time frame study is used in part 2) because of concerns that CAEs may not have the data readily available to answer the survey questions over three years. A three-year time frame study is used in part 1) in case there is a need to check whether or not the presence or absence of an IAF in the firm in its first year contribute to mitigation of financial distress risk.

Prior empirical literature has only evaluated a subset of up to four IAQ attributes over a single financial period. This study will, however, evaluate five important IAQ attributes

individually, and aggregately across a three and two-year observation window when examining the impact on financial distress.

As discussed in section 1.1 above, the body of literature on IAF and/or IAQ, and financial distress continues to grow but no empirical evidence can be found of the impact of IAF possessing IAQ attributes impacting financial distress. Statements provided by many researchers (see sections 1.1 to 1.3 above) and various institutional agencies espouse the virtues of an efficient independent IAF that plays a role in effective corporate governance, but whether they can be verified by empirical analysis remains in question. The current evidence is fragmentary and unconvincing and that a wealth of opportunities remains unexplored. Consequently, for the purposes of this study, the following are two of seven hypotheses stemming from the research questions discussed in section 1.3 above:

> H_1: *Firms with an internal audit function will be less likely to suffer financial distress.*

> H_2: *Firms with an internal audit function that embodies appropriate IAQ characteristics reduce financial distress.*

Refer to section 3.4.1 below for the hypotheses relating to IAQ attributes.

3.4 KEY INTERNAL AUDIT QUALITY ATTRIBUTES AND IMPACT ON FINANCIAL DISTRESS

This study examines the influence of three pivotal IAQ attributes based on the US SAS No. 65 and three others based on the IIA's IPPF. The three SAS No. 65's IAQ attributes of interest are: (1) Objectivity (and independence); (2) Competence (proxies are auditor's certification, length of internal auditing experience, and continuing professional training annually); and (3) Work performance (nature of IAF work relating to financial distress risks assessment). The other three IAQ attributes form the IIA IPPF are: (1) IAF Size; (2) IAF Communication and Monitoring; and (3) IAF Quality Assurance Review. As discussed in sections 2.7.1 to 2.7.5, the six IAF attributes are selected because the attributes have also been cited in the extant literature as having a significant influence on IAQ (Goodwin and Teo 2001; Gramling et al. 2004; Mat Zain, Subramaniam, and Stewart 2006; Prawitt, Smith, and Wood 2009; Leung, Cooper, and Perera 2011; Alzeban and Sawan 2015; Abbott et al. 2016). Hypotheses related to the six IAQ attributes are individually developed in the following sub-sections.

3.4.1 Internal Audit Quality: IAF Independence

As stated in section 2.7.1 above, the independence of the IAF is the cornerstone of the profession. Both the US SAS No. 65 and IIA IPPF discuss its importance and must be

managed at the individual auditor, engagement, functional and organisational levels. The IAF, in turn, assists the audit committee in ensuring quality reporting by management. Further, the ASX Principle 3.4 states that all internal audit work should be reported to the audit committee.

The extant literature discussed in section 2.7.1 above on this subject mentions that the external auditors regard IAF independence as the most important criterion. Further, the organisational independence of the IAF is premised on its relationship with the audit committee to which it reports. The independence of the IAF enhances objectivity of IAAs thereby will report any symptoms about financial distress. Hence, the following hypothesis is proposed to test the association between an independent IAF and financial distress:

H_3: *Firms with an independence internal audit function will be less likely to suffer financial distress.*

3.4.2 Internal Audit Quality: Internal Auditor Competence

The IIA's Policy agenda issued in February 2010 recommends that all Internal Auditors must be certified, which will improve the effectiveness of the IAF. Researchers who consider auditor competency as an important IAQ attribute. Further, the external auditor's evaluation of internal auditors is based on the IAF's emphasis on professional certifications, regular training program, and CPE.

As discussed in section 2.7.2 above, it can be posited that the more competent the internal auditors, the more likely they are to: (1) Carry out their work with due professional care; (2) Understand the business risks that could underlay symptoms of financial distress; and (3) Provide recommendations which are deemed effective by management on financial distress risks mitigation. Hence, the following hypothesis is proposed to test the association between IAF competency and financial distress:

H_4: *Firms with a technically and professionally competent internal audit function will be less likely to suffer financial distress.*

3.4.3 Internal Audit Quality: IAF Scope of Work – Perform Risk Assessment

As discussed in section 2.7.4 above, external auditors need to evaluate the nature of work completed by the internal auditors. The scope of IAF audits is the most important criterion describing work performance. Attribute Standards 1220.A1 and 1220.A3 state that internal auditors must exercise due professional care by considering, among other things, the adequacy and effectiveness of governance, risk management and control processes, and internal auditors must be alert to the significant risks that might affect the firm's objectives, operations, or resources respectively. Substantiating that a sound corporate governance framework present not only fulfills the requirements of these attribute standards but also

fulfills the requirements of the revised ASX Principle 7 (refer to section 2.6.4 above). The risk assessment requirements are further supplemented in the IIARF paper by Wallace (2004) encouraging internal auditors to apply financial distress models such as the Altman Z-Score model, Zmijewski ZFC-Score model and others.

Furthermore, researchers find that the association between IAF and the level of commitment to risk management is strong and IAF concentrating on risk management issues could result in identifying implicit and explicit symptoms of financial distress, and financial distress moderation. Hence, the formulation of the following hypothesis:

> H_5: *Firms with an internal audit function performing periodic risk assessments (for example, credit risks, key financial ratios and indicators analysis, trends, operating statistics etc.) will be less likely to suffer financial distress.*

3.4.4 Internal Audit Quality: IAF Communication and Monitoring

As discussed in section 2.7.5 above, the outcome of risk assessments based on the IAF's work scope or IAF performance, or audit findings generally need to be communicated and monitored. The IIA IPPF Standard 2410 states that communications must include the internal audit engagement's objectives and scope as well as applicable conclusions, recommendations, and action plans. Further, the IIA IPPF Standard 2500.A1 states that the CAE must establish a follow-up process to monitor and ensure that management actions have been effectively implemented or that senior management has accepted the risk of not taking action in accordance with the nature, scope and reporting lines as stated in the internal audit charter.

As discussed in section 2.7.5 above, many researchers highlight the importance of audit communication and monitoring particularly in obtaining management support with resources and commitment to implement accepted IAF recommendations. The IAF also needs to consider scheduling follow-up activities, an integral part of the annual audit work plan and control risk assessment for cyclical audits, for findings of prior-period audits to ensure that management has implemented high-risk recommendations that are accepted. The external auditor's assessment relating to the level of satisfaction with IAF work is based on follow-up procedure, among other criteria. Hence, the formulation of this hypothesis:

> H_6: *Firms with effective internal audit function communication and monitoring systems will be less likely to suffer financial distress.*

3.4.5 Internal Audit Quality: Quality Audit Review

As discussed in section 2.7.6 above, Attribute Standard 1312 requires that external assessments must be conducted at least once every five (5) years by a qualified, independent

reviewer or review team from outside the organisation. Management and the governing body need to be informed of the positive outcome of review.

Sarens, Abdolmohammadi, and Lenz (2012) finds that an IAF having an active role in corporate governance is significantly and positively associated with the existence of a QAIP. Further, in line with the international standards of auditing, which would result in a more uniform audit quality throughout ASEAN which subsequently increase investors' confidence in the fair play of the ASEAN financial markets, Favere-Marchesi (2000) argues that there should be tightening of national laws and regulations based on the recommendation of the ASEAN Federation of Accountants (AFA) which include quality review. Hence,

H_7: *Firms with an internal audit function that has maintained quality assurance review requirements will be less likely to suffer financial distress.*

3.5   CONCEPTUAL SCHEMA
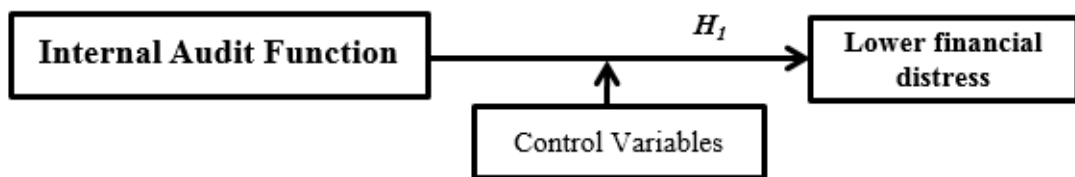
Figure 3.1: IAF Conceptual Schema
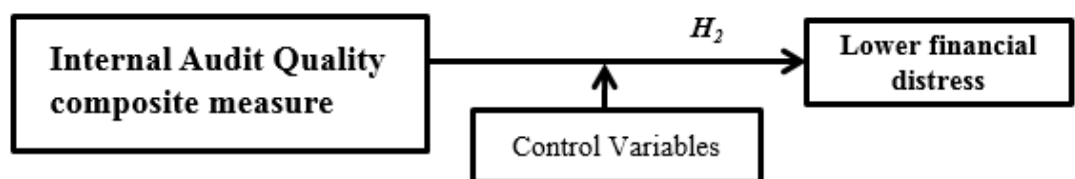
Figure 3.2: Composite IAQ Conceptual Schema
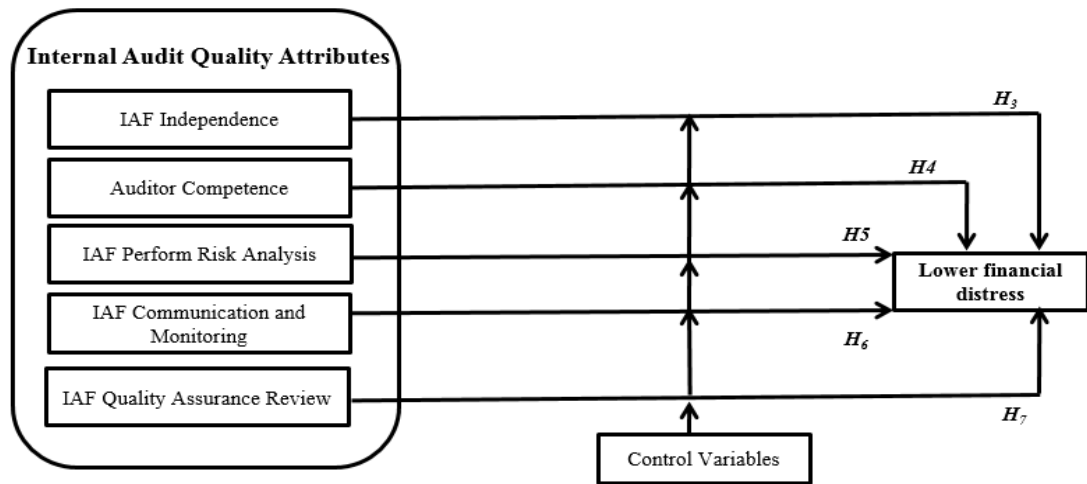
Figure 3.3: IAQ Attributes Conceptual Schema

As suggested in figure 3.1, the research question (that is, *RQ1*) to be tested suggests a negative relationship between the presence of IAF and financial performance (hence less likely to suffer financial distress). The research question *RQ1* and the hypothesis (that is, H_1). Likewise as suggested in figure 3.2, the research question (that is, *RQ2*) to be tested suggests a negative relationship between IAQ composite measure (that is, on an aggregate) and financial performance (hence less likely to suffer financial distress). The research question *RQ2* and the individual hypotheses (that is, H_2). As suggested in figure 3.3, the research question (that is, *RQ2*) to be tested suggests a negative relationship between IAQ attributes (that is, IAF independence, auditor competence, IAF perform risk assessment (work scope), IAF communication and monitoring, and IAF quality assurance review) and financial performance (hence less likely to suffer financial distress). The hypotheses H_2 to H_7.

3.6   SUMMARY OF THE CHAPTER

Chapter Three documented five theories underpinning corporate governance, identified the general hypothesis and discussed the prior literature relating to the six IAQ attributes hypotheses to be tested in this study. The influence of the six IAQ attributes on financial distress was also discussed before a conceptual schema provided.

Chapter Four will provide details of the research method utilised in this study. Specifically, details of the sample, documentation and time period is provided along with the measures used to operationalise financial distress (the dependent variable), the five IAQ attributes (independent variables) (one has three proxies) and control variables. Chapter Four will also specify the basic logistic regression model that will be utilised to answer the research questions of this study.

Theory	Theory and IAQ association	IAF Constructs (that is, independent variables)	IAF Effectiveness Impacting Firm Performance (that is, dependent variables)	Methodology	Related Literature
Agency	Effective monitoring of agency arrangements to eliminate moral hazard and information asymmetry	IAQ Attributes: *Independence, IAF size, competent, scope of work, information communication and quality audit review (QAR). IAF independence relationships with other corporate governance parties (that is The board, audit committee, EAs & management).*	The dependent variable being everything from short/long term factors, ratio factors of various kinds etc. For example, IAF effectiveness contributing to corporate governance effectiveness, performance (ROA), share price trends, earnings management, financial distress, financial report quality, lower (external) audit fees, and role of IA in greenhouse gas emissions.	The effectiveness of the board, audit committee and external auditor can be measured by obtaining publicly available data from various databases. The IAQ attributes and relationship with other corporate governance parties can be obtained via IIA database and/or survey.	Schneider (1985), Messier and Schneider (1988), Harrell, Taylor, and Chewning (1989), Wallace and Kreutzfeldt (1991), Felix, Gramling, and Maletta (2001), Krishnamoorthy (2002), Francis (2004), Gramling et al. (2004), Carcello, Hermanson, and Raghunandan (2005), Prawitt, Smith, and Wood (2009), Norman, Rose, and Rose (2010), Messier et al. (2011), Desai, Roberts, and Srivastava (2010), William et al. (2011), Lin et al. (2011), Prawitt, Sharp, and Wood (2011), Sarens and Abdolmohammadi (2011), Garcia, Barbadillo, and Perez (2012), Sarens, Abdolmohammadi, and Lenz (2012), Burton, Emett, and D.A. (2012), Everett and Tremblay (2014), Chambers (2014), Alzeban and Gwilliam (2014), Al-Matari, Al-Swidi, and Fadzil (2014), Alzeban (2015), Pizzini, Lin, and Ziegenfuss (2015) Ege (2015), Trotman and Trotman (2015) and (Alhajri 2017).
Steward-ship	Effective monitoring of managerial cooperative effort, encouraging objectivity, efficiency and effectiveness, resulting in mutual trust and achievement of corporate goals.	IAQ Attributes: *IAF size, competent, scope of work, information communication and quality audit review (QAR). IAF relationship with management and tripartite audit function. Outsourcing and co-sourcing of IAF.*	Feedback from audit committee and management (e.g. degree of satisfaction of IA services). Satisfactorily complete annual internal audit plan - completion of audits in comparison to an IAF plan and length of time for issuing IAF reports.	The IAQ attributes, and audit committee and management feedback can be obtained via IIA database and/or survey.	Schneider (1985), Messier and Schneider (1988), Wallace and Kreutzfeldt (1991), Rittenberg and Covaleski (2001), Francis (2004), Carcello, Hermanson, and Raghunandan (2005), Krishnan (2005), Abbott et al. (2007), Barua, Rama, and Sharma (2010), Leung, Cooper, and Perera (2011), (Desai, Gerard, and Ripathy 2011), Prawitt, Sharp, and Wood (2012), Sarens, Abdolmohammadi, and Lenz (2012), Burton, Emett, and D.A. (2012), and Zaman and Sarens (2013).
Stakeholder	Independent and linkage effects of cooperative effort involving members of the Audit Trinity in achieving business ethics and corporate social responsibility.	IAQ Attributes: *Independence, IAF size, competent, and scope of work (that is SAS 65 compliance). IAF relationship with tripartite audit function. Relative costs and timing of EA reporting. Extent of audit committee reliance on IAF.*	Contribute effectively to corporate governance – lowering of inherent and audit risks resulting in lowering of audit fees. Extent to which EA relies on the work of IAF.	The IAQ attributes can be obtained via IIA database and/or survey. The external auditor fees can be obtained from various databases.	Schneider (1985), Harrell, Taylor, and Chewning (1989), Wallace and Kreutzfeldt (1991), Lampe and Sutton (1994), Brody, Golen, and Reckers (1998), Gramling (1999), Salterio (1999), Felix, Gramling, and Maletta (2001), Goodwin-Stewart and Kent (2006a), Messier et al. (2011), Desai, Roberts, and Srivastava (2010), William et al. (2011), Desai, Gerard, and Ripathy (2011), Prawitt, Sharp, and Wood (2011), Bame-Aldred et al. (2013), Abbott, Parker, and Peters (2012a), Abbott, Parker, and Peters (2012b), Wan-Hussin and Bamahros (2013), and Pizzini, Lin, and Ziegenfuss (2015).
Institutional	Institutional forces on the existence of an IAF with or without IAQ attributes and its contribution to effective corporate governance.	IAQ Attributes *Independence, IAF size, competent, scope of work, information communication and quality audit review (QAR).*	IAF effectiveness contributing to corporate governance effectiveness, performance (ROA), share price trends, earnings management, financial distress, financial report quality and lower (external) audit fees. Independence relationship with management and audit committee.	The IAQ attributes can be obtained via IIA database, survey and/or interviews.	Al-Twaijry, Brierley, and Gwilliam (2003) and Christopher, Sarens, and Leung (2009), Lenz and Hahn (2015), and (Asiedu and Deffor 2017).

CHAPTER FOUR:
RESEARCH METHOD

4.1   OVERVIEW OF THE CHAPTER

Chapter Three outlines the theoretical framework of internal auditing and discussed the three main theories underlying internal auditing. The five key IAQ attributes (one has three proxies) of this study are then detailed leading to the testable hypotheses.

Chapter Four provides details of the research method used to test the hypotheses of this study. The chapter starts with a justification of the sample selected, the source documentation chosen and time period analysed. The subsequent section documents how the dependent variable of this study, financial distress, will be measured. Measures to operationalise the IAQ attributes examined in this study are then provided (that is, measures for IAF independence, internal auditor competence, IAF perform risk assessment (work scope), IAF communication and monitoring, and IAF quality audit review). Finally, a summary of Chapter Four is provided.

4.2   SAMPLE SELECTION, DOCUMENTATION AND TIME PERIOD

The justification of the sample firms selected, source documentation chosen and time period analysed are provided in the following sub-sections.

4.2.1   Sample Selection

The sample comprises of randomly selected 472 firm-year observations of firms with IAF and 393 firm-year observations of firms without IAF, making it a total of 865 observations per year (adjusted for missing data points and questionable data exclusions) over three years (that is, 2012 to 2014). Random sampling was used only for final useable sample to minimise self-selection bias.

Data gathering commenced at the beginning of 2015. The observation time period is from 2012 to 2014 inclusive. Data related to IAQ attributes are collected over the years 2013 and 2014 (that is, two years) only because of concerns that CAEs are not capable to provide data related over a long a period of time. Using data from various databases and/or financial statements such as DatAnalysis, OSIRIS, CapitalIQ and SIRCA, the (lag) firm year 2012 are collected to determine whether or not the existence of an IAF in prior year will help to better manage financial distress. This period provides not only up-to-date and timely data but enhances the credibility of the study, allowing some generalisability and transferability of results particularly during the European Union financial crisis and the beginning of the economy slow down around the world.

A suitably constructed questionnaire using both the Qualtrics software and MS-Office

Word requesting for data related to IAQ over the years 2013 and 2014 are forwarded to CAEs using several methods. Both the online and postal methods are used with an aim to obtain higher response rates. A listing of CAEs of companies listed in the ASX[28] is obtained from professional auditing associations (for example IIA[29] and ISACA). Having identified the CAEs, a suitably constructed questionnaire which has been pilot tested by CAEs or very experienced internal auditors who are currently employees of non ASX listed firms but have worked in an ASX listed firms before (for example CAEs of the ANZUIAG[30]) will be sent to the CAEs (government agencies will be excluded).

Another way used to obtain forwarding details such as email addresses and/or postal-addresses of audit committee chairperson/members or senior executives (for example, CEOs, MDs and/or Company Secretaries) of all ASX firms (if the CAEs' forwarding details cannot be obtained) is from financial statements, accounting databases, ASX database and etc. Emails containing the website address (that is, web hyperlink) of the Qualtrics questionnaire or attached questionnaire (in MS-Word format) are forwarded to them. Subsequently, they are requested to forward the questionnaire to their CAEs. Follow-ups are conducted using phone call, email or post-mail or combination of these communication methods.

Recipients whose firms are without an IAF will only have to simply indicate that their firms are without an IAF. Recipients whose ASX firms have an IAF but are not a CAE are requested to forward the email containing the Qualtrics questionnaire link and/or MS-Office Word document to his/her CAE.

Consistent with prior empirical research, only responses from the CAEs of listed firms in the ASX[31] (note that firms from different industries[32] are included but not government agencies, and Australian unit trusts and foreign firms domiciled outside Australia[33]) are selected in the initial sample. Firms that are delisted or suspended on ASX in that year are also excluded in order to avoid undue influences of unexpected rise or drop in share price (Singh 2010). Due to the potential influence of the Sarbanes-Oxley Act (2002) on both the existence and quality of IAF of Australian firms, firms which have issued and registered securities in US are identified and tests are performed without these firms.

The initial sample, if the size is sufficient, is stratified based on industry type first and

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[28] Australia is an ideal environment/landscape to undertake the study as there has been no such research taken examining IAQ and its ability to predict financial distress. Further, there is a need to gather qualitative data and the geographical locations of the CAEs who will respond to questionnaire will improve accessibility.

[29] The protocol put in place by the IIA Perth Chapter. The questionnaire and reasons for the survey need to be submitted to the secretary of IIA before the questionnaire is sent to the CAEs. The CPA and ICA of Australia do not wish to take part due to privacy reasons.

[30] Australia and New Zealand Universities Internal Audit Group.

[31] Australia is an ideal environment/landscape to undertake the study as there has been no such research taken examining IAQ and its ability to mitigate financial distress. Further, there is a need to gather qualitative data and the geographical locations of the CAEs who will respond to questionnaire will improve accessibility.

[32] In the study by Prawitt, Smith, and Wood (2009), a sample of 571 firm-years are from 244 different companies from 50 different two-digit SIC code industries was used to analyse IAQ.

[33] Consistent with Clifford and Evans (1997), these firms' financial statements not disclosed in accordance with the normal ASX disclosure requirements are excluded.

then market capitalisation. The stratification of firms not only provides a good cross-section of firms, it also provides some classification within major industry groupings. Market capitalisation is used because it is one of the major drivers of company performance to maximise shareholder value (Lee 1979; Gewald and Gellrich 2007).

With almost equally number of firms with and without IAF (that is a control group) making a total of up-to 472 and 393 observations each firm-type (that is firms with or without an IAF respectively) over three years allow analyses to be constructed to confirm that IAQ does contribute to lowering the likelihood of financial distress.

4.2.1.1 *Internal Audit Quality – Subjective Data*

An extended analysis (that is, after the presence of IAF and the association of financial distress has been analysed) is carried out to determine whether or not the existence of an IAF with high quality composite measures (that is, based on the questionnaire completed) contributes positively to the management of financial distress. Consistent with prior literature, a low percentage of firms with IAF responded to the questionnaire (Power and Gendron 2015).

The necessary data are gathered to measure IAQ. As indicated above, the questionnaire includes suitably worded questions that attempt to measure IAQ from a subjective perspective using a suitable Likert scale design as described above. This involves feedback from key personnel, including the CAE, executive and board members. Some initial inquiries and discussions (for example, using pilot study approach) is conducted with selected company representatives in order to develop an appropriate instrument prior to the distribution of the questionnaire.

4.2.2   **Sourced Documentation Justification**

As discussed in section 4.2.1, data for independent variables (that is, the IAQ attributes) are obtained using questionnaires. The corresponding data for dependent variables (that is, determination of financial distress using Altman Z2-Score and Zmijewski ZFC-Score models) are obtained from archival data in the form of database records and/or listed firm annual reports. Listed firms are selected since listed entities provide readily available information in an appropriate useable form. The Annual Reports Collection databases such as the Morningstar's DatAnalysis, Osiris, CapitalIQ, Sirca and/or the ASX database/website are used to collect the data to construct all the measures for the dependent and control variables used in this study. Table 4.1 at the end of this chapter shows a table listing all dependent, independent and control variables and their proxies.

4.2.3 Time Period Selection

Data gathering will occur in 2015 and are collected using two methods. The first method is that all independent variables (that is, pertaining to internal audit quality) including some control variables (that is, those which cannot be obtained via financial statements) are collected using questionnaires. The second method is that data are extracted from databases/financial statements. As indicated in the section 4.2.1 above, the observation period for IAQ are from 2013 to 2014 financial periods as there are concerns pertaining to unavailability of data before 2013. These periods provide not only up-to-date and timely data but enhance the credibility of the study, allowing some generalisability and transferability of results. It is based on the responses of the questionnaire (that is, after firm's name and its associated ASX code have been determined) that lead to data for the dependent and most control variables extracted from various databases in order to associate IAQ composite and attributes measures, and financial distress.

Measurements for the dependent variable (that is, the Altman Z2-Score and Zmijewski ZFC-Score) and independent variables (IAQ attribute measures) are outlined in subsequent sections.

4.3 MEASUREMENT OF THE DEPENDENT VARIABLES

The Altman Z-Score model is "useful for predicting financial distress conditions" (Grice, Stephen, and Ingram 2001 p.53) and employed as an analysis tool by external auditors to assess their client's abilities to continue as a going concern (Dugan and Zavgren 1988) but only uses manufacturing industry firms as in-data. The Altman Z2-Score model is a modified version of the Altman Z-Score to include non-manufacturing industry firms (Altman et al. 2017).

As a consequence, both the Altman Z2-Score (1983) and Zmijewski ZFC-Score (1984) are selected to proxy financial distress. Altman's and Zmijewski's models are listed by the IIARF's Wallace (2004) paper as tools for predicting financial distress and employed as analysis tools by auditors to assess their client abilities to continue as going concerns (Grice, Stephen, and Ingram 2001; Wallace 2004), *inter alia*. The Zmijewski's probit model is preferred to predict financial distress (not bankruptcy) in comparison with Altman's Z-Score Multivariate Discriminant Analysis (MDA based on accounting variables) and Ohlson's logit model (with accounting ratios) because they outperforms the Altman Z-Score and Ohlson O-Score models using accounting data (Wu, Gaunt, and Gray 2010). The Altman Z2-Score is not specific to any industry (Grice, Stephen, and Ingram 2001). For the Altman Z2-Score model, firms with probabilities less than 2.6 are interpreted as facing financial distress (Onyiri 2014).[34] For the

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[34] Consistent with Onyiri (2014) and Danescu and Marginean (2015), firms with Z2-Score value that fall between the grey area (that is, 1.1 and 2.6) are most likely to experience financial distress if appropriate financial planning is not implemented. The Altman Z2-Score < 1.1 is considered a distress zone, and it is not of greater than 2.6.

Zmijewski ZFC-Score model, firms with probabilities greater than or equal to 0.5 are interpreted as bankrupt or having complete data and firms with probabilities less than 0.5 are classified as non-bankrupt or having incomplete data (Zmijewski 1984).[35] The Altman Z2-Score and Zmijewski ZFC-Score models are specified as follow:

$Z2\text{-}Score_{it} = \beta_0 + 6.56X1_{it} + 3.26X2_{it} + 6.72X3_{it} + 1.05X4_{it}$ is the calculated Altman Z2-Score (1983) for firm i at the period t year. This model suggest that a firm is in financial distress if the calculated Z2-Score < 2.6. A value "1" will be assigned to firms with calculated value less than 2.6, otherwise a value "0" is assigned. β_0 equals 3.25 is not applicable since Australia is not considered an emerging market economy.

Where:

$X1_{it}$ = Working Capital/Total Assets;

$X2_{it}$ = *Retained Earnings/Total Assets;*

$X3_{it}$ = *EBIT/ Total Assets;*

$X4_{it}$ = *Equity/Total Liabilities.*

$ZFC\text{-}Score_{it} = \beta_0 + \beta_1ROA_{it} + \beta_2Fin\_Lev_{it} + \beta_3Liquidity_{it}$ is the calculated Zmijewski's ZFC-Score (1984) for firm i at the period t year. This model suggest that a firm is not in financial distress if the calculated score ZFC-Score < 0.5 and is in financial distress if ZFC-Score >= 0.5. A value "1" will be assigned to firms with calculated value greater than or equal to 0.5, otherwise a value "0" is assigned.

Where:

$\beta_0 = -4.336; \beta_1 = -4.513; \beta_2 = 5.679; \beta_3 = 0.004;$

ROA_{it} = Net Income / Total Asset for firm i in the period t;

Fin_Lev_{it} = Total Liabilities / Total Assets for firm i in the period t;

$Liquidity_{it}$ = Current Assets / Current Liabilities for firm i in the period t.

