



The auditor's response to fraud in the client organisation: The impact of corporate governance, internal controls and auditor industry specialisation on audit pricing.

A thesis submitted in fulfilment of the requirements for the degree of Doctor of Philosophy

Shannon Ivy Lorraine Sidaway
Grad. Cert. TT&L (RMIT)
B. Bus (Hons) (RMIT)
Grad. Dip. Chartered Accounting (ICAA)
B. Bus & Comm (Acc, Mgmt) (Monash)

School of Accounting
College of Business
RMIT University

August 2019

Declaration

I certify that except where due acknowledgement has been made, the work is that of the author alone; the work has not been submitted previously, in whole or in part, to qualify for any other academic award; the content of the thesis is the result of work which has been carried out since the official commencement date of the approved research program; any editorial work, paid or unpaid, carried out by a third party is acknowledged; and, ethics procedures and guidelines have been followed.

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Research Summary

The primary aim of this study is to determine the extent to which external auditors, in exercising their responsibilities under the Australian Auditing Standards, conduct additional audit work (proxied by audit fees) when audit clients have experienced known misappropriation of assets (MOA) fraud. The research is motivated by three key factors. The first being the mounting concerns by the Australian government and others in relation to audit quality. The second being the significant public concern related to fraud within organisations, and the increasingly sophisticated methods used to commit such crimes. Third being the potential to investigate the link, if any, between audit pricing and MOA fraud. This potential relationship is inherently under-researched globally reflecting a lack of access to data on MOA.

This study employed a sample of 60 Australian listed companies that have experienced known MOA fraud in the period from 2002-2010, as well as 60 control companies which have been individually matched to the fraud companies by industry and size. I investigated in a fraud context whether corporate governance, internal control factors and auditor industry specialisation impact on the extent of any additional audit work undertaken by the auditor when their client has experienced known MOA fraud. The research makes a unique theoretical contribution by examining how the substitution effect, role-conflict theory and signalling theory interconnect within an agency framework in the context of known fraud.

Employing a quantitative approach to research design and analysis, a deductive approach is used to draw hypotheses from agency theory, substitution, role conflict and signalling theories which seeks to explain the relationships between fraud, auditor specialisation, corporate governance, internal control and audit fees. Four empirical models are presented based on these hypotheses, and data is collected and statistically analysed using ordinary least squares (OLS) regression to test the models, hypotheses and the theories which underpin them.

This study found that companies with higher losses from MOA fraud paid significantly higher audit fees than those companies with lower losses from MOA fraud. This suggests that auditors expend additional audit effort, and this additional effort translates into higher audit fees. This contributes to the audit quality debate amongst regulators, researchers, the accounting profession and the public by confirming that the auditor is acting (at least in part) in response to their responsibilities pertaining to fraud as required by Australian Auditing Standards. This

finding has an associated theoretical contribution, since MOA fraud can be considered an agency problem, and these additional audit fees can be regarded as an additional external monitoring cost under agency theory.

The study does not find a significant relationship between corporate governance characteristics or *prevention-focused* fraud-related internal controls and audit fees. However, evidence is presented that *detection-focused* fraud-related internal controls reduce the additional audit work undertaken by the auditor in response to MOA fraud. This provides regulators with greater insights into the factors that auditors consider when deciding how to respond to MOA fraud in discharging their responsibilities under *ASA 240 'The Auditor's Responsibilities Relating to Fraud in an Audit of a Financial Report'*. These findings also provide a theoretical contribution by developing a greater understanding of which factors do, and do not, produce a substitution effect in relation to external monitoring conducted by auditors in response to MOA fraud.

This study also examined auditor industry specialisation using both the joint *firm national-city framework* and the joint *partner national-city framework*. The findings provide evidence that the choice to engage an industry specialist auditor (under either framework) impacted on the audit fees paid by those companies that have experienced known MOA fraud and adds a further dimension to the audit quality discussion.

This study makes several contributions to the extant literature and the theories which underpin the research. As previously noted, misappropriation of assets is under-researched globally due to the difficulty of obtaining sufficient data for a large-scale analysis. The select number of other studies which have examined MOA fraud have focussed on the relationship between MOA fraud and internal characteristics/processes rather than an examination of the external auditor and their response to MOA fraud.

Given the growing concerns in relation to audit quality, the increasingly complex means by which fraud is perpetrated and the lack of research in this area, the present study investigated how auditors respond when their client has experienced known MOA fraud. These findings have implications for regulators, researchers, the accounting profession and the public. For example, the 2019-2020 Australian Federal Budget has allocated additional taxpayers' funds towards improving audit quality over a period of three years (Commonwealth of Australia

2019). An examination of the extent to which auditors discharge their responsibilities in accordance with the requirements of Australian Auditing Standards can ensure that resources are allocated to address those areas most in need of improvement. In this way, the research has implications for both regulators and the tax-paying public. A further example is the evidence provided in this study that industry specialisation is assessed by the market at a partner level (as opposed to only the national level or office level). This has implications for accounting firms and may impact the marketing strategies they choose to adopt. More specifically, campaigns to promote local partner expertise may prove to be more effective in gaining and retaining clients compared to a focus on only the promotion of national and even international reputation. Further, this same finding has implications for researchers. Currently, there are only a limited number of studies which examine auditor industry specialisation at the partner level. The evidence of fee premiums charged by industry specialist partners provided by the present study may encourage researchers to further examine auditor industry specialisation at the partner level.

1. Introduction

Motivated by the increasing concerns of the Australian government and others in relation to audit quality as well as the significant public concern related to fraud within organisations, this research makes a unique contribution to the literature by investigating the under-researched area of misappropriation of assets (MOA) fraud. The primary aim of this study is to determine the extent to which external auditors, in exercising their responsibilities under Australian Auditing Standards, conduct additional audit work (proxied by audit fees) when audit clients have experienced known MOA fraud. The study comprises four key research questions and examines in a fraud context whether corporate governance, internal control factors and auditor industry specialisation impact on the extent of any additional audit work undertaken by the auditor. A separate hypothesis and statistical model have been developed to address each of these questions. Employing a sample of 60 Australian listed companies that have experienced known MOA fraud in the period from 2002-2010 as well as 60 control companies which have been individually matched to the fraud companies by industry and size, this study uses OLS linear regression to examine the impact of known MOA fraud on audit fees. This study makes several contributions to the extant literature and the theories which underpin the research with the findings being of interest to regulators, researchers, the profession and the public.

The motivation, background and aims of the study as well as the research methodology and contribution will each be discussed as part of this introductory chapter below. Following from this, the chapter will conclude with a summary of the structure of the remainder of the thesis.

1.1. Motivation for the study

This study is motivated by three key factors. The first factor is the mounting concerns by the Australian government and others in relation to audit quality. The second factor is the significant public concern related to fraud within organisations and the increasingly sophisticated methods used to commit such crimes. The third factor is the potential to expand the body of knowledge in the combined areas of audit pricing and MOA fraud which is inherently under-researched globally. Each of these three factors will now be discussed in turn.

There has been concern in recent years about the standard of audit quality in Australia (Financial Reporting Council 2019, p. 5) and as such the issue of audit quality has been the

subject of several recent Australian Government reports and initiatives. In September 2018, the Australian Government's Financial Reporting Council (FRC) which oversees the financial reporting framework in Australia, issued an 'Audit Quality Action Plan' to 'help improve audit quality ... [and] to enhance confidence in financial reports, in order to contribute to stakeholder confidence in the Australian economy, including its capital markets' (2018, p. 1). As recently as January 2019, the Australian Securities and Investments Commission (ASIC) which regulates Australia's companies and financial markets, issued their 'Audit Inspection Program Report' for the period 1 January 2017 to 30 June 2018. ASIC reported that in 24% of the key audit areas reviewed (for example, asset valuation, receivables, inventory and cash), the auditors failed to obtain reasonable assurance to support the audit opinion provided (ASIC 2019, p. 4). This compares with 25% of key audit areas for the prior review period from 1 July 2015 to 31 December 2016, and as such this failure to obtain sufficient levels of assurance seems to be an ongoing issue.

The increasing concern in relation to audit quality has led to a similarly increasing level of interest regarding the consequences for auditors when they are found to have not appropriately discharged their statutory or professional duties (FRC 2019, p. 2). As a result, the FRC undertook a review of auditor disciplinary processes and in March 2019 they provided a list of 18 recommendations directed towards ASIC, the Companies Auditors Disciplinary Board (CADB) and the professional accounting bodies. These included increasing transparency with a recommendation that ASIC publish greater details relating to audit inspection results including the names of audit firms under investigation (FRC 2019, p. 7), and a recommendation that professional bodies publicly report both the number of complaints they receive as well as the number of complaints which do not proceed (FRC 2019, p. 8).

In addition to the work being carried out by Government agencies ASIC and the FRC, further evidence of the concern relating to audit quality is the provision made in the 2019-2020 Australian Federal Budget. The budget which was released in April 2019 included an additional \$900,000 over 3 years which was allocated towards 'improving audit quality' (Commonwealth of Australia 2019, p. 44).

In Australia, auditing standard *ASA 240 'The Auditor's Responsibilities Relating to Fraud in an Audit of a Financial Report'* requires that 'an auditor conducting an audit in accordance with Australian Auditing Standards is responsible for obtaining reasonable assurance that the

financial report taken as a whole is free from material misstatement, whether caused by fraud or error (Auditing and Assurance Standards Board ASA 240 2018, para. 5).

Given that external auditors have formal responsibilities relating to fraud in the audit of a financial report (Auditing and Assurance Standards Board ASA 240 2018), it is timely to consider if and how auditors are discharging their responsibilities under *ASA 240 'The Auditor's Responsibilities Relating to Fraud in an Audit of a Financial Report'*. This is particularly so, given that fraud within organisations has also been the subject of significant public concern in recent times. This is not surprising, given the far-reaching impact of fraud-related corporate collapses such as Enron and HIH Insurance and the vast numbers of people that are adversely affected when such a collapse occurs. Even in the absence of a corporate collapse, the impact of fraud can still be far reaching and severe in its effects.

The Association of Certified Fraud Examiners (2018) estimates that fraud costs organisations 5% of their annual revenue. When applying this to the gross world product of USD 79.6 trillion, this translates to a projected global loss from fraud of USD 4 trillion (The Association of Certified Fraud Examiners 2018). Like many other countries, the frequency and severity of MOA fraud in Australia means the losses because of such fraud are of economic significance. MOA type fraud occurs on a frequent basis in Australia. For example, in January 2019, a junior lawyer was sentenced to a maximum of six-years imprisonment after impersonating a company director as part of a \$10 million fraud perpetrated against his clients (Mitchell 2019). The fraudster described his crime as impulsive and opportunistic and used the funds to support a gambling addiction where he spent up to \$3 million a day (Mitchell 2019). Another recent example involves an alleged fraud by the former chief financial officer of a global political strategist firm (Knaus 2019). The alleged perpetrator who was based at the firm's Sydney office is accused of defrauding the company of more than \$850,000 and in March 2019 was charged with four offences of obtaining financial advantage by deception (Knaus 2019).

In addition to being a frequent occurrence, the severity of MOA frauds can be quite extreme. To gain an insight into the size of the problem, KPMG published a series of 'Fraud Barometer' reports relating to fraud which occurred between 2008 and 2017 in Australia. In the most recently published report, which covers the 12-month period from October 2016 to September 2017, KPMG (2018a) analyse cases of reported fraud with a value of at least \$50,000 which have been before Australian courts during the period. They counted 155 fraud cases with total

fraud losses of just over \$482 million and an average fraud value of just over \$3.1 million. Management and general employees accounted for 48% of perpetrators. In the media release to accompany the report, KPMG (2018b) listed several larger and more interesting frauds including a \$165 million tax fraud which involved a complex network of payroll businesses and a \$128 million fraud perpetrated against a betting syndicate where funds that were provided by investors for betting on horse races were instead retained by the fraudster. The report itself noted that ‘Fraudsters are using increasingly sophisticated methods to steal money or data’ and also highlighted an increase in the proportion of frauds perpetrated by groups as opposed to individuals acting alone (KPMG 2018a).

The association between MOA fraud and audit fees is under-researched globally. This is despite the increasing sophistication with which fraud is being conducted and the auditor’s responsibility under *ASA 240* for obtaining reasonable assurance that the financial report taken as a whole is free from material misstatement, whether caused by fraud or error (Auditing and Assurance Standards Board ASA 240 2018, para. 5). The likely reason for the limited research in this area is the difficulty associated with identifying a sufficient number of fraud firms for a large-scale audit fee study.

The prior research which has examined these relationships has considered the association between fraud and the *planned* audit fee (Johnstone & Bedard 2001) rather than the *actual* audit fee charged; the audit fees charged by auditors *prior* to fraud occurrence (Rapoport cited in Markelevich & Rosner 2013) rather than in response to the fraud *after* it has occurred; and the relation between audit fees and the existence of fraud using a *dummy* variable to indicate fraud (Sharma 2004) rather than using a *continuous* fraud variable to measure the magnitude of the fraud. Further, the focus of prior research has largely been on fraudulent financial reporting rather than misappropriation of assets-type fraud (see, for example, Lenard & Petruska 2012; Markelevich & Rosner 2013). Differentiated from the prior literature, the present study examines the impact of known MOA fraud on the *actual* audit fees charged by the auditor *after* the occurrence and discovery of fraud. Using a *continuous* variable to measure the magnitude of fraud, the results of the present study are sensitised to fraud value. The ability to access KPMG survey data from 2002-2010 provides a unique opportunity to gain otherwise unobtainable insights into auditors’ responses to MOA fraud and the subsequent ability to address the aforementioned gaps in the extant literature serves as a key motivation for undertaking this research.

Given heightened concerns in relation to audit quality, the increasingly complex means by which fraud is perpetrated and the scarcity of research in this area, the present study which examines how auditors respond when their client has experienced known MOA fraud is of interest to regulators, researchers, the profession and the public.

1.2. Background to the study

The focus of this study is on MOA fraud and its potential impact on audit work as proxied by audit fees. In order to be able to study fraud, it is first necessary to understand the way in which it is defined as well as the differences and relationships between fraudulent financial reporting and misappropriation of assets. Fraud is defined in the Australian Auditing Standards (ASA's) as 'an intentional act by one or more individuals among management, those charged with governance, employees or third parties, involving the use of deception to obtain an unjust or illegal advantage' (Auditing and Assurance Standards Board ASA 240 2018, para. 12). There are two types of fraud that may cause material misstatement in the financial report and as a result are considered to be relevant to the auditor – misstatements as a result of fraudulent financial reporting and misstatements as a result of misappropriation of assets (Auditing and Assurance Standards Board ASA 240 2018). According to *Auditing Standard ASA 240 'The Auditor's Responsibilities Relating to Fraud in an Audit of a Financial Report'* (Auditing and Assurance Standards Board ASA 240 2018, para. A4), '*fraudulent financial reporting* often involves management override of controls that otherwise may appear to be operating effectively'. Examples provided in the standard include processing fictitious journal entries, inappropriately adjusting accounting related assumptions and judgements and failing to disclose facts which are relevant to amounts recorded in the financial statements. *Misappropriation of assets* on the other hand is described by *ASA 240* (Auditing and Assurance Standards Board ASA 240 2018, para. A5) as involving 'the theft of an entity's assets...often perpetrated by employees'. The standard also acknowledges that this type of fraud can similarly involve management who are generally better able to disguise the fraudulent act. Examples of misappropriation of assets provided by the standard include embezzling receipts, stealing physical assets such as inventory or causing an entity to make payments to fictitious vendors for goods or services not received by the entity. Importantly 'misappropriation of assets is often accompanied by false or misleading records or documents as a mechanism to conceal the fact that the assets are missing or have been pledged without proper authorisation' (Auditing and Assurance Standards Board ASA 240 2018, para. A5).