4.4 MEASUREMENT OF THE INDEPENDENT VARIABLES

As discussed in section 4.2.2, data for independent variables are obtained from the questionnaires completed by CAEs who are current employees of ASX listed firms. The linear regression analysis is used to test the predicted relationships:

$Z2\text{-}Score_{it} = \beta_0 + \beta_1IAF_{it} + [\textbf{Control Variables}] + \varepsilon_{it}$, for firm i at the period t year.

$ZFC\text{-}Score_{it} = \beta_0 + \beta_1IAF_{it} + [\textbf{Control Variables}] + \varepsilon_{it}$, for firm i at the period t year.

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[35] A considerable number of studies that have used the ZFC-Score for the purpose of measuring the financial distress likelihood. For example, Geiger, Raghunandan, and Rama (2006) and Carey, Kortum, and Moroney (2011).

$$\textit{Z2-Score}_{it} = \beta_0 + \beta_1 \textit{IAQP}_{it} + [\textbf{Control Variables}] + \varepsilon_{it}, \text{ for firm } i \text{ at the period } t \text{ year.}$$

$$\textit{ZFC-Score}_{it} = \beta_0 + \beta_1 \textit{IAQP}_{it} + [\textbf{Control Variables}] + \varepsilon_{it}, \text{ for firm } i \text{ at the period } t \text{ year.}$$

$$\textit{Z2-Score}_{it} = \beta_0 + \beta_1 \textit{IAFINDPP}_{it} + \beta_2 \textit{IACERTPP}_{it} + \beta_3 \textit{IAYREXPP}_{it} + \beta_4 \textit{IACPEP}_{it} +$$
$$\beta_5 \textit{IAFRISKASSESSP}_{it} + \beta_6 \textit{IAFMONP}_{it} + \beta_7 \textit{IAFQARP}_{it} + [\textbf{Control}$$
$$\textbf{Variables}] + \varepsilon_{it}, \text{ for firm } i \text{ at the period } t \text{ year.}$$

Where:

$\beta_{0,1..n}$ = coefficients;

$\textit{IAF}_{it}$ = A value "1" will be assigned if a firm i at the period t year has an IAF, otherwise a value "0" will be assigned;

$\textit{Z2-Score}_{it}$ = The financial distress score computed using the Altman Z2-Score for firm i at the period t year (see section 4.3 above);

$\textit{ZFC-Score}_{it}$ = The financial distress score computed using the Zmijewski ZFC-Score for firm i at the period t year (see section 4.3 above);

$\textit{IAQP}_{it}$ = Composite measure of IAQ attributes using the Prawitt, Smith, and Wood (2009) model for firm i at the period t year. $\textit{IAQP}_{it}$ equals to $\textit{IAFINDP}_{it}$ + $\textit{IACERTP}_{it}$ + $\textit{IAYREXPP}_{it}$ + $\textit{IACPEP}_{it}$ + $\textit{IAFRISKASSESSP}_{it}$ + $\textit{IAFMONP}_{it}$ + + $\textit{IAFQARP}_{it}$. $\textit{IAQP}_{it}$ is the aggregate of all values of "0" and "1" assigned to the independent variables $\textit{IAFINDP}_{it}$, $\textit{IACERTP}_{it}$, $\textit{IAYREXPP}_{it}$, $\textit{IACPEP}_{it}$, $\textit{IAFRISKASSESSP}_{it}$, $\textit{IAFMONP}_{it}$, and $\textit{IAFQARP}_{it}$.[36]

$\textit{IAFINDP}_{it}$ = For firm i at the period t year, using the Prawitt, Smith, and Wood (2009) model, a value "1" will be assigned if the IAF independence ratio computed is greater than the mean ratio of the sample, otherwise a value "0" will be assigned;

$\textit{IACERTP}_{it}$ = For firm i at the period t year, using the Prawitt, Smith, and Wood (2009) model, a value "1" will be assigned if the number of internal auditors in an IAF possessing IIA recognised certification is greater than the mean of the sample, otherwise a value "0" will be assigned;

$\textit{IAYREXPP}_{it}$ = For firm i at the period t year, using the Prawitt, Smith, and Wood (2009) model, a value "1" will be assigned if the average internal auditors' year of experience in an IAF is greater than the mean of

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[36] Consistent with the Prawitt, Smith, and Wood (2009), a value "1" will be assigned if the computed value is above the mean of the sample, otherwise a value "0" will be assigned.

the sample, otherwise a value "0" will be assigned;

IACPEP$_{it}$ = For firm i at the period t year, using the Prawitt, Smith, and Wood (2009) model, a value "1" will be assigned if the CAE's view on attention given to internal auditor continuing professional education computed in an IAF is greater than the mean of the sample, otherwise a value "0" will be assigned;

IAFRISKASSESSP$_{it}$ = For firm i at the period t year, using the Prawitt, Smith, and Wood (2009) model, a value "1" will be assigned if the CAE's view on IAF scope of work – risk assessment computed in an IAF is greater than the mean of the sample, otherwise a value "0" will be assigned;

IAFMONP$_{it}$ = For firm i at the period t year, using the Prawitt, Smith, and Wood (2009) model, a value "1" will be assigned if the CAE's view on IAF communication and monitoring computed in an IAF is greater than the mean of the sample, otherwise a value "0" will be assigned;

IAFQARP$_{it}$ = For a firm i at the period t year, a value "0" will be assigned if the likert score of $1 - 10$ QAR provided by the CAE is below the median score. Otherwise, a value "1' will be provided.

ε_{it} = the error term.

Sections 4.4.1 to 4.4.5 provide details on the measurement for proxies of the independent variables. As discussed in section 4.2.1, data are gathered from CAEs via questionnaires.

Section 2.7 justifies the use of the independent variables shown in the above equation. Sub-sections 4.4.1 to 4.4.5 explain the difference measurements for these explanatory variables.

4.4.1   IAF Independence

Consistent with the IPPF Practice Advisory 1110-2, and the approaches utilised by Brown (1983), Prawitt, Smith, and Wood (2009); and Goodwin and Teo (2001), a dichotomous variable, *IAFINDP$_{it}$*, is used to proxy IAF independence for firm i in the period t. A maximum of 85 points (that, 17 questions multiply by the Likert score from one (1) to five (5)) out of 17 questions can be obtained where the maximum points of five is assigned for each question and every question. A ratio is computed using a divisor of 85. The 17 questions are shown in table 4.1.

Table 4.1:
IAF Independence Questions

Questions	Points
a) The internal audit function reported operationally to an independent Audit Committee, Board of Directors and/or other appropriate governing body that allowed the internal audit function to fulfill its responsibilities objectively.	Strongly Disagree: 1; Disagree: 2; Neither Agree nor Disagree: 3; Agree: 4; and Strongly Agree: 5 points.
b) The Internal Audit function was free from management interference in determining the scope and objectives of audit engagements.	Strongly Disagree: 1; Disagree: 2; Neither Agree nor Disagree: 3; Agree: 4; and Strongly Agree: 5 points.
c) The Internal Audit function was free from management interference in reporting audit findings and recommendations.	Strongly Disagree: 1; Disagree: 2; Neither Agree nor Disagree: 3; Agree: 4; and Strongly Agree: 5 points.
d) The Internal Audit function was impartial, presented unbiased views, and avoided conflicts of interest.	Strongly Disagree: 1; Disagree: 2; Neither Agree nor Disagree: 3; Agree: 4; and Strongly Agree: 5 points.
e) Internal auditors (including the Chief Audit Executive) were often seconded to other operational areas of the firm as part of career progression or for other reasons.	Strongly Disagree: 5; Disagree: 4; Neither Agree nor Disagree: 3; Agree: 2; and Strongly Agree: 1 points.
f) There was continuous independent Board or Audit Committee oversight of the Chief Audit Executive's assurance responsibilities.	Strongly Disagree: 1; Disagree: 2; Neither Agree nor Disagree: 3; Agree: 4; and Strongly Agree: 5 points.
g) The Audit Committee maintained hiring and retention authority over the Chief Audit Executive's appointment throughout the period.	Strongly Disagree: 1; Disagree: 2; Neither Agree nor Disagree: 3; Agree: 4; and Strongly Agree: 5 points.
h) The Chief Audit Executive and/or internal auditors were involved in making operational decisions for or on behalf of other organisational units.	Strongly Disagree: 5; Disagree: 4; Neither Agree nor Disagree: 3; Agree: 2; and Strongly Agree: 1 points.
i) Prior to engaging in any consulting services within your firm, internal auditors declared any potential impairment to independence and/or objectivity.	Strongly Disagree: 1; Disagree: 2; Neither Agree nor Disagree: 3; Agree: 4; and Strongly Agree: 5 points.
j) Internal auditors were frequently engaged in other operational duties while still employed in the Internal Audit function.	Strongly Disagree: 5; Disagree: 4; Neither Agree nor Disagree: 3; Agree: 2; and Strongly Agree: 1 points.
k) Operational staff members were regularly rotated into the Internal Audit function to perform internal audit duties.	Strongly Disagree: 5; Disagree: 4; Neither Agree nor Disagree: 3; Agree: 2; and Strongly Agree: 1 points.
l) The Chief Audit Executive proactively ensured that internal auditors abide by a code of ethics policy/standard, avoided conflicts of interest and disclosed any activity that could result in a possible conflict of interest.	Strongly Disagree: 1; Disagree: 2; Neither Agree nor Disagree: 3; Agree: 4; and Strongly Agree: 5 points.

Table 4.1 (continued):
IAF Independence Questions

Questions	Points
m) Internal auditors tended to be directed to completing similar tasks due to their reliability and experience.	Strongly Disagree: 1; Disagree: 2; Neither Agree nor Disagree: 3; Agree: 4; and Strongly Agree: 5 points.
n) It was difficult to rotate audit staff between duties during the period due to the lack of available manpower.	Strongly Disagree: 5; Disagree: 4; Neither Agree nor Disagree: 3; Agree: 2; and Strongly Agree: 1 points.
o) The Chief Audit Executive was regularly required to provide the Audit Committee with advice as to the feasibility and practicability of operational issues associated with their approved audit plans.	Strongly Disagree: 1; Disagree: 2; Neither Agree nor Disagree: 3; Agree: 4; and Strongly Agree: 5 points.
p) There were no significant instances where the Internal Audit function's independence in appearance was compromised or questioned by others.	Strongly Disagree: 1; Disagree: 2; Neither Agree nor Disagree: 3; Agree: 4; and Strongly Agree: 5 points.
q) There were significant instances where you noted that an internal auditor's independence of mind and/or objectivity was compromised.	Strongly Disagree: 5; Disagree: 4; Neither Agree nor Disagree: 3; Agree: 2; and Strongly Agree: 1 points.

Refer to Appendix 2 for questionnaire specifically related to questions 3.1 (a) to (q).

4.4.2 Auditor Competence

A list of professional qualifications recognised in accordance with the IIA's Policy agenda are: CIA, CFSA, CCSA, CGAP, CPA, CA, CISA and CFE. All such professional certifications require annual CPE so that the internal auditor knowledge, skills and other competencies are kept up-to-date. Consistent with the Attribute Standard 1230 and the model used by Prawitt, Smith, and Wood (2009), the three dichotomous variables that will be used as a proxy for internal auditor's competency are: $IACERTP_{it}$, $IAYREXPP_{it}$ and $IACPEP_{it}$. $IACERTP_{it}$ is based the number of internal auditors in an IAF who have an IIA recognised certification for firm i in the period t.[37] For firm i in the period t, $IAYREXPP_{it}$ is based on the average number (in years) of both external and internal auditing experience, and/or relevant accounting experience that internal auditors in an IAF have. For firm i in the period t, $IACPEP_{it}$ is based on the view of the CAE on the importance of CPE.

Firms with outsourced IAF are selected. For firms which have co-sourced their internal audit activities, only those auditors which are employed are considered.

4.4.3 IAF Scope of Work – Risk Assessment

As indicated in section 3.4.4, the IIA Attribute Standards 1220.A1 and 1220.A3 state

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[37] There are other factors used by external auditors to evaluate internal auditor's competency, for example, audit policies, programs and procedures, quality of audit working paper, reports and recommendations.

that internal auditors must exercise due professional care by considering, among other things, the adequacy and effectiveness of governance, risk management and control processes, and internal auditors must be alerted to the significant risks that might affect the firm's objectives, operations, or resources respectively. The importance of risk performance to be assessed by IAF is complemented by the compliance of the ASX Principle 7 - Recognise and Manage Risk which states that listed companies should establish a sound system of risk oversight, risk management and internal control. In the context of this study, the risk assessment requirements stated in the 2004 paper issued by the IIARF by Wallace (2004) encouraging internal auditors to apply bankruptcy models such as the Altman Z-Score model, Zmijewski ZFC-Score model and others should be conducted.

Assertions relating to financial statement risks have to be attested by an independent function such as the IAF in accordance with the ASX Principle 4 – Safeguard Integrity in Financial Reporting. Further, the Performance Standard 2120 requires the IAF to evaluate the effectiveness risk management processes and contribute to their improvement. The following is the measurement for H_4: A dichotomous variable, $IAFRISKASSESSP_{it}$, is based on the value computed for firm i in the period t. A maximum of 30 points out of six questions (that is, six questions multiply by the Likert score of one (1) to five (5)) can be obtained where the maximum points of five is assigned for each question and every question. A ratio is computed using a divisor of 30. The six questions are shown in table 4.2.

Table 4.2:
IAF Scope of Work – Risk Assessment

Questions	Points
a) The Internal Audit function adequately checked the risk assessment process as part of the approved annual audit plan.	Strongly Disagree: 1; Disagree: 2; Neither Agree nor Disagree: 3; Agree: 4; and Strongly Agree: 5 points.
b) The Internal Audit function verified the adequacy of the risk assessment of the likelihood of financial distress during each period.	Strongly Disagree: 1; Disagree: 2; Neither Agree nor Disagree: 3; Agree: 4; and Strongly Agree: 5 points.
c) The Internal Audit function fully relied on the work of the external auditors in assessing risks associated with financial distress.	Strongly Disagree: 1; Disagree: 2; Neither Agree nor Disagree: 3; Agree: 4; and Strongly Agree: 5 points.
d) The Internal Audit function checked the Risk Management Unit's assessment of particular risk issues as part of each planned or adhoc audit program.	Strongly Disagree: 1; Disagree: 2; Neither Agree nor Disagree: 3; Agree: 4; and Strongly Agree: 5 points.
e) I believe the Internal Audit function worked well with the Risk Management function to ensure the firm's financial distress risks are well managed.	Strongly Disagree: 1; Disagree: 2; Neither Agree nor Disagree: 3; Agree: 4; and Strongly Agree: 5 points.
f) The Internal Audit function is fully responsible for managing the risk management process.	Strongly Disagree: 1; Disagree: 2; Neither Agree nor Disagree: 3; Agree: 4; and Strongly Agree: 5 points.

Refer to Appendix 2 for questionnaire specifically related to questions 3.7 (a) to (f).

4.4.4　IAF Communication and Monitoring

The outcome of risk assessments (that is, inherent risks and residual risks) or audit findings generally needs to be communicated and monitored. The IPPF Standard 2410 and Standard 2500.A1 respectively state that communications must include the internal audit engagement's objectives and scope as well as applicable conclusions, recommendations, and action plans. The action plans include the CAE establishing a follow-up process to monitor and ensure that management actions have been effectively implemented or that senior management has accepted the risk of not taking action in accordance with the nature, scope and reporting lines as stated in the internal audit charter.[38]

Audit communication and monitoring particularly on the implementation of accepted IAF recommendations is essential according to Adams (1994); Sawyer (1995); Keating (1996); Walker (1996); Van Gansberghe (2005); and Mihret and Yismaw (2007). Therefore, control risks assessment involves focusing on the implementation of accepted audit recommendations (Keating 1996; Walker 1996). These activities are considered an integral part of the annual audit work plan (Institute of Internal Auditors and Protiviti 2010) and control risk assessment for cyclical audits (Romney and Steinbart 2012). The need for an IAF follow-up is heightened by Brown (1983) who reports that the external auditor's level of satisfaction with IAF work is based on follow-up procedure, *inter-alia*. The following is the measurement for H_5: A dichotomous variable, $IAFMONP_{it}$, is based on the ratio computed for firm i in the period t. A maximum of 15 points out of three questions can be obtained where the maximum points of five is assigned for each question and every question. A ratio is computed using a divisor of 15. The three parts relating to the adequacy of communication and monitoring with auditees pertaining to risks and/or findings are shown in table 4.3.

Table 4.3:
IAF Communication and Monitoring

Questions	Points
a) Audit planning stage that is, in the audit scope and objectives.	Strongly Disagree: 1; Disagree: 2; Neither Agree nor Disagree: 3; Agree: 4; and Strongly Agree: 5 points.
b) Audit evidence evaluation period.	Strongly Disagree: 1; Disagree: 2; Neither Agree nor Disagree: 3; Agree: 4; and Strongly Agree: 5 points.
c) Finalisation of audit reports.	Strongly Disagree: 1; Disagree: 2; Neither Agree nor Disagree: 3; Agree: 4; and Strongly Agree: 5 points.

Refer to Appendix 2 for questionnaire specifically questions 3.8 (a) to (c).

4.4.5　IAF Quality Audit Review

As indicated in section 3.4.6, the IPPF Attribute Standard 1312 requires that external

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[38] IPPF Attribute standard 1000 requires the CAE to periodically review the internal audit charter and present it to senior management and the board for approval. This is supported by the audit committee (if presence) (Institute of Internal Auditors and Protiviti 2010).

assessments against established criteria by the Institute of Internal Auditors (2002) be conducted at least once every five years by a qualified, independent reviewer or review team from outside the organisation. Conformation of these criteria provides indications to suggest that IAF is effective and has attained the expected quality imposed by IIA standards, thereby has the capacity to assess business risks and identify symptoms of financial distress, among other tasks. Hence, the measurement for H_6: in which the values to be assigned to a dichotomous variable, $IAFQARP_{it}$, are based on the outcome of the review reported to the CAE. A value zero (0) will be assigned if QAR is not conducted at all in a particular calendar year. If a QAR is completed, A Likert scale from one to ten, 1 being a low value and 10 being best value, will be used based on the CAE's rating of the benefits of QAR in relation to improving the effectiveness of IAF.

4.5   CONTROL VARIABLES

To test the association between the presence of an IAF, IAQ composite score, and IAQ attributes with financial distress (via the Altman Z2-Score and Zmijewski ZFC-Score computed as discussed above), a logistic regression analysis will be employed.

Table 4.1 at the end of this chapter show a listing of the control variables to be used in study and section 4.5.1 provides a brief justification of the need to include each control variable.

4.5.1   Justification for Inclusion of Control Variables

As explained in section 2.3.1, researchers fail to empirically identify the best prediction model but there are some researchers who agreed that both the Altman Z-Score and Zmijewski ZFC-Score models are useful for predicting financial distress conditions and has been employed as an analysis tool by external auditors to assess their client's abilities to continue as a going concern. Authors of literature about financial distress using different models used control variable to justify the models' improved predictive performances. Factors influencing financial distress discussed above will be used as a basis for selecting the control variables used in this study. Sections 4.5.2 to 4.5.4, which follow, provide a brief justification of the need to include each control variable.

4.5.2   Firm & Industry Characteristics

There are a number of different aspects to firm characteristics which may impact on the firm's financial distress. Empirical evidence discussed in Chapter Two suggests that, *ceteris paribus*, larger and well diversified firms are able to trade through difficult times and are less likely to face financial distress and the firms that become bankrupt in the following year are, on average, smaller and younger (Denis, Denis, and Sarin 1997a; Beaver, McNichols, and Rhie 2005; Wu, Gaunt, and Gray 2010). Bankrupt firms also tend to be younger and have fewer business segments, indicating a lower degree of corporate diversification (Wu, Gaunt, and Gray

2010).

4.5.2.1 *Firm Size*

Firm size One influences financial distress (Baxter 2006; Ahmad-Zaluki, Campbell, and Goodacre 2011) and is found to be an important factor in determining the successful turnarounds of firm in financial distress as reported by Smith and Graves (2005). Firm size is typically measured by market capitalization and total assets (Altman 1968; Rosner 2003; Charitou, Lambertides, and Trigeorgis 2007). In this study, the proxy for size of firm *i* at time period *t* will be the natural logarithm of market capitalisaition *LnMARCAP$_{it}$*.[39]

4.5.3   Accounting Discretion & External Auditor Quality

In relation to accounting discretion and external auditor quality, it is recognized, as discussed in section 2.6.3 above, that there is ongoing uncertainty surrounding the precise nature and consequences of an earnings quality/external auditor quality linkage and the lack of consensus on the definitions and underlying properties of the two constructs (that is, earnings quality and external auditor quality). Given that there is considerable amount of literature on these two constructs, the examination of the earnings quality/financial distress and external auditor quality/financial distress relationships provides a lens on whether or not earnings quality and/or internal auditor quality may impact on financial distress (and their causality relationships).

As stated in section 2.2.3.1, the definition of "earnings quality" is broad (Dechow, Ge, and Schrand 2010) and has evolved since it's used by Graham and Dodd in Security Analysis early 1934 (Graham and Dodd 1934). Similar to financial distress, the term earnings quality alone is meaningless and there is no single best measure of earnings quality. Earnings reporting provides a foundation to earnings quality, reduces information asymmetries, and is about recognising that a firm's reported earnings depends on both the financial performance of the firm and on how the accounting system measures performance. Albeit the lack of consensus on definitions and highly unobservable concept, Dechow, Ge, and Schrand (2010) observed that over time the term earnings quality has evolved to the extent that some researchers use it as if its meaning is clear and unambiguous but the literature often inadequately distinguishes the impact of fundamental performance on earnings quality from the impact of the measurement system.

The review over 300 studies on earnings quality including Imhoff (2003.); Penman (2003); Nelson, Elliott, and Tarpley (2003); Schipper and Vincent (2003); Dechow and Schrand (2004); Francis, Olsson, and Schipper (2006); Lo (2008); and Dechow, Ge, and Schrand (2010) resulted in two observations made. First, the definition of earnings quality used in the literature suggests that quality could be evaluated with respect to any decision that depends on an

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[39] For sensitivity test, the return-on-equity, *ROE$_{it}$*, for firm *i* at the end of time period *t* will be used.

informative representation of financial performance and does not constrain quality to imply decision usefulness in the context of equity valuation decisions but lack evidence on how fundamental performance affects earnings quality. It appears researchers recognise that the meaning of "performance" is ambiguous albeit the Statement of Financial Accounting Concepts No. 1 (SFAC No.1) discusses that higher quality earnings provide more information about the features of a firm's financial performance that are relevant to a specific decision made by a specific decision-maker (Dechow, Ge, and Schrand 2010).

The three individual categories for earnings quality observed are: (1) Properties of earnings (example of proxies are earnings persistence, abnormal accruals derived from modelling the accrual process, earnings smoothness, asymmetric timeliness and timely loss recognition, target beating, Direct Evidence on earnings response coefficient (ERC) as a proxy for earnings quality and Indirect Evidence on ERCs as a proxy for earnings quality based on determinants); (2) Investor responsiveness to earnings (that is, ERC or R^2 from the earnings-returns model); and (3) External indicators of earnings misstatements (for example, (i) SEC Accounting and Auditing Enforcement Releases (AAERs); (ii) restatements; and (iii) internal control procedure deficiencies reported under the Sarbanes Oxley Act (2002)).

The second observation by Dechow, Ge, and Schrand (2010), using the Cronbach and Meehl approach, is that there is no measure of earnings quality that is superior for all decision models. There are two groups according to whether or not it provides evidence on the determinants or the consequences of the earnings quality proxy. The determinants papers propose or test theories about features of a firm (for example, compensation contracts) or of the accounting measurement system (for example, accrual choices) that cause an earnings outcome of which the earnings quality proxy is the dependent variable in the analysis. The consequences papers propose or test theories about the impact of earnings quality on an outcome (for example, cost of capital) and in this case, the earnings quality proxy is the independent variable in the analysis.

Dechow, Ge, and Schrand (2010) conclude that the "complete path" approach offers insights that are not available from studies that examine only one side (that is, determinant or consequence) of earnings quality. Good examples of this type of research are Xie (2001), and Bowen, Rajgopal, and Venkatachalam (2008). As shown in table 2.1, the determinants of earnings quality are: (1) Firm characteristics (refer to section 4.5.2); (2) Financial reporting practices; (3) Governance and controls; (4) Auditors; (5) Capital market incentives; and (6) External factors. The nine categories of consequences are: (1) Litigation propensity; (2) Audit opinions; (3) Market valuations; (4) Real activities including disclosure; (5) Executive compensation; (6) Labor market outcomes; (7) A firm's cost of equity capital; (8) A firm's cost of debt capital; and (9) Analyst forecast accuracy. The consequence of earnings quality to be used in this study will be the audit opinion and audit fees.

As for individual categories for earnings quality, one of the proxies for properties of earnings is the abnormal accruals derived from modelling the accrual process. The usefulness of earnings-to-equity investors for valuation resulted on the focus on accruals because it helps to predict future cash flows and earnings focuses (Barth, Cram, and Nelson 2001) and hence, in the investors' decision-making process, market efficiency is measured by how the information in discretionary accruals is contained (Sloan 1996). Accounting discretion on accruals and its association with weak governance structures does not necessarily imply managerial opportunism (Bowen, Rajgopal, and Venkatachalam 2008) and in fact it is an attempt by management to meet or to beat analyst consensus estimates can signal managerial competence (Bartov, Givoly, and Hayn 2002; Lev 2003). As such, abnormal accruals together with an extent of earnings-smoothing using accruals are found to have resulted in reporting of small positive earnings surprises (Bowen, Rajgopal, and Venkatachalam 2008) and discretionary accruals are positively priced by the market and are associated with future cash flows (that is future performance) (Subramanyam 1996). However, Warfield, Wild, and Wild (1995) find that riskier firms might use more abnormal accruals to reduce the perception of risk.

Similar to earnings quality, external audit quality is composed of a range of underlying attributes. For the purpose of the study, the following attributes will be adopted: (1) Non-standard Discretionary Earnings Quality; (2) Auditor Opinion; and (3) Natural logarithm of audit fees.

4.5.3.1 Earnings Quality

The well published accounting scandals at the turn of the 21st century particularly those in the US has resulted in the implementation of the Sarbanes-Oxley Act (2002) further addressing issues related to the provision of non-audit fees which can impact on audit independence and earnings quality. Albeit the lack of or weak legislations prior to these scandals, it appears that the provision of non-audit fees is a concern that has been addressed continuously since the 1950s (Singh 2014). The core concern in relation to the provision of non-audit fees is it will impact on the independence of the external auditor. The external auditor is likely going to permit higher levels of earnings manipulations in order to increase the likelihood of retaining clients and/or the potential retention of lucrative revenues from non-audit services (Wallman 1996). This in turn will result in financial report quality being compromised.

Researchers such as Wines (1994); Basioudis, Evangelos, and Geiger (2008); and Fargher and Jiang (2008) report that there are indications to suggest that auditors who received higher non-audit fees are less inclined to modify or qualify their audit opinions which is a common test for auditor independence by researchers. Further, the auditor's independence could be impaired in the provision of both audit and non-audit services, that is, the auditor being less likely to disagree with management (Simunic 1984). The "knowledge spillover benefits" suggests that auditors' increased knowledge may increase the auditors' objectivity and

independence (Simunic 1984). Knechel, Sharma, and Sharma (2012) reports that there is a negative association between non-audit fees and audit lag, thus suggesting the presence of knowledge spillovers.

As discussed in section 2.6.3 above, in-spite of recent reforms that have scaled back the scope of non-audit services due to auditor independence concerns (Francis 2004), the quality of financial reporting will not be compromised even though the IAF is outsourced to external auditor (Prawitt, Sharp, and Wood 2012) which the Sarbanes-Oxley Act (2002) expects otherwise. As discussed in section 2.7 above, Prawitt, Smith, and Wood (2009) report that IAF quality is negatively associated with earnings management, associated with smaller negative abnormal accruals and improves the likelihood of achieving or failing market analysts' earnings forecasts. Specifically, as IAFs jointly reflect both greater competence and are *not* used as an MTG, there is lower occurrences of income-decreasing abnormal accruals (Abbott et al. 2016).

As indicated above, Warfield, Wild, and Wild (1995) report that riskier firms might use more abnormal accruals to reduce the perception of risk. The estimation of normal accruals and abnormal accruals was introduced by Jones (1991) and subsequently used and/or modified by researchers including: Dechow, Sloan, and Sweeney (1995); Klein (2002a); Louis (2004); Kothari, Leone, and Wasley (2005); and Bowen, Rajgopal, and Venkatachalam (2008) to test industry and year performance-matched discretionary-accrual. The Jones (1991) model, as a proxy discretionary accruals, will be used in this study is as follows:

$$|ABS\_EQNS|_{it} = TAC_{it}/TA_{it\text{-}1} = \beta_1(1/TA_{it\text{-}1}) + \beta_2((\Delta Rev_{it}/TA_{it\text{-}1} - \Delta AR_{it}/TA_{it\text{-}1}) + \beta_3 PPE_{it}/TA_{it\text{-}1} + \mathcal{E}_{it}$$

Where:

$\beta_{1,2,3}$ = Estimated coefficients;

$|ABS\_EQNS|_{it}$ = Absolute value of discretionary accruals of firm i for time period t calculated using performance adjusted model introduced by Kothari, Leone, and Wasley (2005);

TAC_{it} = Total accruals in time period t for firm i;

ΔREV_{it} = Revenue in time period t less revenue in time period $t\text{-}1$ for firm i;

ΔAR_{it} = Account receivables in time period t less account receivable in time period $t\text{-}1$ for firm i;

PPE_{it} = Gross property, plant, and equipment in time period t for firm i;

$TA_{it\text{-}1}$ = Total assets in time period $t\text{-}1$ for firm i;

$|\mathcal{E}_{it}|=|ABS\_EQNS|_{it}$ = Error term representing discretionary accruals in period t for firm i.

$|ABS\_EQNS|_{it}$, a continuous variable, will be the absolute value of the ε_{it} for firm i at time period t, after the ordinary least squares (OLS) regression model is run. The cash-flow statement approach by Collins and Hribar (2002) is used to determine the level of discretionary accruals:

$$TAC_{it} = NI_{it} - CFO_{it}$$

Where:

TAC_{it} = Total accruals in time period t for firm i;

NI_{it} = Earnings before extraordinary items & discontinued operations in time period t for firm i;

CFO_{it} = Net cash flow from operating activities (taken directly from the statement of cash flows) in time period t for firm i.

4.5.3.2 Auditor Opinion

Bamber, Bamber, and Schoderbek (1993); Haw et al. (2003); and Carey and Simnett (2006) examine the effects of audit opinions and earnings surprises on the timeliness of annual earnings announcements, and observe that both audit opinions and earnings surprises have significant effects. Begley and Fischer (1998); and Haw et al. (2003) find a significant effect attributable to the magnitude of negative earnings surprises. Albeit announcement dates are generally less predictable in the emerging market of China than in the mature markets, Haw et al. (2003) document a significant interaction effect between audit opinions and earnings surprises showing positive earnings surprises with modified audit opinions are announced significantly later than unqualified negative earnings surprises. Butler, Leone, and Willenborg (2004) document relation between modified opinions and abnormal accruals rests with companies that have going-concern and firms that have large negative accruals are likely due to severe financial distress.

4.5.3.3 Audit Fees

Audit fees are fees to be paid to external auditor for external auditing or assurance related works and there are many factors that can influence audit fees and its association with audit quality. The auditors and auditees negotiate on a contract which include considerations such as audit related works (Watts and Zimmerman 1990).

The tenets of agency theory would suggest that an audit firm may attempt to maximise audit fees charged and the auditee wants to pay minimum fees and/or the completion of works using the highest standards. The external independent auditor's major role is to monitor auditee compliance in accordance with the contract's complex considerations between the principal (that is, firm shareholders) and agent (that is, firm managers) which determine the external audit fees.

An external auditor's ability to conduct high-quality audits has been widely debated by

regulators, legislators, financial statement users and researchers focusing on audit procurement/auditor's specialisation (that is, agency costs), abnormal audit fees due economic bonding between the auditor and client impacting on auditor independence, earnings management, and audit coverage in accordance to Section 404 of the Sarbanes-Oxley Act (2002) (just to name a few) (Jensen and Payne 2005; Hoitash, Markelevich, and Barragato 2007; Choi, Kim, and Zang 2010; Krishnan, Krishnan, and Song 2011).[40]

Jensen and Payne (2005) reports that well-developed audit procurement practices (and individual audit procurement elements) are associated with hiring external auditors with better industry experience (that, agency costs) which suggest higher audit quality. Well-developed audit procurement practices have minimal combined effect on audit fees. However, individual audit procurement elements are associated with audit fees. Hoitash, Markelevich, and Barragato (2007) find that significant negative association between total fees and two measures of audit quality – the standard deviation of residuals from regressions relating current accruals to cash flows and the absolute value of performance-adjusted discretionary accruals across all years (2000-2003). Further, findings by Choi, Kim, and Zang (2010) suggest that auditors' incentives to deter biased financial reporting differ systematically, depending on whether their clients pay more than or less than the normal level of audit fee.

The implementation of the Sarbanes-Oxley Act (2002) and the decreasing number of big accounting firms (that is, from six to four) have result in an increase in audit fees being charged due to less competition. The resulting audit fees paid between auditors and auditees evolve can be influenced by auditor attributes and hence may also have a significant bearing on contractual arrangements. Asthana and Boone (2012 p.1) find that "audit quality, proxied by absolute discretionary accruals and meeting or beating analysts' earnings forecasts, declines as negative abnormal audit fees increase in magnitude, with the effect amplified as proxies for client bargaining power increase." And, this effect is dampened in years following the Sarbanes-Oxley Act (2002) enforcement which suggest that this legislation is effective in enhancing auditor independence (Asthana and Boone 2012).

Past research has investigated audit fees and its determinants which are auditor attributes and corporate governance mechanisms. Auditor attributes includes: (1) Perceived high quality and good reputation of the Big4 audit firms that provide more elaborate for complex audits may lead to higher audit fees (Goodwin-Stewart and Kent 2006a); (2) Industry specialisation development type audit that enables a premium to be charged on auditing services provided (Lim and Tan 2008); and (3) audit tenure, as discussed in section 2.6.3 above, is reported to be a prominent factor (DeFond and Subramanyam 1998). Corporate governance mechanisms that mitigate agency costs include coverage on quality financial reporting and earnings quality (Lim and Tan 2008).

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[40] In 1987, both the AICPA and the U.S. General Accounting Office strongly recommended improved audit procurement as a mechanism for increasing audit quality. This is because improved procurement shifts the focus during the auditor-selection process from audit fees to audit quality.

Audit fees may be reduced should the auditor had serviced the auditee over the period of time if the scope of audit coverage remains similar from previous periods (Simon and Francis 1988; DeFond and Subramanyam 1998). However, should the auditor deemed that the "extended tenure would impact (the auditor's) interests negatively, auditors may strategically seek short appointments. Similarly, if the auditee is continuously switching auditors and/or renegotiating engagements on an on-going basis, audit fees may remain persistently high" (Singh 2010 p.2).

The provision of non-audit services by auditors has raise concerns about auditor objectivity and hence auditor independence (DeAngelo 1981). Other researchers who have provided empirical evidence related to audit fees and/or non-audit fees to total audit fees ratio include Frankel, Johnson, and Nelson (2002); Larcker and Richardson (2004); and Francis and Ke (2006). IAF quality can contribute in ways that lead to lower external audit fees (Felix, Gramling, and Maletta 2001; Prawitt, Sharp, and Wood 2011).

4.5.4   Firm Corporate Governance Characteristics

The BoDs and the audit committee measures described below will be analysed to determine the effect, if any, on financial distress.

4.5.4.1   Board of Directors and Audit Committee

As discussed in sections 2.5 and 2.6 above, corporate governance can play an effective role in ensuring the quality of the financial reporting process. Section 2.6.1 above discusses the fiduciary duties of the BoDs with respect to the integrity of the firm's financial accounting process impacting on earnings quality. The extant of literature suggests the following proxies to be used for an effective BoDs: (1) Board size (Beasley and Petroni 2001; Defond, Hann, and Hu 2005a; Karamanou and Vafeas 2005); (2) Board independence or composition (Denis, Denis, and Sarin 1997b; Anderson, Mansi, and Reeb 2004; Lee, Mande, and Ortman 2004; Defond, Hann, and Hu 2005a); (3) Board meetings or board diligence (Carcello et al. 2002; Karamanou and Vafeas 2005; Singh 2010); and (4) Board financial expertise (Singh 2010).

For firm i in the period t, the measurements for the above variables are as follow: (1) Board size will be assigned the number of directors; (2) Board independence will be assigned the percentage of independent directors to total number of directors on the board; (3) Board meetings or board diligence will be assigned the number of BoDs' meetings held during the year; and (4) Board financial expertise *is* a dummy variable given the value of 1 if the board consists of at least one financial expert during the year.[41]

As discussed in section 2.6.1 above, there is extant of literature that suggests the quality of the audit committee is measured by: (1) Size which is the number of audit committee members

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[41] Qualified as a CPA (Certified Practising Accountant) or a CA (Chartered Accountant).

(Krishnan 2005); (2) Independence which is the percentage of independent members in the audit committee (Klein 2002a; Klein 2002b; Abbott et al. 2003; Xie, Davidson, and DaDal 2003; Chen and Zhou 2007; Carcello et al. 2011)[42]; (3) Diligence or meetings (Abbott et al. 2003; Abbott, Parker, and Peters 2004; Stewart and Munro 2007); and (4) Financial expertise (Defond et al. 2005; Dhaliwal et al. 2006; Krishnan and Visvanathan 2007a). Consistent with prior literature (Defond et al. 2005; Dhaliwal et al. 2006; Krishnan and Visvanathan 2007a), the audit committee financial expertise variable, *ACFINEXP$_{it}$*, will be assigned a value one (1) if the audit committee has a member with accounting or non-accounting expertise, zero (0) otherwise in this.[36]

4.6   STATISTICAL REGRESSION MODELS

The main part of this study tests the relationship between financial distress and IAQ attributes after allowing for a range of factors also likely to influence the former. That is, the hypotheses formulated above will be tested formally using a linear regression model. Significant attention will be given to developing and refining an appropriate model for applying IAQ attributes that requires further statistical analysis (for example, including exploratory factor analysis).

4.6.1   Basic Model

The linear regression analysis is used to test the predicted relationships:

$$\textit{Z2-Score}_{it} = \beta_0 + \beta_1 IAF_{it} + [\textbf{Control Variables}] + \varepsilon_{it}, \text{ for firm } i, \text{ period } t \text{ year.} \qquad [1]$$

$$\textit{Z2-Score}_{it} = \beta_0 + \beta_1 IAQP_{it} + [\textit{Control Variables}] + \varepsilon_{it}, \text{ for firm } i, \text{ period } t \text{ year.} \qquad [2]$$

$$\textit{ZFC-Score}_{it} = \beta_0 + \beta_1 IAF_{it} + [\textbf{Control Variables}] + \varepsilon_{it}, \text{ for firm } i, \text{ period } t \text{ year.} \qquad [3]$$

$$\textit{ZFC-Score}_{it} = \beta_0 + \beta_1 IAQP_{it} + [\textbf{Control Variables}] + \varepsilon_{it}, \text{ for firm } i, \text{ period } t \text{ year.} \qquad [4]$$

Where (for [1], [2], [3] and [4]):

β_0 and β_1 = coefficients;

Z2-Score$_{it}$ = The financial distress score computed using the Altman Z2-Score for firm i at the period t year;

ZFC-Score$_{it}$ = The financial distress score computed using the Zmijewski ZFC-Score for firm i at the period t year;

IAF$_{it}$ = IAF presence for firm i at the period t year.

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[42] There are no formal requirements for Australian firms to form an audit committee. The audit committee independence is measured based on the definition of an independent director proposed by the *ASX CGC* (2003). The ASX Listing Rule 12.7 Recommendation 4.3 states that the s*tructure the audit committee consists of: (1) Only independent directors; (2) A majority of independent directors; (3) An independent chairperson, who is not chairperson of the board; and (4) At least three members.*

$IAQP_{it}$ = Composite measure of IAQ using the Prawitt, Smith, and Wood (2009) model for firm i at the period t year. $\textbf{IAQP}_{it}$ is the sum of $IAFINDP_{it}$ + $IACERTP_{it}$ + $LnIAYREXPP_{it}$ + $IACPEP_{it}$ + $IAFRISKASSESSP_{it}$ + $IAFMONP_{it}$ + + $IAFQARP_{it}$;

Control *Variables:*

$ACFINEXP_{it}$ = At least one member of audit committee has financial expertise for firm i at the period t year;

$AOPN_{it}$ = The external auditor's opinion for firm i at the period t year;

ROE_{it} = The Return-on-Equity for firm i at the period t year;

$LnMARCAP_{it}$ = The natural logarithm of the market capitalisation for firm i at the period t year;

$BODIND_{it}$ = The ratio of the BoDs composition where the number of independent directors is divided by the total number of BoDs member for firm i at the period t year;

$LnAUDITFEES_{it}$ = The natural logarithm of external audit fees paid by firm i at the period t year;

$|ABS\_EQNS_{it}|$ = Absolute value of earnings quality (non-standard) of firm i for time period t; and

ε_{it} = the error term.

$Z2\text{-}Score_{it} = \beta_0 + \beta_1 IAFINDP_{it} + \beta_2 IACERTP_{it} + \beta_3 IAYREXPP_{it} + \beta_4 IACPEP_{it} + \beta_5 IAFRISKASSESSP_{it} + \beta_6 IAFMONP_{it} + \beta_7 IAFQARP_{it} + [\textbf{Control Variables}] + \varepsilon_{it}$, for firm i at the period t year. [5]

$ZFC\text{-}Score_{it} = \beta_0 + \beta_1 IAFINDP_{it} + \beta_2 IACERTP_{it} + \beta_3 IAYREXPP_{it} + \beta_4 IACPEP_{it} + \beta_5 IAFRISKASSESSP_{it} + \beta_6 IAFMONP_{it} + \beta_7 IAFQARP_{it} + [\textbf{Control Variables}] + \varepsilon_{it}$, for firm i at the period t year. [6]

Where (for [5] and [6] only):

$Z2\text{-}Score_{it}$ = The financial distress score computed using the Altman Z2-Score for firm i at the period t year;

$ZFC\text{-}Score_{it}$ = The financial distress score computed using the Zmijewski ZFC-Score for firm i at the period t year;

$IAFINDP_{it}$ = Using the 17 questions (refer section 4.4.1 above), IAF independence computed using the Prawitt, Smith, and Wood (2009) model for firm i at the period t year;

$IACERTP_{it}$ = Based on the IIA recognised certification and the average number of years of internal auditing experience that internal auditors in an IAF have, Internal auditors' certification computed using the Prawitt, Smith, and Wood (2009) model for firm i at the period t year;

$IAYREXPP_{it}$ = Internal auditors' year of experience computed using the Prawitt, Smith, and Wood (2009) model for firm i at the period t year;

$IACPEP_{it}$ = Internal auditor continuing professional education computed using the Prawitt, Smith, and Wood (2009) model for firm i at the period t year;

$IAFRISKASSESSP_{it}$ = Using the six questions (refer section 4.4.3 above), IAF scope of work – risk assessment computed using the Prawitt, Smith, and Wood (2009) model for firm i at the period t year;

$IAFMONP_{it}$ = Using the three questions (refer section 4.4.4 above), IAF communication and monitoring computed using the Prawitt, Smith, and Wood (2009) model for firm i at the period t year;

$IAFQARP_{it}$ = IAF quality annual review score based on the CAE's response to the questionnaire for firm i at the period t year.

Control **Variables***:*

ROE_{it} = The Return-on-Equity for firm i at the period t year;

$ACFINEXP_{it}$ = At least one member of audit committee has financial expertise for firm i at the period t year;

$BODIND_{it}$ = The ratio of the BoDs composition where the number of independent directors is divided by the total number of BoDs member for firm i at the period t year; and

$|ABS\_EQNS|_{it}$ = Absolute value of earnings quality (non-standard) of firm i for time period t.

Consistent with the Prawitt, Smith, and Wood (2009) model, the overall internal audit quality composite measure, *IAQP*, is the sum the scores of the individual quality components. The larger the score indicate that the IAFs that are of higher quality.

As mentioned earlier, a control group of listed companies similar to the treatment group includes firms which do not have an IAF. A comparative analysis of performance in relation to the management of financial distress will be undertaken and allowance made for assessing the independent effectiveness of the corporate governance function within both categories of firms. The control group can be constructed by using the listing of firms obtained from ASX, stratified and randomly selected based on the method of selection similar discussed in section 4.2.1.

4.7   SUMMARY

Chapter Four detailed the research method used to test the hypotheses of this study. Initially, there was a justification of the sample selected, source documentation chosen and time period analysed. Subsequently, measures for the dependent (financial distress) and independent variables (internal audit quality attributes) used in this study were outlined before the main empirical tests to be undertaken in this study identified.

Chapter Five will provide the descriptive statistics and univariate analyses of the sample. Initially, details pertaining to cleaning and excluding the data are provided. Sample descriptive statistics such as the mean, standard deviation, 0.25 percentile, median and 0.75 percentile will also be provided. Details of key descriptive sample characteristics for both cross-sectional and longitudinal factors along with correlation analyses are also provided in Chapter Five.

Table 4.4:
Dependent, Independent and Control Variables Used

Variable Name	Variable Description	Data Source
Altman Model (1983): Z2-Score$_{it}$	Z2-Score$_{it}$ = 6.56 X1$_{it}$ + 3.26 X2$_{it}$ + 6.72 X3$_{it}$ + 1.05 X4$_{it}$ X1=Working Capital/Total Assets; X2=Retained Earnings/Total Assets; X3=EBIT/ Total Assets; X4= Equity/Total Liabilities	DatAnalysis and Osiris
Zmijewski Model (1984): ZFC-Score$_{it}$	ZFC-Score is calculated as: ZFC-Score$_{it}$ = -4.336 – 4.513 ROA$_{it}$ + 5.679 Fin_Leverage$_{it}$ + 0.004 Liquidity$_{it}$ ROA=Net Income/Total Asset; Fin_Leverage=Total Liabilities/Total Assets; and Liquidity=Current Assets/Current Liabilities	DatAnalysis and Osiris
IAF	Presence of an IAF (=1)	Survey/email/phone call/letter/financial statement
IAQP	Computed internal audit quality composite score using the (Prawitt, Smith, and Wood 2009)	Computed
IAFINDP	Computed IAF independence score	Survey
IACERTP	Computed internal auditor certification	Survey
IACPEP	Computed internal auditor competence	Survey
IAYREXPP	Computed internal auditor number of years of experience	Survey
IAFRISKASSESSP	Computed internal audit function scope of work	Survey
IAFMONP	Computed internal audit function communication and monitoring	Survey
IAFQARP	Computed internal audit function quality audit review	Survey
ACFINEXP	Audit committee with financial expertise	DatAnalysis and Osiris
AOPN	External auditor opinion on final financial report	DatAnalysis and financial report
ROE	Return-on-equity	DatAnalysis and financial report
LnMARCAP	Firm size measured using natural logarithm of market capitalisation	DatAnalysis, financial report, and ASX website
BODIND	Board of Directors independence	DatAnalysis, Osiris and financial report
ACFINEXP	Audit committee financial expertise	DatAnalysis, Osiris and financial report
LnAUDITFEES	Natural logarithm of audit fees paid	DatAnalysis and financial report
|ABS_EQNS|	Absolute value of non-standard discretionary accruals computed using regression	DatAnalysis and financial report

CHAPTER FIVE:
DESCRIPTIVE STATISTICS AND UNIVARIATE ANALYSIS

5.1   OVERVIEW OF THE CHAPTER

Chapter Four outlines the research method used to test this study's hypotheses. It details the sample selection process, source data documentation and time period analysis. Discussion on the selection of dependent variables, independent variables, and control variables were carried out before the identification of the main empirical tests for this study.

Chapter Five's discussions are centred on the descriptive statistics analysing two samples of firm year observations (that is, 865 and 43) by first outline the steps involved in selecting the final sample. The remaining sections of this chapter outline the descriptive statistics for two alternative dependent variables (that is, the Altman Z2-Score and Zmijewski ZFC-Score), independent variables (that is, IAF existence, IAQ composite measure and IAQ attributes separately), firm characteristics, corporate governance characteristics (that is, the BoDs and audit committee effectiveness, and audit quality). A summary will be provided to end Chapter Five

5.2   DATA CLEANING

Before commencing data analysis, data are verified for each of the variables used in the study. Such verifications include ascertaining missing numbers, accuracy of data entry and normality. Normality test involve assessing the variables' skewness and p-value using the Shapiro-Wilk W test for normal data. Albeit all variables are not normally distributed, these variables are included following prior empirical literature (Carcello and Nagy 2004; Gul, Jaggi, and Krishnan 2007; Chi, Lisic, and Pevzner 2011; Gopalan and Jayaraman 2012).

Prior internal auditing audit quality literatures transform continuous variable using both natural logarithm and winsorising to attempt to justify that a better linear fit can be obtained and the subsequent OLS regression testing can then be undertaken with confidence (Arena and Azzone 2009). For example, proxies were transformed using natural logarithm for market capitalisation (Lin et al. 2011; Ege 2015), and audit fees (Hoitash, Hoitash, and Bedard 2009; Prawitt, Sharp, and Wood 2011; Prawitt, Sharp, and Wood 2012; Wan-Hussin and Bamahros 2013; Abbott, Parker, and Peters 2012a).

Further, prior internal auditing and audit quality studies find that the process of winsorisation of continuous variables generally improve robustness of the results (Ashbaugh-Skaife, Collins, and Kinney 2007; Feng, Li, and McVay 2009; Prawitt, Smith, and Wood 2009; Lin et al. 2011; Munsif et al. 2011; Abbott, Parker, and Peters 2012b; Prawitt, Sharp, and Wood 2012; Pizzini, Lin, and Ziegenfuss 2015). This study winsorises all continuous variables at the 1 and 99 percent levels, and also undefined values resulted in the natural logarithm effect are changed to the lowest values (that is, outliers elimination) to remove the effect of influential

eccentric observations.

The elimination of outliers is consistent with the study by Goodwin-Stewart and Kent (2006b) where the maximum internal audit staff is winsorised to 25. Abbott, Parker, and Peters (2012a) winsorise the natural logarithm of audit fees (a dependence variable) and set equal to the value at the 99th percentile. Consistent with these two studies, this study then winsorises the natural logarithm of audit fees to the smallest value of the 25th percentile if the firms' audit fees cannot be determined from databases and financial statements.

The Central Limit Theorem principle suggests that large samples (greater than 30) can be used with confidence for subsequent multivariate testing, depending on the number of degrees of freedom and independent variables employed (Hair et al. 1995).

5.3   SAMPLE FINALISATION

The second part of this study (that is, testing hypotheses H_2 to H_7) is significantly dependent on the number of responses from the CAEs or Head of an IAF. An email was first sent to the IIA membership liaison person via a colleague in the School of Accounting, Curtin University. This email has a web-link embedded to the online survey created using the web-based survey software called Qualtrics (refer appendix 1 for questionnaire). Four weeks after the email was sent off to the CAEs via IIA, less than ten responses were received. Using the firms' email address downloaded from the ASX's website, the same emails (with modified content due to it being addressed to a person other than a CAE) containing the on-line survey web-link were resent requesting the recipients to forward the emails to their CAEs if their firms had an IAF. Again, the response rate was low.

The Qualtrics survey was then converted to a paper-based format. A Microsoft Excel spreadsheet was maintained containing the name and title of the recipients which were "mail-merged" with the letter drafted (refer appendix 2). The letters were sent using postal mails targeting the chairperson of the audit committee or other senior members of the firms. For firms with an audit committee but without a chairperson, the letter is addressed to all the audit committee members. For firms without an audit committee, senior members' name and title (for example, Chief Operating Officer (COO), CEO, Managing Director (MD) or Company Secretary) was used.

5.3.1   Sample Selection Process, Industry Breakdown and Survey Response

The primary objective of this study hinges on the existence and non-existence of an IAF in a firm for both RQ1 and RQ2. For firms with an IAF which the CAEs completing the questionnaire, the IAF quality attributes will be computed based on the CAEs' opinions using the Prawitt, Smith, and Wood (2009) model. Regardless of whether the respondents' firm has an IAF and or not, data relating to the dependent variable (that is the Altman Z2-Score and

Zmijewski ZFC-Score), independent variable(s) (that is IAF existence or IAQ attributes), firm characteristics, corporate governance characteristics (that is, the BoDs and/or audit committee effectiveness) and external audit quality measures are extracted from both DatAnalysis and SIRCA databases and/or financial statements.[43]

Table 5.1 Panel A below provides a total of 2,009 firms and 180 suspended firms (that is, a total of 2,189) listed in the ASX as at 16th December 2014 in accordance with the DatAnalysis database. Table 5.2 Panel B below shows the sample used to determine as to whether or not the existence of an IAF will reduce financial distress. Table 5.2 Panel B below also shows the number of firm years after excluding all financial sector firms which responded to the survey. That is, a total of 180 suspended firms, and a total of 168 financial sector firms (including the Australian four major banks) making it a total 348 firms. The exclusion of firms from the sample are consistent with prior financial distress research by Wu (2004) and IAQ (association with Earnings Management) research by Prawitt, Smith, and Wood (2009). The final sample pool of 865 firm-years is based on responses from the questionnaire and ability to determine whether or not the firms have and have no IAF from financial statements.

Table 5.1:
Survey responses, sample selection and Industry breakdown

Panel A: Sample Selection						
No of firms listed on the ASX as at 16th Dec 2014:	**2009**					
No of firms suspended on the ASX as at 16th Dec 2014:	**180**					
Panel B: Sample firm-year by industry						
(Obtained via questionnaire and/or financial statements (FS))	2012	%	2013	%	2014	%
Survey: Firm without IAF:	n/a	n/a	83	28.92%	83	27.95%
Survey: Firm with IAF:	n/a	n/a	20	6.97%	23	7.74%
FS: Firm without IAF:	127	45.20%	48	16.72%	52	17.51%
FS: Firm with IAF:	154	54.80%	136	47.39%	139	46.80%
Total number of firm without IAF:	127	45.20%	131	45.64%	135	45.45%
Total number of firm with IAF:	154	54.80%	156	54.36%	162	54.55%
Sub-total:	**281**		**287**		**297**	
Total firm-years in the final sample: 865						

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[43] Monetary figures are in Australian dollar.

Table 5.1 (continued):
Survey responses, sample selection and Industry breakdown

Breakdown by industry sector:	Overall %	2012	%	2013	%	2014	%
Consumer Discretionary	17.11%	47	16.73%	49	17.07%	52	17.51%
Consumer Staples	4.97%	14	4.98%	14	4.88%	15	5.05%
Energy	10.98%	32	11.39%	32	11.15%	31	10.44%
Health Care	7.63%	20	7.12%	22	7.67%	24	8.08%
Industrials	23.70%	67	23.84%	67	23.34%	71	23.91%
Information Technology	5.43%	15	5.34%	16	5.57%	16	5.39%
Materials	25.66%	74	26.33%	73	25.44%	75	25.25%
Telecommunication Services	2.31%	6	2.14%	7	2.44%	7	2.36%
Utilities	2.20%	6	2.14%	7	2.44%	6	2.02%
Total firm-years:2012 to 2014:		**281**		**287**		**297**	

Table 5.1 Panel B above also presents a breakdown of the sample by firms with and without IAF by years (that is, 2012, 2013 and 2014) obtained via survey and financial statements (FS). For these three years, it reveals that firms with an IAF are more than firms without an IAF in the sample. In year 2012, the number of firms with an IAF and without an IAF in the sample are 154 (54.80%) and 127 (45.20%) respectively. In year 2013, the number of firms with an IAF and without an IAF in the sample are 156 (54.36%) and 131 (45.64%) respectively. In year 2014, the number of firms with an IAF and without an IAF in the sample are 162 (54.55%) and 127 (45.45%) respectively. For all three years, the number of firms with an IAF and without an IAF in the sample are 472 (54.69%) and 393 (45.54%) respectively.

Table 5.1 Panel B above also presents the industry breakdown of the sample firms. Overall, the Material, Industrials, and Consumer Discretionary sectors represent the highest proportion (that is, 25.66%, 23.70% and 17.11% respectively) of the final sample of 865. On the other hand, the sample size for the industries of Utilities, and Telecommunication Services are at the lowest end. That is, 2.20%, 2.31% and 4.97%.

5.3.2   Descriptive Statistics

Table 5.2 below shows the number responses to the questionnaire that are in the sample obtained using the online Qualtrics and postal methods. The questionnaire requires data related to years 2013 and 2014. The percentage of questionnaire responses in relation to the sample size of firms with IAF stated in table 5.2 (that is, 865) below is 13.52%. The percentage of questionnaire responses using all the methods for years 2013 and 2014 are 13.46% and 13.58% respectively.