According to *ASA 240* 'the primary responsibility for the prevention and detection of fraud rests with those charged with governance of the entity and management' (Auditing and Assurance Standards Board *ASA 240* 2018, para. 4). Even so, external auditors share some responsibility in the management of fraud and Trompeter et al. (2013) explain that the audit serves a dual role of both deterrence and detection. The authors explain that auditors are important to fraud deterrence because the existence of an effective audit may result in a potential fraudster increasing their assessment of the likelihood of being discovered. That being said, Trompeter et al. (2013) claimed that the auditor's primary role in relation to material financial statement fraud is the detection of such fraud. With less focus on MOA fraud, KPMG (2009) reported that only 1% of detected misappropriation of asset type fraud is uncovered by the auditor. The Association of Certified Fraud Examiners (2018) found that external auditors and internal auditors detected only 4% and 15%, respectively, of frauds in their global fraud study. Given that MOA fraud is often accompanied by fraudulent financial reporting (Auditing and Assurance Standards Board *ASA 240* 2018), this lack of fraud detection by the auditor appears incongruent with the above claim by Trompeter et al. (2013), and is potentially inconsistent with the expectations of the public in respect of the auditor and fraud.

While MOA fraud may involve small and seemingly immaterial amounts, it is important to recognise that any corresponding misstatement in the financial report may be considered material due to its nature and/or its size. Information will be considered qualitatively material if it impacts a user's decision-making process because of its nature rather than size whereas information is considered quantitatively material if its size exceeds the auditor's predetermined materiality level which is between 5% and 10% of an appropriate base such as revenue, profit or assets (Moroney, Campbell & Hamilton 2017). A misstatement due to fraud is indicative of potential internal control weaknesses and is an example of information that can potentially be regarded as qualitatively material to financial statement users. Importantly, depending on its magnitude, such fraud may also be considered material from a quantitative perspective as well. According to Moroney, Campbell and Hamilton (2017, p. 124), 'a fraud by its nature is considered to be significant and when uncovered is (expected to be) investigated further by an auditor'.

ASA 240 (Auditing and Assurance Standards Board *ASA 240* 2018, para. 36) explains how the auditor should consider the implications associated with a misstatement that is, or could be, a

result of fraud in relation to the other parts of the audit, ‘even if the size of the misstatement is not material in relation to the financial report’. The standard (Auditing and Assurance Standards Board ASA 240 2018, para. 36) prescribes that ‘if the auditor identifies a misstatement, the auditor shall evaluate whether such a misstatement is indicative of fraud. If there is such an indication, the auditor shall evaluate the implications of the misstatement in relation to other aspects of the audit, particularly the reliability of management representations, recognising that an instance of fraud is unlikely to be an isolated occurrence’. The standard goes on to explain that:

Since fraud involves incentive or pressure to commit fraud, a perceived opportunity to do so or some rationalisation of the act, an instance of fraud is unlikely to be an isolated occurrence. Accordingly, misstatements, such as ‘numerous misstatements at a specific location even though the cumulative effect is not material, may be indicative of a risk of material misstatement due to fraud’ (Auditing and Assurance Standards Board ASA 240 2018, para. A52).

In accordance with *ASA 330 ‘The Auditor’s Procedures in Response to Assessed Risks*, ‘the auditor shall determine appropriate responses to address the assessed risks of material misstatement due to fraud. (Auditing and Assurance Standards Board 2018 ASA 240). Examples of such specific responses are included in Appendix 1 of the thesis and include visiting sites on an unannounced basis and carrying out interviews with staff working in areas of the organisation where a risk of fraud has been identified.

It is clear from the requirements of *ASA 240*, that the auditor has responsibilities under the standard to obtain reasonable assurance that the financial report is not materially misstated due to fraud. Importantly, MOA fraud often goes unreported to authorities (KPMG 2013) and for this reason it is difficult to undertake research in this area as one is generally unable to identify firms who have experienced this type of fraud. Australia has been chosen as the basis for this study because the Australian-based data gathered by KPMG as part of their bi-annual fraud survey provides a unique opportunity to study how auditors respond to MOA fraud. In addition to the ‘Fraud Barometer’ discussed above, KPMG conducted a biennial survey in relation to MOA fraud in Australia. In addition, basing this study in Australia allows for data relating to the audit partner to be collected and analysed because in Australia, individual audit partner sign-off on the audit report is required.

Returning to the present study and my focus on MOA fraud, I examine the response of auditors in terms of the audit service pricing strategy that they adopt when their client has experienced known MOA fraud in the preceding two years. In this study ‘known MOA fraud’ describes MOA fraud that has been detected by means other than detection by the external auditor and the occurrence of this fraud is therefore known to management at the time of the audit. More specifically, this study will investigate whether auditors charge higher audit fees to firms who have experienced higher levels of known MOA fraud.

1.3. Aims of the study and the questions to be addressed

The primary aim of this study is to understand the extent to which external auditors, in exercising their responsibilities under Australian Auditing Standards, conduct additional audit work (proxied by audit fees¹) when audit clients have experienced known MOA fraud. Secondary aims of the study include determining whether corporate governance, internal control factors and auditor industry specialisation impact on the extent of any additional audit work undertaken by the auditor.

The relationships investigated in this study will be primarily examined through the lens of agency theory. More specifically, the study examines how the substitution effect, role conflict theory and signalling theory interconnect within an agency framework in the context of known MOA fraud. In addressing both the primary and secondary aims of the research and with consideration given to the aforementioned theories, the study will examine a series of four research questions each of which will be discussed below.

The first research question is concerned with the relationship between MOA fraud and audit effort (proxied by audit fees). Giving consideration to both agency and role-conflict theories it is recognised that MOA fraud is an agency cost stemming from the principal-agency conflict. In the context of MOA fraud, an increase in monitoring may be considered an appropriate response to reduce fraud-related residual agency costs. While it is expected that the auditor will consider the risk of MOA fraud in all financial audit engagements, where known MOA fraud has occurred within an organisation, it is reasonable to expect this to result in a higher fraud risk assessment by the auditor than would otherwise be the case. An increase in monitoring and

¹ Studies that have been able to access data relating to both auditor labour hours and audit fees have shown that audit fees serve as a reliable proxy for audit effort (Bedard & Johnstone 2006 cited in Hogan & Wilkins 2008; Bell, Landsman & Shackelford 2001).

scrutinising by the auditor may be required to counter this increased fraud risk and reduce the fraud risk back to an acceptable level. In an optimal environment, free of conflicts and constraints, once the auditor has decided on the extent of additional monitoring if any, required to reduce agency costs and their fraud risk assessment to an acceptable level, the auditor would go on to expend the additional effort required to conduct that precise amount of additional monitoring. However, role conflict might occur because of insufficient time, resources or capabilities. In addition, if the auditor or audit firm holds dual roles of advisor and auditor this may lead to conflict where the independence of the auditor may be impacted and their response to MOA fraud could be influenced by management. Even in the absence of providing non-audit services to the client, given that the auditor is engaged by and remunerated by an entity's management, conflict may occur whereby the auditor may seek to meet the expectations of management to ensure their ongoing tenure. In accordance with the agency and role-conflict theories, it is proposed that insufficient resources and/or a lack of independence may cause role conflict and this conflict may prevent the auditor from carrying out additional monitoring (audit work) to the full extent required. Given the impact on the amount of additional audit effort expended by the auditor in response to MOA fraud, the first research question is as follows.

RQ1: *To what extent if any, do auditors undertake additional work (proxied by audit fees) when their clients have experienced known MOA fraud?*

The second and third research questions are concerned with the relationship between corporate governance and internal controls and audit effort (proxied by audit fees). Beasley, Carcello and Hermanson (1999) explain that 'the auditor should recognize the potential likelihood for greater audit risk when auditing companies with weak board and audit committee governance'. Since, risk is a fundamental determinant of audit price (Simunic 1980), it follows that the reduced risk associated with firms with strong corporate governance will result in a lower audit price. However, several studies (Abbott et al. 2003; Carcello et al. 2002) have found a significant and positive association between the quality of corporate governance and audit fees. Hogan and Wilkins (2008) studied the association between control risk and audit fees and found that audit fees were significantly higher for firms with internal control deficiencies suggesting increased audit work being undertaken. However, this study examined internal controls generally and did not analyse the impact of specific types of controls.

Considering both agency theory and the substitution effect, it is important to recognise here that monitoring may take a variety of forms within an organisation and is not restricted to monitoring only by the external auditor. According to the substitution effect/theory, internal monitoring through the corporate governance function and internal controls may partially reduce the need for additional monitoring by the external auditor. The auditor may have greater confidence that an entity with strong corporate governance and robust internal controls, via its internal monitoring mechanisms, is more likely to have detected all material fraud and prevented further fraud from occurring. In essence, the substitution effect/theory predicts the need for less monitoring and scrutiny exercised by the auditor in the presence of strong governance characteristics and robust internal controls. On the other hand, the mere existence of MOA fraud may signal to the auditor that a client's corporate governance and/or internal control function may be weak given that they were not sufficiently effective to have prevented the fraud occurring in the first instance. In this case, even best-practice internal controls and audit committee structures may not be perceived by the auditor to be effective substitutes for the monitoring function provided by the external audit.

In sum, research questions two and three draw on agency theory and the substitution effect to investigate whether the auditor considers the strength of a company's corporate governance and internal controls when undertaking a fraud risk assessment. If so, I would expect that this would impact the decision as to the extent of additional external monitoring required to reduce the costs of MOA fraud as an agency related residual loss. As such, the second and third research questions are as follows:

RQ2: *To what extent if any, do corporate governance characteristics (specifically audit committee attributes) impact the amount of additional work (proxied by audit fees) undertaken by the auditor when their clients have experienced known MOA fraud?*

RQ3: *To what extent if any, do fraud-related internal controls impact the amount of additional work (proxied by audit fees) undertaken by the auditor when their clients have experienced known MOA fraud?*

The fourth research question is concerned with the relationship between auditor industry specialisation and audit fees. This question addresses limitations and inconsistencies in the extant literature and is developed from both agency and signalling theories as discussed below.

Several audit pricing researchers have identified incidences of fee premiums being charged by industry specialist auditors (see, for example, Basioudis & Francis 2007; Carson et al. 2012; Craswell, Francis & Taylor 1995; Ferguson, Pündrich & Raftery 2014; Ferguson & Stokes 2002). However, inconsistent results reported in the prior literature have also raised questions as to whether economies of scale may act to mitigate the impact of such premiums on the total audit fee. While studies prior to (circa) 2002 measure industry specialisation entirely at the national-firm level (see, for example, Craswell, Francis & Taylor 1995; Ferguson & Stokes 2002), a number of studies since (circa) 2002 also measure specialisation at the city-office level on the basis that expertise is inherent in human capital and the knowledge and experience of staff within each audit office (Ferguson 2005; Ferguson, Francis & Stokes 2003).

More recently, researchers have considered the impact of the audit partner's industry expertise. The focus of specialisation at the partner level is based on the premise that the audit partner's knowledge and experience working with clients from a particular industry forms 'private human capital' which cannot easily be shared with other audit partners within the firm (Chi & Chin 2011). Research related to audit partner specialisation is limited. A possible reason for this is that audit partner data is not disclosed in many jurisdictions (including the US). This information is, however, available in Australia and forms part of the present study.

Research question four draws upon signalling theory. The degree to which (additional) audit effort translates to audit fees will also be impacted by the audit price. The higher the fee charged by the auditor per unit of work, the greater will be the absolute impact of any additional work undertaken on the audit fee. The choice of the type of the auditor and whether the chosen auditor charges a fee premium will therefore impact on this relationship.

High-profile auditors including large firms and industry specialists charge a premium for their services. This reflects a perception of high audit quality auditors leading to more reliable financial statements. According to the theory of signalling, those organisations that already possess effective internal controls and corporate governance are more likely to engage a high-profile auditor than an organisation with deficient corporate governance and/or internal controls. This is because an organisation with deficiencies in its governance and/or internal controls is going to be less likely to engage a high-profile auditor due to a fear of scrutiny resulting in an adverse signal in the way of a qualified audit opinion. However, an organisation

with strong governance and internal controls can benefit from the positive signal associated with appointing a high-profile external auditor without the same fear of a qualified audit opinion and is therefore more likely to engage such an auditor.

In conclusion, under agency and signalling theory, it is proposed that companies with strong corporate governance (audit committee characteristics) are more likely to engage a high-profile auditor that charges a fee premium. This fee premium means that audit fees may be higher than they would have otherwise been if a high-profile auditor had not been engaged. In order to test the impact of auditor specialisation on audit fees, the fourth research question is as follows:

RQ4: *To what extent if any, does auditor industry specialisation impact the level of audit fees when their clients have experienced known MOA fraud?*

A separate hypothesis and statistical model have been developed to address each of the four research questions discussed above and these are discussed in Chapter 4 and Chapter 5 of the thesis respectively

1.4. Research methodology

This study employs a quantitative approach to research design and analysis. Deduction is used to draw hypotheses from agency theory, role conflict theory, the substitution effect and signalling theory which seeks to explain the relationships between fraud, corporate governance, internal control, auditor specialisation and audit fees. Empirical models have been developed based on these hypotheses and data has been collected and analysed to test the models, hypotheses and the theories which underpin them. The hypotheses have been developed so as to collectively respond to the above research questions.

From an epistemological and ontological standpoint, a positivist position has been adopted and the study has been undertaken using an objectivist and regulatory perspective. This perspective is appropriate to the present study given that the objective of the study is to test the impact of known fraud on audit pricing in the context of regulation, namely *ASA 240*. The study is underpinned by a functionalist paradigm characterised by pragmatism and the assumption that human action is rational (Burrell & Morgan 1979).

The scope of this study is restricted to Australian listed companies and covers the period from 2002 to 2010 inclusive. The data relating to misappropriation of assets has been obtained from data collected for the purpose of the KPMG biennial fraud surveys in relation to MOA fraud cases in Australia. More recent data is not available as the KPMG fraud surveys have since ceased being undertaken. Aspects of the study adopt a matching research methodology where the fraud firms identified using the above method have been matched with a control firm based on industry and size consistent with prior research (see, for example, Sharma 2004). The sample includes 60 listed companies that have detected and reported fraud which when analysed together with the control group, results in a total sample size of 120 companies.

Data relating to corporate governance, the auditor and audit fees is obtained using databases including *Connect 4* and *SIRCA* and are in part hand-collected manually from the company annual reports (available via the *Connect 4* database as well as the companies' own websites). The audit data is used to determine auditor specialisation using the national and city industry framework used in Ferguson, Francis and Stokes (2003), Francis, Reichelt and Wang (2005) and Basioudis and Francis (2007) and is extended to a partner-level analysis using a similar process.

Control variables are drawn from prior studies such as Simunic (1980) and Hay, Knechel and Wong (2006) and control for company size, number of subsidiaries, leverage, profitability, audit opinion, and fees for non-audit services among others. The complete set of control variables and corresponding discussion are available at Chapter 5.5.6 of the thesis.

The study uses statistical techniques including OLS linear regression models for determining the relationships as specified in the above research questions.

1.5. Research contribution

This study makes several contributions to the extant literature and the theories which underpin the research. Misappropriation of assets is under-researched due to the difficulty of obtaining sufficient and reliable data. The select number of other studies which have examined MOA fraud have focussed on the relationship between MOA fraud and internal characteristics and processes rather than an examination of the external auditor and their response to fraud (see, for example, Chapple, Ferguson & Kang 2009; Coram, Ferguson & Moroney 2008; Sharma 2004). Given the significant economic cost of fraud to society, the additional insights gained

from this study which uses a unique and proprietary data set are of importance to policy makers, regulators and the public.

In addition, the interconnection between agency theory and the substitution effect, role conflict theory and signalling theory have not been examined in this context previously. The proposed interconnection as presented in the conceptual framework (Chapter 3.2) is unique to the present study. In addition, the study also addresses in some part, the concerns regarding audit quality and MOA fraud which motivated the undertaking of the research.

The study examines for the first time the relationship between known MOA fraud and the audit fees charged by the auditor with the results sensitised to the size of the fraud. With audit fees acting as a proxy for audit effort, it follows that the auditor may undertake additional monitoring activities where their client has experienced known MOA fraud. This study contributes to the audit quality discussion by considering whether the auditor is acting (at least in part) in response to their responsibilities pertaining to fraud as required by *ASA 240*. The research has an associated theoretical contribution given that since MOA fraud can be considered an agency problem, if there is found to be an associated increase in the audit fee, this may be regarded as an additional agency cost.

The study also examines the relationship between audit committee characteristics and audit fees and while this has been examined in prior research, this study contributes to this prior literature by examining the relationship in a different context being clients who have experienced known MOA fraud. The study investigates the impact of specific fraud-related governance processes and controls (such as resources allocated to fraud prevention and detection strategies and the reporting of detected fraud to law enforcement authorities) on audit fees. Further, the study makes a unique contribution to the literature by determining whether auditors charge lower audit fees where MOA fraud is detected by a client's own internal controls as opposed to other means of detection (such as an anonymous 'tip-off'). With audit fees acting as a proxy for audit effort, this indicates whether internal controls can substitute for a portion of the work undertaken by the external auditor in reducing audit risk to an acceptably low level, thereby reducing the amount of work required to be undertaken by the auditor for a client with known fraud. In this way, the present study contributes towards expanding the understanding and application of the theory of substitution.

This research examines the impact of signalling by engaging an auditor specialist with auditor specialisation assessed at a partner level. The impact of partner level specialisation has not yet been well established in the prior literature. By measuring specialisation at a partner level, this research makes an important contribution to the literature as arguably industry specialisation may be held by an individual auditor and/or their team rather than operating across an entire office or firm. Undertaking this study using Australian based companies allows for specialisation data to be collected and analysed at the partner level since Australian regulation requires that the audit report be signed by the individual audit partner. The study examines auditor industry specialisation using a national-city framework as well as a partner framework and under both frameworks, and seeks to determine whether industry specialist auditors charge fee premiums. The study contributes to the literature by examining these relationships in a fraud context.

1.6. Structure of the thesis

The remainder of this thesis is structured as follows. A review of the literature in respect of fraud, audit pricing (including auditor specialisation) and corporate governance and internal control is presented in Chapter 2. The theoretical framework and hypothesis development are discussed in Chapters 3 and 4 respectively. Chapter 5 includes a discussion of the research methodology. The data analysis, results and discussion are included in Chapter 6 and additional testing and analysis is presented in Chapter 7. Chapter 8 then completes the thesis providing a summary and concluding remarks including discussion of limitations.

2. Literature Review

The literature review Chapter discusses the relevant literature in three broad areas. Firstly fraud (Chapter 2.1), then audit pricing (Chapter 2.2) followed by corporate governance and internal control (Chapter 2.3).

2.1. Fraud

2.1.1. An introduction to fraud research

Fraud is a typical type of white-collar crime that has likely existed since the commencement of business and trade. The term ‘white-collar crime’ is credited to American sociologist, Edwin H. Sutherland (1940) who was the first to examine the crimes of the white-collar class and the integration with business activity and economics (Dorminey et al. 2012). Hogan et al. (2008) noted that over the past several decades, there has been much academic literature concerned with fraud in general terms, and with financial reporting fraud in particular (see, for example, Beasley et al. 2010; Trompeter et al. 2013; Uzun, Szewczyk & Varma 2004). These studies have focussed on the trends, determinants as well as the consequences of fraud in addition to examining the responsibility for prevention, detection and remediation of such fraud (Hogan et al. 2008).

In Chapter 2.1.2 below the theoretical background of fraud research is discussed. This is followed in Chapter 2.1.3 by an introduction to the fraud triangle and a discussion of the relevant literature relating to each aspect of the fraud triangle. Of particular relevance to this study, a discussion relating to fraud and the external auditor is included at Chapter 2.1.4. A critique of the fraud literature follows in Chapter 2.1.5.

2.1.2. Theoretical background of fraud research

Fraud is a complex subject to understand and criminological theories which seek to explain fraudulent behaviour generally come from one of two competing perspectives: the rational actor model or the corporate structure model.

The rational actor model which incorporates ‘rational choice theory’ holds that man is rational and will decide on a course of action after giving careful consideration to the associated costs and benefits. More specifically, a person will only commit a crime (such as fraud) when it is

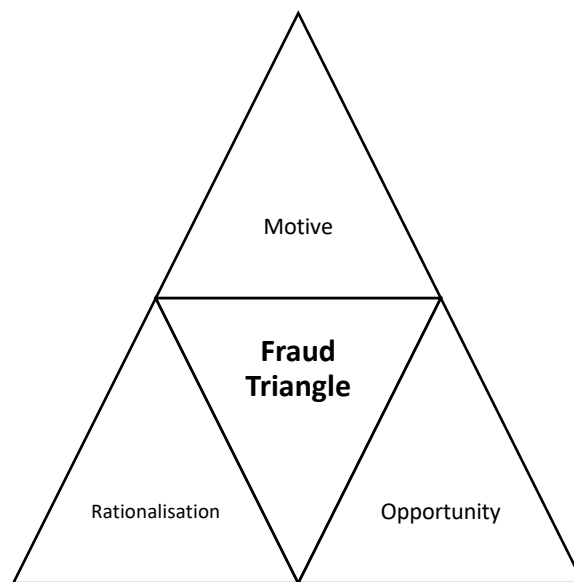
expected that the benefits resulting from the crime will exceed the perceived costs (Cornish & Clarke 1986). Cressey's (1953) fraud triangle, discussed below, and many of the theories which build upon this are consistent with the rational actor model.

The corporate structure model differs from the rational actor model as focus moves from decision-makers within an organisation to the organisational structure as a whole. Proponents of this perspective believe that it is inappropriate to examine fraudulent behaviour by considering a corporation as a 'person' with the decision-makers as the 'brain' (Clinard & Yeager 1980). While these theorists agree that behaviour is preceded by motivation, they argue that 'organizational structure and complexity, unclearly communicated directives, the absence of oversight on actions of employees at different levels and places within the organization, and many other circumstances seriously confound the ability of an individual or organization to make rational choices during the pursuit of corporate goals' (Lofquist, Cohen & Rabe 1997, p. 8). As an example, The ABC analysis of white-collar crime, discussed later in this section, considers fraud within the organisational context consistent with the corporate structure model.

While the rational actor model and the corporate structure model provide differing perspectives on how one might consider fraud, these are quite broad concepts rather than specific theories. Dorminey et al. (2012) have described the evolution of more specific fraud theories as including the fraud triangle, the fraud scale, the triangle of fraud action, the acronym M.I.C.E, the fraud diamond, the predator vs accidental fraudster, and the ABC analysis of white-collar-crime. These theories consider fraud from the perpetrators perspective and as such do not form part of the theoretical framework for this study. However, to provide a more comprehensive discussion of fraud research, each of these theories will now be discussed in turn. Agency theory as well as other theories that are central to the development of this research are discussed in detail in Chapter 3.

Mentored by Sutherland, Donald Cressey extended the research on white collar crime with a focus on embezzlement. Through his interviews and observations, Cressey (1953) evolved this into a theory known as the fraud triangle (Figure 1 below). The three elements of the fraud triangle are generally present when fraud occurs: motive, opportunity and rationalisation and removal of any of these three elements can prevent the occurrence of fraud (Cressey 1953). 'Motive' can include the incentives or benefits of committing fraud, 'opportunity' refers to having the chance to commit fraud and 'rationalisation' is the ability of the potential perpetrator

to rationalise their actions. The components of the fraud triangle are included in Appendix 1 of *ASA 240 'The Auditor's Responsibilities Relating to Fraud in an Audit of a Financial Report'* as three conditions that are generally present when material misstatements due to fraud occur. Somewhat re-labelled, the components are referred to in the Standard as incentives/pressures, opportunities and attitudes/rationalisations (Auditing and Assurance Standards Board ASA 240 2018). Examples of fraud risk factors categorised under each of the above classifications are provided in Appendix 1 to *ASA 240* and have also been included as Appendix 2 of this thesis. These risk factors include the existence of personal financial obligations which may create *pressure* on an employee who has access to cash or other assets to misappropriate those assets. Another example is where fixed assets that are small, marketable, and/or for which ownership is unable to be readily determined can provide an employee with the *opportunity* to commit fraud. Finally, behaviour which demonstrates an employee's displeasure or dissatisfaction with the organisation may indicate that the employee is able to *rationalise* their fraudulent actions against the entity (Auditing and Assurance Standards Board ASA 240 2018). For example, an employee may rationalise their behaviour by thinking "I deserve this money because of all of the unpaid overtime that I have put in for the organisation in the past".



From Cressey (1953)

Figure 1 The Fraud Triangle

The fraud triangle has been used as a basis for much accounting and auditing research relating to fraud (see, for example, Hogan et al. 2008; Trompeter et al. 2013) and this literature is discussed further in Chapter 2.1.3.

The fraud scale shares many similarities with the fraud triangle in that it also considers pressure and opportunity as antecedents to fraud. However, the fraud scale replaces rationalisation with personal integrity. Developed by Albrecht, Howe and Romney (1984), the fraud scale is based on data gained from internal auditors that relates to 212 frauds in the early 1980's. According to Dorminey et al. (2012) the benefit of examining personal integrity is that this can be inferred by an individual's past behaviour and allows one to assess the probability that a person can rationalise or justify inappropriate behaviour.

The fraud diamond developed by Wolfe and Hermanson (2004) also modifies the fraud triangle and does this by adding a fourth element being 'capability'. The authors explain that while opportunity opens the door to fraud and motive and rationalisation bring the perpetrator closer to the door, in order for the fraud to occur, the perpetrator must have the capability to recognise the opportunity, commit the act and at least attempt to conceal it. The individual characteristics considered necessary to commit such an act include a mix of ego, intelligence, position, knowledge and an ability to effectively handle stress (Dorminey et al. 2012).

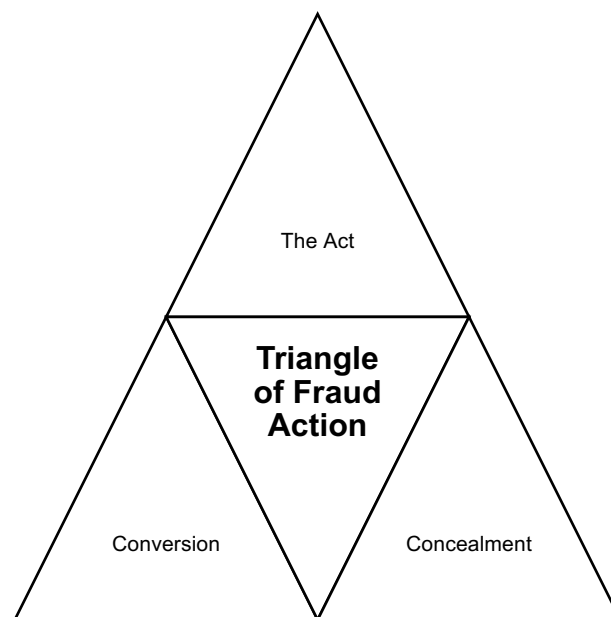
The motives behind a fraudulent act can be complex and are not always easily understood. There are many cases of extremely successful, wealthy and respected individuals who choose to put themselves at risk by engaging in 'white collar crime' (Bandler & Zimmerman 2005; Solomons 2014; White 2005). Where Cressey's (1953) fraud triangle, the Albrecht, Howe and Romney (1984) fraud scale and Wolfe and Hermanson (2004) fraud diamond primarily consider motive to consist of financial pressure, it has been suggested that perpetrators' motivations can be more complex than this (Beasley, Carcello & Hermanson, 1999; Beasley et al. 2010) and have been identified by Kranacher, Riley and Wells (2011) using the acronym MICE to represent money, ideology, coercion and ego. This expanded explanation of motive goes some way to explaining what may otherwise appear to be an irrational choice to commit fraud. Under the MICE framework, 'money' refers to the financial gain to be obtained from undertaking fraud and is a common motivating factor. Next 'ideology' is a less frequent motivation and relates to a perpetrators mindset whereby they believe that by participating 'in a fraud act or financial crime...they are achieving some perceived greater good' (Dorminey et al. 2012, p. 563). Coercion relates to a circumstance where an individual is pressured to undertake a fraudulent act despite being an unwilling participant. Finally, ego refers to a perpetrators sense of entitlement and alongside money, also serves as a common motivating factor for fraudulent activity.