Table 5.2:
Survey responses versus sample selection firms

Questionnaire Type	Year 2013	Year 2014	Total Responses		%	% in sample 2013	% in sample 2014
Qualtrics	4	4	8		18.60%	2.56%	2.47%
Mail	17	18	35		83.72%	10.90%	11.11%
Total:	21	22	43			13.46%	13.58%
	Total number of responses in sample with IAF:						13.52%

Table 5.3 below shows descriptive statistics for the dichotomous independent variables respectively in the sample. The descriptive statistics of dichotomous variables, as presented in table 5.3 below, show that the mean of the Altman Z2-Score (that is, firms facing financial distress computed using this model) $Z2_{it}$ is 0.4844 and Zmijewski ZFC-Score ZFC_{it} is 0.5191. That is, 48.44% and 51.91% of firms in the sample are facing financial distress calculated using the Altman Z2-score and Zmijewski ZFC-Score models.

Table 5.3 also shows descriptive statistics for the dichotomous control variables respectively in the sample. The mean of the presence of an IAF IAF_{it}, audit committee financial expertise $ACFINEXP_{it}$, and (external) audit opinion $AOPN_{it}$ are 0.5457, 0.6150, and 0.9064 respectively. That is, in the sample 54.57% of the firms have an IAF, 61.50% of the firms have an audit committee with at least one member who has professional accounting qualification and 90.64% of the firms have an unqualified external auditor's opinion.

In relation to the continuous control variables, the return of equity ROE_{it} has a mean (median) of -0.0651 (0.0700) and a standard deviation of 0.7174. The computed natural logarithm of the firms' market capitalisation $LnMARCAP_{it}$ has a mean, median and standard deviation of 19.4142, 19.3520 and 2.1339 respectively. The firms' BoDs meetings held $BODMEET_{it}$ has a mean, median and standard deviation of 11.2900, 11.0000 and 5.1860 respectively. The firms' BoDs independence $BODIND_{it}$ has a mean, median and standard deviation of 0.4647, 0.4444 and 0.2266 respectively. The computed natural logarithm of the firms' audit fees $LnAUDITFEES_{it}$ has a mean, median and standard deviation of 9.009, 7.4816 and 4.2986 respectively. The absolute values of discretionary accruals (non-standard) calculated using the modified Jones model $|ABNACCR|_{it}$ are shown to have a mean, median and standard deviation of -0.0464, -0.0103 and 0.1535 respectively.

Table 5.3 also shows descriptive statistics for continuous control variables in relation to ranges of percentiles from 25th percentile to 75th percentile. The ROE_{it} ranges from -0.0400 (25th percentile) to 0.1500 (75th percentile). The $LnMARCAP_{it}$ ranges from 18.0496 (25th percentile) to 20.9097 (75th percentile). The $BODMEET_{it}$ ranges from 8 (25th percentile) to 14 (75th percentile). The $BODIND_{it}$ ranges from 0.3077 (25th percentile) to 0.6000 (75th percentile). The $LnAUDITFEES_{it}$ ranges from 4.9416 (25th percentile) to 13.1451 (75th percentile). The

|ABS_EQNS|ᵢₜ ranges from -0.0711 (25th percentile) to 0.0324 (75th percentile).

Table 5.4 below presents descriptive statistics using the Prawitt, Smith, and Wood (2009) model for the aggregated composite score of all attributes $IAQP_{it}$ and the IAQ attributes which are: IAF Independence $IAFIND_{it}$, internal auditor competence measure by internal auditor certification $IACERT_{it}$, internal audit years of experience $IAYREXP_{it}$, and internal auditor continuous professional education $IACPE_{it}$, IAF assess risks $IAFRISKASSESS_{it}$, IAF continuous monitoring $IAFMON_{it}$, , and quality audit review of IAF $IAFQAR_{it}$.

Due to a small sample size, only four of the seven control variables in table 5.3 are used to test hypotheses H_2 to H_7.[44] The control variables, the return of equity ROE_{it} has a mean (median) of 0.1149 (0.0900) and a standard deviation of 0.1657. The audit committee financial expertise $ACFINEXP_{it}$ has a mean (median) of 0.6700 (1.0000) and a standard deviation of 0.4740. The BoDs independence $BODIND_{it}$ has a mean (median) of 0.7455 (0.8182) and a standard deviation of 0.2210. The earnings quality measure $|ABS\_EQNS|_{it}$ has a mean (median) of -0.0398 (0.000) and a standard deviation of 0.1513.

Table 5.4 also shows descriptive statistics for independent variables in relation to ranges of percentiles from 25th percentile to 75th percentile. The $IAQP_{it}$ ranges from 4.0000 (25th percentile) to 7.0000 (75th percentile). The $IAFINDP_{it}$ ranges from 0.0000 (25th percentile) to 1.0000 (75th percentile). The $IACERTP_{it}$ ranges from 0.0000 (25th percentile) to 1.0000 (75th percentile). The $IAYREXPP_{it}$ ranges from 1.0000 (25th percentile) to 1.0000 (75th percentile). The percentile value for $IACPEP_{it}$ ranges is undefined. The $IAFRISKASSESSP_{it}$ ranges from 0.0000 (25th percentile) to 1.0000 (75th percentile). The $IAFMONP_{it}$ ranges from 1.0000 (25th percentile) to 1.0000 (75th percentile). The $IAFQARP_{it}$ ranges from 0.0000 (25th percentile) to 0.0000 (75th percentile).

Table 5.4 also shows descriptive statistics for control variables in relation to ranges of percentiles from 25th percentile to 75th percentile. The ROE_{it} ranges from 0.0500 (25th percentile) to 0.1750 (75th percentile). The $ACFINEXP_{it}$ ranges from 0.0000 (25th percentile) to 1.0000 (75th percentile). The $BODIND_{it}$ ranges from 0.7072 (25th percentile) to 0.8750 (75th percentile). The $|ABS\_EQNS|_{it}$ ranges from -0.0555 (25th percentile) to 0.0249 (75th percentile).

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[44] Although the general rule for the ratio of observation for independent variable is 5:1, the desired level is 15 to 20 observations for each independent variable in order to obtain generalisability of the results (Hair et al. 2010). A limitation using survey as a research instrument is clearly evident here in the quest to obtain a sufficient sample size.

Descriptive Statistics – Continuous Variables

Variable	Mean	Standard Deviation	25th (MIN) percentile	Median	75th (MAX) percentile
$Z2_{it}$	0.4844 (1's)	-	-	-	-
ZFC_{it}	0.5191 (1's)	-	-	-	-
IAF_{it}	0.5457 (1's)	-	-	-	-
$ACFINEXP_{it}$	0.6150 (1's)	-	-	-	-
$AOPN_{it}$	0.9064 (0's)	-	-	-	-
ROE_{it}	-0.0651	0.7174	-0.0400	0.0700	0.1500
$LnMARCAP_{it}$	19.4142	2.1339	18.0496	19.3520	20.9097
$BODMEET_{it}$	11.2900	5.1860	8.0000	11.0000	14.0000
$BODIND_{it}$	0.4647	0.2266	0.3077	0.4444	0.6000
$LnAUDITFEES_{it}$	9.0090	4.2986	4.9416	7.4816	13.1451
$|ABS\_EQNS|_{it}$	-0.0464	0.1535	-0.0711	-0.0103	0.0324

Where:

$Z2_{it}$ = For firm i for time period t, a value of "1" will be assigned if the calculated results using the Altman's model is less than 2.6, otherwise a value "0" will be assigned; ZFC_{it} = For firm i for time period t, a value of "1" will be assigned if the calculated results using the Zmijewski model is equal to or greater than 0.5, otherwise a value "0" will be assigned; IAF_{it} = A value "1" will be assigned if there exists an IAF in firm i for time period t, otherwise a value "0" will be assigned. Data obtained from survey and/or extracted from the database/financial statement; $ACFINEXP_{it}$ = A value of "1" will be assigned if one or more members of the audit committee in firm i for time period t has/have CPA or CA qualification, otherwise a value "0" will be assigned. Data obtained from the database/financial statement; $AOPN_{it}$ = For firm i for time period t, a value "0" will be assigned for unqualified auditor opinion, a value "1" will be assigned for qualified opinion extracted from financial statement; ROE_{it} = Return-on-Equity (net income returned as a percentage of shareholders equity) of firm i for time period t extracted from database/financial statement; $LnMARCAP_{it}$ = Natural logarithm of market capitalisation (number of shares multiply by share price) of firm i for time period t extracted from database/financial statement at the end of December at period i; $BODIND_{it}$ = The independence of the board of firm i for time period t calculated based on the ratio of independent directors over the total number of directors extracted from the database/financial statement; $LnAuditFees_{it}$ = Natural logarithm of the fees paid to external auditor of firm i for time period t extracted from the database/financial statement; $|ABS\_EQNS|_{it}$ = Absolute value of non-standard discretionary accruals of firm i for time period t calculated using the cross-sectional version of the modified Jones model introduced Dechow, Sloan, and Sweeney (1995).

Descriptive Statistics – IAQ Attributes

Variable	Mean	Standard Deviation	25th percentile	Median (50th percentile)	75th percentile
$IAQP_{it}$	5.3500	1.7710	4.0000	5.0000	7.0000
$IAFINDP_{it}$	0.4400	0.5020	0.0000	0.0000	1.0000
$IACERTP_{it}$	0.7000	0.4650	0.0000	1.0000	1.0000
$IAYREXPP_{it}$	0.8100	0.3940	1.0000	1.0000	1.0000
$IACPEP_{it}$	1.0000	0.0000	--	--	--
$IAFRISKASSESSP_{it}$	0.5300	0.5050	0.0000	1.0000	1.0000
$IAFMONP_{it}$	0.9500	0.2130	1.0000	1.0000	1.0000
$IAFQAFP_{it}$	0.1600	0.3740	0.0000	0.0000	0.0000
ROE_{it}	0.1149	0.1657	0.0500	0.0900	0.1750
$ACFINEXP_{it}$	0.6700	0.4740	0.0000	1.0000	1.0000
$BODIND_{it}$	0.7455	0.2210	0.7072	0.8182	0.8750
$|ABS\_EQNS|_{it}$	-0.0398	0.1513	-0.0555	0.0000	0.0249

Where:

$IAQP_{it}$ = The computed composite score of IAQ attributes using the Prawitt, Smith, and Wood (2009) model based on the questionnaire completed by Chief Audit Executives (CAEs) of firm i for time period t; $IAFINDP_{it}$ = The IAF independence of firm i for time period t will be assigned a "1" if the calculated score is above the ratio of 17 questions (using likert score of one to five (1 to 5)) in the questionnaire completed by CAEs, othewise "0"; $IACERTP_{it}$ = The number of internal auditors of firm i for time period t possessing professional qualifications (that is, Chartered Accountant (CA), Certified Practicing Accountant (CPA), Certified Internal Auditor (CIA), Certified Fraud Examiner (CFE), Certified Information Systems Auditor (CISA), Certified Financial Services Auditor (CFSA), Certified in Control Self-Assessment (CCSA) and Certified Government Auditing Professional (CGAP)) recognised by the Institute of Internal Auditors (IIA) in the questionnaire completed by CAEs will be assigned a "1" if above average, otherwise "0"; $IAYREXPP_{it}$ = The average number of years of related auditing experience of all internal auditors of firm i for time period t obtained via the questionnaire completed by CAEs will be assigned a "1" if above average, otherwise "0"; $IACPEP_{it}$ = A likert score of one to five (1 to 5) of the opinion of the CAEs of firm i for time period t pertaining to the importance of continuous professional education will be assigned a "1" if above average, otherwise "0"; $IAFRISKASSESSP_{it}$ = A firm i for time period t relating to IAF assessing risks obtained via six (6) questions (using likert score of one to five (1 to 5)) in the questionnaire completed by CAEs will be assigned a "1" if above average, otherwise "0"; $IAFMONP_{it}$ = A firm i for time period t relating to IAF communication and monitoring obtained via three (3) questions (using likert score of one to five (1 to 5)) in the questionnaire completed by CAEs will be assigned a "1" if above average, otherwise "0"; $IAFQARP_{it}$ = A zero (0) will be assigned if a quality audit review has NOT been completed before for IAF of firm i for time period t. Otherwise, it will be assigned a "1" if above average, otherwise "0"; ROE_{it} = Return-On-Equity (net income returned as a percentage of shareholders equity) of firm i for time period t extracted from database/financial statement; $ACFINEXP_{it}$ = A value of "1" will be assigned if one or more members of the audit committee in firm i for time period t has/have CPA or CA qualification, otherwise a value "0" will be assigned. Data obtained from the database/financial statement; $BODIND_{it}$ = The independence of the board of firm i for time period t calculated based on the ratio of independent directors over the total number of directors extracted from the database/financial statement; $|ABS\_EQNS|_{it}$ = Absolute value of non-standard discretionary accruals of firm i for time period t calculated using the cross-sectional version of the modified Jones model introduced by Dechow, Sloan, and Sweeney (1995).

Table 5.5 below shows descriptive statistics for independent and control variables using the Non-parametric Mann-Whitney independent sample t-test. This table shows statistics for firms which are classified as in financial distress and otherwise computer using both the Altman Z2-Score and Zmijewski ZFC-Score. The results of the t-tests and the non-parametric Mann–Whitney–Wilcoxon U-test comparing these two groups are also provided.

As shown in Panel A of table 5.5, using the computed score of Altman Z2-Score and only the presence of an IAF only, the results show that firms which are in financial distress have higher IAF presence IAF_{it}, audit committee financial expertise $ACFINEXP_{it}$, (external) audit opinion $AOPN_{it}$, firms' BoDs meetings held $BODMEET_{it}$, computed natural logarithm of the firms' audit fees $LnAUDITFEES_{it}$ and earnings quality $|ABS\_EQNS|_{it}$ than those firms which are not in financial distress. Only IAF_{it}, $AOPN_{it}$, $BODMEET_{it}$, $LnAUDITFEES_{it}$ and $|ABS\_EQNS|_{it}$ are higher and statistically significant. Firm performance ROE_{it} is statistical significant although lower in firms which are in financial distress.

As shown in Panel B of table 5.5, using the computed score of Altman Z2-Score and IAQ (computed by Prawitt, Smith, and Wood (2009) model), the results show that firms which are in financial distress have higher $ACFINEXP_{it}$, firms' BoDs independence $BODIND_{it}$, and $|ABS\_EQNS|_{it}$ than those firms which are not in financial distress. Only computed IAQ using Prawitt, Smith, and Wood (2009) model $IAQP_{it}$ and ROE_{it} are statistically significant although lower in firms which are in financial distress.

As shown in Panel C of table 5.5, using the computed score of Zmijewski ZFC-Score and the presence of an IAF only, the results show that firms which are in financial distress have higher IAF_{it}, $ACFINEXP_{it}$, $AOPN_{it}$, firms' market capitalisation $LnMarCap_{it}$, $BODMEET_{it}$, and $LnAUDITFEES_{it}$ than those firms which are not in financial distress. And, of those which are higher, only IAF_{it}, $ACFINEXP_{it}$, $LnMarCap_{it}$, $BODMEET_{it}$, and $LnAUDITFEES_{it}$ are statistically significant. Only ROE_{it}, $BODIND_{it}$, and $|ABS\_EQNS|_{it}$ are lower in firms which are in financial distress and only ROE_{it}, and $BODIND_{it}$, are statistically significant.

As shown in Panel D of table 5.5, using the computed score of Zmijewski ZFC-Score and IAQ (computed by Prawitt, Smith, and Wood (2009) model), the results show that firms which are in financial distress have higher $BODIND_{it}$, and $|ABS\_EQNS|_{it}$ than those firms which are not in financial distress. $IAQP_{it}$, ROE_{it} and $ACFINEXP_{it}$ are lower in firms which are in financial distress. Only $|ABS\_EQNS|_{it}$ is statistically insignificant albeit it is higher in firms which are in financial distress.

The four panels in table 5.5 provide indications to suggest that IAF with IAQ attributes (that is, $IAQP_{it}$ computed using (Prawitt, Smith, and Wood 2009) model) and ROE_{it} (that is, Return-On-Equity) play a significant role in lowering financial distress (refer to panel B of table 5.5).

Table 5.5:
Descriptive Statistics – Independent sample t-test – Non-parametric Mann-Whitney test

Panel A: Altman Z2-Score with IAF

Variable	Financial Distress (n=419)				Non-Financial Distress (n=446)				Difference in Mean	t-test	Mann-Whitney test	p-value
	Mean	Median	Std Dev	Mean Rank	Mean	Median	Std Dev	Mean Rank				
IAF_{it}	0.580	1.000	0.495	445.76	0.520	1.000	0.500	421.01	0.060	-1.689	88088.50	*
$ACFINEXP_{it}$	0.630	1.000	0.485	437.44	0.610	1.000	0.489	428.83	0.020	-0.601	91576.00	
$AOPN_{it}$	0.150	0.000	0.355	456.50	0.040	0.000	0.202	410.92	0.110	-5.313	83591.50	***
ROE_{it}	-0.227	0.050	0.987	374.23	0.087	0.090	0.190	488.22	-0.314	-6.708	68811.00	***
$LnMARCAP_{it}$	19.279	19.207	2.295	419.44	19.541	19.412	1.965	445.74	-0.262	-1.547	87756.00	
$BODMEET_{it}$	11.610	11.000	5.565	449.13	10.980	10.000	4.789	417.84	0.630	-1.846	86676.50	*
$BODIND_{it}$	0.461	0.429	0.235	427.87	0.468	0.464	0.218	437.82	-0.007	-0.586	91287.50	
$LnAUDITFEES_{it}$	9.251	8.175	4.355	451.23	8.780	6.802	4.237	415.87	0.471	-2.080	85798.50	**
$|ABS\_EQNS|_{it}$	0.109	0.055	0.138	450.35	0.087	0.462	0.116	416.70	0.023	-1.980	86167.00	**

***, **, * denote significance at the 1%, 5% and 10% levels using p-value, two-tailed

Where:

$Z2_{it}$ = For firm i for time period t, a value of "1" will be assigned if the calculated results using the Altman's model is less than 2.6, otherwise a value "0" will be assigned; IAF_{it} = A value "1" will be assigned if there exists an IAF in firm i for time period t, otherwise a value "0" will be assigned. Data obtained from survey and/or extracted from the database/financial statement; $ACFINEXP_{it}$ = A value of "1" will be assigned if one or more members of the audit committee in firm i for time period t has/have CPA or CA qualification, otherwise a value "0" will be assigned. Data obtained from the database/financial statement; $AOPN_{it}$ = For firm i for time period t, a value "0" will be assigned for unqualified auditor opinion, a value "1" will be assigned for qualified opinion extracted from financial statement; ROE_{it} = Return-on-Equity (net income returned as a percentage of shareholders equity) of firm i for time period t extracted from database/financial statement; $LnMARCAP_{it}$ = Natural logarithm of market capitalisation (number of shares multiply by share price) of firm i for time period t extracted from database/financial statement at the end of December at period i; $BODIND_{it}$ = The independence of the board of firm i for time period t calculated based on the ratio of independent directors over the total number of directors extracted from the database/financial statement; $LnAuditFees_{it}$ = Natural logarithm of the fees paid to external auditor of firm i for time period t extracted from the database/financial statement; $|ABS\_EQNS|_{it}$ = Absolute value of non-standard discretionary accruals of firm i for time period t calculated using the cross-sectional version of the modified Jones model introduced Dechow, Sloan, and Sweeney (1995).

Panel B: Altman Z2-Score with IAQP

Variable	Financial Distress (n=24)				Non-Financial Distress (n=19)				Difference in Mean	t-test	Mann-Whitney test	p-value
	Mean	**Median**	**Std Dev**	**Mean Rank**	**Mean**	**Median**	**Std Dev**	**Mean Rank**				
$IAQP_{it}$	4.420	4.500	1.412	15.521	6.530	7.000	1.467	30.184	-2.110	-3.867	72.50	***
ROE_{it}	0.066	0.080	0.149	18.667	0.177	0.120	0.169	26.211	-0.111	-1.958	148.00	**
$ACFINEXP_{it}$	0.750	1.000	0.442	23.625	0.580	1.000	0.507	19.947	0.170	-1.175	189.00	
$BODIND_{it}$	0.783	0.838	0.190	23.688	0.698	0.800	0.252	19.868	0.085	-0.997	187.50	
$|ABS\_EQNS|_{it}$	0.637	0.255	0.098	22.167	0.106	0.034	0.166	21.789	0.531	-0.098	224.00	

***, **, * denote significance at the 1%, 5% and 10% levels using p-value, two-tailed

Where:

$Z2_{it}$ = For firm i for time period t, a value of "1" will be assigned if the calculated results using the Altman's model is less than 2.6, otherwise a value "0" will be assigned; $IAQP_{it}$ = The computed composite score of IAQ attributes using the Prawitt, Smith, and Wood (2009) model based on the questionnaire completed by Chief Audit Executives (CAEs) of firm i for time period t; $IAFINDP_{it}$ = The IAF independence of firm i for time period t will be assigned a "1" if the calculated score is above the ratio of 17 questions (using likert score of one to five (1 to 5)) in the questionnaire completed by CAEs, othewise "0"; $IACERTP_{it}$ = The number of internal auditors of firm i for time period t possessing professional qualifications (that is, Chartered Accountant (CA), Certified Practicing Accountant (CPA), Certified Internal Auditor (CIA), Certified Fraud Examiner (CFE), Certified Information Systems Auditor (CISA), Certified Financial Services Auditor (CFSA), Certified in Control Self-Assessment (CCSA) and Certified Government Auditing Professional (CGAP)) recognised by the Institute of Internal Auditors (IIA) in the questionnaire completed by CAEs will be assigned a "1" if above average, otherwise "0"; $IAYREXPP_{it}$ = The average number of years of related auditing experience of all internal auditors of firm i for time period t obtained via the questionnaire completed by CAEs will be assigned a "1" if above average, otherwise "0"; $IACPEP_{it}$ = A likert score of one to five (1 to 5) of the opinion of the CAEs of firm i for time period t pertaining to the importance of continuous professional education will be assigned a "1" if above average, otherwise "1"; $IAFRISKASSESSP_{it}$ = A firm i for time period t relating to IAF assessing risks obtained via six (6) questions (using likert score of one to five (1 to 5)) in the questionnaire completed by CAEs will be assigned a "1" if above average, otherwise "0"; $IAFMONP_{it}$ = A firm i for time period t relating to IAF communication and monitoring obtained via three (3) questions (using likert score of one to five (1 to 5)) in the questionnaire completed by CAEs will be assigned a "1" if above average, otherwise "0"; $IAFQARP_{it}$ = A zero (0) will be assigned if a quality audit review has NOT been completed before for IAF of firm i for time period t. Otherwise, it will be assigned a "1" if above average, otherwise "0"; ROE_{it} = Return-on-Equity (net income returned as a percentage of shareholders equity) of firm i for time period t extracted from database/financial statement; $ACFINEXP_{it}$ = A value of "1" will be assigned if one or more members of the audit committee in firm i for time period t has/have CPA or CA qualification, otherwise a value "0" will be assigned. Data obtained from the database/financial statement; $BODIND_{it}$ = The independence of the board of firm i for time period t calculated based on the ratio of independent directors over the total number of directors extracted from the database/financial statement; $|ABS\_EQNS|_{it}$ = Absolute value of non-standard discretionary accruals of firm i for time period t calculated using the cross-sectional version of the modified Jones model introduced Dechow, Sloan, and Sweeney (1995).

Panel C: Zmijewski ZFC-Score with IAF

Variable	Financial Distress (n=451)				Non-Financial Distress (n=414)				Difference in Mean	t-test	Mann-Whitney test	p-value
	Mean	Median	Std Dev	Mean Rank	Mean	Median	Std Dev	Mean Rank				
IAF_{it}	0.820	1.000	0.388	549.90	0.250	0.000	0.434	305.65	0.570	-16.655	40633.000	***
$ACFINEXP_{it}$	0.670	1.000	0.471	456.61	0.560	1.000	0.498	407.28	0.110	-3.442	82708.000	***
$AOPN_{it}$	0.100	0.000	0.303	436.61	0.080	0.000	0.279	429.06	0.020	-0.880	91727.500	
ROE_{it}	-0.127	0.080	0.945	451.18	0.002	0.060	0.308	413.19	-0.129	-2.234	85157.500	**
$LnMARCAP_{it}$	19.747	19.984	2.159	478.30	19.052	18.920	2.048	383.65	0.695	-5.566	72925.500	***
$BODMEET_{it}$	11.740	11.000	5.244	456.79	10.800	10.000	5.082	407.08	0.940	-2.931	82628.000	***
$BODIND_{it}$	0.368	0.360	0.168	316.36	0.570	0.600	0.235	560.06	-0.202	-14.348	40753.000	***
$LnAUDITFEES_{it}$	12.396	13.067	3.137	606.64	5.319	5.156	1.325	243.85	7.077	-21.334	15047.000	***
$|ABS\_EQNS|_{it}$	0.095	0.050	0.123	429.20	0.101	0.525	0.132	437.14	-0.006	-0.467	91641.500	

***, **, * denote significance at the 1%, 5% and 10% levels using p-value, two-tailed

Where:

ZFC_{it} = For firm i for time period t, a value of "1" will be assigned if the calculated results using the Zmijewski model is equal to or greater than 0.5, otherwise a value "0" will be assigned; IAF_{it} = A value "1" will be assigned if there exists an IAF in firm i for time period t, otherwise a value "0" will be assigned. Data obtained from survey and/or extracted from the database/financial statement; $ACFINEXP_{it}$ = A value of "1" will be assigned if one or more members of the audit committee in firm i for time period t has/have CPA or CA qualification, otherwise a value "0" will be assigned. Data obtained from the database/financial statement; $AOPN_{it}$ = For firm i for time period t, a value "0" will be assigned for unqualified auditor opinion, a value "1" will be assigned for qualified opinion extracted from financial statement; ROE_{it} = Return-on-Equity (net income returned as a percentage of shareholders equity) of firm i for time period t extracted from database/financial statement; $LnMARCAP_{it}$ = Natural logarithm of market capitalisation (number of shares multiply by share price) of firm i for time period t extracted from database/financial statement at the end of December at period i; $BODIND_{it}$ = The independence of the board of firm i for time period t calculated based on the ratio of independent directors over the total number of directors extracted from the database/financial statement; $LnAuditFees_{it}$ = Natural logarithm of the fees paid to external auditor of firm i for time period t extracted from the database/financial statement; $|ABS\_EQNS|_{it}$ = Absolute value of non-standard discretionary accruals of firm i for time period t calculated using the cross-sectional version of the modified Jones model introduced Dechow, Sloan, and Sweeney (1995).

Panel D: Zmijewski ZFC-Score with IAQP

Variable	Financial Distress (n=3)				Non-Financial Distress (n=440)				Difference in Mean	t-test	Mann-Whitney test	p-value
	Mean	Median	Std Dev	Mean Rank	Mean	Median	Std Dev	Mean Rank				
$IAQP_{it}$	4.000	5.000	1.732	13.50	5.450	5.000	1.753	22.64	-1.450	-1.236	34.500	
ROE_{it}	0.043	0.078	0.073	15.33	0.120	0.100	0.170	22.50	-0.077	-0.954	40.000	
$ACFINEXP_{it}$	0.000	0.000	0.000	29.00	0.650	1.000	0.483	21.48	-0.650	-1.233	39.000	
$BODIND_{it}$	0.850	0.875	0.043	27.67	0.738	0.809	0.227	21.58	0.112	-0.816	43.000	

***, **, * denote significance at the 1%, 5% and 10% levels using p-value, two-tailed

Where:

ZFC_{it} = For firm i for time period t, a value of "1" will be assigned if the calculated results using the Zmijewski model is equal to or greater than 0.5, otherwise a value "0" will be assigned; $IAQP_{it}$ = The computed composite score of IAQ attributes using the Prawitt, Smith, and Wood (2009) model based on the questionnaire completed by Chief Audit Executives (CAEs) of firm i for time period t; $IAFINDP_{it}$ = The IAF independence of firm i for time period t will be assigned a "1" if the calculated score is above the ratio of 17 questions (using likert score of one to five (1 to 5)) in the questionnaire completed by CAEs, othewise "0"; $IACERTP_{it}$ = The number of internal auditors of firm i for time period t possessing professional qualifications (that is, Chartered Accountant (CA), Certified Practicing Accountant (CPA), Certified Internal Auditor (CIA), Certified Fraud Examiner (CFE), Certified Information Systems Auditor (CISA), Certified Financial Services Auditor (CFSA), Certified in Control Self-Assessment (CCSA) and Certified Government Auditing Professional (CGAP)) recognised by the Institute of Internal Auditors (IIA) in the questionnaire completed by CAEs will be assigned a "1" if above average, otherwise "0"; $IAYREXPP_{it}$ = The average number of years of related auditing experience of all internal auditors of firm i for time period t obtained via the questionnaire completed by CAEs will be assigned a "1" if above average, otherwise "0"; $IACPEP_{it}$ = A likert score of one to five (1 to 5) of the opinion of the CAEs of firm i for time period t pertaining to the importance of continuous professional education will be assigned a "1" if above average, otherwise "0"; $IAFRISKASSESSP_{it}$ = A firm i for time period t relating to IAF assessing risks obtained via six (6) questions (using likert score of one to five (1 to 5)) in the questionnaire completed by CAEs will be assigned a "1" if above average, otherwise "0"; $IAFMONP_{it}$ = A firm i for time period t relating to IAF communication and monitoring obtained via three (3) questions (using likert score of one to five (1 to 5)) in the questionnaire completed by CAEs will be assigned a "1" if above average, otherwise "0"; $IAFQARP_{it}$ = A zero (0) will be assigned if a quality audit review has NOT been completed before for IAF of firm i for time period t. Otherwise, it will be assigned a "1" if above average, otherwise "0"; ROE_{it} = Return-on-Equity (net income returned as a percentage of shareholders equity) of firm i for time period t extracted from database/financial statement; $ACFINEXP_{it}$ = A value of "1" will be assigned if one or more members of the audit committee in firm i for time period t has/have CPA or CA qualification, otherwise a value "0" will be assigned. Data obtained from the database/financial statement; $BODIND_{it}$ = The independence of the board of firm i for time period t calculated based on the ratio of independent directors over the total number of directors extracted from the database/financial statement; $|ABS\_EQNS|_{it}$ = Absolute value of non-standard discretionary accruals of firm i for time period t calculated using the cross-sectional version of the modified Jones model introduced Dechow, Sloan, and Sweeney (1995).