Dorminey et al. (2012, p. 565) describe the fraud triangle as a way for the anti-fraud community to understand why ‘an otherwise good citizen succumbs to committing fraud’. The fraud triangle considers the accidental fraudster who notwithstanding the fraudulent act is considered to be a ‘good, law-abiding person, who under normal circumstances would never consider theft, break felonious laws, or harm others’ (Dorminey et al. 2012, p. 565). The researchers claim, however, that the behaviour of some fraudsters can be likened to the actions of a predator and that the behaviour of many accidental fraudsters will progress to that of a predator if their fraudulent activity is not exposed. Further, it has been reported that once the fraudulent act has been committed, it will generally continue until it is detected (Beasley, Carcello & Hermanson 1999, Beasley et al 2010). The key difference between these different types of perpetrators is that the predator becomes de-sensitised to the crime and the need for motive and rationalisation is no longer required for fraud to occur. These predators are well organised, employ complex methods of concealment and are better prepared to handle oversight mechanisms including auditors (Kranacher, Riley & Wells 2011).

Where the above theories tend to focus on individual characteristics, the ABC model proposed by Ramamoorti et al. (2013) where the A represents a *bad apple*, B represents a *bad bushel* and C represents a *bad crop* expands the focus from a single individual to explore the impacts that groups and organisations may have on the likelihood of fraud. The bad apple suggests that an individual’s characteristics are relevant in determining the likelihood of a fraudulent act. The bad bushel addresses collusive behaviour and suggests that particular group dynamics may play a part in encouraging fraud. The bad crop suggests that where morals are lacking at the top of an organisation, this can pervade through the entire organisation and potentially more broadly impact culture and society. In this way, bad crops may lead to fraud epidemics where white-collar crimes sometimes come in waves (Dorminey et al. 2012).

While the aforementioned frameworks provide a way to understand the antecedents to fraud, the triangle of fraud action (Figure 2 below) was developed to better understand the actions an individual undertakes when engaging in fraudulent behaviour. Also referred to as the elements of fraud (Albrecht, Albrecht, & Albrecht 2006), these elements are the act, concealment and conversion. The ‘act’ refers to the execution of the fraud, such as misappropriating funds, ‘concealment’ refers to hiding the fraudulent act such as falsifying records, and ‘conversion’ refers to transforming the fraudulent gain into something useable such as a new car,

investments etc. An understanding of fraud action can assist in the management of fraud as there is potential to prevent, detect or remediate the fraud at each point in the process (Dorminey et al. 2012).



From Albrecht, Albrecht & Albrecht (2006)

Figure 2 The Triangle of Fraud Action

2.1.3. Literature in the context of the fraud triangle

The fraud triangle has formed the basis of much of the academic research on fraud (see, for example, Hogan et al. 2008; Mayhew and Murphy 2014; Trompeter et al. 2013). While the various aspects of the fraud triangle are based around the perpetrator rather than the auditor, it is important for the auditor to understand why and how fraud is committed in order to effectively assess the risk of fraud and to plan and carry out appropriate audit procedures in response to this risk. For this reason, literature pertaining to the act of fraud, structured around each element of the fraud triangle is presented below. Of particular relevance to the present study, this will be followed in Chapter 2.1.4 by a discussion of the literature as it relates to the external auditor.

Incentives/pressures

Earnings misstatements as a form of fraudulent activity have been the subject of much academic research, particularly in the US. Hogan et al. (2008) summarised the incentives to misstate earnings as arising from the pressure to exploit compensation related incentives, meet external financing requirements or meet analysts' forecasts and manage poor performance.

In relation to compensation-related incentives, Erickson, Hanlon and Maydew (2006) studied organisations accused of fraud in the US during the period from 1996 to 2003 to investigate if executive equity incentives were related to accounting fraud. They did not find any association between equity incentives and fraudulent financial reporting. Interestingly, Armstrong, Jagolinzer & Larcker (2010) found some evidence that in US firms where CEO's have higher levels of equity incentives, accounting irregularities are less likely to occur. On the other hand, Efendi, Srivastava & Swanson (2007) in their study of US firms who had restated their financial statements, reported that firms where the CEO has a significant value of stock options 'in-the-money' were more likely to make a misstatement. Burns and Kedia (2006) reported a similar association between executive stock options and the incentive to misstate earnings in the US.

In terms of external financing requirements, Dechow Sloan & Sweeney (1996) examined a sample of 92 firms in the US that were each subject to an accounting enforcement release between 1982 and 1992. The authors reported that the desire to obtain low cost external financing was a significant motivation behind the manipulation of earnings. Similarly, Efendi, Srivastava & Swanson (2007) found that accounting misstatements in the US were more likely to occur in firms that are constrained by debt covenants or are raising new debt or equity funding.

Turning to the pressure to meet analysts' forecasts and manage poor performance, Lane and O'Connell (2009), in their US based study that the most cited reason for financial statement fraud was pressure to meet analysts' forecasts. Further, Koh, Matsumoto & Rajgopal (2008) reported that since a number of accounting scandals in the early 2000s, the expectation on firms to meet or exceed analysts' forecasts has increased in the US. Further, Perols and Lougee (2011), in their US based study found that fraud firms were more likely than non-fraud firms to have been engaged in earnings management in the years prior to the fraud occurrence. The authors also reported that even in the absence of earnings management, fraud firms were more likely to meet or exceed analysts' forecasts. In addition, Rosner (2003) found that poorly performing firms in the US are more likely to employ income-increasing manipulation of their financial data and the accrual behaviour of these poorly performing firms was similar to that of firms that have been sanctioned for fraud by the Securities and Exchange Commission in the US.

It is evident from the aforementioned incentives and pressures to commit fraud that there are a number of factors that the auditor must take into account when assessing the risk of fraud within their client organisation. The extent of additional work undertaken by the auditor to reduce this risk is examined as part of the present study.

Opportunities

Albrecht and Albrecht (2003) have investigated the factors that are relevant to the opportunity to commit fraud and found that effective controls are of paramount importance in order to minimise or eliminate the opportunity for fraud to occur. This is consistent with the more recent study by Donelson, Ege & McInnis (2016) in relation to fraudulent financial reporting where the authors found a strong association between material internal control weaknesses and the future reporting of fraud. The authors found support for the hypothesis that weak entity-wide controls give managers greater opportunity to commit fraud. Further, many studies reported an association between poor monitoring of management through weak corporate governance structures and a higher likelihood of fraud. These relationships are examined further in Chapter 2.3.3 which includes a discussion of the research between corporate governance and fraud.

From the perspective of the external auditor, Loebbecke, Eining & Willingham (1989) undertook a survey of audit partners and concluded that dominant management decision-making as well as weak internal controls were the primary factors that increased the opportunity for fraud to occur. Consistent with these findings, Smith, Tiras & Vichitlekarn (2000) reported an inverse relationship between the strength of a firm's internal controls and the likelihood of a manager to engage in fraud.

The external auditor can play an important role in reducing the opportunity for fraud to occur. This is because the auditor is focussed on the aspects of the company's control environment that may provide possible opportunities for management and others to perceive the ability to carry out and conceal fraudulent acts (Trompeter et al. 2013). Such aspects of the control environment include, for example, the enforcement of integrity and ethical values and human resources policies and practices (Auditing and Assurance Standards Board ASA 315 2015).

Auditors are faced with the challenge of evaluating opportunity through the lens of a potential perpetrator as they assess the organization's anti-fraud efforts including the firm's corporate governance and internal control structure (Trompeter et al. 2013). In addition, external auditors

can also act as deterrence due to their ability to detect and investigate fraud should it occur. Much of the research in this area examines the auditors' role in constraining discretionary accruals and while it is acknowledged that high levels of discretionary accruals is not in itself a fraudulent act and that discretionary accruals have been criticised as a measure of earnings management (see, for example, Stubben 2010), it does share some similarities with fraud as it may indicate aggressive and opportunistic behaviour (Hogan et al. 2008).

A number of studies have presented evidence that Big-N² auditors act to constrain managers' efforts to manipulate earnings through accruals (Becker et al. 1998; Francis, Maydew & Sparks 1999). Carcello and Nagy (2002) studied the relationship between auditor industry specialisation and fraudulent financial reporting and found a significant, negative relationship. Carcello and Nagy (2004a) went on to extend this earlier study and examined the effect that client size has on the relationship between auditor specialisation and fraudulent financial reporting. The extended study found that the relationship between these variables was weaker for larger clients. The authors acknowledge as a limitation in their research that industry specialisation was measured at the firm level when 'arguably, industry expertise depends upon industry concentration at the office-level or the individual audit team level (Carcello & Nagy 2004a, p.664).

In relation to individual auditors, Knapp and Knapp (2001) studied the impact of audit experience and found that audit *managers* were better able to assess fraud risk through the use of analytical procedures when compared to audit *seniors*. Likewise, Bernardi (1994) claimed that audit *managers* performed better than audit *seniors* during their participation in a fraud detection case.

Auditor tenure (the length of the auditor-client relationship) has also been studied in terms of its association with fraud. The research findings have generally suggested a positive association between longer auditor tenure and higher earnings quality (Iyer & Rama 2004; Myers, Myers & Omer 2003). Further, Carcello and Nagy (2004b) reported that during the first three years of

² The largest global audit firms are currently referred to collectively as the Big-4 and include KPMG, Ernst and Young, Price Waterhouse Coopers (PWC) and Deloitte. In other countries around the world, and also at different times throughout history, large audit firms have been collectively referred to by other names depending on the number of large firms (e.g. Big 8, Big 6). In the audit pricing research, these firms are referred to globally as Big-N firms.

the auditor-client relationship, there was a greater likelihood that fraudulent financial reporting would occur.

More recently, Gonzalez and Hoffman (2018) investigate the impact of ‘continuous auditing’ (which involves continuously comparing actual observations against predetermined benchmarks), on the auditees perceived opportunity to commit MOA fraud. In their experiment, the authors found an increase in the propensity to commit fraud when an organisation’s control systems have been identified as weak.

Research has also investigated the opportunities to commit fraud extend beyond the accounting and auditing discipline. For example, Trompeter et al. (2013) explored non-accounting research related to opportunity and provided a discussion in respect of opportunity and social position, the role of informal systems, fraud detection issues and the impact of entrepreneurship, each of which are discussed below.

Social position has been argued by Engdahl (2008) as creating opportunity for fraud through access to authority, social contact networks and technical and administrative systems. The author further explained the way in which ‘barriers’ afford the fraudster with some protection as they prevent others from becoming involved in the fraudster’s area of activity and potentially detecting the fraudulent act. Further, the fraudster can benefit from ‘back regions’ which provide the fraudster within an area where they can rehearse and test a fraudulent scheme to ensure its effectiveness. Trompeter et al. (2013) explained how this model might assist in understanding how top management may circumvent governance structures through the creation of barriers which act to conceal their activities.

In relation to informal systems, Wedel (2001) discussed the role of informal systems within an organisation and how such systems can provide an opportunity for fraudulent behaviour. Trompeter et al. (2013) explained that it is necessary to assess opportunity based on how an organisation truly operates rather the way it was intended to operate. The authors recognised that it is valuable for practitioners to realise that operational procedures and controls may not necessarily operate as designed and documented.

In terms of fraud detection issues, Van De Bunt (2010) claimed that there are three key factors that can negatively impact on the likelihood of fraud being detected. The first factor is a lack

of supervision, the second is effective methods of concealment, and the third is silence within social environments. Trompeter et al. (2013) related these factors to the importance of the 'tone-at-the-top' of the organisation, strong and effective oversight structures, segregation of duties, as well as an appropriate corporate culture which emphasises both openness and transparency.

Turning to the impact of entrepreneurship, Chau and Siu (2000) examined the decision-making of management in the context of entrepreneurship and investigated whether particular characteristics contribute to an organisation being more likely to commit fraud. The authors found that environmental, organisational, and individual features of entrepreneurial conditions can have an impact on ethical decision making.

From the above discussion related to the opportunities to commit fraud it is clear that there are many factors that the auditor must consider when assessing the risk of fraud within their client organisation. These factors must also be considered when planning and undertaking appropriate fraud-related audit procedures. Further, it is also important for the auditor to recognise that before undertaking fraud on a large scale, a perpetrator may first undertake smaller fraudulent acts and then increase the size of these frauds over time (The Association of Certified Fraud Examiners 2018). The extent of additional work required by the auditor when fraud is known to exist within their client organisation is investigated as part of the present study.

Attitudes/rationalisation

According to Cressey's (1953) fraud triangle, a fraudster must be able to sufficiently rationalise their actions to commit fraud. This area of the fraud triangle has received the least amount of coverage in the accounting and auditing literature as compared to motives and opportunities (Hogan et al. 2008; Trompeter et al. 2013). While research in the area of rationalisation is only relatively recent in the accounting and auditing literature, social psychology researchers have been undertaking research in this area for decades (Trompeter et al. 2013).

Cognitive dissonance theory developed by Festinger (1957) claims that after engaging in deviant behaviour (such as committing fraud), an individual will seek to apply meaning to their behaviour and escape retribution or reduce conflict. A technique by which this may be achieved is the rationalisation of inconsistencies between one's actions and their attitude towards those

actions (Trompeter et al. 2013). Rationalisation can be fundamentally described as a mental process by which individuals seek to justify dishonest behaviour in order to alleviate feelings of guilt and discomfort related to their actions (Coleman 2001; Festinger 1957; Kieffer & Sloan III 2008; Ross & Nisbett 1991; Sykes & Matza 1957; Trompeter et al. 2013). An example of this would be a fraudster rationalising their behaviour by believing that the money stolen was owed to them for past over time worked for their employer. The ability for some individuals to rationalise fraudulent behaviour may explain the findings by Hernandez and Groot (2007) that the integrity, honesty and ethics of management were the most influential factors in an auditor's fraud risk assessment. These findings come from a study based in the Netherlands that reviewed Big-N audit partner risk assessments that were made as part of the decision-making process to accept/continue their clients.

Further, Davidson, Dey and Smith (2013) reported that CEOs and CFOs with a prior criminal history were more likely to engage in fraudulent conduct than those without a criminal record. The authors also examined CEO 'frugality' and reported that CEOs who did not possess a frugal attitude tended to manage firms with a less stringent control environment and with a higher probability of employees engaging in fraud. Cohen et al. (2011) advocate the evaluation of management ethics by auditors as part of a fraud risk assessment. The authors used content analysis of media publications to examine management behaviour in respect of fraud and found that personality traits of senior management are an important fraud risk factor.

Trompeter et al. (2013) noted that an organization's ethical culture and leadership may impact on management's perceived ability to commit and rationalize fraud. For instance, Palmer (2009) claimed that those leaders who act unethically in their private lives will be inclined to behave unethically in their leadership roles. Relevant to the ethical culture of an organisation, Weeks et al. (2005) investigated the 'mere exposure effect' as the idea that recurrent exposure to a particular stimulus can produce an increasingly more positive feeling towards such stimulus. The finding by Weeks et al. (2005) raise concerns that prior exposure to unethical circumstances may impact on an individual's attitude towards fraud (Trompeter et al. 2013).