5.4 CORRELATIONS

The two parts table 5.6 below presents a correlation matrix reporting Pearson listwise correlation coefficients for both the continuous and dichotomous variables for the regression related to the presence of an IAF (that is, $RQ1$) using both the Altman Z2-Score and Zmijewski ZFC-Score models. Examining the correlation coefficients in first part of table 5.6 suggests that the firm performance (that is, ROE_{it} and $|ABS\_EQNS|_{it}$) is negatively associated with financial distress using the Altman Z2-Score and the firm performance (that is, ROE_{it} and $BODIND_{it}$) is negatively associated with financial distress using the Zmijewski ZFC-Score. The presence of an IAF does not appear to be associated with financial distress. No major multicollinearity issues are found since these coefficients are greater than the critical multicollinearity limit of 0.8 (or variance inflation factor (VIF) value of 10) (Hair et al. 2010).

Table 5.7 below presents a correlation matrix reporting Pearson listwise correlation coefficients for both the continuous and dichotomous variables for the regression related to the IAQ composite measure and IAQ attribute measures controlled by firm performance ROE_{it}, audit committee financial expertise $ACFINEXP_{it}$, board independence $BODIND_{it}$, and earnings quality $|ABS\_EQNS|_{it}$. Examining the correlation coefficients in table 5.7 suggests that the Altman's $Z2_{it}$ financial distress measure is directionally correlated to: (1) the IAQ composite measure (that is, $IAQP_{it}$ using the Prawitt, Smith, and Wood (2009) model) in a firm shows a negative correlation and is statistically significant; and (2) the IAQ measures $IACERTP_{it}$, $IAYREXPP_{it}$ and $IAFRISKASSESSP_{it}$ (that is, internal auditor's certification recognised by the IIA $IACERTP_{it}$, internal auditor's year of experience $IAYREXPP_{it}$, and IAF performing risk assessment $IAFRISKASSESSP_{it}$) in a firm show negative correlations and are statistically significant.

The correlation of $Z2_{it}$ with $IAQP_{it}$, $IACERTP_{it}$, $IAYREXPP_{it}$, and $IAFRISKASSESSP_{it}$ are both negative and significant which are expected. These correlations are expected because these IAQ attributes are expected assist the firm to lower the likelihood of financial distress. Again, no major multicollinearity issues are found since these coefficients are not greater than the critical multicollinearity limit of 0.8 (or variance inflation factor (VIF) value of 10) (Hair et al. 2010).

Table 5.6:
Pearson Correlation Coefficients – Main regression – Altman Z2-Score

Variables	$Z2_{it}$	IAF_{it}	$ACFINEXP_{it}$	$AOPN_{it}$	ROE_{it}	$LnMARCAP_{it}$	$BODIND_{it}$	$LnAUDITFEES_{it}$	$|ABS\_EQNS|_{it}$
$Z2_{it}$	1								
IAF_{it}	0.057	1							
$ACFINEXP_{it}$	0.020	0.204**	1						
$AOPN_{it}$	0.181**	-0.137**	-0.096**	1					
ROE_{it}	-0.219**	0.183**	0.048	-0.307**	1				
$LnMARCAP_{it}$	-0.061	0.429**	0.245**	-0.360**	0.355**	1			
$BODIND_{it}$	-0.025	-0.155**	0.049	-0.005	-0.008	0.047	1		
$LnAUDITFEES_{it}$	0.055	0.695**	0.216**	-0.201**	0.198**	0.490**	-0.412**	1	
$|ABS\_EQNS|_{it}$	-0.128**	0.066	-0.002	-0.046	0.135**	0.056	-0.031	0.031	1

*-Correlation is significant at the 0.05 level (2-tailed)   **-Correlation is significant at the 0.01 level (2-tailed)

Where:

$Z2_{it}$ = For firm *i* for time period *t*, a value of "1" will be assigned if the calculated results using the Altman's model is less than 2.6, otherwise a value "0" will be assigned; ZFC_{it} = For firm *i* for time period *t*, a value of "1" will be assigned if the calculated results using the Zmijewski model is equal to or greater than 0.5, otherwise a value "0" will be assigned; IAF_{it} = A value "1" will be assigned if there exists an IAF in firm *i* for time period *t*, otherwise a value "0" will be assigned. Data obtained from survey and/or extracted from the database/financial statement; $ACFINEXP_{it}$ = A value of "1" will be assigned if one or more members of the audit committee in firm *i* for time period *t* has/have CPA or CA qualification, otherwise a value "0" will be assigned. Data obtained from the database/financial statement; $AOPN_{it}$ = For firm *i* for time period *t*, a value "0" will be assigned for unqualified auditor opinion, a value "1" will be assigned for qualified opinion extracted from financial statement; ROE_{it} = Return-on-Equity (net income returned as a percentage of shareholders equity) of firm *i* for time period *t* extracted from database/financial statement; $LnMARCAP_{it}$ = Natural logarithm of market capitalisation (number of shares multiply by share price) of firm *i* for time period *t* extracted from database/financial statement at the end of December at period *i*; $BODIND_{it}$ = The independence of the board of firm *i* for time period *t* calculated based on the ratio of independent directors over the total number of directors extracted from the database/financial statement; $LnAuditFees_{it}$ = Natural logarithm of the fees paid to external auditor of firm *i* for time period *t* extracted from the database/financial statement; $|ABS\_EQNS|_{it}$ = Absolute value of non-standard discretionary accruals of firm *i* for time period *t* calculated using the cross-sectional version of the modified Jones model introduced Dechow, Sloan, and Sweeney (1995).

Table 5.6 (continued):
Pearson Correlation Coefficients – Main regression – Zmijewski ZFC-Score

Variables	ZFC_{it}	IAF_{it}	$ACFINEXP_{it}$	$AOPN_{it}$	ROE_{it}	$LnMARCAP_{it}$	$BODIND_{it}$	$LnAUDITFEES_{it}$	$|ABS\_EQNS|_{it}$
ZFC_{it}	1								
IAF_{it}	0.567**	1							
$ACFINEXP_{it}$	0.117**	0.204**	1						
$AOPN_{it}$	0.030	-0.137**	-0.096**	1					
ROE_{it}	-0.091**	0.183**	0.048	-0.307**	1				
$LnMARCAP_{it}$	0.163**	0.429**	0.245**	-0.360**	0.355**	1			
$BODIND_{it}$	-0.472**	-0.155**	0.049	-0.005	-0.008	0.047	1		
$LnAUDITFEES_{it}$	0.823**	0.695**	0.216**	-0.201**	0.198**	0.490**	-0.412**	1	
$|ABS\_EQNS|_{it}$	-0.016	0.066	-0.002	-0.046	0.135**	0.056	-0.031	0.031	1

*-Correlation is significant at the 0.05 level (2-tailed)   **-Correlation is significant at the 0.01 level (2-tailed)

Where:

ZFC_{it} = For firm i for time period t, a value of "1" will be assigned if the calculated results using the Zmijewski model is equal to or greater than 0.5, otherwise a value "0" will be assigned; IAF_{it} = A value "1" will be assigned if there exists an IAF in firm i for time period t, otherwise a value "0" will be assigned. Data obtained from survey and/or extracted from the database/financial statement; $ACFINEXP_{it}$ = A value of "1" will be assigned if one or more members of the audit committee in firm i for time period t has/have CPA or CA qualification, otherwise a value "0" will be assigned. Data obtained from the database/financial statement; $AOPN_{it}$ = For firm i for time period t, a value "0" will be assigned for unqualified auditor opinion, a value "1" will be assigned for qualified opinion extracted from financial statement; ROE_{it} = Return-on-Equity (net income returned as a percentage of shareholders equity) of firm i for time period t extracted from database/financial statement; $LnMARCAP_{it}$ = Natural logarithm of market capitalisation (number of shares multiply by share price) of firm i for time period t extracted from database/financial statement at the end of December at period i; $BODIND_{it}$ = The independence of the board of firm i for time period t calculated based on the ratio of independent directors over the total number of directors extracted from the database/financial statement; $LnAuditFees_{it}$ = Natural logarithm of the fees paid to external auditor of firm i for time period t extracted from the database/financial statement; $|ABS\_EQNS|_{it}$ = Absolute value of non-standard discretionary accruals of firm i for time period t calculated using the cross-sectional version of the modified Jones model introduced Dechow, Sloan, and Sweeney (1995).

Table 5.7:
Pearson Correlation Coefficients – IAQ Attributes and Control Variables – Altman Z2-Score

Variables	$Z2_{it}$	$IAQP_{it}$	$LnIAFIND_{it}$	$IACERT_{it}$	$IAYREXP_{it}$	$IACPE_{it}$	$IAFRISKASSESS_{it}$	$IAFMON_{it}$	$IAFQAF_{it}$	ROE_{it}	$ACFINEXP_{it}$	$AUDIND_{it}$	$|ABS\_EQNS|_{it}$
$Z2_{it}$	1												
$IAQP_{it}$	-0.598**	1											
$IAFINDP_{it}$	-0.246	0.545**	1										
$IACERTP_{it}$	-0.586**	0.623**	0.178	1									
$IAYREXP_{it}$	-0.425**	0.573**	0.185	0.726**	1								
$IACPE_{it}$	--	--	--	--	--	--							
$IAFRISKASSESSP_{it}$	-0.548**	0.426**	0.079	0.300	0.033	--	1						
$IAFMONP_{it}$	-0.197	0.233	0.197	0.095	-0.106	--	0.237	1					
$IAFQARP_{it}$	-0.242	0.380*	0.242	0.016	0.211	--	0.159	0.097	1				
ROE_{it}	-0.173	0.322*	0.173	0.102	0.074	--	0.144	0.034	0.350*	1			
$ACFINEXP_{it}$	0.181	-0.258	-0.181	-0.133	-0.332*	--	-0.051	0.318*	-0.231	-0.222	1		
$BODIND_{it}$	0.369*	-0.416**	-0.115	-0.290	-0.211	--	-0.411**	-0.097	-0.147	-0.350*	0.231	1	
$|ABS\_EQNS|_{it}$	0.180	-0.110	0.179	-0.260	-0.225	--	-0.254	-0.055	0.002	0.050	-0.040	0.101	1

*-Correlation is significant at the 0.05 level (2-tailed) **-Correlation is significant at the 0.01 level (2-tailed) ~~- Cannot be computed because at least one of the variables is constant.

Where:

$Z2_{it}$ = For firm i for time period t, a value of "1" will be assigned if the calculated results using the Altman's model is less than 2.6, otherwise a value "0" will be assigned; $IAQP_{it}$ = The computed composite score of IAQ attributes using the Prawitt, Smith, and Wood (2009) model based on the questionnaire completed by Chief Audit Executives (CAEs) of firm i for time period t; $IAFINDP_{it}$ = The IAF independence of firm i for time period t will be assigned a "1" if the calculated score is above the ratio of 17 questions (using likert score of one to five (1 to 5)) in the questionnaire completed by CAEs, othewise "0"; $IACERTP_{it}$ = The number of internal auditors of firm i for time period t possessing professional qualifications (that is, Chartered Accountant (CA), Certified Practicing Accountant (CPA), Certified Internal Auditor (CIA), Certified Fraud Examiner (CFE), Certified Information Systems Auditor (CISA), Certified Financial Services Auditor (CFSA), Certified in Control Self-Assessment (CCSA) and Certified Government Auditing Professional (CGAP)) recognised by the Institute of Internal Auditors (IIA) in the questionnaire completed by CAEs will be assigned a "1" if above average, otherwise "0"; $IAYREXPP_{it}$ = The average number of years of related auditing experience of all internal auditors of firm i for time period t obtained via the questionnaire completed by CAEs will be assigned a "1" if above average, otherwise "0"; $IACPEP_{it}$ = A likert score of one to five (1 to 5) of the opinion of the CAEs of firm i for time period t pertaining to the importance of continuous professional education will be assigned a "1" if above average, otherwise "0"; $IAFRISKASSESSP_{it}$ = A firm i for time period t relating to IAF assessing risks obtained via six (6) questions (using likert score of one to five (1 to 5)) in the questionnaire completed by CAEs will be assigned a "1" if above average, otherwise "0"; $IAFMONP_{it}$ = A firm i for time period t relating to IAF communication and monitoring obtained via three (3) questions (using likert score of one to five (1 to 5)) in the questionnaire completed by CAEs will be assigned a "1" if above average, otherwise "0"; $IAFQARP_{it}$ = A zero (0) will be assigned if a quality audit review has NOT been completed before for IAF of firm i for time period t. Otherwise, it will be assigned a "1" if above average, otherwise "0"; ROE_{it} = Return-On-Equity (net income returned as a percentage of shareholders equity) of firm i for time period t extracted from database/financial statement; $ACFINEXP_{it}$ = A value of "1" will be assigned if one or more members of the audit committee in firm i for time period t has/have CPA or CA qualification, otherwise a value "0" will be assigned. Data obtained from the database/financial statement; $BODIND_{it}$ = The independence of the board of firm i for time period t calculated based on the ratio of independent directors over the total number of directors extracted from the database/financial statement; $|ABS\_EQNS|_{it}$ = Absolute value of non-standard discretionary accruals of firm i for time period t calculated using the cross-sectional version of the modified Jones model introduced by Dechow, Sloan, and Sweeney (1995).

5.5   SUMMARY

Chapter Five presents the descriptive statistics for the data examined that are obtained from databases, financial statements and questionnaire in this study. The sample selection process is detailed. An industry sector breakdown of the final usable sample is provided before a comprehensive review undertaken of the descriptive statistics of variables. Subsequently, results from Pearson correlations were reported and discussed.

Chapter Six will present the main empirical results obtained in this study. Regression results examining the impact of the existence of an IAF, IAQ composite measure, and IAQ attribute measures (both in isolation and in unison) on financial distress using both the Altman Z2-Score model and Zmijewski ZFC-Score model will be reported and discussed. The analysis will be completed for a pooled sample of firm-year observations from 2012 to 2014 for IAF presence and 2013 to 2014 for IAQ attributes.

CHAPTER SIX:
MULTIVARIATE ANALYSIS – BINARY LOGISTIC REGRESSIONS

6.1   OVERVIEW OF THE CHAPTER

Chapter Five presents the descriptive statistics and univariate results of this study. The validity of assumptions for multiple regressions were outlined including performing the steps to ensure the normality of data. The Pearson's correlation analyses are also tabulated.

Chapter Six examines the main empirical results of this study. Such examination of IAF presence, IAQ composite measure, and IAQ attribute measures is divided into three parts using alternative measures of financial distress. The first part examines the association of the presence of an IAF with both the Altman Z2-Score and Zmijewski ZFC-Score financial distress models. The second part examines the association of the composite measure of internal audit quality (that is, summated scale using the Prawitt, Smith, and Wood (2009) model) with both the Altman Z2-Score and Zmijewski ZFC-Score financial distress models. The third part examines the association of the individual attributes of internal audit quality (obtained via a survey and changed to dichotomous values using the Prawitt, Smith, and Wood (2009) model) with both the Altman Z2-Score and Zmijewski ZFC-Score financial distress models.

All the three analyses are completed for a pooled sample of firm-year observations. A summary of Chapter Six is presented.

6.2   REGRESSION ANALYSES

A logistic regression analysis is considered to be suitable since the focus is on examining the dichotomous effect on financial distress as a dependent variable. Since the OLS regression containing both dichotomous and continuous variables is considered to be a powerful technique (Hutcheson and Sofroniou 1999), the model in this study adopts it.

The subsections in this chapter include the presentation and discussion on the outcomes of the multivariate analyses on the existence of an IAF on financial distress proxied by the indication of financial distress (a dichotomous variable) calculated using both the Altman Z2-Score and Zmijewski ZFC-Score models for both a pooled sample of firm-year observations (sample size n=865) over a period from year 2012 to 2014, and a pooled sample of firm-year observations (sample size n=43) over a period from year 2013 to 2014.[45]

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[45] Refer to section 5.3.1 for reasons why two samples are used in this study.

6.2.1 Existence of an IAF impact on the financial distress: Comparing the Altman Z2 and Zmijewski ZFC Models

Table 6.1 below presents the results of binary logistic regressions wherein the existence of an IAF (IAF_{it}), is (logistically) regressed against financial distress, calculated using both the Altman Z2-Score and Zmijewski ZFC-Score models. Columns 1 and 3 show the results of a binary logistic regression when only the control variables are regressed against financial distress. Columns 2 and column 4 show the results of binary logistic regression with the existence IAF and the control variables that are regressed against financial distress.

6.2.1.1 Independent Variables

As shown in column 2 of table 6.1 below, the coefficient of the independent variable IAF presence (IAF_{it}) is reported to be positive and insignificant ($\beta = 0.316$, z-statistics (Wald) = 2.326, and p > 0.1)) but the coefficient is expected to be negative and the p-value is expected to be less than 0.1. This imply that the presence of an IAF will increase the likelihood of financial distress and has no statistical significant association with financial distress.

However, as shown in column 4 of table 6.1, the coefficient of the independent variable IAF (IAF_{it}) is reported to be positive but significant ($\beta = 0.971$, z-statistics (Wald) = 4.230, and p < 0.05)) but the coefficient is expected to be negative. This imply that the presence of an IAF will increase the likelihood of financial distress but has a statistical significant association with financial distress.

6.2.1.2 Control Variables

In column 1 of table 6.1 where the independent variable IAF_{it} is not regressed with the control variables against the Altman Z2-Score model, the coefficient of the return-on-equity ROE_{it} is reported to be negative and significant ($\beta = -2.118$, z-statistics (Wald) = 33.778, and p < 0.01) and the coefficient of the absolute value of discretionary accruals $|ABS\_EQNS|_{it}$ is reported to be negative and significant ($\beta = -1.240$, z-statistics (Wald) = 6.294, and p < 0.05).

Control variables which are reported to have statistical significant include the auditor opinion $AOPN_{it}$ ($\beta = 1.256$, z-statistics (Wald) = 15.936, and p < 0.01), and natural logarithm of audit fees $LnAUDITFEES_{it}$ ($\beta = 0.070$, z-statistics (Wald) = 9.419, and p < 0.01).

Control variables which reported to have both positive coefficients and no statistical significant include the financial expertise of audit committee $ACFINEXP_{it}$ ($\beta = 0.147$, z-statistics (Wald) = 0.866, and p > 0.1), natural logarithm of firm market capitalisation $LnMARCAP_{it}$ ($\beta = 0.046$, z-statistics (Wald) = 1.005, and p > 0.1), and the independence of the BoDs $BODIND_{it}$ ($\beta = 0.070$, z-statistics (Wald) = 0.291, and p > 0.1).

Column 3 shows a very different set of results when the control variables are only

regressed against the Zmijewski ZFC-Score model. The control variables that have negative coefficients and are also statistically significant are: ROE_{it} (β = -1.113, z-statistics (Wald) = 21.995, and p < 0.01), $LnMARCAP_{it}$ (β = -0.589, z-statistics (Wald) = 29.236, and p < 0.01), and $BODIND_{it}$ (β = -0.645, z-statistics (Wald) = 3.102, and p < 0.1). However, $AOPN_{it}$ (β = 2.005, z-statistics (Wald) = 22.364, and p < 0.01), and $LnAUDITFEES_{it}$ (β = 1.082, z-statistics (Wald) = 154.569, and p < 0.01) are statistically significant control variables but have positive coefficients. Both $ACFINEXP_{it}$ (β = -0.368, z-statistics (Wald) = 0.986, and p > 0.01), $|ABS\_EQNS|_{it}$ (β = -1.075, z-statistics (Wald) = 1.110, and p > 0.01) have negative coefficients but statistically insignificant.

A review of these control variables suggest that their directionalities are consistent with expected results except when the: (1) Altman Z2-Score model is used, without the independence variable IAF_{it} are: $ACFINEXP_{it}$, $AOPN_{it}$, $LnMARCAP_{it}$, $BODINP_{it}$, and $LnAUDFEES_{it}$; (2) Altman Z2-Score model is used, with the independence variable IAF_{it} are: $ACFINEXP_{it}$, $AOPN_{it}$, $LnMARCAP_{it}$, $BODINP_{it}$, and $LnAUDFEES_{it}$; (3) Zmijewski ZFC-Score model is used, without the independence variable IAF_{it} are: $AOPN_{it}$ and $LnAUDFEES_{it}$; and (4) Zmijewski ZFC-Score model is used, with the independence variable IAF_{it} are: $AOPN_{it}$ and $LnAUDFEES_{it}$.

Table 6.1:
Logistic Regression Results – Existence of an IAF impact on the financial distress calculated using both the Altman Z2 and Zmijewski ZFC models

Variables	Expected Sign	ALTMAN Z2 Model				ZMIJEWSKI ZFC Model			
		Column 1		Column 2		Column 3		Column 4	
		Coefficient	z-statistics	Coefficient	z-statistics	Coefficient	z-statistics	Coefficient	z-statistics
Intercept		-1.849	5.197	-1.681	4.232**	2.642	2.278	3.107	3.290*
IAF$_{it}$	-			0.316	2.326			0.971	4.230**
ACFINEXP$_{it}$	-	0.147	0.866	0.138	0.767	-0.368	0.986	-0.461	1.475
AOPN$_{it}$	-	1.256	15.936***	1.241	15.431***	2.005	22.364***	2.056	22.917***
ROE$_{it}$	?	-2.118	33.778***	-2.150	34.536***	-1.113	21.995***	-1.143	22.062***
LnMARCAP$_{it}$	?	0.046	1.005	0.042	0.816	-0.589	29.236***	-0.600	31.475***
BODIND$_{it}$	?	0.097	0.291	0.052	0.080	-0.645	3.102*	-0.874	5.053**
LnAUDITFEES$_{it}$	?	0.070	9.419***	0.045	2.473	1.082	154.569***	1.009	121.860***
|ABS_EQNS|$_{it}$	+	-1.240	6.294**	-1.286	6.729***	-1.075	1.110	-1.152	1.210
Nagelkerke R^2		0.162		0.165		0.886		0.888	
Observation		865		865		865		865	

***, **, * denote significance at the 1%, 5% and 10% levels using p-value

Column 1 based on *Equation [1]*, Column 2 based on *Equation [2]*, Column 3 based on *Equation [3]*, and Column 4 based on *Equation [4]*.

$$Z2_{it} = \beta_0 + \beta_1 ACFINEXP_{it} + \beta_2 AOPN_{it} + \beta_3 ROE_{it} + \beta_4 LnMARCAP_{it} + \beta_5 BODIND_{it} + \beta_6 LnAUDITFEES_{it} + \beta_7 |ABS\_EQNS|_{it} + \varepsilon_{it} \qquad [1]$$

$$Z2_{it} = \beta_0 + \beta_1 IAF_{it} + \beta_2 ACFINEXP_{it} + \beta_3 AOPN_{it} + \beta_4 ROE_{it} + \beta_5 LnMARCAP_{it} + \beta_6 BODIND_{it} + \beta_7 LnAUDITFEES_{it} + \beta_8 |ABS\_EQNS|_{it} + \varepsilon_{it} \qquad [2]$$

$$ZFC_{it} = \beta_0 + \beta_1 ACFINEXP_{it} + \beta_2 AOPN_{it} + \beta_3 ROE_{it} + \beta_4 LnMARCAP_{it} + \beta_5 BODIND_{it} + \beta_6 LnAUDITFEES_{it} + \beta_7 |ABS\_EQNS|_{it} + \varepsilon_{it} \qquad [3]$$

$$ZFC_{it} = \beta_0 + \beta_1 IAF_{it} + \beta_2 ACFINEXP_{it} + \beta_3 AOPN_{it} + \beta_4 ROE_{it} + \beta_5 LnMARCAP_{it} + \beta_6 BODIND_{it} + \beta_7 LnAUDITFEES_{it} + \beta_8 |ABS\_EQNS|_{it} + \varepsilon_{it} \qquad [4]$$

Where:

$Z2_{it}$ = For firm *i* for time period *t*, a value of "1" will be assigned if the calculated results using the Altman's model is less than 2.6, otherwise a value "0" will be assigned; ZFC_{it} = For firm *i* for time period *t*, a value of "1" will be assigned if the calculated results using the Zmijewski model is equal to or greater than 0.5, otherwise a value "0" will be assigned; IAF_{it} = A value "1" will be assigned if there exists an IAF in firm *i* for time period *t*, otherwise a value "0" will be assigned. Data obtained from survey and/or extracted from the database/financial statement; $ACFINEXP_{it}$ = A value of "1" will be assigned if one or more members of the audit committee in firm *i* for time period *t* has/have CPA or CA qualification, otherwise a value "0" will be assigned. Data obtained from the database/financial statement; $AOPN_{it}$ = For firm *i* for time period *t*, a value "0" will be assigned for unqualified auditor opinion, a value "1" will be assigned for qualified opinion extracted from financial statement; ROE_{it} = Return-on-Equity (net income returned as a percentage of shareholders equity) of firm *i* for time period *t* extracted from database/financial statement; $LnMARCAP_{it}$ = Natural logarithm of market capitalisation (number of shares multiply by share price) of firm *i* for time period *t* extracted from database/financial statement at the end of December at period *i*; $BODIND_{it}$ = The independence of the board of firm *i* for time period *t* calculated based on the ratio of independent directors over the total number of directors extracted from the database/financial statement; $LnAuditFees_{it}$ = Natural logarithm of the fees paid to external auditor of firm *i* for time period *t* extracted from the database/financial statement; $|ABS\_EQNS|_{it}$ = Absolute value of non-standard discretionary accruals of firm *i* for time period *t* calculated using the cross-sectional version of the modified Jones model introduced Dechow, Sloan, and Sweeney (1995).

6.2.1.3 Summary

As shown in table 6.1 above, the goodness-of-fit (or coefficient of determinant, that is, Nagelkerke R^2) for logistic regression is shown in columns 1, 2, 3 and 4, and they are 0.162, 0.165, 0.886 and 0.888 respectively. This implies that the control variables in the regression models explain 16.2%, 16.5%, 88.6% and 88.8% of the variation in the dependent variable (that is, Altman Z2-Score and Zmijewski ZFC-Score respectively) without and with the independent variable IAF_{it}.[46] The incremental Nagelkerke R^2 for both the Altman Z2-Score and Zmijewski ZFC-Score (that is, the difference of Nagelkerke R^2 between column 2 and 1, and between column 4 and 3 respectively) are insignificant which are 0.003 and 0.002 respectively. These results may implied that the absence or presence of IAF does not significantly assist the firm to lower the likelihood of financial distress.

In summary, the results from column 2 using the Altman Z2-Score model rejects the hypothesis H_1 showing that the presence of an IAF (that is, IAF_{it}) has no statistical significant association with financial distress and the coefficient is positive. The results from column 4 using the Zmijewski ZFC model also rejects the acceptance of hypothesis H_1 showing that the presence of an IAF (that is, IAF_{it}) has statistical significant association with financial distress (which is expected) but the coefficient is positive. The positive coefficient of IAF_{it} (that is, 0.971) suggest that an IAF may not assist the firm to lower the likelihood of financial distress.