From the above discussion related to the likelihood of an employee or manager to be able rationalise fraudulent behaviour it is evident that there are complex considerations that the auditor must evaluate when assessing the risk of fraud within their client organisation. The

extent of additional work required by the auditor in response to this risk when fraud is known to exist within their client organisation is a key variable examined as part of the present study.

2.1.4. Fraud and the external auditor

The focus of the present study relates to the auditors' response to fraud rather than the act of fraud itself as discussed above. External auditors have a role to play in the management of fraud and according to Trompeter et al. (2013), the audit serves a dual role of both deterrence and detection. The researchers explain that auditors are important to fraud deterrence because the existence of an effective audit may result in a potential fraudster increasing their assessment of the likelihood of being discovered. That being said, Trompeter et al. (2013) claim that the auditor's primary role in relation to material financial statement fraud is the detection of such fraud. According to Arens et al. (2013, p. 76), 'there often appears to be differences between the views of auditors and the expectations of other stakeholders'. These differences may relate to what is considered to be the appropriate roles and responsibilities of the auditor and/or the performance of the auditor in fulfilling these roles and responsibilities. These perceived differences are often referred to the audit expectation gap. This audit expectation gap may be applicable to the role of the auditor in the detection of fraud whereby the general public may believe that external auditors are responsible for detecting fraud within organisations. However, this differs to the actual performance of the auditor in relation to fraud detection since the percentage of frauds actually detected by the external auditor has been reported to be in the range of only 1% (KPMG 2009) to 4% (The Association of Certified Fraud Examiners 2018).

In Australia, Auditing Standard *ASA 240 'The Auditor's Responsibilities Relating to Fraud in an Audit of a Financial Report'* formalises the auditor's responsibilities related to identifying, assessing and responding to risks of material misstatement due to fraud. The standard requires that 'an auditor conducting an audit in accordance with Australian Auditing Standards needs to obtain reasonable assurance that the financial report taken as a whole is free from material misstatement, whether caused by fraud or error (Auditing and Assurance Standards Board ASA 240 2018, para. 24). In accordance with *ASA 330 'The Auditor's Response to Assessed Risks'*, the auditor shall design and perform further audit procedures whose nature, timing and extent are responsive to the assessed risks of material misstatement due to fraud (Auditing and Assurance Standards Board ASA 240 2018, para. 65). Key literature relating to the external

auditor and their responsibility to consider fraud throughout each stage of the audit is discussed below.

The auditing standards require that in their approach to the audit ‘the auditor needs to maintain an attitude of professional scepticism recognising the possibility that a material misstatement due to fraud could exist, notwithstanding the auditor’s past experience with the entity about the honesty and integrity of management and those charged with governance.’ (Auditing and Assurance Standards Board ASA 240 2018, para. 5). Nelson (2009) undertook a review of research investigating professional scepticism in auditing and defined this as ‘indicated by auditor judgments and decisions that reflect a heightened assessment of the risk that an assertion is incorrect, conditional on the information available to the auditor’ (Nelson 2009, p. 1). Hurtt (2010) posited that professional scepticism is an individual characteristic and as such can be both a trait (stable, enduring) and a state (temporary, situational).

Nelson (2009) developed a model of professional scepticism which suggests that an auditor’s pre-existing knowledge, traits, and motivations all combine to influence the extent of professional scepticism applied in auditing actions and judgments. Components of Nelson’s (2009) model have been used more recently by Carpenter and Reimers (2013) who present evidence that the importance placed on professional scepticism by an audit partner is crucial in effectively and efficiently identifying fraud risk factors and choosing appropriate audit procedures.

Earley, Hoffman and Joe (2008) warned that auditors are inherently vulnerable to knowledge biases caused by their interactions with management. Since auditors first receive information from management in respect of the matters that must be audited (account balances, internal controls) this can lead to knowledge bias whereby the auditor is unable to completely disregard this information as it has already been cognitively processed. When planning the audit, Bowlin (2011) has cautioned that auditors consider the strategic disposition of management. Based on findings from an experimental study, when auditors employ risk-based auditing techniques, greater audit effort is allocated to accounts that have a higher likelihood of being misstated. However, if managers anticipate this allocation of audit resources, they may strategically exploit this risk-based approach by misstating low risk accounts. Hammersley, Bamber and Carpenter (2010) also examined auditor conduct regarding fraud by using an experiment to

study the impact of priming auditors regarding the fraud risks identified during the planning process, before they commence the evaluation of evidence. They found that the auditors' planning efforts impacted on the subsequent fraud risk assessments as well as the evaluation of evidence. More specifically, the authors suggest that using a summary memo to prompt auditors to recall a fraud brainstorming session, before the evaluation of audit evidence provides a simple means by which to emphasise a fraud mindset.

In addition to the requirement to maintain professional scepticism throughout the audit, the auditing standards also require that 'members of the engagement team shall discuss the susceptibility of the entity's financial report to material misstatement due to fraud' (Auditing and Assurance Standards Board ASA 240 2018, para. 30).

Discussing the susceptibility of the entity's financial report to material misstatement due to fraud is an important part of the audit. It enables the auditor to consider an appropriate response to the susceptibility of the entity's financial report to material misstatement due to fraud and to determine which members of the engagement team will conduct certain audit procedures. It also permits the auditor to determine how the results of audit procedures will be shared among the engagement team and how to deal with any allegations of fraud that may come to the auditor's attention. (Auditing and Assurance Standards Board ASA 240 2018, para. 35).

Brazel, Carpenter and Jenkins (2010) documented best practices from audit 'brainstorming' sessions and found that the quality of brainstorming is higher when the session takes place early in the auditing process and when IT experts participate in the session. The authors also found that the most common means of brainstorming in practice is through face-to-face communication. Carpenter (2007) reported that face-to face brainstorming is associated with higher fraud risk assessments whereas, Lynch, Murthy and Engle (2009) suggested that computer-mediated brainstorming results in an improved assessment of fraud risk factors when compared to a face-to-face session. Trotman, Simnett and Khalifa (2009) studied a range of brainstorming methods and found that when the audit team receives proper guidance with respect to the objectives and process of brainstorming this results in a larger number of higher quality ideas. On the other hand, the psychology literature warns of the productivity losses that can arise from brainstorming due to the development of 'group think' (Straus, Parker & Bruce 2011).

DeZoort and Harrison (2018) examined auditors' perceived responsibility for fraud detection and the associated impact on brainstorming. The US based experiment (n=878), divided participants into 'anonymous' and 'accountable' groups. Individuals allocated to the 'anonymous' group were not required to provide any personal information and were advised that there would be no link made between them and their responses. In contrast, individuals allocated to the 'accountable' group were required to provide their name and e-mail address and were advised that their response would be reviewed by the researchers. The study found that 'accountable' auditors report higher detection responsibility compared with 'anonymous' auditors and that compared to other fraud types, external auditors perceived the most detection responsibility for financial statement fraud whereas internal auditors report similar detection responsibility across all three fraud types examined which also included corruption and MOA fraud. The study also found that the level of perceived responsibility for fraud detection is positively associated with brainstorming performance which is measured as the number of fraud detection procedures brainstormed by auditors.

While brainstorming is a required component of audit planning, when it comes to the conduct of the audit in accordance with the auditing standards, 'the auditor shall determine overall responses to address the assessed risks of material misstatement due to fraud at the financial report level and shall design and perform further audit procedures whose nature, timing and extent are responsive to the assessed risks at the assertion level' (Auditing and Assurance Standards Board ASA 240 2018, para. 65). Analytical procedures are used at both the planning and review stages of the audit and allow the auditor to assess the reasonableness of financial information in accordance with their expectations (Trompeter & Wright 2010). When conducting analytical procedures, Trompeter and Wright (2010) found that auditors establish expectations and assess managers' explanations based on the information they receive directly from the client and regularly rely on comparisons to prior years. For this reason, analytical procedures have provided limited success in the detection of fraud, particularly where management are strategic in their attempts to conceal it (Hogan et al. 2008; Trompeter et al. 2013). For example, management may strategically select an account within which to 'hide' a transaction after giving careful consideration to the extent to which the subsequent account balance will vary from prior year figures. Brazel, Jones and Zimbelman (2009) investigated the use of non-financial metrics to evaluate the reasonableness of financial information and to detect fraud. They provided evidence indicating that non-financial metrics such as the number of employees may be effective to assess fraud risk.

In addition to planning and conducting audit procedures as described above, audit documentation is an important component of any audit. With respect to fraud, according to the auditing standards, the auditor is required to prepare and maintain audit documentation. Such documentation relates to their understanding of the entity and its environment, communications made with internal and external parties related to fraud, as well as the auditor's assessed risks of material misstatements and their responses to such risks (Auditing and Assurance Standards Board ASA 240 2018, para. 116-118). Ricchiute (2010) studied the extent to which documented audit evidence (summarised vs. detailed) impacts on the auditor's process of evaluating such evidence. The study reported that when an auditor is provided with summarised documentation, they will typically search for evidence that is consistent with accounting information from prior years. On the other hand, auditors provided with detailed documentation typically prefer to search for inconsistent evidence first. Since summarised documentation may lead to a bias towards consistent information, an auditor relying on this form of documentation may be less likely to detect fraud. In relation to timing, Lambert and Agoglia (2011) reported that where a work paper review is delayed, the supervising auditor will typically contribute significantly lower levels of effort compared to the effort expended when undertaking a timely review. Fraud is therefore more likely to be detected by the external auditor where the auditor prepares detailed documentation and the supervising auditor reviews this documentation in a timely manner; thereby expending greater effort.

Based on the discussion above, it can be argued that consideration of fraud at the risk assessment, planning, conduct and documentation of the audit requires the auditor to expend effort and therefore time. Additional time allocated to fraud-related audit planning, procedures and documentation as a result of a higher fraud risk assessment is expected to result in higher audit fees.

2.1.5. A critique of fraud research

There is much research which examines the auditor's role in constraining discretionary accruals (Becker et al. 1998; Francis, Maydew & Sparks 1999) even though at best, it is a proxy for earnings management. Scott (2009, p. 403) defines, earnings management as 'the choice by a manager of accounting policies, or actions affecting earnings, so as to achieve some specific reported earnings objective'. Although this research is often included among the fraud literature (Hogan et al. 2008), it must be recognised that while earnings management and fraud share

some similarities in that they each represent potentially aggressive and opportunistic behaviour, they are fundamentally different. Fraudulent financial reporting involves the intentional misstatement of financial reports through the violation of accounting standards and is therefore illegal. Examples of this type of fraud include processing fictitious journal entries, inappropriately adjusting accounting related assumptions and judgements and failing to disclose facts which are relevant to amounts recorded in the financial statements.

Earnings management is fundamentally different to fraud as it does not involve the violation of accounting standards and is not in itself an illegal act. An example of earnings management using accounting policy choice could be the decision to use long effective lives of assets so as to reduce the depreciation expense and therefore increase reported profits. Discretionary accruals are perhaps used by researchers as a quasi-substitute to fraud because of the ability to measure and identify those firms engaging in such aggressive behaviour. It can be far more difficult to identify fraud firms and in large scale studies, where a large sample is desired, the practicalities of identifying a sufficient number of fraud firms can be an issue for researchers.

Among the research that does identify fraudulent behaviour, the large majority is focussed on fraudulent financial reporting (see, for example, Trompeter et al. 2013). It is important to recognise that there are two types of fraud that may cause material misstatement in the financial report and as a result are considered to be relevant to the auditor – misstatements as a result of fraudulent financial reporting and misstatements as a result of misappropriation of assets (Auditing and Assurance Standards Board ASA 240 2018) Nonetheless, misappropriation of assets has received little attention within the accounting and auditing literature³ due to the difficulties associated with obtaining the necessary data. This type of fraud often goes unreported to authorities and as a consequence there is a lack of research in this area globally. The present study which examines the auditor response to known MOA fraud therefore makes a unique contribution to the literature.

Much of the fraud literature examines fraud and non-fraud firms in an attempt to relate various firm characteristics to the likelihood of fraud (Beasley 1996). It is argued that understanding how various characteristics might impact on the occurrence of fraud can assist the auditor in

³ Academic literature related to misappropriation of assets is scarce. The few Australian based studies include Sharma (2004), Coram et al (2008), Chapple et al. (2009).

their fraud risk assessments. The firm characteristics employed in such studies largely focus on high-level corporate governance attributes such as board (see, for example, Sharma 2004) and audit committee characteristics (see, for example, Owens-Jackson, Robinson & Shelton 2009). While it is generally accepted that corporate governance is an important component of the control environment (The Committee of Sponsoring Organisations of the Treadway Commission 1992), there appears to be a need for more research which examines more specific aspects of the control environment such as fraud-related internal controls. The lack of research in this area is likely due to the difficulty involved in obtaining this information which is unobservable by an ‘outsider’ and therefore difficult to obtain for large samples. Further, while research relating to firm characteristics (e.g. audit committee, internal controls) may provide insights to assist the auditor in their fraud risk assessments, there is evidence which indicates that an auditor does not make significant changes to their audit plans in response to a higher fraud risk assessment (Hogan et al. 2008). Further research is therefore needed to determine whether the auditor considers these firm-related factors in planning and carrying out the audit. The present study contributes to this gap in the literature and examines whether the auditor conducts more (less) work (proxied by audit fees) in the absence (presence) of fraud-related internal controls including internal audit resources allocated to fraud prevention and detection as well as the reporting of fraud to law enforcement authorities.

Another branch of fraud related research examines the relationship between auditor characteristics such as auditor size (Lennox & Pittman 2010), experience (Knapp & Knapp 2001), tenure (Carcello & Nagy 2004b) and specialisation (Carcello & Nagy 2002) and the likelihood of fraud. Studies which measure industry specialisation do so at both the firm and office-based levels when it has been recognised that industry expertise perhaps more likely resides with an audit partner or team of auditors (Carcello & Nagy 2002). There is hence a need for research which measures industry specialisation at the partner level. Data required to measure partner-level specialisation is has previously been unavailable in many jurisdictions including the US (DeFond & Zhang 2014). Evidence from Taiwan suggested that partner specialisation reduces misstatements (Chin & Chi 2009), however more research is required to determine the impact of partner specialisation within other contexts.

In their review of archival auditing research, Defond and Zhang (2014) noted that:

the audit process is a black box to archival auditing researchers, primarily due to data limitations. A critical area of the audit process that has been virtually ignored in the archival

literature is the auditor's assessment of fraud risk and audit procedures for detecting fraud. This is quite surprising given the high-profile frauds over the past two decades and the auditor's increasing responsibilities for fraud detection (Defond & Zhang 2014, p. 304).

The authors further noted that while there is little recent archival research on the role of auditing in fraud assessment and detection, there is a large body of experimental and other work in this area (see, for example, Bowlin 2011; Earley, Hoffman & Joe 2008; Hammersley, Bamber & Carpenter 2010). While there are many advantages of using an experimental research design, further research using archival data will provide a unique contribution to the growing body of research in this area.