6.2.2 IAQ attributes impact on the financial distress: Comparing Altman Z2-Score and Zmijewski ZFC-Score Models

Table 6.2 below presents the results of the binary logistic regressions wherein the composite measure of IAQ ($IAQP_{it}$) computed using the Prawitt, Smith, and Wood (2009), is regressed against financial distress calculated using both the Altman Z2-Score and Zmijewski ZFC-Score models. Columns 1 and 3 show the results of a binary logistic regression when only the control variables are regressed against financial distress. Columns 2 and column 4 show the results of the binary logistic regression with the composite measure of IAQ ($IAQP_{it}$) and the control variables that are regressed against financial distress.

6.2.2.1 Independent Variables

As shown in column 2 of table 6.2, the coefficient of the IAQ composite measure $IAQP_{it}$ is reported to be negative and statistical significant (β = -0.834, z-statistics (Wald) = 0.193, and p < 0.01)) which is expected. This implies that an IAF possessing IAQ composite measure will decrease the likelihood of financial distress and has statistical significant association with

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[46] The binary logistic regression estimation terminated abnormally because parameter estimates changed by less than 0.01. This issue will be discussed in the Chapter 7 research limitation section.

financial distress when the Altman Z2-Score model is used to compute the financial distress score.

However, as shown in column 4 of table 6.2, the coefficient of the IAQ composite measure ($IAQP_{it}$), when binary logistically regressed using the Zmijewski ZFC-Score model, is reported to be negative but statistically insignificant (β = -0.305, z-statistics (Wald)= 0.000, p > 0.1)). This imply that the presence of an IAF will decrease the likelihood of financial distress but has no statistical significant association with financial distress when the Zmijewski ZFC-Score model is used to compute the financial distress score.

6.2.2.2 Control Variables

In column 1 of table 6.2 where the independent variable $IAQP_{it}$ is not regressed with the control variables against the Altman Z2-Score model, only the control variables natural logarithm of audit fees $LnAUDITFEES_{it}$ (β = 0.518, z-statistics (Wald) = 3.023, and p < 0.1), and absolute value of discretionary accruals $|ABS\_EQNS|_{it}$ (β = 7.950, z-statistics (Wald) = 3.136, and p < 0.1) are statistically significant however have positive coefficients.

All other control variables are not statistically significant but have either negative or positive coefficients. Those with negative coefficients are: return-on-equity ROE_{it} (β = -18.775, z-statistics (Wald) = 0.000, and p > 0.1) and natural logarithm of firm market capitalisation $LnMARCAP_{it}$ (β = -0.288, z-statistics (Wald) = 1.357, and p > 0.1). Those with positive coefficients are: financial expertise of audit committee $ACFINEXP_{it}$ (β = 0.636, z-statistics (Wald) = 0.654, and p > 0.1), auditor opinion $AOPN_{it}$ (β = 21.362, z-statistics (Wald) = 0.000, and p > 0.1), and independence of the BoDs $BODIND_{it}$ (β = 1.884, z-statistics (Wald) = 2.458, and p > 0.1).

Column 3 shows a different set of results when the control variables are only regressed against the Zmijewski ZFC-Score model. All the control variables show that they are statistically insignificant (p > 0.1) but not all have negative coefficients. Those with negative coefficients are: natural logarithm of firm market capitalisation $LnMARCAP_{it}$ (β = -23.453, z-statistics (Wald) = 0.000, and p > 0.1) and independence of the BoDs $BODIND_{it}$ (β = -40.377, z-statistics (Wald) = 0.000, and p > 0.1). Those with positive coefficients are: financial expertise of audit committee $ACFINEXP_{it}$ (β = 4.281, z-statistics (Wald) = 0.000, and p > 0.1), auditor opinion $AOPN_{it}$ (β = 172.829, z-statistics (Wald) = 0.000, and p > 0.1), return-on-equity ROE_{it} (β = 129.422, z-statistics (Wald) = 0.000, and p > 0.1), natural logarithm of audit fees $LnAUDITFEES_{it}$ (β = 63.691, z-statistics (Wald) = 0.000, and p > 0.1), and absolute value of discretionary accruals $|ABS\_EQNS|_{it}$ (β = 660.482, z-statistics (Wald) = 0.000, and p > 0.1).

A review of these control variables suggest that their directionalities are consistent with expected results except when the: (1) Altman Z2 model is used, without the independence

variable IAF_{it} are: $ACFINEXP_{it}$, $AOPN_{it}$, $BODINP_{it}$, $LnAUDFEES_{it}$ and $|ABS\_EQNS|_{it}$; (2) Altman Z2 model is used, with the independence variable IAF_{it} are: $ACFINEXP_{it}$, $AOPN_{it}$, $BODINP_{it}$, $LnAUDFEES_{it}$ and $|ABS\_EQNS|_{it}$; (3) Zmijewski ZFC model is used, without the independence variable IAF_{it} are: $ACFINEXP_{it}$, $AOPN_{it}$, ROE_{it}, $LnAUDFEES_{it}$ and $|ABS\_EQNS|_{it}$; and (4) Zmijewski ZFC model is used, with the independence variable IAF_{it} are: $ACFINEXP_{it}$, $AOPN_{it}$, ROE_{it}, $LnAUDFEES_{it}$ and $|ABS\_EQNS|_{it}$.

Table 6.2:
OLS Regression Results – IAQP (computed using Prawitt, Smith, and Wood (2009) model) impact on the financial distress calculated using both the Altman Z2 and Zmijewski ZFC models

Variables	Expected Sign	ALTMAN Z2 Model				ZMIJEWSKI ZFC Model			
		Column 1		Column 2		Column 3		Column 4	
		Coefficient	z-statistics	Coefficient	z-statistics	Coefficient	z-statistics	Coefficient	z-statistics
Intercept		0.961	0.049	6.362	5.834	17.886	0.000	12.359	0.000
IAQP$_{it}$	-			-0.834	0.193***			-0.305	0.000
ACFINEXP$_{it}$	-	0.636	0.654	0.421	0.000	4.281	0.000	4.092	0.000
AOPN$_{it}$	-	21.362	0.000	19.225	0.000	172.829	0.000	174.140	0.000
ROE$_{it}$	?	-18.775	0.000	-16.824	0.845	129.422	0.000	129.479	0.000
LnMARCAP$_{it}$	?	-0.288	1.357	-0.254	0.673	-23.453	0.000	-23.066	0.000
BODIND$_{it}$	?	1.884	2.458	1.086	1.751	-40.377	0.000	-41.550	0.000
LnAUDITFEES$_{it}$	?	0.518	3.023*	0.410	1.977	63.691	0.000	63.699	0.000
|ABS_EQNS|$_{it}$	+	7.950	3.136*	6.799	5.834	660.482	0.000	664.773	0.000
Nagelkerke R^2		0.374		0.546		1.000		1.000	
Observation		43		43		43		43	

***, **, * denote significance at the 1%, 5% and 10% levels

Column 1 based on *Equation [5]*, Column 2 based on *Equation [6]*, Column 3 based on *Equation [7]*, and Column 4 based on *Equation [8]*.

$$Z2_{it} = \beta_0 + \beta_1 ACFINEXP_{it} + \beta_2 AOPN_{it} + \beta_3 ROE_{it} + \beta_4 LnMARCAP_{it} + \beta_5 BODIND_{it} + \beta_6 LnAUDITFEES_{it} + \beta_7 |ABS\_EQNS|_{it} + \varepsilon_{it} \quad [5]$$

$$Z2_{it} = \beta_0 + \beta_1 IAQP_{it} + \beta_2 ACFINEXP_{it} + \beta_3 AOPN_{it} + \beta_4 ROE_{it} + \beta_5 LnMARCAP_{it} + \beta_6 BODIND_{it} + \beta_7 LnAUDITFEES_{it} + \beta_8 |ABS\_EQNS|_{it} + \varepsilon_{it} \quad [6]$$

$$ZFC_{it} = \beta_0 + \beta_1 ACFINEXP_{it} + \beta_2 AOPN_{it} + \beta_3 ROE_{it} + \beta_4 LnMARCAP_{it} + \beta_5 BODIND_{it} + \beta_6 LnAUDITFEES_{it} + \beta_7 |ABS\_EQNS|_{it} + \varepsilon_{it} \quad [7]$$

$$ZFC_{it} = \beta_0 + \beta_1 IAQP_{it} + \beta_2 ACFINEXP_{it} + \beta_3 AOPN_{it} + \beta_4 ROE_{it} + \beta_5 LnMARCAP_{it} + \beta_6 BODIND_{it} + \beta_7 LnAUDITFEES_{it} + \beta_8 |ABS\_EQNS|_{it} + \varepsilon_{it} \quad [8]$$

Where:

$Z2_{it}$ = For firm i for time period t, a value of "1" will be assigned if the calculated results using the Altman's model is less than 2.6, otherwise a value "0" will be assigned; ZFC_{it} = For firm i for time period t, a value of "1" will be assigned if the calculated results using the Zmijewski model is equal to or greater than 0.5, otherwise a value "0" will be assigned; $IAQP_{it}$ = The computed composite score of IAQ attributes using the Prawitt, Smith, and Wood (2009) model based on the questionnaire completed by Chief Audit Executives (CAEs) of firm i for time period t; $ACFINEXP_{it}$ = A value of "1" will be assigned if one or more members of the audit committee in firm i for time period t has/have CPA or CA qualification, otherwise a value "0" will be assigned. Data obtained from the database/financial statement; $AOPN_{it}$ = For firm i for time period t, a value "0" will be assigned for unqualified auditor opinion, a value "1" will be assigned for qualified opinion extracted from financial statement; ROE_{it} = Return-on-Equity (net income returned as a percentage of shareholders equity) of firm i for time period t extracted from database/financial statement; $LnMARCAP_{it}$ = Natural logarithm of market capitalisation (number of shares multiply by share price) of firm i for time period t extracted from database/financial statement at the end of December at period i; $BODIND_{it}$ = The independence of the board of firm i for time period t calculated based on the ratio of independent directors over the total number of directors extracted from the database/financial statement; $LnAuditFees_{it}$ = Natural logarithm of the fees paid to external auditor of firm i for time period t extracted from the database/financial statement; $|ABS\_EQNS|_{it}$ = Absolute value of non-standard discretionary accruals of firm i for time period t calculated using the cross-sectional version of the modified Jones model introduced Dechow, Sloan, and Sweeney (1995).

6.2.2.3 Summary

Table 6.2 shows the goodness-of-fit (that is, Nagelkerke R^2) for logistic regression for columns 1, 2, 3 and 4 are 0.374, 0.546, 1.000 and 1.000 respectively. This is implying that the control variables in the regression models explain 37.4%, 54.6%, 100% and 100% of the variation in the dependent variable (that is, Altman's $Z2_{it}$ and Zmijewski's ZFC_{it} respectively) without and with the independent variable $IAQP_{it}$ (which value range from zero (0) to nine (9)) computed using the Prawitt, Smith, and Wood (2009). The incremental amount of Nagelkerke R^2 for the Altman Z2-Score (that is, the difference of Nagelkerke R^2 between column 2 and 1) is 0.172 or 17.2% (with $IAQP_{it}$ and without $IAQP_{it}$). These results may implied that the IAQ computed using the Prawitt, Smith, and Wood (2009) does assist the firm to lower the likelihood of financial distress (computed using the Altman Z2-Score).

In summary, the results from column 2 fully support the acceptance of hypothesis H_2 showing that an IAF possessing quality attributes (that is, $IAQP_{it}$) has a statistical significant association with financial distress and the coefficient is negative when the Altman Z2-Score model is applied.

6.2.3 IAQ attributes impact on the financial distress calculated using Altman Z2 Model

Since column 2 in table 6.2 suggests that the hypothesis H_2 be accepted, table 6.3 shows the results of a binary logistic regression wherein the individual IAQ attributes are regressed against the Altman Z2-Score model.[47] Using the Prawitt, Smith, and Wood (2009), the computed IAQ composite measure ($IAQP_{it}$) and the five IAQ attribute measures (assigned a value "1" if the computed value is above the mean, otherwise a value "0" will be assigned): IAF independent ($IAFINDP_{it}$), internal auditor certification ($IACERTP_{it}$), internal auditor year of experience ($IAYREXPP_{it}$), internal auditor continuous professional education ($IACPEP_{it}$), IAF risk assessment ($IAFRISKASSESSP_{it}$), IAF monitoring and follow-up ($IAFMONP_{it}$), and IAF quality review ($IAFQARP_{it}$)) are regressed, both in isolation and in unison, against the financial distress calculated using the Altman Z2-Score model only. Column 1 of table 6.3 shows the results of the binary logistic regression when only the control variables are regressed against financial distress. The number of control variables in this model is four compared to seven in the first model presented in the above section (note that the justification of using four control variables instead of seven has been made in section 5.3.2 above). Column 2 shows the results of the binary logistic regression with the computed composite score of the IAQ attribute measures $IAQP_{it}$ (using the Prawitt, Smith, and Wood (2009)) and the control variables (return-on-equity (ROE_{it}), audit committee financial expertise ($ACFINEXP_{it}$), board independence ($BODIND_{it}$) and absolute

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[47] Regarded as a "magnifying" results based on the results of a binary logistic regression shown in column 2 of table 6.2.

value of non-standard discretionary accruals year ($|ABS\_EQNS_{it}|$)) that are regressed against financial distress. Columns 3 to 9 show the results of binary logistic regressions with the each and every attributes of the IAQ and the control variables that are regressed against financial distress. Column 10 shows the results of binary logistic regression with the seven IAQ attributes and the control variables that are regressed against financial distress.

6.2.3.1 Independent Variables

As shown in column 2 of table 6.3, the coefficient of the computed IAQ composite score ($IAQP_{it}$) is reported to be negative and statistically significant (β = -0.920, z-statistics (Wald) = 7.765, and p < 0.01)), implying that the computed IAQ composite score does have a statistical significant association with financial distress (reject null hypothesis of H_1). The Nagelkerke R^2 is 0.501, suggesting that the variables entered into the regression model explain 50.1% of the variation in the dependent variable and the Altman Z2's financial distress measure.

In column 3, the IAF independent variable ($IAFINDP_{it}$) is reported to be negative but statistically insignificant (β = -1.046, z-statistics (Wald) = 2.111, p > 0.1)), implying that $IAFINDP_{it}$ does not have a statistical significant association with financial distress. Hence, it is unlikely that firms with an independent IAF is less likely to suffer financial distress (reject null hypothesis of H_3). The Nagelkerke R^2 is 0.288, suggesting that the variables entered into the regression model explain 28.8% of the variation in the dependent variable and the Altman Z2's financial distress measure.

In column 4, the internal auditor certification independent variable ($IACERTP_{it}$) is reported to be negative but statistically insignificant (β = -21.394, z-statistics (Wald) = 0.000, and p > 0.1), implying that $IACERTP_{it}$ does not have a statistical significant association with financial distress. The Nagelkerke R^2 is 0.544, suggesting that the variables entered into the regression model explain 54.4% of the variation in the dependent variable and the Altman Z2's financial distress measure.

In column 5, the years of experience related to internal auditing independent variable ($IAYREXPP_{it}$) is reported to be negative but statistically insignificant (β = -20.964, z-statistics (Wald) = 0.000, and p > 0.1), implying that $IAYREXPP_{it}$ does not have a statistical significant association with financial distress. The Nagelkerke R^2 is 0.400, suggesting that the variables entered into the regression model explain 40.0% of the variation in the dependent variable and the Altman Z2's financial distress measure.

In column 6, the internal auditor continuous professional education independent variable ($IACPEP_{it}$) is reported to be undefined, implying that $IACPEP_{it}$ does not have a statistical significant association with financial distress. The Nagelkerke R^2 is 0.233, suggesting that the variables entered into the regression model explain 23.3% of the variation in the dependent

variable and the and the Altman Z2's financial distress measure. Hence, it is unlikely that firm with technically and professionally competent internal auditors (that is, internal auditors possessing certifications recognised by the IIA, with relevant years of internal auditing and emphasising the important of continuous professional education) is less likely to suffer financial distress (reject null hypothesis of H_4).

In column 7, the internal audit function risk assessment independent variable ($IAFRISKASSESSP_{it}$) is reported to be negative and statistically significant (β = -2.274, z-statistics (Wald) = 7.086, and p < 0.01), implying that $IAFRISKASSESSP_{it}$ does have a statistical significant association with financial distress. Hence, it is likely that firm with an IAF performing risk assessment as part of the workscope is less likely to suffer financial distress (reject null hypothesis of H_5).[48] The Nagelkerke R^2 is 0.428, suggesting that the variables entered into the regression model explain 42.8% of the variation in the dependent variable and the Altman Z2's financial distress measure.

In column 8, the IAF monitoring and follow-up independent variable ($IAFMONP_{it}$) is reported to be negative and statistically insignificant (β = -21.347, z-statistics (Wald) = 0.000, and p > 0.1), implying that $IAFMONP_{it}$ does not have a statistical significant association with financial distress. Hence, it is unlikely that firms with an IAF which is monitoring and follow-up with audit findings implementation is less likely to suffer financial distress (reject null hypothesis of H_6). The Nagelkerke R^2 in is 0.299, suggesting that the variables entered into the regression model explain 29.9% of the variation in the dependent variable and the Altman Z2's financial distress measure.

In column 9, the IAF quality audit review independent variable ($IAFQARP_{it}$) is reported to be negative but statistically insignificant (β = -1.093, z-statistics (Wald) = 1.215, and p > 0.1), implying that $IAFQARP_{it}$ does not have a statistical significant association with financial distress. Hence, it is unlikely that firm with an IAF that was quality reviewed is less likely to suffer financial distress (reject null hypothesis of H_7). The Nagelkerke R^2 is 0.265, suggesting that the variables entered into the regression model explain 26.5% of the variation in the dependent variable and the Altman Z2's measure.

In column 10, the results of OLS regression when all seven IAQ attribute measures used in the study (that is, $IAFINDP_{it}$, $IACERTP_{it}$, $IAYREXPP_{it}$, $IACPEP_{it}$, $IAFRISKASSESSP_{it}$, $IAFMONP_{it}$, and $IAFQARP_{it}$) are included as explanatory variables in analyzing the financial distress measure using the Altman Z2-Score model. All these seven internal audit quality attribute measures are found to be statistically insignificant except for $IAFRISKASSESSP_{it}$ (β = -2.317, z-statistics (Wald) = 4.055, and p < 0.05). Two variables with positive coefficient are $IAFINDP_{it}$

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[48] This, however, does not suggest that risk assessments includes specific risk assessments related to financial distress using the models as recommended by the IIARF is carried out.

(β = 0.143, z-statistics (Wald) = 0.017, and p > 0.1), *IAYREXPP$_{it}$* (β = 16.346, z-statistics (Wald) = 0.000, and p > 0.1). And, those with negative coefficients are, *IACERTP$_{it}$* (β = -38.335, z-statistics (Wald) = 0.000, and p > 0.1), *IACPEP$_{it}$* (β = undefined, z-statistics (Wald) = undefined), *IAFMONP$_{it}$* (β = -19.694, z-statistics (Wald) = 0.000, and p > 0.1), *and IAFQARP$_{it}$* (β = -19.166, z-statistics (Wald) = 0.000, and p > 0.1). *IAFRISKASSESSP$_{it}$* which is found to have a negative coefficient and significant (β = -2.317, z-statistics (Wald) = 4.055, and p < 0.05). The Nagelkerke R^2 in column 10 is 0.714, suggesting that the variables entered into the regression model explain 71.4% of the variation in the dependent variable and the Altman Z2's financial distress measure.

6.2.3.2   Control Variables

Columns 1 to 10 of table 6.3 show the coefficients of the control variables: return-on-equity (*ROE$_{it}$*), audit committee financial expertise (*ACFINEXP$_{it}$*), board independence (*BODIND$_{it}$*), and the absolute value of discretionary accruals year (*|ABS_EQNS|$_{it}$*) when regressed with financial distress computed using only the Altman Z2 model.

In column 1 when *IAQP$_{it}$* and IAQ attribute measures are not included to regress with financial distress computed using the Altman Z2 model, the coefficients of the statistically insignificant control variables *ROE$_{it}$*, *ACFINEXP$_{it}$*, *BODIND$_{it}$*, and *|ABS_EQNS|$_{it}$* are 17.090, 17.850, 17.418 and -7.259 respectively. All control variables are reported to be statistically insignificant. In column 2 when the IAQ attribute composite measure *IAQP$_{it}$* is included to regress with financial distress computed using the Altman Z2 model, the coefficients of the statistical insignificant control variables *ROE$_{it}$*, *ACFINEXP$_{it}$*, *BODIND$_{it}$*, and *|ABS_EQNS|$_{it}$* are -17.254, 0.216, 1.045 and 2.180 respectively. All control variables are reported to be statistically insignificant.

In column 3 when the IAQ attribute measure *IAFINDP$_{it}$* is included to regress with financial distress computed using the Altman Z2 model, the coefficients of the statistical insignificant control variables *ROE$_{it}$*, *BODIND$_{it}$*, and *|ABS_EQNS|$_{it}$* are -19.097, 1.965 and 3.106 respectively. All control variables are reported to be statistically insignificant. The coefficients of the statistical significant control variable *ACFINEXP$_{it}$* is 0.393.

In column 4 when the IAQ attribute measure *IACERTP$_{it}$* is included to regress with financial distress computed using the Altman Z2 model, the coefficients of the statistical insignificant control variables *ROE$_{it}$*, *ACFINEXP$_{it}$*, *BODIND$_{it}$*, and *|ABS_EQNS|$_{it}$* are -19.415, 0.439, 1.267 and 0.699 respectively. All control variables are reported to be statistically insignificant.

In column 5 when the IAQ attribute measure *IAYREXPP$_{it}$* is included to regress with financial distress computed using the Altman Z2 model, the coefficients of the statistical insignificant control variables *ROE$_{it}$*, *ACFINEXP$_{it}$*, *BODIND$_{it}$*, and *|ABS_EQNS|$_{it}$* are -19.700, -

0.008, 1.725 and 1.230 respectively. All control variables are reported to be statistically insignificant.

In column 6 when the IAQ attribute measure $IACPEP_{it}$ is included to regress with financial distress computed using the Altman Z2 model, the coefficients of the statistical insignificant control variables ROE_{it}, $ACFINEXP_{it}$, and $|ABS\_EQNS|_{it}$ are -19.447, 0.567 and 2.574 respectively. All control variables are reported to be statistically insignificant. The coefficients of the statistical significant control variable $BODIND_{it}$ is 2.044.

In column 7 when the IAQ attribute measure $IAFRISKASSESSP_{it}$ is included to regress with financial distress computed using the Altman Z2 model, the coefficients of the statistical insignificant control variables ROE_{it}, $ACFINEXP_{it}$, $BODIND_{it}$, and $|ABS\_EQNS|_{it}$ are -19.218, 0.797, 0.947 and 1.040 respectively. All control variables are reported to be statistically insignificant.

In column 8 when the IAQ attribute measure $IAFMONP_{it}$ is included to regress with financial distress computed using the Altman Z2 model, the coefficients of the statistical insignificant control variables ROE_{it}, $ACFINEXP_{it}$, and $|ABS\_EQNS_{it}|$ are -19.191, 0.957, 1.896 and 2.549 respectively. All control variables are reported to be statistically insignificant.

In column 9 when the IAQ attribute measure $IAFQAFP_{it}$ is included to regress with financial distress computed using the Altman Z2 model, the coefficients of the statistical insignificant control variables ROE_{it}, $ACFINEXP_{it}$, and $|ABS\_EQNS|_{it}$ are -18.575, 0.442, and 2.428 respectively. All control variables are reported to be statistically insignificant. The coefficients of the statistical significant control variable $BODIND_{it}$ is 2.066.

In column 10 when all the IAQ attribute measures $IAFINDP_{it}$, $IACERTP_{it}$, $IAYREXPP_{it}$, $IACPEP_{it}$, $IAFRISKASSESSP_{it}$, $IAFMONP_{it}$, and $IAFQARP_{it}$ are included to regress with financial distress computed using the Altman Z2 model, the coefficients of the statistical insignificant control variables ROE_{it}, $ACFINEXP_{it}$, $BODIND_{it}$, and $|ABS\_EQNS|_{it}$ are -0.250, 0.317, 0.103 and -2.066 respectively. All control variables are reported to be statistically insignificant.

Table 6.3:

OLS Regression Results – IAQ individual attributes (computed using Prawitt, Smith, and Wood (2009) model) impact on the financial distress calculated using the Altman Z2 model

Variables	Expected Sign	Column1 Coefficient	z-statistics	Column 2 Coefficient	z-statistics	Column 3 Coefficient	z-statistics	Column 4 Coefficient	z-statistics	Column 5 Coefficient	z-statistics
Intercept		-38.232	0.000	4.309	3.327*	-1.086	0.740	19.600	0.000	19.451	0.000
IAQP$_{it}$	-			-0.920	7.765***						
IAFINDP$_{it}$	-					-1.046	2.111				
IACERTP$_{it}$	-							-21.394	0.000		
IAYREXPP$_{it}$	-									-20.964	0.000
IACPEP$_{it}$	-										
IAFRISKASSESSP$_{it}$	-										
IAFMONP$_{it}$	-										
IAFQARP$_{it}$	-										
ROE$_{it}$	-	17.090	0.000	-17.254	0.000	-19.097	0.000	-19.415	0.000	-19.700	0.000
ACFINEXP$_{it}$	-	17.850	0.000	0.216	0.060	0.393	0.268*	0.439	0.253	-0.008	0.000
BODIND$_{it}$	?	17.418	0.000	1.045	0.663	1.965	2.790	1.267	1.144	1.725	2.183
|ABS_EQNS|$_{it}$	+	-7.259	4.964	2.180	0.700	3.106	1.623	0.699	0.083	1.230	0.266
Nagelkerke R^2		0.469		0.501		0.288		0.544		0.400	
Observation		43		43		43		43		43	

Variables	Expected Sign	Column 6 Coefficient	z-statistics	Column 7 Coefficient	z-statistics	Column 8 Coefficient	z-statistics	Column 9 Coefficient	z-statistics	Column 10 Coefficient	z-statistics
Intercept		-1.778	2.191	0.280	0.038	19.313	0.000	-1.556	1.589	42.087	0.000
IAQP$_{it}$	-										
IAFINDP$_{it}$	-									0.143	0.017
IACERTP$_{it}$	-									-38.335	0.000
IAYREXPP$_{it}$	-									16.346	0.000
IACPEP$_{it}$	-	--	--							--	--
IAFRISKASSESSP$_{it}$	-			-2.274	7.086***					-2.317	4.055**
IAFMONP$_{it}$	-					-21.347	0.000			-19.694	0.000
IAFQARP$_{it}$	-							-1.093	1.215	-19.166	0.000
ROE$_{it}$	-	-19.447	0.000	-19.218	0.000	-19.191	1.000	-18.575	0.000	-0.250	0.000
ACFINEXP$_{it}$	-	0.567	0.593	0.797	0.885	0.957	0.226	0.442	0.343	0.317	0.075
BODIND$_{it}$	?	2.044	3.064*	0.947	0.589	1.896	0.108	2.066	3.083*	0.103	0.005
|ABS_EQNS|$_{it}$	+	2.574	1.209	1.040	0.180	2.549	0.279	2.428	1.017	-2.066	0.400
Nagelkerke R^2		0.233		0.428		0.299		0.265		0.714	
Observation		43		43		43		43		43	

***, **, * denote significance at the 1%, 5% and 10% levels

Column 1 based on *Equation [9]*, Column 2 based on *Equation [10]*, Column 3 based on *Equation [11]*, Column 4 based on *Equation [12]*, Column 5 based on *Equation [13]*, Column 6 based on *Equation [14]*, Column 7 based on *Equation [15]*, Column 8 based on *Equation [16]*, Column 9 based on *Equation [17]*, and Column 10 based on *Equation [18]*.