The present study addresses the above limitations in the existing research by investigating the extent to which auditors respond to known misappropriation of assets type fraud. The study will examine if the extent of work undertaken by the auditor in response to known fraud is impacted by the client's audit committee characteristics as well as the client's fraud-related internal controls. Further, auditor industry specialisation in this study will be measured at the firm, office and individual audit partner levels. Data for use in this study comes from a range of sources and is based on the actual audit of 'real-life' fraud firms.

2.2. Audit pricing

2.2.1. An introduction to audit pricing research

Audit pricing research spans over 35 years having originated circa 1980 with the work of Dan Simunic. In his seminal paper, Simunic (1980) described the audit process from a production perspective, hypothesizing an association between particular drivers and the level of audit fees. It is claimed by Simunic (1980) that certain drivers will require an auditor to carry out more or less work while undertaking the audit and that this variation in audit effort will be associated with a variation in audit fees. Research over the past 35 or so years has established an association between audit fees and the size, risk and complexity of the audit client. Hay, Knechel and Wong (2006, p. 146) explained that 'in general, these variables may be perceived as 'supply' variables, in that they proxy for attributes of the audit process and the level of effort expended by the auditor'. The authors note that just client size alone usually accounts for a substantial proportion of audit fees variation.

Many countries (for example, US, UK, Canada, Malaysia, Hong Kong, Australia) are represented in the audit pricing research. Historically, there has been a strong focus on

Australian-based audit pricing studies owing to the availability of audit fee data in Australia. Ferguson (2005) in his review of Australian audit pricing literature explains that until 2002, Australian researchers held a comparative advantage compared to US academics who at that stage were constrained by the requirement to gather audit fee data by approaching accounting firms or undertaking audit client surveys.

Audit fee research serves many aims, however there are three key reasons for undertaking audit fee research. The first reason is to assess the level of competition in audit markets (Hay, Knechel & Wong 2006). The second reason is to investigate contracting issues and questions regarding auditor independence (Hay, Knechel & Wong 2006). The third reason is to examine audit quality (DeFond & Zhang 2014). In the last instance, DeFond and Zhang (2014, p. 289) explained that ‘audit fees are used to proxy for audit quality because they are expected to measure the auditor's effort level, which is an input to the audit process that is intuitively related to audit quality’. The present study uses audit fees as a proxy for audit work. Like many other studies in the area of auditing, data relating to the precise nature and extent of audit work undertaken by the auditor can generally not be accessed as this is private information and not publicly disclosed. However, researchers that have accessed data relating to both auditor labour hours and audit fees have shown that audit fees provide a reliable proxy for audit effort (Bedard & Johnstone 2006 cited in Hogan & Wilkins 2008; Bell, Landsman & Shackelford 2001). It is important to recognise however that there are a range of other variables that have also been shown to impact audit fees and therefore I have controlled for these in the present study. In determining the most appropriate control variables to include, it is necessary to understand the theory and prior research relating to audit pricing and a summary of this is presented below.

2.2.2. Theoretical background of audit pricing research

There are a number of explanations which seek to explain why certain audit firms may charge higher audit fees compared to other firms. In particular, these explanations tend to focus on why Big-N auditors charge higher fees than non-Big-N auditors.

Simunic (1980) examined audit pricing of Big-N and non-Big-N audit firms in the large and small client segments and presented a three-by-three matrix which provides theoretical explanation between each potential combination of audit pricing findings in both the large and small audit client markets. The explanations put forward by Simunic (1980) to explain each of the nine possible combinations of (1) higher, (2) equivalent or (3) lower pricing in the large

client and the small client market segments are based on combinations of monopoly pricing, product differentiation and scale economies/diseconomies. For example, in a situation where Big-N price premiums are identified in the large client market but Big-N firms are identified as charging lower fees in the small client market segment, Simunic (1980) explains this with reference to monopoly pricing by the Big-N in the large client segment combined with scale economies to the Big-N resulting in lower prices in the small client segment.

The economically rational theoretical explanations put forward by Simunic (1980) being monopoly pricing, barriers to entry, product differentiation and the effects of economies of scale are briefly discussed below. In addition, an alternative explanation, known as ‘the alumni effect’ will also be briefly discussed. While these theories are not central to the development of this research, they are discussed here because they have informed the evolution of the prior research in this area. A discussion of agency theory and the other theories that underpin the present research are included in Chapter 3.

In relation to monopoly pricing, collusion would involve a concentrated market in which audit firms choose to collude to obtain excessive profits. While Big-N auditors do appear to operate in a concentrated market, this alone will not necessarily result in pricing collusion. It is important to recognise that while Big-N audit firms dominate the large client market (with the vast majority of listed companies audited by Big-N auditors in most jurisdictions), a large number of smaller audit firms also exist. For this reason, it is unlikely that collusion would explain the identified fee premiums. This is because such pricing collusion could have one of two effects in relation to the smaller audit firms. Firstly, as the Big-N audit firms raise their prices, the threat of smaller firms or new competitors in the industry would increase and this increased price competition would therefore drive prices back down to an acceptable level. Alternatively, rather than compete on price, smaller firms may choose to join the collusion but if this were the case all audit firms would be charging higher prices and therefore Big-N audit firm fee premiums would not be evident. Therefore, both of these outcomes would result in relatively homogenous pricing among audit firms.

In terms of barriers to entry, the two scenarios described above which each result in relatively homogeneous audit pricing assume that new entrants and small audit firms are free to enter the large client audit market. However, if there were barriers to entry into the large client audit market, entry by new entrants and smaller audit firms would be restricted and therefore these

barriers to entry could potentially allow the Big-N auditors that currently dominate this market to charge audit fee premiums. Barriers to entry into the large client audit market may result from cost advantages held by Big-N firms including prior capital investment to produce the audit services such as expenditure relating to office premises, technologies, training and recruitment. Another advantage is the development of brand and reputation that has been developed over several years. If potential new entrants do not have the necessary resources to establish themselves in the market, then Big-N firms may be able to raise prices without the threat of new entrants into the market. In instances where barriers to entry may exist but price premiums are not evident, this does not mean that an increased profit margin has not been applied. In this case, economies of scale may mean that cost savings are shared between the auditor and the client, resulting in an increased profit margin for the auditor and at the same time a reduced price for the client.

Product differentiation and/or economies of scale can also impact audit pricing. An audit firm may differentiate themselves from competing audit firms in a number of ways. This may include the employment of quality and expert staff, offering industry specialist knowledge and overall brand development. If an audit firm is able to successfully differentiate their product from that of their competitors, then it follows that they will be able to charge higher fees due to the generation of additional demand for their product. Further, the additional costs involved in differentiating the product may necessitate the charging of higher fees so as to effectively cover these costs while still maintaining a reasonable margin. These relationships are illustrated in Figure 3. Due to the Big-N's effort and success in differentiating themselves from non-Big-N auditors, it follows that Big-N auditors may charge a fee premium compared to non-big-N auditors based on this differentiation.



Developed based on findings from the audit pricing literature (see, for example, Francis and Stokes 1986; Simunic 1980).

Figure 3 Differentiation and audit pricing

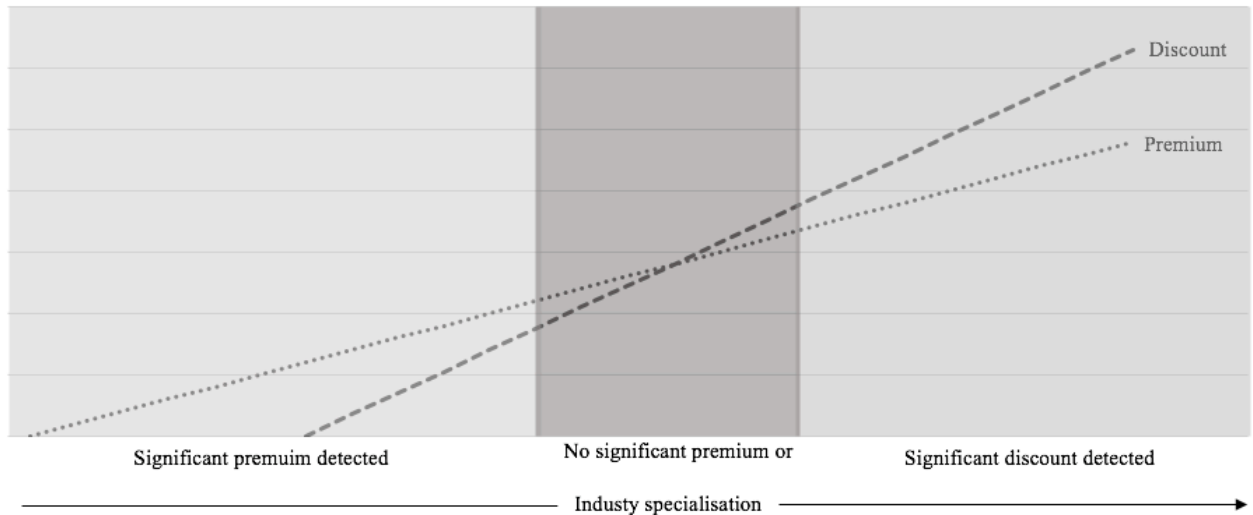
Within the large audit firm and small audit firm markets, auditors may further differentiate their product offering by establishing expertise within specific industries. This industry specialisation may also increase the demand for audit services within specific industries and as such these industry specialists may be able to charge higher fees. While there would be costs to the industry specialist audit firm in terms of acquiring and maintaining the necessary expertise, long run cost savings may also result due to economies of scale and other efficiencies gained from auditing similar firms in respect of industry. This is supported by Bills, Jeter and Stein (2014) who provided evidence that in industries that have complex accounting requirements as well as homogenous operations, industry specialists charge lower audit fees to their clients compared to non-industry specialists. The potential effects of industry specialisation on price are illustrated in Figure 4.



Developed based on findings from the audit pricing literature (see, for example, Francis and Stokes 1986; Simunic 1980).

Figure 4 Industry specialisation and price

While the relationship between fee discounts/premiums and the degree of industry specialisation is not necessarily linear as represented below, for illustrative purposes, the potential offsetting effects of a fee premium as a result of differentiation and the economies of scale resulting from specialisation are presented diagrammatically in Figure 5.



Developed based on findings from the audit pricing literature (see, for example, Francis and Stokes 1986; Siminuc 1980).

Figure 5 The potential impact of industry specialisation on fee premiums and discounts

The alumni effect refers to audit firm alumnus appointing their previous employer as auditors for the organisation where they are now employed. While the previously discussed explanations for differentiated pricing (pricing collusion, barriers to entry, product differentiation and economies of scale) are based on rationality and economic principles, ‘the alumni effect’ explains differentiated pricing from the perspective of human relationships and behaviour. It is common for accountants to commence their career in an accounting firm before moving into an industry-based role such as financial controller. The alumni effect posits that where an audit firm alumnus maintains a ‘good’ relationship with their previous employer and has decision making power or influence in respect to auditor appointments, they may be more likely to appoint their previous firm and this relationship may impact the audit fee. Lennox and Park (2007, p. 235) found that ‘the presence of an alumnus has a major influence on the audit firm appointment decision’. Further, Basioudis (2007) reported a reduction in audit fees when alumni of the auditor sits on the board of directors of the client. It should be noted that, in the US, under the Sarbanes Oxley Act (2002), employees who leave an accounting firm must serve a waiting period of at least one-year before they are able to undertake an executive position with a former client.

2.2.3. Audit fee models used in audit pricing research

In audit pricing research it is common for an estimation model to be developed by regressing audit fees against a range of measures which proxy for attributes which are hypothesised to

have a relationship (either positive or negative) with audit fees (Hay, Knechel, & Wong 2006). The potential fees drivers can be categorised in terms of engagement, audit firm and client related drivers (Hay, Knechel, & Wong 2006).

Fee drivers associated with the audit engagement include the provision of non-audit services and whether the engagement is an initial engagement. Researchers investigating the effects of non-audit services are seeking to identify whether the provision of these services may impair auditor independence as they become more familiar with the client and potentially more dependent on the fee income from the client. If this is the case, the auditor may charge lower fees to this client. From an alternative perspective, if the audit firm has worked to assist the client in tightening their internal controls, then less substantive testing may be required, and this may result in less audit 'quantity' and therefore lower fees. It is important to note that in the US, the Sarbanes-Oxley Act (2002) restricts the provision of non-audit services to audit clients. Researchers examining the effect of initial engagements and audit pricing are fundamentally questioning whether the initial engagement has been under-priced. Such underpricing (also known as low-balling) involves providing a low quote to undertake the audit in the hope of 'winning' the client. From a 'cost of production' perspective, one would expect that an initial engagement would require greater audit 'quantity' as the audit firm becomes familiar with the audit requirements of the client and as such, if audit fees were based solely on the cost of production, then one would expect to see higher fees charged for initial engagements. In the case of low-balling, however, lower fees are identified as being charged for initial audit engagements.

Fee drivers associated with the audit firm include the size of the audit firm (Big-N vs. non-Big-N) with research in this area typically seeking to identify if fee premiums or discounts exist and the reasons behind any such premiums and discounts including monopoly pricing, differentiation and economies of scale. Another fee driver associated with the audit firm is industry specialisation, and researchers in this area, seek to identify if fee premiums are charged for specific auditor expertise or whether perhaps, economies of scale exist which may mask any fee premiums or result in a fee discount to the client. Auditor tenure is another factor that is often researched in respect to its relationship with audit fees. Researchers seek to identify if audit fees reduce with longer periods of auditor tenure and if so, whether this is a result of developed audit efficiencies, auditor complacency or increased dependency on the client. On a more fundamental level, researchers seek to determine whether there is a relationship between

the quality of the audit and the audit fees that the firm charges. Since audit quality would be very difficult or impossible to directly measure, if such a relationship exists, then audit fees may be able to be used as a proxy for audit quality controlled for other fee determinants. This would allow researchers to study audit quality and the relationship between audit quality and a range of other factors.

Fee drivers associated with the audit client, are based largely on the size of the client and the risk profile of the client. Researchers who examine the relationship between an audit client's corporate governance and the level of audit fees do so from two perspectives. Firstly, researchers may consider if 'good' corporate governance reduces the client's risk profile and therefore reduced audit fees. Secondly, researchers have questioned whether 'good' corporate governance results in a client seeking a higher quality audit and therefore higher audit fees. Since it is likely that a firm with 'good' corporate governance will seek out a high-quality audit, if these firms are found to be paying higher audit fees then this will further add to the proposition that higher audit fees are related to audit quality.

2.2.4. Determinants of audit fees

A number of variables have been used in prior research to investigate the determinants of audit pricing discussed above. These will be discussed in turn under the headings of engagement, audit firm, and client attributes. The sub categories used under each heading are largely derived from Hay, Knechel and Wong (2006). However, additional headings are also included as appropriate to incorporate more recent research (for example, religiosity) and determinants of audit fees which are of particular relevance to this study (for example, fraud).