$$Z2_{it} = \beta_0 + \beta_1 ROE_{it} + \beta_2 ACFINEXP_{it} + \beta_3 BODIND_{it} + \beta_4 |ABS\_EQNS|R_{it} + \varepsilon_{it} \quad\quad [9]$$

$$Z2_{it} = \beta_0 + \beta_1 IAQP_{it} + \beta_2 ROE_{it} + \beta_3 ACFINEXP_{it} + \beta_4 BODIND_{it} + \beta_5 |ABS\_EQNS|_{it} + \varepsilon_{it} \quad\quad [10]$$

$$Z2_{it} = \beta_0 + \beta_1 INFINDP_{it} + \beta_2 ROE_{it} + \beta_3 ACFINEXP_{it} + \beta_4 BODIND_{it} + \beta_5 |ABS\_EQNS|_{it} + \varepsilon_{it} \quad\quad [11]$$

$$Z2_{it} = \beta_0 + \beta_1 IACERTP_{it} + \beta_2 ROE_{it} + \beta_3 ACFINEXP_{it} + \beta_4 BODIND_{it} + \beta_5 |ABS\_EQNS|_{it} + \varepsilon_{it} \quad\quad [12]$$

$$Z2_{it} = \beta_0 + \beta_1 IAYREXPP_{it} + \beta_2 ROE_{it} + \beta_3 ACFINEXP_{it} + \beta_4 BODIND_{it} + \beta_5 |ABS\_EQNS|_{it} + \varepsilon_{it} \quad\quad [13]$$

$$Z2_{it} = \beta_0 + \beta_1 IACPEP_{it} + \beta_2 ROE_{it} + \beta_3 ACFINEXP_{it} + \beta_4 BODIND_{it} + \beta_5 |ABS\_EQNS|_{it} + \varepsilon_{it} \quad\quad [14]$$

$$Z2_{it} = \beta_0 + \beta_1 IAFRISKASSESSP_{it} + \beta_2 ROE_{it} + \beta_3 ACFINEXP_{it} + \beta_4 BODIND_{it} + \beta_5 |ABS\_EQNS|_{it} + \varepsilon_{it} \quad\quad [15]$$

$$Z2_{it} = \beta_0 + \beta_1 IAFMONP_{it} + \beta_2 ROE_{it} + \beta_3 ACFINEXP_{it} + \beta_4 BODIND_{it} + \beta_5 |ABS\_EQNS|_{it} + \varepsilon_{it} \quad\quad [16]$$

$$Z2_{it} = \beta_0 + \beta_1 IAFQARP_{it} + \beta_2 ROE_{it} + \beta_3 ACFINEXP_{it} + \beta_4 BODIND_{it} + \beta_5 |ABS\_EQNS|_{it} + \varepsilon_{it} \quad\quad [17]$$

$$Z2_{it} = \beta_0 + \beta_1 INFINDP_{it} + \beta_2 IACERTP_{it} + \beta_3 IAYREXPP_{it} + \beta_4 IACPEP_{it} + \beta_5 IAFRISKASSESSP_{it}$$
$$+ \beta_6 IAFMONP_{it} + \beta_7 IAFQARP_{it} + \beta_8 ROE_{it} + \beta_9 ACFINEXP_{it} + \beta_{10} BODIND_{it} + \beta_{11} |ABS\_EQNS|_{it} + \varepsilon_{it} \quad\quad [18]$$

Where:

$Z2_{it}$ = For firm i for time period t, a value of "1" will be assigned if the calculated results using the Altman's model is less than 2.6, otherwise a value "0" will be assigned; $IAQP_{it}$ = The computed composite score of IAQ attributes using the Prawitt, Smith, and Wood (2009) model based on the questionnaire completed by Chief Audit Executives (CAEs) of firm i for time period t; $IAFINDP_{it}$ = The IAF independence of firm i for time period t will be assigned a "1" if the calculated score is above the ratio of 17 questions (using likert score of one to five (1 to 5)) in the questionnaire completed by CAEs, othewise "0"; $IACERTP_{it}$ = The number of internal auditors of firm i for time period t possessing professional qualifications (that is, Chartered Accountant (CA), Certified Practicing Accountant (CPA), Certified Internal Auditor (CIA), Certified Fraud Examiner (CFE), Certified Information Systems Auditor (CISA), Certified Financial Services Auditor (CFSA), Certified in Control Self-Assessment (CCSA) and Certified Government Auditing Professional (CGAP)) recognised by the Institute of Internal Auditors (IIA) in the questionnaire completed by CAEs will be assigned a "1" if above average, otherwise "0"; $IAYREXPP_{it}$ = The average number of years of related auditing experience of all internal auditors of firm i for time period t obtained via the questionnaire completed by CAEs will be assigned a "1" if above average, otherwise "0"; $IACPEP_{it}$ = A likert score of one to five (1 to 5) of the opinion of the CAEs of firm i for time period t pertaining to the importance of continuous professional education will be assigned a "1" if above average, otherwise "0"; $IAFRISKASSESSP_{it}$ = A firm i for time period t relating to IAF assessing risks obtained via six (6) questions (using likert score of one to five (1 to 5)) in the questionnaire completed by CAEs will be assigned a "1" if above average, otherwise "0"; $IAFMONP_{it}$ = A firm i for time period t relating to IAF communication and monitoring obtained via three (3) questions (using likert score of one to five (1 to 5)) in the questionnaire completed by CAEs will be assigned a "1" if above average, otherwise "0"; $IAFQARP_{it}$ = A zero (0) will be assigned if a quality audit review has NOT been completed before for IAF of firm i for time period t. Otherwise, it will be assigned a "1" if above average, otherwise "0"; ROE_{it} = Return-On-Equity (net income returned as a percentage of shareholders equity) of firm i for time period t extracted from database/financial statement; $ACFINEXP_{it}$ = A value of "1" will be assigned if one or more members of the audit committee in firm i for time period t has/have CPA or CA qualification, otherwise a value "0" will be assigned. Data obtained from the database/financial statement; $BODIND_{it}$ = The independence of the board of firm i for time period t calculated based on the ratio of independent directors over the total number of directors extracted from the database/financial statement; $|ABS\_EQNS|_{it}$ = Absolute value of non-standard discretionary accruals of firm i for time period t calculated using the cross-sectional version of the modified Jones model introduced by Dechow, Sloan, and Sweeney (1995).

6.2.3.3 Summary

Since the results from columns 2, 7 and 10 (that is, columns related to both $IAQP_{it}$ (composite measure of IAQ computed using the Prawitt, Smith, and Wood (2009)), and $IAFRISKASSESSP_{it}$ (IAF performing risk assessment)) in table 6.3 show that there are negative and statistically significant association between the financial distress measure computed using the Altman Z2 model and $IAQP_{it}$, and $IAFRISKASSESSP_{it}$. The acceptance of hypotheses H_2 and H_5, both in isolation and in unison, can be fully supported. The incremental Nagelkerke R^2 when the IAQ composite score is added to the regression consisting control variables only (between column 2 and 1) is 0.032 (that is, 0.501 minus 0.469).

The results from columns 3, 4, 5, 6, 8 and 9 in table 6.3 show that there are no statistical significant association between the financial distress measure computed using the Altman Z2 model and $IAFINDP_{it}$, $IACERTP_{it}$, $IAYREXPP_{it}$, $IACPEP_{it}$, $IAFMONP_{it}$, and $IAFQARP_{it}$, the acceptance of hypotheses H_3, H_4, H_6, and H_7, both in isolation and in unison, cannot be fully support.

6.3 RESULTS

This section discusses the results shown in tables 6.1, 6.2 and 6.3. Results reported in table 6.1 do not suggest that firms with an internal audit function will be less likely to suffer financial distress. Given that the p-value is less than five percent (that is, $p < 0.05$ shown in column four of table 6.1) when the Zmijewski ZFC-Score is used, it may suggest that the choice of the variable IAF_{it} which is a dichotomous variable is not strong and convincing to explain its impact on lowering financial distress. Hence, the significant p-value (that is, $p < 0.05$) of the variable IAF_{it} may suggests that further research is required including obtaining a sample size.

The directionality of the coefficients using both the Altman Z2-Score (and the Zmijewski ZFC-Score clearly suggests a spurious correlation (or not apparent in this study) between the existence of an IAF and financial distress. Again, these results may suggest that further research is required to provide readers with a "complete" meaning.

A spurious correlation has resulted in further analysis of the impact of an IAF possessing IAQ attributes on financial distress using the same Altman Z2-Score and Zmijewski ZFC-Score. Therefore, consistent with the Prawitt, Smith, and Wood (2009) model, the IAF's quality attributes or characteristics (that is, IAQ attributes) are analysed to determine their impact on financial distress. Before analysing the impact of the individual IAQ attributes, the analysis of the IAQ attributes composite measure (or IAQ attributes aggregated dichotomous measure) as shown in table 6.2 provides mixed results. The IAQ attributes composite measure is negatively and significantly associated with the Altman Z2-Score. However, regressing the Zmijewski ZFC-Score measure with the IAQ attributes composite measure $IAQP_{it}$ provides evidence suggesting

that IAQ is negatively and significantly associated with financial distress.

The seven control variables (that is, $ACFINEXP_{it}$, $AOPN_{it}$, ROE_{it}, $LnMARCAP_{it}$, $BODIND_{it}$, $LnAUDITFEES_{it}$, and $|ABS\_EQNS|_{it}$,) are regressed with IAF_{it} and $IAQP_{it}$ (refer to table 6.1 and 6.2 respectively). When regressing the Altman Z2-Score against the individual IAQ attribute measures ($IAFINDP_{it}$, $IACERTP_{it}$, $IAYREXPP_{it}$, $IACPEP_{it}$, $IAFRISKASSESSP_{it}$, $IAFMONP_{it}$, and $IAFQARP_{it}$) only four of these control variables are omitted resulting in three control variables ROE_{it}, $BODIND_{it}$, $LnAUDITFEES_{it}$, and $|ABS\_EQNS|_{it}$,) being used. A new control variable $ACFINEXP_{it}$ is added however. The selection of these four control variables are based on the best regression model by analysing their p-values.

When regressed with the Altman Z2-Score, the individual IAQ attribute $IAFRISKASSESSP_{it}$ has a negative coefficient which is as expected and the p-value is significant. This result suggests those firms with an IAF which complete risk assessments will less likely to suffer financial distress.

6.4   SUMMARY

Chapter Six presents and discusses the empirical results of this study. The first set of regression results examines the association of the presence of an IAF and financial distress for a pooled sample of all firm-year observations from 2012 to 2014. The second set of regression results examines the association of the IAQ composite measure with financial distress for a pooled sample of all firm-year observations from 2013 to 2014. The third set of regression results examines the association of IAQ attribute measures (in isolation and unison) and financial distress for a pooled sample of all firm-year observations from 2013 to 2014.

Chapter Seven will outline the limitations, implications of the results, future research and an overall conclusion to this study. In doing so, answers to all the hypotheses of this study will be reported. Finally, a summary of this study will be provided.

CHAPTER SEVEN:
IMPLICATIONS AND CONCLUSIONS

7.1 OVERVIEW OF THE CHAPTER

Chapter Six presents the alternative results of binary logistic regressions examining the relationship between financial distress (that is, proxied by both the Altman Z2-Score and Zmijewski ZFC-Score models), and the IAF presence and the IAQ attributes (both in isolation and in unison) for a pooled sample of all firm-year observations from 2012 to 2014, and 2013 and 2014 respectively. The results are analysed and discussed first using the existence of IAF impacting on financial distress and followed by the IAQ composite measure and individual IAQ attributes impacting on financial distress.

Chapter Seven discusses the major conclusions and implications of this study. The acceptance or rejections of the major hypotheses are based on empirical evidence shown in Chapter Six leading to the key findings of this study. This study's implications and contributions are then presented with the limitations and future research opportunities. Finally, an all-encompassing summary of this study is provided at the end of the chapter.

7.2 STUDY OVERVIEW

This study has two primary objectives and they are: (1) The association of financial distress with the presence of an IAF; and (2) The association of financial distress with the IAQ composite measure and IAQ attributes namely IAF independence, internal auditor competence (proxied by internal auditors' IIA recognised certifications, years of experience and the importance of continuous professional education), IAF scope of work (risk assessments), IAF communication and monitoring, and IAF quality audit review, of firms listed in the ASX.

Since internal auditing is not mandated in Australia, the ASX listed firms that are also listed in the US stock exchanges are required to set up IAFs to comply with the Sarbanes-Oxley Act (2002). In section 3.2.5.3 above, it is posited that institutional theory has greater ontological significance for this study compared the other theories discussed in section 3.2.1 to section 3.2.4 above. Based on the underlying institutional theory perspective and prior research's empirical results, a number of directional hypotheses are developed which answers are given in this chapter. A negative direction is hypothesised for the associations of the IAF presence and financial distress, IAQ composite measure and financial distress, and IAQ attributes and financial distress. In order to test the hypotheses (that is, to either accept or reject the null hypothesis, H_0 of the hypotheses H_1 to H_7), the IAF presence, IAQ composite measure and the IAQ attributes are regressed (that is, using binary logistic regression) both in isolation and in unison against financial distress proxied by the Altman Z2-Score and Zmijewski ZFC-Score models. Data to

construct the dependent and independent variables are obtained from databases and financial statements maintained by Morningstar DatAnalysis premium and Osiris, and the responses of the survey (refer to appendices 1 and 2 below).

An initial pool of all ASX listed firms across the observation window comprising the 2012 to 2014 calendar years was established. Each calendar year within the observation window was considered an individual firm-year for firms included in the sample. The IAF presence and its association with financial distress is performed using 865 firm-year observations. The IAQ composite and attribute measures and their association with financial distress is performed using 43 firm-year observations (that is, completed surveys by CAEs after exclusions). The conclusions based on statistical analyses pertaining to the testable hypotheses are summarised in the next section.

7.3   MAJOR CONCLUSIONS OF THE STUDY

7.3.1   The acceptance/rejection of hypotheses

Table 7.1 below lists the hypotheses discussed in sections 3.4 and 3.5 above, their descriptions and respective conclusions (that is, accept or reject). Tables 6.1, 6.2 and 6.3 of Chapter Six presents the main empirical results of this study. Specifically, Tables 6.1 and 6.2 both show the binary logistic regression results examining the impact of an IAF presence and IAQ composite measure, using both the Altman Z2-Score and Zmijewski ZFC-Score models. Table 6.3 shows the binary logistic regression result examining the impact of IAQ composite and individual attribute measures, using only the Altman Z2-Score model.

It is postulated in hypothesis H_1 that firms with an IAF may exhibit a lower level of financial distress. The acceptance of H_1 cannot be supported because both the Altman Z2-Score and Zmijewski ZFC-Score models consistently showing positive coefficients albeit the Zmijewski ZFC-Score shows a significant association between the presence of an IAF and financial distress.

It is postulated in hypothesis H_2 that firms with IAF possessing IAQ attributes will exhibit a lower level of financial distress. The results using the Altman Z2-Score (not the Zminjewski ZFC-Score) fully support the acceptance of H_2 by showing a significant and negative association between the IAQ composite measure computed using the Prawitt, Smith, and Wood (2009) and financial distress.

With regards to hypothesis H_3, it is postulated that independent IAF will be less likely to suffer financial distress. The regression results report a negative but a statistically insignificant association between IAF independent and financial distress computed using the Altman Z2-Score. Again, the lack of empirical support for this association results in the rejection of H_3.

Table 7.1:
Acceptance/Rejection of Hypotheses

Hypothesis	Description	Accept/Reject
H_1	Firms with an internal audit function will be less likely to suffer financial distress.	Reject χ
H_2	Firms with an internal audit function that embodies appropriate IAQ characteristics reduce financial distress.	**Accept √**
H_3	Firms with an independent internal audit function will be less likely to suffer financial distress.	Reject χ
H_4	Firms with a technically and professionally competent internal audit function will be less likely to suffer financial distress	Reject χ
H_5	Firms with an internal audit function performing periodic risk assessments (for example, credit risks, key financial ratios and indicators analysis, trends, operating statistics etc.) will be less likely to suffer financial distress	**Accept √**
H_6	Firms with effective internal audit function communication and monitoring systems will be less likely to suffer financial distress	Reject χ
H_7	Firms with an internal audit function that has maintained quality assurance review requirements will be less likely to suffer financial distress.	Reject χ

With regards to hypothesis H_4, it is postulated that a technically and professionally competent IAF will be less likely to suffer financial distress. The regression results report a negative but a statistically insignificant association with financial distress computed using the Altman Z2-Score. Again, the lack of empirical support for this association results in the rejection of H_4.

With regards to hypothesis H_5, it is postulated that an IAF performing periodic risk assessments its scope of work will be less likely to suffer financial distress. The regression results report a negative and a statistically significant association with financial distress computed using the Altman Z2-Score. The empirical support for this association results in the acceptance of H_5.

With regards to hypothesis H_6, it is postulated that IAF with effective communication and monitoring systems will be less likely to suffer financial distress. The regression results report a negative but a statistically insignificant association with financial distress computed using the Altman Z2-Score. Again, the lack of empirical support for this association results in the rejection of H_6.

Finally, for hypothesis H_7 it is argued that IAF that has maintained quality assurance review requirements will be less likely to suffer financial distress. The regression results report a negative but a statistically insignificant association with financial distress computed using the Altman Z2-Score. Again, the lack of empirical support for this association results in the rejection of H_7.

7.3.2 The relevance of Institutional Theory

The results in table 7.1 suggest that the theory used is partially correct because of the acceptance of hypotheses H_2 and H_5. As discussed in section 3.2.4.3, consistent with the view of Al-Twaijry, Brierley, and Gwilliam (2003 p.507), Australia should play a "more coercive role by encouraging organizations to establish internal audit departments and organize their activities in the manner specified in internal audit standards" in order to achieve high-quality IAFs.[49] Subsequently, mimetic isomorphism (which is internal) will result in IAFs to model their practices in comparison among themselves. Finally, normative isomorphism results from increased professionalization within the IAFs by way of recognising internal auditor certification, CPE and IIA membership which will likely generate higher adherence to the IIA's standards (DeSimone and Abdolmohammadi 2016) and resulting in IAF providing better contribution to the corporate governance arena.

Future research are needed to demonstrate if the institutional theory is correct in determining the two research questions stated in section 1.2 above. To date, there are research who have used and/or have suggested multi-theoretical framework for both internal auditing and corporate governance research (Christopher 2010; Khan 2014; Mihret 2014).

7.4 IMPLICATIONS OF THE STUDY

This study provides a number of implications that considered beneficial to the respective stakeholders identified from section 7.4.1 to section 7.4.5 below.

7.4.1 Regulators and Professional Bodies

As indicated in section 1.4 above, the US Sarbanes-Oxley Act (2002) has mandated and elevated significantly the importance of the IAF role in corporate governance in response to concerns regarding audit failures. However, IAF is not mandated in Australia and many listed companies do not appear to engage in internal auditing in spite of regulators' commitment to strong corporate governance (Carey, Simnett, and Tanewski 2000). Table 5.1 shows that 54.69% of the sample of 865 of the ASX firms has an IAF.

Consistent with this study, prior study shows that approximately fifty-two percent (52%) of the Top 500 ASX listed firms and ten percent (10%) of the remaining ASX listed firms have IAFs (Choudhury, Woodbine, and Singh 2014). This implies that approximately 420 ASX listed firms over more than 2,000 firms (or less than twenty percent (20%)) have IAFs. This low percentage coupled with the IIA's push in the last fifteen years (Todd Davies & Associates 2011) to mandate IAF in Australia especially via the ASX CGC and in CLERP 9 reforms will help to

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[49] Coercive isomorphism relates to formal and informal authoritative, legitimisation, and power pressures exerted (DiMaggio and Powell 1983; Meyer and Rowan 1977).

mitigate risks associated with (future) accounting scandals and this push is very much supported by empirical evidence that IAF will contribute to effective corporate governance.[50]

The push to mandate IAF by IIA, Australia is due to the public blaming, rightly or wrongly, the accounting professions for the accounting scandals, *inter-alia* (Low, Davey, and Hooper 2008; Guénin-Paracini and Gendron 2010). This initiative may have resulted in recent amendment made by the ASX CGC listing requirements which requires firms to report how internal controls are independently assessed if they do not have an IAF. It is expected the IPPF standards documented by the IIA will be adopted as part of the institutionalisation (that is, coercive isomorphism) of an IAF within a firm should it be mandated.

The results of this study certainly will help to put some weight on the Australian Treasury Department's next "Audit Quality Strategic Review" to argue for a need of a legislative framework to mandate IAF possessing IAQ attributes. Mandating will be consistent with the legislative requirements of Sarbanes-Oxley Act (2002) and the Australian public sector's Financial Management Act (2006).[51]

7.4.2 Investors

Investors in a competitive capital market price the firm based on an audit report (Pae and Yoo 2001) *inter alia* and hence, the auditor's role in detecting fraudulent financial reporting is critically important and such a role can only be fulfilled by the assurance that established criteria of quality financial reports are complied with (Hoitash, Hoitash, and Bedard 2009; Gay and Simnett 2012). Past empirical evidence recognise the important role that IAF plays in a firm's corporate governance structure and quality financial reporting because of increased awareness that auditing matters after the accounting scandals (Treadway 1987; Allegrini and D'Onza 2003; Gramling et al. 2004; DeFond and Francis 2005; Cooper and Schindler 2008; Hass, Abdolmohammadi, and Burnaby 2006; Sarens 2009). The change in the critical role that IAF plays to improve good governance is, supported by IIA's definition (refer to section 2.6.4) (Bailey, Gramling, and Ramamoorti 2003; Antoine 2004; Archambeault, Zehoort, and Holt 2008; Sarens 2009) to ensure compliance with the requirements of the new and/or amended legislations (for example, the Sarbanes-Oxley Act (2002) in the US, UK Corporate Governance Code, CLERP 9 (2004) in Australia, and also various corporate governance codes in Europe).

New legislations such as the Sarbanes-Oxley Act (2002) and CLERP 9 (2004) have

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[50] Document titled "Mandating IA in Australia" - The IIA's response to the Australian Treasury Department commenting on "Audit Quality Strategic Review" dated 7th May 2010. Specifically, key finding 3 titled "The legislative framework could be reformed by mandating internal Audit". Further, ASIC recognises that gatekeepers play a beneficial role in the regulatory system and gatekeepers themselves have strong internal audit and compliance functions (ASIC 2012). Firms as at July 2015 are required to report in their financial statements how internal controls are assessed if they do NOT have an IAF.

[51] The Financial Management Act (2006) together with the state Treasurer's Instructions/Public Finance and Audit Act (1987), Regulations and enabling legislation that create statutory authorities, provide a cohesive framework that amongst other things: imposes operational requirements that underpin effective and responsible public administration including the receipt, custody and expenditure of public money and property, the requirement to maintain an effective internal audit and risk management processes.

introduced new complexities and risks, and hence presented uncertainties for auditors (Cohen, Krishnamoorthy, and Wright 2004). An independent assessment such as the IAF possessing IAQ attributes not only ensures that there exists an effective control framework to assist a firm achieve its business objectives, it also provides comfort that an audit committee and/or the BoDs are seeking by providing objective assurance that the: (1) Major business risks are being managed appropriately partly demonstrated in this study; and (2) Risk management and internal controls are operating effectively.

The result of this study suggest that IAF possessing IAQ attributes which are assessing financial distress associated risks will help its firm to mitigate these risks on a timely manner. Firms that are facing financial distress if not manage properly can erode shareholder wealth and, reduces creditor and investor trust. Business opportunity may be lost when corporate resources are diverted to debt restructuring processes rather than for the use of productive events. Firms facing financial distress are more likely to engage in material income-increasing earnings manipulation than non-failing firms (Rosner 2003).

Financially distressed firms may change their operating strategies to raise efficiency which could impose significant direct and indirect costs on stakeholders, including costs of restructuring firm's debt, inter-alia. Costs and benefits associated with various financing choices are analysed that could result in the trade-offs between them that will subsequently result in a set of well-defined target debt-ratios for the firms (Parsons and Titman 2008).

Should financial distress risks not resolved effectively in a timely manner, then firms will face insolvency risks. Firms may have to file for bankruptcy subsequently when they are no longer able to deal with insolvency matters. However, effectively managing financial distress will gain stakeholder confidence which is highly likely to lead to an improvement in market capitalisation.

7.4.3 Scholars

Auditing, be it external or internal is like many real-world phenomena, where a thorough understanding of it can never be achieved by examining it from a single perspective (Power and Gendron 2015). External audit quality can be researched "via an archival focus on earnings management, via experimental work using auditors with varying degrees of experience and background, or via fieldwork examining how auditors come to share the belief that their work is of sufficient quality" (Power and Gendron 2015 p.148). Hence, research related to internal audit quality can also be approached in that manner and be achieved via an archival focus on financial distress. Prawitt, Smith, and Wood (2009) associated IAQ attributes with earnings management using historical data accessible via public databases and the GAIN database maintained by IIA and this study associate IAQ attributes with financial distress.

One side of the regression equation can be either earnings quality or financial distress and the other side of the equation can be related to the corporate governance bailiwick or audit trinity. IAF simply attest them in its quest to improve its contribution to corporate governance.

The results of this study show that different results are obtained using different financial distress model. As described in section 1.4 above, there has been a lack of unanimous agreement about the definition of firm failure let alone the empirical identification of the best prediction model. (Wu, Gaunt, and Gray 2010) reports that amongst the accounting-based models, the Zmijewski ZFC-Score model performs better than the Altman Z-Score model during the 1970. However, the results in this study suggest the Altman Z2 model provides the expected results using the Prawitt, Smith, and Wood (2009) model.

Results of this study indicate that scholars can generally use risk assessment attribute when conducting financial distress research in the Australian context since it is found to significantly lower financial distress risk. Scholars undertaking future research need to exercise caution when using other IAQ attributes since these attributes in the study continue to remain statistically insignificant.

7.4.4 Firms and Audit Trinity

Continued corporate failures resulted in increased societal demands for responsible corporate governance as an imperative accountability requirement in corporate entities (Porter 2009). Effective corporate governance and a strong, independent component of the audit trinity is needed to discharge extensive corporate accountability (Porter 2009 p.156).[52] Effective accountability requires independent and effective quality monitoring mechanisms. The "corporate effectiveness" and "quality attributes and effectiveness" in relation to internal auditing are a significant component of a tripartite governance initiative. In this context, quality attributes may (individually or in conjunction with one another) directly impact performance. For example, the presence of a functioning IAF, should theoretically enhance monitoring mechanisms discouraging mismanagement and inefficiencies as anticipated in the US government mandate (refer section 7.4.1 above). More appropriately, the positive contributions to business performance are likely to arise via symbiotic associations within the audit trinity, involving a cooperative, mutually beneficial relationship between tripartite members.

Results from this study also suggest that scholars undertaking future research need to exercise caution when using the audit committee and external auditor attributes, for example, audit committee financial expertise, audit fees (natural log) and absolute value of non-standard discretionary accruals since they continue to remain statistically insignificant in this study.

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[52] Accountability implies that 'if people fail to satisfy their obligations, and fail to give a satisfactory account of their actions, they will be liable to sanction' (Porter 2009).

7.4.5   The Internal Auditing Profession

The perceived value of internal auditing outside the internal auditing community is not where internal auditing professionals would like it to be (Lenz and Hahn 2015). It appears that internal auditing is "at crossroads to become either marginalised between a variety of other assurance, compliance, and risk management functions or to emerge as a recognised and stronger profession" (Lenz and Hahn 2015 p. 6). Further evidence includes a study by Roussy (2015) who suggests that instead of contributing to corporate governance, internal auditors are behaving as if IAF are means for managerial controls. Financial distress is a corporate governance issue and IAF is meant to attest the risks associated with financial distress independently.

The findings (that is, *H₂ and H₅)* in this study suggest that IAQ composite measure and risk assessments as part of the IAF's scope of work (risk assessment) will be less likely to suffer financial distress. Further research is warranted to provide empirical evidence suggesting that the financial distress models by IIARF Wallace (2004)'s paper help firms to lessen financial distress risks, and there is merit to have an application of multiple methods in the monitoring process (that is, triangulation approach (Wallace 2004)). Features about the firm's performance such as return-on-equity can be used by the internal auditing profession since this study finds it to be significantly (negatively) associated with financial distress.

7.5   MAJOR CONTRIBUTIONS

Several important contributions are made by this study and provide indications to suggest that internal auditing does matter. First, in an Australian context, this study is the first (to the best of the researcher's knowledge) to provide a comprehensive examination on the selected IAQ attributes/financial distress association. This study helps to provide critical interpretation of effective corporate governance contribution by the IAF by examining its IAAs to lessen financial distress and in doing so, contribute to the limited Australian empirical evidence on the IAQ attributes and financial distress association.

Second, the IAQ composite measure is found to have impact on lowering financial distress. This study suggests the IAQ attributes must work together in a combined manner to lowering the likelihood of financial distress. However, the results suggest that not all IAQ attributes individually examined in this study are significantly associated with financial distress. This provides evidence contrary to expectations that IAF possessing selected IAQ attributes will lower the likelihood of financial distress. The result, therefore, has important consequences for scholars, internal auditing, and regulators. Given that internal auditing has not been mandated in Australia, CLERP 9 (2004) which promotes governance transparency, accountability and shareholder rights and aims to enhance financial reporting quality may bridge the gap with Section 404 of the Sarbanes-Oxley Act (2002). The empirical evidence that IAF will contribute to effective

corporate governance provided in this study will help IIA's push (Todd Davies & Associates 2011) to mandate IAF in Australia especially via the ASX CGC and in CLERP 9 reforms.

Third, given that the results suggest that the IAQ attributes examined are not significantly associated with financial distress, stakeholders can extend similar research to examine other key corporate governance mechanisms that may play an effective roles in promoting IAQ and, as a result, improving the integrity of the financial reporting process. As a consequence, this study has real economic consequences for regulators, internal auditors, and scholars.

In summary, this study will benefit a number of key stakeholders particularly those advocates of internal controls effectiveness and they are discussed in sections 7.4.1 to 7.4.5. Policy makers, regulators, academics and practitioners are able to determine the effectiveness of an IAF and its contribution of corporate governance and hence the quality of financial reporting by firms. This also benefits the capital market participants by having a "ripple" effect of minimizing poor corporate reporting and, potentially, subsequent corporate insolvency and failure. The internal auditors are able to determine which of the selected IAQ attributes significantly influence financial distress and hence performance of the firm. Empirical evidence from this study will also help academics to decide on which specific IAQ attributes to examine in their future research.

7.6   LIMITATIONS OF THE STUDY

As discussed in section 1.4 above that while this study has various strengths, it is not without limitations which may cloud the interpretation of the results of this study. First, despite the pervasive use of accounting-based or financial ratios models such Altman and Zmijewski to determine financial distress and/or to predict bankruptcy risk of firms, prior literature has reported the performance of these models (Tanthanongsakkun, Pitt, and Treepongkaruna 2009; Wu, Gaunt, and Gray 2010). There is extant of literature reporting that models such as Shumway (2001), Merton, and Black-Scholes-Merton (2010) outperforms these accounting-based models in predicting bankruptcy (Vassalou and Xing 2004; Tanthanongsakkun, Pitt, and Treepongkaruna 2009; Wu, Gaunt, and Gray 2010). Despite these negative performances reporting, accounting-based models have been widely used to predict financial distress not bankruptcy. Over the last 45 years, many academic studies have been dedicated to finding the best firm failure prediction model (Balcaen and Ooghe 2006). Unfortunately, over this period of time there has been a lack of unanimous agreement about the definition of firm failure let alone the empirical identification of the best prediction model. Amongst the accounting-based models, the Zmijewski ZFC-Score model performed better than the Altman Z-Score model during the 1970s (Wu, Gaunt, and Gray 2010). There is no empirical evidence suggesting that the Zmijewski ZFC-Score model performs

better than the Altman Z2-Score model.

Second, the data for all of the variables apart for IAQ attributes used to test a hypothesis in this study are collected from databases and firms' annual reports which limit the amount and type of data that can be collected. For example, whilst alternative firm specific measures may be available, due to their proprietary nature such measures are excluded from this study.

Third, the data for all of the variables used for IAQ attributes and the IAQ composite measure in this study to test the hypotheses are collected from a survey completed by CAEs. The "single point in time" data collection technique put pressure on the availability of data or the availability of the person to provide prior year data. As a consequence, the CAEs may not: (1) feel encouraged to provide accurate, honest answers, (2) be comfortable providing answers that present themselves in a unfavorable manner, (3) be fully aware of their reasons for any given answer because of lack of memory on the subject, or even boredom (London School of Hygiene and Tropical Medicine 2009), (4) wish to participate due to sensitive about both firm and client confidentiality, (5) wish to spend time completing the survey, and (6) have completed the survey with the same perceptions as this study . While subjective assessments are important for understanding current perceptions, relying exclusively on perceptions could be problematic when perceptions vary from actual research output (Stephens et al. 2011). The sample size obtained from the survey if extremely small may influenced the results and hence the impossibility of results generalising (Cronbach 1975).

Fourth, in addition to the independent variables (IAF presence and IAQ attributes) there is a range of control variables included in the tests to control for further potential influencers of financial distress, it is highly likely that other factors not used in study may lower the likelihood of financial distress. Since the objective of this study does not include the causality tests, this issue may not affects the findings or has minor consequence on the relation between the IAF presence or IAQ attributes and financial distress.

Fifth, the results of this study may not be generalisable to countries with different institutional settings since the study is only using Australian firms' data. Further, the sample size of the IAQ attributes is somewhat small making the results less generalisable.

Sixth, while the size of an IAF is an important IAQ contribute (Prawitt, Smith, and Wood 2009; Prawitt, Sharp, and Wood 2012), the inability to access the industries' average budgets from the IIA GAIN database inadvertently resulted in this attribute being dropped from this study.[53] IAF size is a measure of the firm's investment in its IAF and relatively well-funded IAFs should have greater ability to monitor firm activities (Prawitt, Smith, and Wood 2009). The

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[53] The IIA Global has identified and included in its Global Auditing Information Network (GAIN) database the following: (1) Evidence that between 0.02% and 0.14% of revenues are applied towards an internal audit budget and that the percentage is higher for firms with less than $1 billion in annual revenues; and (2) Budgets covering firms in different industries and sizes (Institute of Internal Auditors and Protiviti 2010).

size of an IA team determines the amount of time that internal auditors can dedicate to IAAs, one of the key criteria used by external auditors to evaluate quality (Arena and Azzone 2009). IAF size appears to be the dominant driver of IAQ (Goodwin-Stewart and Kent 2006b) and is important as evidenced in previous studies by Wallace and Kreutzfeldt (1991); DeFond and Jiambalvo (1991); and Goodwin-Stewart and Kent (2006b). Carcello, Carcello, Hermanson, and Raghunandan (2005); and Goodwin-Stewart and Kent (2006b) all report that internal audit budgets are positively related to firm size and the complexity of the firm. In predicting IAQ, the findings of Carcello, Hermanson, and Raghunandan (2005) that these variables Assets, Leverage, and Complexity predict the size of the internal audit's budget. Arena and Azzone (2009) assert that IAF effectiveness increases when the ratio between the number of internal auditors and employees increases and a large IAF is able to rotate auditors to mitigate familiarity risk. Furthermore, IAF size has a significantly positive relation with the firm's affiliation to the finance sector, audit committee's size and the presence of a separate risk management committee (Alhajri 2017). Table 7.1 at the end of this chapter shows the key IAQ attributes of empirical evidence using IAF size.

Seventh, as described in section 5.3.2 above, only four control variables instead of seven are used due to the small sample size which is determined based on the number of completed responses by the CAEs of firms. This is because the role of a sample size in determining the statistical power affects the generalisability and/or best results of the regression results by the ratio of sample size (that is, observations) to both independent and control variables together (Hair et al. 2010).

7.7   SUGGESTIONS FOR FUTURE RESEARCH

All IAQ attributes selected in this study are expected to lessen financial distress regardless of what financial distress model is used to test their associations. The results are somewhat consistent with the notion that IAF quality is negatively associated with financial distress. In particular, firms with higher-quality IAQ can lessen financial distress. These results suggest that IAFs play an important role in the corporate governance arena, an essentially new and promising area for future research. Future research may include other IAAs and/or other methods not considered in this study, for example, the outsourced IAAs since firms outsourcing IAAs to the external auditor are more likely to experience financial distress (Desai, Gerard, and Ripathy 2011) and the internal auditing process (Lenz and Hahn 2015). Research also include those which single out on IAFs which use the IIARF recommended models (that is, those suggested by (Wallace 2004)) in their risk assessment processes or IAAs.

Results in this study suggest that the control variables, particularly quality attributes of the other tripartite audit members, are not contributing to lessen financial distress. While any

self-selection bias of the sample may likely to oppress expected results, future studies should examine the associations identified in this study by mean of a broader sample, particularly good survey responses.

Since this study focuses on a single nation (that is, Australia), not only future research on IAQ attributes and their associations with financial distress can be undertaken in another domestic, regional, or international setting, different regulatory and institutional settings should be considered.

Finally, the measures of financial distress in this study may not have adequately captured the underlying construct. While there are generally consistent results for the two dependent constructs for financial distress, future studies may wish to examine whether or not other proxies for financial distress provide an additional lens. Further, later at some point when sufficient and available data provide opportunities to examine whether or not firms without IAFs may have implemented IAF or firms with low-quality IAF may have improve the IAF's IAQ to lessen financial distress. More research are required to deepen our understanding on the determinants of IAF quality, and the determinants' interaction between them and other tripartite audit members' determinants. Using exposing impression management practices (that occur through a private reporting channel), Roussy and Rodrigue (2016) raise significant ethical concerns relating to internal audit's annual accountability to audit committee, and urge research in this area.

7.8   SUMMARY OF THE STUDY

As reported in section 7.6 above, many respondents to survey or interview tend to remain cautious in completing the questionnaire for this study resulting in a small sample size. This problem failed to enhance the validity and reliability of results. Despite these problems to support the quest of the IIA push for the institutionalisation of the IAF within firms, the AGX CGC's requirements on reporting of internal controls adequacy provides confident to the profession that CLERP 9 (2004) requirements will someday be aligned with the Sarbanes-Oxley Act (2002)'s requirements. Hopefully, it is not a reaction to another major accounting scandal in Australia but rather the need to institutionalise the IAF as it is seen to be a major player in the corporate governance mosaic.

Overall, this study provides valuable insights not only in respect to the financial distress models, and the IAF and also IAQ attributes associations, but the significance aspects of the corporate governance, audit trinity, internal auditing and its contribution to corporate governance, financial distress and bankruptcy concepts.

No.	Author/s (Year)	Country	Period of Study	Sample Size	Theory/Design	Auditing Standards/ IAQ Attributes	Objective/Research Question(s)	Main Results
1	Wallace, W.A. and Kreutzeeedt, R. W (1991)	US	1983	260 firms	Agency theory	Independence, objectivity, competence.	RQ1: Do significant differences exist between entities that have an internal audit function (IAF) and those that do not with respect to size, external environment, profitability and liquidity, management environment, and management control? RQ2 Is there a significant difference between the number of misstatements, or their magnitude, deflated by materiality, that are reported by external auditors for engagements in which an internal audit department (IAD) is present and those in which no IAD exists? RQ3 Does the number or magnitude of errors reported by external audit engagement teams and the quality of the control environment, as assessed by the external audit teams, move systematically with qualitative attributes of internal auditing? RQ4 Can a discriminant model with environmental, company-specific, and external audit-related variables provide practically significant power in classifying companies with IADs as distinct from those without such departments?	Competition, regulation, available resources, higher quality management environment, and better management controls are common characteristics shared by entities that have created an IAD. Concurrently, when such a department is created, the number and magnitude of errors are observed to be substantially lower, relative to having no such department. An added advantage of creating an IAD is increased flexibility available to the external auditor to incur audit hours that are off peak. This is expected, in tum, to lead to audit fee savings by clients.

No.	Author/s (Year)	Country	Period of Study	Sample Size	Theory/Design	Auditing Standards/ IAQ Attributes	Objective/Research Question(s)	Main Results
2	Gramling, A.A., Maletta, M.J., Schneider, A. and Church, B.K (2004)	Global	Not specified	Not needed	Synthesis of academic articles relating to internal audit quality. Institutional theory implicitly used	Independence, work performance, competence, external auditor's view. Corporate governance players' relationships.	Synthesise Internal Audit Quality (IAQ) by examining: (1) Quality of the IAF (that is IAQ); (2) Relationship between IAF and the external auditor; (3) Relationship between the IAF and the AC and executive management.	(1) IAF Quality: Independence is viewed as the most important criterion describing objectivity. Further, with two exceptions, the quality of work performance was found to be of greater importance in assessing IAF quality than objectivity or competence. Finally, there are evidence of bias or lack of ethics in internal auditors' judgments and decisions, while other studies have suggested that professional certification, membership in the IIA, and public accounting experience are associated with higher internal audit judgments and decisions. The literature on IAF quality has almost exclusively been examined from the view of the external auditor. (2) Relationship between IAF and the external auditor: Literature has highlighted the contingent and complex nature of the reliance decision. Further, the significance of the reliance decision of the IAF quality factors varies depending on the type of reliance decisions being made. (3) Relationship between the IAF and the audit committee (AC) and executive management: Much of the research examining these relationships is comprised of surveys of internal auditors. It is noted that various characteristics of the AC (that is independence, financial expertise) and management (that is reporting relationship of the controller, management support for the IAF) are associated with the nature of the relationship with the IAF, and the quality of the IAF.
3	Carcello, J. V. Hermanson, D. R. and Raghunandan, K. (2005)	US	August 2001 to July 2002	217 firms	Survey	Leverage, Stock Issue, Debt Issue, Financial, Service, Utility, Rec/Asset, Inv/Asset. For. Subs, Restatement, Current Ratio, ROA, CFO/ Assets, Sales Growth, Budget AC, outsource, Audit Fee.	Examine factors associated with US public companies' investment in internal auditing.	Internal audit budgets are positively related to firm size, leverage, financial, service, and utility industries, relative amount of inventory, operating cash flows, and audit committee review of the internal audit budget. Total internal audit budgets are negatively related to the percentage of internal auditing that is outsourced.
4	Goodwin-Stewart, J. and Kent, P (2006)	Australia	October 2000	490 firms	Questionnaires and hypotheses testings using 3 models	AC existence, AC independence, AC expertise.	Examine whether the existence of an audit committee (AC), AC characteristics and the use of internal audit are associated with higher external audit fees.	Existence of an AC is associated with a higher level of audit fees which is consistent with a demand by ACs for higher quality auditing. More frequent AC meetings are associated with higher audit fees, suggesting that the diligence of the AC might influence the demand for a higher quality audit. Increased committee expertise is associated with higher audit fees only when both meeting frequency and independence are low which is consistent with AC members with accounting and finance expertise demanding a higher quality audit in these circumstances. A complementary relationship between independence, expertise and frequency of meetings and that the role that these characteristics play in enhancing AC effectiveness with respect to the external audit is a complex one. Firms with higher audit fees are also more likely to use a greater level of internal auditing. ACs, internal audit and external audit are complementary mechanisms within the governance framework. Firms with large internal audit functions (IAFs) also engage in a higher overall level of monitoring.

Table 7.2 (continued):
Summary of Prior Studies on Internal Audit Quality Attributes – IAF Size: Chronological Date Order

No.	Author/s (Year)	Country	Period of Study	Sample Size	Theory/Design	Auditing Standards/ IAQ Attributes	Objective/Research Question(s)	Main Results
5	Prawitt, D.F.,Smith, J.L. and Wood, D.A (2009)	Global	Fiscal years 2000 to 2005	528 firm-year observations (218 unique companies)	Ordinary least squares (OLS) regression	Auditor-experience, Certification, CAE reports to AC. Time spent on financial audit, training, and IA size.	Examine whether a high-quality IAF is associated with lower levels of earnings management.	IAF quality is negatively associated with earnings management. Companies with higher-quality IAFs are associated with smaller negative abnormal accruals and are more likely to just miss analysts' earnings forecasts.
6	William F. Messier, W.F. Jr., Reynolds, J.K., Simon, C.A. and Wood, D.A (2011)	GAIN	Not stated	65% of Fortune 1000	Surveys	External auditor fees model variables. IAQ independence.	Examines how using the internal audit function (IAF) as a management training ground (MTG) affects external audit fees and the external auditors' perceptions of the IAF on two issues.	External auditors charge higher fees to companies that use the IAF as a MTG. External auditors perceive internal auditors employed in an IAF used as a MTG to be less objective but not less competent than internal auditors employed in an IAF not used as a MTG. This results in higher audit fees.
10	Singh, H., Woodliff, D., Sultana, D., Newby, R (2014)	Australia	2005	300 firms	Hypotheses tests	AAS610; SAS 65 & 78.	Examining the relationship between a firm's internal audit (IA) function and its audit fees.	In explaining variations in audit fees, when the proxy sales variable is used for firm size, internal auditing is insignificant but subsequently becomes significant when assets and employees are used. Previously reported relationships involving audit fees may be the outcome of the model adopted rather than the underlying relationship between the variable of interest and audit fees.
11	Alhajri, M.O. (2017)	Kuwait	2012	57 firms	Survey, hypotheses and OLS	IAF Size.	Examine whether the size of internal audit functions (IAFs) is significantly related to factors documented by related prior auditing research, namely, diffusion of ownership, firm size, affiliation to the financial services industry, proportion of assets in the form of receivables and inventory, audit committee's size and the presence of risk management committee.	Evidence of a significantly positive relation between the size of the IAF and firm's affiliation to the finance sector, audit committee's size and the presence of a separate risk management committee.

APPENDICES

APPENDIX 1: Survey Email

An example of an email sent when the identity of the CAE cannot be determined:

From: Vincent Chang [mailto:V.Chang@curtin.edu.au]
Sent: Tuesday, 10 March 2015 1:33 PM
To: xxx
Subject: Internal Audit Quality Survey (Attention: xxx)

Hi xxx,

My name is Vincent KH Chang and I am a doctoral research student in the School of Accounting at Curtin University.

My PhD thesis investigates whether or not there is any association between the quality of the internal audit function and financial distress risk levels within Australian Stock Exchange (ASX) listed companies.

Using the Institute of Internal Auditors' International Professional Practices Framework standards' attributes and other empirical evidence, internal audit quality will be measured using the data captured in an online survey. This survey is applicable to you if you are currently employed in an ASX listed firm.

The survey will take about twenty minutes to complete. Please click the link to access the survey: (Your Anonymous Survey Link: https://curtin.asia.qualtrics.com/SE/?SID=SV_9NyZggR07SERgOh). Participation is completely voluntary; participants are at liberty to withdraw at any time without prejudice or negative consequences.

All the information provided, including the name of your company, will only be used for extracting data from financial reports/databases and will be treated in the strictest confidence. Neither you nor your company will be identified in any forthcoming research reports, including conference papers and publications that may result from the completed thesis. Only the named researchers will have access to the gathered information which will be securely retained in the School of Accounting for a period of five years in accordance with Curtin University policies.

As the data to be collected is crucial to my research thesis, I would like to thank you very much for agreeing to participate in the survey. Note that three randomly selected participants stand a chance to win $100 to be donated to a registered charity of their choice. Winners who provide their email addresses when completing the survey will be informed by email. This project has been approved under Curtin University's process for lower-risk Studies (Approval Number ACC-13-14). The process complies with the National Statement on Ethical Conduct in Human Research (Chapter 5.1.7 and Chapters 5.1.18-5.1.21).

If you have any questions relating to this study or have any concerns about the way it is

conducted, please contact the researchers named below or either of my supervisors Dr Gordon Woodbine (email: G.Woodbine@curtin.edu.au) or Dr Harjinder Singh (H.Singh@cbs.curtin.edu.au) or the Curtin University Human Research Ethics Committee, c/- Office of Research and Development, Curtin University, GPO Box U1987, Perth WA 6845, or by telephoning 9266 9223 or emailing hrec@curtin.edu.au.

Thank you for your participation.

Kind Regards,

Vincent Chang

 B.Sc, B.Com(Hon), M. Acc, CISA
School of Accounting

Curtin University
Tel | +61 8 9266 3303
Fax | +61 8 9266 7196

Email | v.chang@curtin.edu.au
Web | http://curtin.edu.au

APPENDIX 2: Letter and Survey

Survey   *company name (ASX code: ___)

Dear **Chief Audit Executive** or equivalent governance officer,

My PhD research investigates whether or not there is any association between the quality of the internal audit function and financial distress risk levels within Australian Stock Exchange (ASX) listed companies.

The Institute of Internal Auditors' International Professional Practices Framework (IPPF) Standards' Attributes and other empirical evidence, internal audit quality will be measured using the data captured in an online survey, which I am inviting you to complete.

The survey will take about fifteen minutes to complete. Participation is completely voluntary; participants are at liberty to withdraw at any time without prejudice or negative consequences.

All the information provided, including the name of your company, will only be used for extracting data from financial reports/databases and will be treated in the strictest confidence. **Neither you nor your company** will be identified in any forthcoming research reports, including conference papers and publications that may result from the completed thesis. Only the named researchers will have access to the gathered information which will be securely retained in the School of Accounting for a period of five years in accordance with Curtin University policies.

As the data to be collected is crucial to my research thesis, I would like to thank you very much for agreeing to participate in the survey. Note that three randomly selected participants stand a chance to win $100 to be donated to a registered charity of their choice. Winners who provide their email addresses when completing the survey will be informed by email.

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If you have any questions relating to this study or have any concerns about the way it is conducted, please contact the researchers named below or either of my supervisors Dr Gordon Woodbine (email: G.Woodbine@curtin.edu.au) or Dr Harjinder Singh (H.Singh@cbs.curtin.edu.au) or the Curtin University Human Research Ethics Committee, c/- Office of Research and Development, Curtin University, GPO Box U1987, Perth WA 6845, or by telephoning 9266 9223 or emailing hrec@curtin.edu.au.

Thank you very much for your participation.

1.   Do you wish to enter into the competition to win the award for your nominated charity?   Yes / No
      If yes, provide the registered charity name:_____

2.   CHIEF AUDIT EXECUTIVE (CAE)
      2.1.   Month and year (e.g. Jan 2000) you commenced your current position as Chief Audit Executive:
              _____

      2.2.   Which of the following professional bodies are you a member (tick those which is/are applicable)?
              ☐ Certified Practising Accountants (CPA)
              ☐ Institute of Chartered Accountants (ICA)
              ☐ Institute of Internal Auditors (IIA)
              ☐ Information Systems and Control Association (ISACA)
              ☐ Others _____

2.3. Your highest post high school academic qualification:
- ❑ Post graduate
- ❑ Bachelor
- ❑ Diploma
- ❑ None of the above

3. ATTRIBUTES of INTERNAL AUDIT QUALITY

3.1. The internal auditor and/or your internal audit function's independence in the financial period 2014. Please indicate the extent to which you agree with the following statements by ticking the appropriate box.

	Strongly Disagree	Disagree	Neither Agree nor Disagree	Agree	Strongly Agree
a) The internal audit function reported operationally to an independent Audit Committee, Board of Directors and/or other appropriate governing body that allowed the internal audit function to fulfill its responsibilities objectively.					
b) The Internal Audit function was free from management interference in determining the scope and objectives of audit engagements.					
c) The Internal Audit function was free from management interference in reporting audit findings and recommendations.					
d) The Internal Audit function was impartial, presented unbiased views, and avoided conflicts of interest.					
e) Internal auditors (including the Chief Audit Executive) were often seconded to other operational areas of the firm as part of career progression or for other reasons.					
f) There was continuous independent Board or Audit Committee oversight of the Chief Audit Executive's assurance responsibilities.					
g) The Audit Committee maintained hiring and retention authority over the Chief Audit Executive's appointment throughout the period.					
h) The Chief Audit Executive and/or internal auditors were involved in making operational decisions for or on behalf of other organisational units.					
i) Prior to engaging in any consulting services within your firm, internal auditors declared any potential impairment to independence and/or objectivity.					

	Strongly Disagree	Disagree	Neither Agree nor Disagree	Agree	Strongly Agree
j) Internal auditors were frequently engaged in other operational duties while still employed in the Internal Audit function.					
k) Operational staff members were regularly rotated into the Internal Audit function to perform internal audit duties.					
l) The Chief Audit Executive proactively ensured that internal auditors abide by a code of ethics policy/standard, avoided conflicts of interest and disclosed any activity that could result in a possible conflict of interest.					
m) Internal auditors tended to be directed to completing similar tasks due to their reliability and experience.					
n) It was difficult to rotate audit staff between duties during the period due to the lack of available manpower.					
o) The Chief Audit Executive was regularly required to provide the Audit Committee with advice as to the feasibility and practicability of operational issues associated with their approved audit plans.					
p) For 2013: During the period, there were no significant instances where the Internal Audit function's independence in appearance was compromised or questioned by others.					
q) During the period, there were significant instances where you noted that an internal auditor's independence of mind and/or objectivity was compromised.					

3.2.   Internal Auditor competence in the financial periods 2013 and 2014.

How many internal auditors were employed in the internal audit function (excluding Chief Audit Executive and excluding those auditors who are engaged to perform outsourced and co-sourced internal audit activities)?

	2013	2014
No of internal auditors		

3.3.   How many of the above internal auditors possessed one or more of the following professional qualifications listed by the Institute of Internal Auditors? Chartered Accountant (CA), Certified Practicing Accountant (CPA), Certified Internal Auditor (CIA), Certified Fraud Examiner (CFE), Certified Information Systems Auditor (CISA), Certified Financial Services Auditor (CFSA), Certification in Control Self-Assessment (CCSA), Certified Government Auditing Professional (CGAP)?

	2013	2014
No of internal auditors		

3.4.   What was the approximate average number of years of related auditing experience of all internal auditors (excluding the Chief Audit Executive)?

	2013	2014
Approximate average number of years		

3.5.   Adequate attention was given to ensuring internal auditors (including the Chief Audit Executive) completed continuous professional development hours in the financial period 2014. Indicate the extent of your agreement with this statement:

	Strongly Disagree	Disagree	Neither Agree nor Disagree	Agree	Strongly Agree
For 2014 financial period					

3.6.   Internal audit budget in the financial periods 2013 and 2014: What was the approximate approved internal audit budget during the periods 2013 and 2014 (including outsourcing and co-sourcing)?

	2013	2014
Approximate approved budget		

3.7.   Scope/Nature of internal audit work – An evaluation of risk management and control in the financial period 2014. Assuming your firm has an independent risk management unit, please answer the following questions.

	Strongly Disagree	Disagree	Neither Agree nor Disagree	Agree	Strongly Agree
a) The Internal Audit function adequately checked the risk assessment process as part of the approved annual audit plan.					
b) The Internal Audit function verified the adequacy of the risk assessment of the likelihood of financial distress during each period.					

	Strongly Disagree	Disagree	Neither Agree nor Disagree	Agree	Strongly Agree
c) The Internal Audit function fully relied on the work of the external auditors in assessing risks associated with financial distress.					
d) The Internal Audit function checked the Risk Management Unit's assessment of particular risk issues as part of each planned or adhoc audit program.					
e) I believe the Internal Audit function worked well with the Risk Management function to ensure the firm's financial distress risks are well managed.					
d) The Internal Audit function is fully responsible for managing the risk management process.					

3.8.   Internal audit function communication and monitoring in the financial period 2014.

There was adequate communication with auditees pertaining to significant risks and/or findings during the period:

	Strongly Disagree	Disagree	Neither Agree nor Disagree	Agree	Strongly Agree
a) Audit planning stage i.e., in the audit scope and objectives.					
b) Audit evidence evaluation period.					
c) Finalisation of audit reports.					

3.9.   The Internal audit function external quality assurance review (QAR) in the financial period 2014.

The Institute of Internal Auditors (IIA) Standards for the Professional Practice of Internal Auditing - Standard 1312 requires external assessments of internal audit activities (IAAs) to be undertaken periodically to appraise the quality of internal audit function. The Standards states: "External assessments, such as quality assurance reviews, should be conducted at least once every five years by a qualified, independent reviewer from outside the organisation".

The principal objectives of the quality assurance review (QAR) are to: Assess the IAA's conformity to the IIA's Standards for the Professional Practice of Internal Auditing (Standards); Evaluate IAA's effectiveness in carrying out its function (as per its Internal Audit charter and expressed in the expectations of the management and members of the Audit Committee); and Identify opportunities to enhance its management and work practices, as well as its value to your firm.

Indicate whether your firm's Internal Audit function has ever been the subject of a quality assurance review (QAR): **Yes / No**

If quality assurance review was **NOT** conducted, please briefly explain the reasons for this.

_____

(If no, please go to question 4 on the next page)

If yes (quality assurance review was conducted), when (e.g. Jan 2010) was the last quality assurance review completed?_____

If yes, how would you rate the benefits of QAR in relation to improving the effectiveness of your internal audit function (using a scale of 1 to 10, 1 no value and 10 being best value)

	1	2	3	4	5	6	7	8	9	10
For 2014 financial period										

4. If your firm outsource or co-source any internal auditing activities in the financial period 2014, what percentage of the internal audit activities (IAAs) was outsourced in that period?

	% of IAAs outsourced	% of IAAs outsourced
For 2014 financial period		

Where outsourced/co-sourced, the employment of outside agencies to assist in the completion of internal audit programs significantly enhanced the quality of the audit function during the period.

	Strongly Disagree	Disagree	Neither Agree nor Disagree	Agree	Strongly Agree
For 2014 financial period					

5. Having regard to all the issues raised above, how would you personally rate the quality of your firm's internal audit function in the financial period of 2014 (using a scale of 1 to 10, ten being perfect).

	1	2	3	4	5	6	7	8	9	10
For 2014 financial period										

6. Indicate the extent to which you agree with the following statement: Your internal audit function possessing the quality attributes as disclosed by you above fully meets the expectations of the Audit Committee with respect to financial performance management.

	Strongly Disagree	Disagree	Neither Agree nor Disagree	Agree	Strongly Agree
For 2014 financial period					

7. Do you wish to describe any areas or factors not covered in any part of the questionnaire that you believe will improve internal audit quality within your firm?

_____

_____

_____

Thank you very much for completing my survey.

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