Engagement Attributes

Report Lag

The audit report lag refers to the period of time between balance date and the release of the audit report. This report lag has been interpreted by some researchers to represent the efficiency of the audit with longer report lags potentially indicating auditing problems and issues, or greater financial report complexity (Knechel & Payne 2001). For this reason, researchers expect to see a positive association between audit report lag and audit fees. A number of studies have reported this expected relationship (Davis, Ricchiute & Trompeter 1993; Ezzamel, Gwilliam, & Holland 1996) and Hay, Knechel and Wong (2006) included report lag in their

meta-analysis and reported a significant positive relationship between the length of report lag and audit fees.

Busy Season

Busy season refers to the time of year that audit services are most highly in demand. This is generally the period of time surrounding the end of financial year (for example, June 30 in Australia; December 31 in the US). It is expected that audit costs may increase during the busy season as staff are required to work overtime and that these increased costs are likely to be passed onto the client. Also, during periods of low demand for auditing services, audit firms may offer discounts so as to gain work during these quiet times where permanent staff may otherwise be idle.

Studies examining the effect of busy season on audit fees have largely reported insignificant results (Brinn, Peel & Roberts 1994; Francis 1984) with a small number of studies reporting a positive association (Craswell, Francis & Taylor 1995). In combining the results of 23 studies as part of their meta-analysis, (Hay, Knechel, & Wong 2006) reported a significant positive relationship between busy period and audit fees even though when examined on an individual basis. Some 18 of these 23 studies reported insignificant findings (see, for example, Craswell & Francis 1999; Ferguson, Francis & Stokes 2003).

Audit Problems

There is an expectation that audit problems would require the auditors to carry out further audit work and that this in turn will result in higher audit fees. Examples of audit problems may include significant disagreements with management, discovery of fraud or the identification of going concern issues. Audit problems can be difficult to capture and the most common method of doing this involves the use of a dummy variable to represent anything other than an unqualified audit opinion (Francis, Reichelt & Wang 2005). Other studies have also used a qualitative assessment of the extent of client participation in the audit (see, for example, Palmrose 1986).

The use of a dummy variable representing anything other than an unqualified audit opinion is expected to have a positive relationship with audit fees and this has been confirmed by a number of studies (Francis & Simon 1987; Simunic 1980). Even so, later studies have reported insignificant results (Ferguson, Francis & Stokes 2003). Hay, Knechel and Wong (2006, p. 19)

examined the effect of this dummy variable on audit fees post 1990 and found insignificant results reporting that ‘there is no evidence that the nature of the audit opinion continues to be a driver of audit fees’.

Higher levels of client participation are expected to result in reduced audit fees and this negative association has been confirmed by some studies (see, for example, Palmrose 1986). Overall, the meta-analysis by Hay, Knechel and Wong (2006) found a significant and negative relationship which suggests that client participation can reduce the workload of the auditor and this has been reflected in reduced audit fees. Client participation is however a difficult concept to quantify, particularly in a large-scale study.

Non-Audit Services

The association between non-audit services and audit fees has been a focus of much research (see, for example, Ezzamel 2002). This relationship can be quite complex and there are a number of explanations which seek to explain why a relationship between non-audit services and audit fees may exist in either direction.

It is claimed that the provision of both non-audit and audit services may result in lower audit fees because of cross-subsidization and synergies. However, higher audit fees may result depending on the type of non-audit services (e.g. major organisational changes) or the reason for obtaining it (major problems in the organisation). In addition, Hay, Knechel and Wong (2006, p. 20) explained that ‘monopoly power and service efficiency in the non-audit service market allow auditors to charge fee premiums’.

Most studies reported that the provision of non-audit services results in higher audit fees (Turpen 1990). Surprisingly though, Felix, Gramling and Maletta (2001), reported a significant negative association between non-audit services and audit fees. The authors provided a potential explanation for these findings with reference to the competitiveness of the audit market at the time of the study. More specifically, they suggest that auditors may be motivated to discount the audit of the financial report to gain more lucrative consulting fees from the client. Nonetheless, Hay, Knechel and Wong (2006) reported their meta-analysis results as strongly positive and significant; however, the authors acknowledged that the evidence of an association does not go so far as to explain the reasons for its existence.

Reporting

It is expected that greater audit reporting requirements will result in higher audit fees. More specifically, the number of audit reports that the auditor is required to provide for a client is expected to impact on the audit fees charged. This relationship has been confirmed by a number of studies (Palmrose 1986) as well as the meta-analysis conducted by Hay, Knechel and Wong (2006) which reported a highly significant positive association.

Audit firm attributes

Auditor Quality

There is an expectation that when an auditor is recognised to be of higher quality compared to other audit firms, that this may be reflected in higher audit fees (Hay, Knechel, & Wong 2006). Audit quality can be a difficult concept to measure, however researchers have used a range of variables as a proxy for audit quality, the more common approaches are to use a dummy variable to distinguish between Big-N and non-Big-N firms (Francis 1984; Francis & Simon 1987), a dummy variable to identify specific audit firms (e.g. PWC) (Simunic 1980), and a measure of industry specialisation (Basioudis & Ellwood 2005; Ferguson & Stokes 2002).

Much of the research using Big-N audit firms as a proxy for audit quality, has reported a positive association between Big-N audit firms and higher audit fees (Francis 1984; Francis & Simon 1987). This result is also confirmed by the meta-analysis conducted by Hay, Knechel and Wong (2006). When using specific audit firms to proxy for audit quality, the results have been weaker with some studies finding a positive association (Firth 1985), and others reporting insignificant results (Chung & Lindsay 1988; Simunic 1980).

‘Audits performed by industry specialist audit firms are likely to be of a higher quality, potentially due to industry-specific expertise possessed by the audit team and/or the audit firm’ (Carcello & Nagy 2002, p. 2). A number of studies have investigated the relationship between auditor specialisation and audit fees. More specifically, these studies have sought to determine whether specialist auditors charge a premium for their specific expertise (in addition to a potential Big-N premium).

Early studies considered industry specialisation on only a national (firm) level with more recent studies adopting a national-city framework which considers both firm and local office expertise. Early studies did not find a premium for monopoly pricing (Simunic 1980) or a

relationship between specialised industry expertise and audit fees (Palmrose 1986). In an Australian context, Craswell, Francis and Taylor (1995) found that the (then) Big 8 audit firms with specialised industry expertise charged a premium of approximately 34% compared to Big 8 audit firms that were not industry specialists. Ferguson and Stokes (2002) also used Australian data and explored industry specialisation after the Big 8 and Big 6 mergers using various definitions of industry specialisation. The authors did not find strong support for the existence of industry specialist premiums in the years following the mergers and particularly after 1990. The evidence from the study suggests that:

after the Big 8/6 audit firm mergers, some caution is required in generalizing the Craswell, Francis and Taylor (1995) finding of national market industry specialist premiums. More generally, the study raises questions about the tenuous link between the concept of specialisation and national market-share statistics (Ferguson & Stokes 2002, p. 77).

Motivated by the findings of Craswell, Francis and Taylor (1995), Ferguson, Francis and Stokes (2003) re-examined the data in Ferguson and Stokes (2002) using a different research design and found that during the time of the Big 5 accounting firms, an average fee premium of 24% for industry- specialised auditors. However, this premium was only present when the auditor was both the ‘city based’ industry leader as well as in the top two audit firms in the industry on a ‘national level’. Ferguson, Francis and Stokes (2003, p. 446) explained that ‘industry expertise that is priced by the audit market is city-specific and a function of local-office industry leadership’.

Continuing with the national and city framework that was developed by Ferguson, Francis and Stokes (2003), Francis, Reichelt and Wang (2005) studied US audit firms and identified a fee premium of 19% when the audit firm is both a national and city industry leader. Basioudis and Francis (2007) conducted a UK based study and report results of a 15% fee premium for city industry leaders and no fee premiums associated with national industry leaders. More recently, Mohd, Kharuddin and Basioudis (2018) report significantly higher fee premium for national industry leaders compared to city-specific industry leaders, and found that fee premiums for industry leadership are only associated with the city-specific industry leaders if and when they are also the national industry leaders.

Researchers have also considered the impact of the audit partner’s industry expertise (see, for example, Chi & Chin 2011; Goodwin & Wu 2014; Mohd, Kharuddin, Basioudis & Hay 2019;

Nagy 2014; Zerni 2012). The focus of specialisation at the partner level is based on the premise that the audit partner's knowledge and experience working with clients from a particular industry forms 'private human capital' which cannot easily be shared with other audit partners within the firm (Chi & Chin 2011). An implication of this is that audit quality is not homogeneous across the audit firm and is impacted by the audit partner's individual reputation and characteristics such as knowledge and experience (Goodwin and Wu 2014).

Research related to audit partner specialisation has previously been limited and has not yet been studied widely in a range of contexts. A possible reason for this is that audit partner data was not previously disclosed in many jurisdictions (including the UK and the US) and as such the data necessary to undertake such analysis was essentially unobtainable. The extant literature examines the impact of audit partner specialisation across a limited but increasing number of jurisdictions including Taiwan (Chi & Chin 2011), Sweden (Zerni 2012), Australia (Goodwin & Wu 2014), the US (Nagy 2014) and more recently the UK (Mohd, Kharuddin, Basioudis & Hay 2019). The results of these prior studies provide support for the existence of fee premiums being charged by industry specialist audit partners. While these prior studies span a number of geographical jurisdictions, they differ from the present research as they do not specifically examine the impact of partner level specialisation on audit fees in the context of clients who have experienced known MOA fraud.

Auditor Tenure

Hay, Knechel and Wong (2006) explained that it is common for clients to switch auditors so as to obtain lower audit fees from the incoming audit firm who may intentionally offer a discount in order to gain new business. Since auditor tenure may affect audit fees, it is included in the audit fee models of a number of studies (Craswell & Francis 1999; Felix, Gramling, & Maletta 2001; Simunic 1980). Auditor tenure is usually measured in one of two ways. The first method involves the use of a dummy variable to represent a recent auditor change within a specified period of time (Craswell & Francis 1999). The second method uses the actual tenure duration of the incumbent auditor (Simunic 1980). Many studies using the first method, and regardless of the threshold used to determine a recent change in auditor (the thresholds range from 1 year to 3 years), reported that where the auditor is relatively new, audit fees are likely to be reduced (Turpen 1990). This is despite a potential learning curve that may allow the audit to be completed more efficiently in later years due to greater knowledge and experience auditing the client. A number of studies have also used this method and reported insignificant

results (Craswell & Francis 1999). The meta-analysis undertaken by Hay, Knechel and Wong (2006) reported a significant positive relationship between auditor tenure and audit fees when using this dummy variable. However, studies using the second method are less consistent, with a small number of positive results (Felix, Gramling, & Maletta 2001) as well as some insignificant findings (Simunic 1980).

Auditor Location

A small number of studies have considered the effect of auditor location on audit fees. This potential relationship has been considered in particular cities where general costs are notably higher than the remainder of the country. Examples of cities used in such investigations include London (Brinn, Peel, & Roberts 1994; Davis, Ricchiute & Trompeter 1993) and Oslo (Firth 1997). The results of these studies have been mixed with some positive results reported (Brinn, Peel, & Roberts 1994) and some insignificant results found (Firth 1997).

Religiosity, social trust and civic cooperation

While the above-mentioned studies consider location-based ‘cost of living’, a number of recent US based studies have considered the intensity of ‘religiosity’ associated with certain locations. The premise behind such studies is that ‘increased religious adherence operates as an institutionalised monitoring mechanism that decreases audit risks and audit costs, which is, in turn reflected in reduced audit pricing’ (Leventis, Dedoulis & Abdelsalam 2018, p. 53). In their study (n=10176), Leventis, Dedoulis and Abdelsalam (2018) found that religious adherence is significantly and negatively associated with audit fees in the US. Similar results have been reported in other US based studies (see, for example, Gul & Ng 2018; Jaggi & Xin 2017).

Knechel et al. (2019) examined audit fees across 22 countries (n=40550) and found a significant and positive relationship between firms from countries with higher levels of both civic cooperation and societal trust and higher levels of audit fees. The authors explain that the ‘results suggest that auditors exercise relatively more audit effort and provide more services in countries with higher levels of civic cooperation or societal trust’ (Knechel et al. 2019, p. 194).

Client Attributes

Client Size

Client size has been included in almost all published research as a determinant of audit fees as it is expected that larger clients will incur higher audit fees (Simunic 1980). Client size is

generally measured using total assets (Abbott et al. 2003; Carcello et al. 2002; Palmrose 1986), however some researchers have chosen to measure client size on the basis of revenue (Maher et al. 1992). Research has shown that while client size typically explains more than 70% of the variation in audit fees (Hay, Knechel, & Wong 2006), for smaller firms, this percentage can be much lower.

In their meta-analysis of audit fee research, Hay, Knechel and Wong (2006), included an examination of the effect of client size. The authors noted that of the 84 studies used as part of the meta-analysis, 70 include assets to measure client size and all but one of these 70 studies reported a significant positive correlation. For the remaining 14 studies that used a revenue-based measures of client size, 12 reported a positive and significant relationship between client size and audit fees. As expected, client size is therefore considered to be an important determinant of audit fees.

Complexity

Client complexity has been examined by researchers in terms of its impact on audit fees with the expectation that greater complexity increases the difficulty of the audit and the time required to complete the audit (Hackenbrack & Knechel 1997; Simunic 1980). Client complexity is a multi-faceted concept and as such has been measured by researchers using a number of different approaches. The most common approach to measure client complexity is to measure the number of subsidiaries (Abbott et al. 2003; Carcello et al. 2002; Craswell & Francis 1999). Other approaches include quantifying foreign subsidiaries (Ferguson, Francis & Stokes 2003; Francis & Simon 1987), industry (SIC) codes (Maher et al. 1992; Simunic 1980), business segments (Francis, Reichelt & Wang 2005) and audit locations (Palmrose 1986).

Hay, Knechel and Wong (2006, p.9) examined client complexity as part of their meta-analysis and found 'little doubt that the relationship between fees and complexity is positive and significant' noting that in 84% of reported results, complexity is found to have a positive and significant relationship with audit fees. Hay, Knechel and Wong (2006) reported that the strongest results are found when complexity is measured based on the number of subsidiaries whereas the weakest results are found when the number of business segments is used to measure client complexity. While some measures provide stronger results than others, overall, prior research supports the expectation that client complexity is positively related to audit fees.

Inherent Risk

The impact of inherent risk on audit fees has been studied by a number of researchers on the basis that greater inherent risk may increase the quantity of audit required to minimize error and may also require specific audit procedures (Simunic 1980). Inherent risk is typically measured on the basis of inventory and receivables, as these areas are generally considered to be difficult to audit (Newton & Ashton 1989; Simunic 1980). More specifically, measures include inventory divided by total assets (Maher et al. 1992; Simon & Francis 1988), receivables divided by total assets (Chung & Lindsay 1988; Simunic 1980) and, most commonly, inventory plus receivables divided by total assets (Abbott et al. 2003; Francis & Simon 1987).

Hay, Knechel & Wong (2006) examined inherent risk as part of their meta-analysis and note that the strongest results are reported for inventory and receivables combined and where this measure is used 88% of the studies support a significant positive relationship between inherent risk and audit fees.

Profitability

Profitability is related to risk since it signifies the extent of loss exposure faced by the auditor should the client financially fail (Simunic 1980). A client with poor financial performance is considered by the auditor to be a greater risk and it is expected that this risk will be reflected in higher audit fees. Client profitability is typically measured in one of two ways. The first approach requires the use of a profitability ratio such as net income divided by total assets (Francis & Simon 1987), and the second approach uses a dummy variable to represent the client making a loss rather than profit (Turpen 1990).

In terms of the first approach using a profitability ratio, one would expect to see a negative relationship – as profitability increases, audit fees decrease. While a small number of studies have reported a significant negative relationship (Carson & Fargher 2004; Hoitash 2007), most studies that examine the relationship between profitability (as measured using a profitability ratio) and audit fees did not find the existence of a significant relationship; either positive or negative (Lee & Mande 2005; Simunic 1980). As part of their meta-analysis, Hay, Knechel and Wong (2006) reported a negative association between return on assets and audit fees.

In terms of the second approach using a dummy variable to represent the existence of a loss, one would expect to see a positive relationship – the existence of a loss is likely to lead to greater audit fees. However, although some studies have reported such a finding (Abbott et al. 2003), most published studies that use this measure did not find a significant positive relationship (Chung & Lindsay 1988; Francis 1984). This unexpected result was investigated further by Hay, Knechel and Wong (2006, p.11) who uncovered that: ‘the studies that yielded results that contradicted expectations and were not significant (or negative) came mostly from Canada and Australia and were almost all using data prior to 1990’. The authors explain that this suggests that the existence of a loss has only become a significant driver of audit fees in the past few decades.

Overall, the unexpected results associated with client profitability and audit fees suggest that the measures used may not be reflective of auditor perceptions in the market (Hay, Knechel & Wong 2006).

Leverage

Leverage is also related to the risk of a client financially failing, and the greater the financial leverage of the client the greater the potential loss exposure of the auditor (Siminuc 1980). For this reason, there is an expectation among researchers that leverage would have a relationship with audit fees (Craswell & Francis 1999). Two measures of leverage that are commonly used by researchers are the leverage ratio (Francis 1984) which is expected to have a positive relationship with audit fees and the quick ratio (Craswell & Francis 1999) which is expected to have a negative relationship with audit fees. While a number of studies have confirmed these expected relationships (Craswell & Francis 1999), there are also a number of studies with insignificant findings (Francis 1984). When leverage was examined as part of a meta-analysis by Hay, Knechel and Wong (2006), the results were highly significant. The authors investigated the high number of insignificant results reported in prior studies and found that ‘leverage may have been important in the US in the 1980s, and in the UK to a lesser extent, but generally not important in other countries (Hay, Knechel, & Li 2006, p. 12).

Form of Ownership

A number of researchers have considered the impact of client ownership on audit fees (see, for example, Chan, Ezzamel, & Gwilliam 1993; Palmrose 1986; Seetharaman, Gul, & Lynn 2002). This research interest has arisen from the differing agency costs, client risks and auditor risks

that may exist as a result different ownership structures. It is expected that as risk exposure for the auditor increases that this will be reflected in higher audit fees.

Common approaches to carrying out research in this area include the use of dummy variables to represent public versus private ownership (Chan, Ezzamel, & Gwilliam 1993; Palmrose 1986) and US listed companies (Seetharaman, Gul, & Lynn 2002). A number of studies confirm a relationship using public versus private ownership (Chan, Ezzamel & Gwilliam 1993) and US listed companies (Seetharaman, Gul, & Lynn 2002). Hay, Knechel and Wong (2006) reported significant positive associations for these variables as part of their meta-analysis.

Internal Control / Internal Audit

Since the audit approach is determined in part by the control environment (Knechel 2001) and the audit fee is related to the audit approach (e.g. audit quantity, level of expertise), it is expected that there will be an association between internal control and audit fees. On the one hand, strong internal controls may reduce the need for substantive testing and therefore result in cost savings. On the other hand, an organisation that chooses to adopt strong internal controls may also seek higher quality audit services in order to further strengthen the control environment and this may therefore increase the costs of the audit. Internal control is a difficult variable to measure however internal audit has been used by some researchers investigating its effect on audit pricing. Internal audit has been measured in prior research in a variety of ways including the extent of internal audit contribution (Felix, Gramling & Maletta 2001) and the auditor's reliance on internal controls (Felix, Gramling & Maletta 2001). The results of this research are a mixture of significant negative and insignificant results (Felix, Gramling & Maletta 2001). The meta-analysis conducted by Hay, Knechel and Wong (2006) reported a significant positive relationship with higher audit fees being associated with increased levels of internal auditing.

The audit risk model⁴ provides structure for evaluating the relationship between total audit risk, inherent risk, control risk, and detection risk and suggests that in the presence of internal control

⁴ The audit risk model provides a means by which the auditor can manage the overall risk of the audit. The model is expressed as follows: Audit risk = Inherent risk x Control risk x Detection risk. Audit risk is the risk that the auditor will provide an incorrect audit opinion. Inherent risks are risks that arises other than from a failure of internal controls. Control risk refers to risks associated with either the absence or the failure of internal controls.

deficiencies, auditors can still issue an unqualified audit opinion by increasing the extent of substantive testing (Hogan & Wilkins 2008). Early studies investigating the relationship between audit efforts (proxied by audit hours or audit fees) and various audit risk factors did not find evidence that audit effort increases in response to an increase in control risk (Felix, Gramling & Maletta 2001; Hackenbrack & Knechel 1997; O’Keefe, Simunic & Stein 1994). Importantly, these early studies were undertaken prior to the Sarbanes-Oxley Act being enacted in the US in 2002 which introduced a range of regulatory reforms and standards for public companies and accounting firms. Around the same time, many similar reforms and best practice guidelines were enacted in other countries around the globe.

Following the introduction of Sarbanes-Oxley, Hogan and Wilkins (2008) re-examined the association between control risk and audit fees after controlling for a variety of factors known to impact audit fees and found that audit fees were significantly higher (35%) for firms with internal control deficiencies suggesting increased audit work being undertaken in the presence of increased control risk. The study by Hogan and Wilkins (2008) examined internal controls generally and did not analyse the impact of specific types of controls. The study identified firms with internal control deficiencies as being those companies who self-reported these deficiencies as mandated by the Sarbanes-Oxley disclosure requirements. The present study differs from the research conducted by Hogan and Wilkins (2008) by examining the impact on audit fees of specific fraud-related internal controls within a specific context being the presence of known fraud.

Corporate Governance

A number of researchers have examined the association between corporate governance characteristics and audit fees (Abbott et al. 2003; Carcello et al. 2002). The relationship between the quality of corporate governance (incorporating the board of directors and audit committees) and audit fees is multifaceted in that both audit price and audit quantity may be affected. Beasley, Carcello and Hermanson (1999, p. 9) explain that ‘the auditor should recognize the potential likelihood for greater audit risk when auditing companies with weak board and audit committee governance’. Since risk is a fundamental determinant of audit price

Detection risk refers to the risk that the auditor will fail to identify material misstatement in the financial report. See, for example, Hogan and Wilkins (2008) for further discussion on the audit risk model.

(Simunic 1980), it follows that the reduced risk associated with firms with strong corporate governance will result in a lower audit price.

A number of studies (Abbott et al. 2003; Carcello et al. 2002) found a positive association between the quality of corporate governance and audit fees. Carcello et al. (2002) examined the relationship between corporate governance quality (measured by board independence, diligence, and expertise) and audit fees, and revealed a significant positive relationship between board independence, diligence, and expertise and the audit fees of the firm. These results persisted when similar measures of audit committee quality were introduced into the model. Abbot et al. (2003) also studied the effects of audit committee characteristics (independence, financial expertise and meeting frequency) on audit fees. The study found that audit committee independence and financial expertise were significantly, positively associated with audit fees. However, meeting frequency was not found to be associated with higher audit fees.

The results of the above studies can be explained in that ‘to protect its reputation capital, avoid legal liability, and promote shareholder interests, a more independent, diligent, and expert board may demand differentially higher audit quality... (and as such) the audit fee increases as the auditor's additional costs are passed on to the client’ (Carcello et al. 2002, p. 365). Further audit committees may take actions to ensure a higher level of audit coverage which can be obtained through an increase in the scope of the audit (Abbott et al. 2003). The resulting increase in audit quantity may cause audit fees to increase despite a potential decrease in the audit price due to the reduced level of risk associated with quality corporate governance.

The present study differs from those discussed above by examining the impact of audit committee characteristics on audit fees within the context of known MOA fraud. In respect of the governance variables used, the present study will go beyond the use of only high-level governance proxies. In addition to audit committee attributes (independence, size and meeting frequency), this study will also examine for the first-time in the literature specific fraud-related governance processes and controls. This includes resources allocated to fraud prevention and detection strategies and the reporting of detected fraud to law enforcement authorities.

Industry

Since organisations from some industries may be more difficult to audit compared to other industries (Siminuc 1980), a number of researchers have investigated the relationship between

the industry of the client and the associated audit fees (Carcello et al. 2002). Two industries that are commonly investigated as part of this type of research include financial institutions and utilities organisations. Hay, Knechel and Wong (2006) explain that companies in the financial and utilities industries have a large asset base, but are usually easier to audit compared to companies with knowledge-based assets or significant inventory and receivables. Using a dummy variable to represent these industries, research has shown that audit fees are significantly lower for these industries (Carcello et al. 2002). These results are also confirmed by Hay, Knechel and Wong (2006) as part of their meta-analysis. A potential reason for the reduced complexity of these audits is the high level of regulation imposed on firms operating within these industries.

Fraud

Of particular relevance to the present study is the relationship between fraud and audit fees which is under-researched globally. The likely reason for this is the difficulty associated with identifying a sufficient number of fraud firms for a large-scale audit fee study. An extensive search of research databases revealed only a few studies which examine the association between fraud and audit fees.

Johnstone and Bedard (2001) examined the pricing of initial audit engagements and reported that the audit partners assessments of fraud and inherent risk are positively related with the planned audit fee. This research differs from the present study in that it investigates proposed fees rather than the actual fees charged following the audit.

Rapoport (2003, as cited in Markelevich & Rosner 2013) reported in a brief and descriptive article that audit fees do not seem to be a reliable means to predict which companies will subsequently be sanctioned for fraud by the SEC. In this study, the audit fees under review were in the period prior to the fraud occurrence which is not relevant to address the aim of this study as to the extent to which external auditors conduct additional audit work when a client has experienced known fraud. Therefore, the present study will examine the fees charged by auditors when their client has experienced known fraud in the preceding two years.

Sharma (2004) investigated the relationship between fraud and audit fees in Australia as part of a larger study, and explained that since fraud firms are considered to carry a greater audit risk, auditors will likely extend both the scope and rigor of these audits. As a consequence, the

additional cost of conducting the audit may translate to higher audit fees for the firm. Sharma's (2004) study found a significant and positive relationship between audit fees and the likelihood of fraud. However, the above study by Sharma (2004) used a sample of just 31 fraud firms and focused only on management fraud involving fraudulent financial reporting. Further, the results were not sensitised to the value of the fraud due to the inability to collect this information. The present study used a larger sample, examined MOA fraud and included the value of the fraud in the analysis. The present study also investigated how corporate governance, internal controls and auditor industry specialisation moderate the relationship between fraud and audit fees.

Lenard and Petruska (2012) examined firms subject to class actions from securities fraud litigation (pre and post Sarbanes-Oxley) and reported that fraud firms paid higher audit fees in both periods. Markelevich and Rosner (2013) used fraudulent financial reporting (SEC sanctions) as a proxy for audit quality claiming that fraud is more precise when compared to some of the alternative proxies which have been used to represent poor financial/auditor reporting. The authors found that fraud firms incurred significantly higher (combined audit and non-audit) fees. In contrast to the findings of Lenard and Petruska (2012), when Markelevich and Rosner (2013) controlled for other fraud drivers as well as endogeneity, they reported that although a significant positive relation exists between fraud and total fees as well as fraud and non-audit fees, there was not a significant association between audit fees and the likelihood of being sanctioned for fraud by the SEC. The present study differs from the research reported by both Lenard and Petruska (2012) and Markelevich and Rosner (2013) in that the focus of the present study will be on misappropriation of assets type fraud rather than fraudulent financial reporting.

2.2.5. A critique of audit pricing research

Audit fees as a measure of audit quality hold a number of advantages and disadvantages. Audit fees are a continuous variable and for this reason, audit fees are able to detect even minor variations in audit quality (DeFond & Zhang 2014). In addition, the audit pricing literature has established sophisticated audit fee models with R-squares often exceeding 70% (DeFond & Zhang 2014).

Despite the advantages of using audit fees as a measure of audit quality, it is necessary to interpret results with some caution. While it is generally accepted that audit fees capture audit effort and thus audit quality, audit fees can also be impacted by both risk and audit efficiencies.

While audit hours are arguably a more accurate way in which to measure auditor effort (Deis & Giroux 1996), the availability of such data is a fundamental limitation, particularly in large scale projects which examine multiple audit firms. The present study will seek to address the above research weaknesses by controlling for risk and efficiencies through the incorporation of both profitability and leverage measures (as proxies for risk) and Big-N or auditor industry specialisation (as a proxy for efficiency) in the models.

Further limitations associated with the audit fee models typically used in audit pricing research include, potentially omitted variables, problems with the specification of control variables and endogeneity and the omission of demand attributes (Hay, Knechel, & Wong 2006). Hay, Knechel and Wong (2006) explain that all empirical models will to some extent be limited by the potential for omitted variables. It is generally accepted however that this issue does not systematically impact on the association between the dependent and independent variables within the model (Gujarati 2003, p. 517). In the case of audit pricing research, there are a number of factors that may impact on audit fees but sometimes these variables cannot be included in the model due to the data not being available to researchers. While it is difficult to overcome this weakness, the high R-squares which often exceed 70% in audit pricing research go some way towards providing comfort in respect of this issue.

Audit fee models typically include a substantial number of control and experimental variables and the way in which these variables are measured can impact on results. The use of continuous variables (e.g. profitability ratios, auditor tenure) assume a linear association between the variable and audit fees however the relationships being investigated may not follow a consistently predictable linear pattern. For example, is adding just one more board of directors meeting likely to add a certain percentage to the audit fee? Likewise, the use of dummy variables can also be problematic particularly where a dummy variable is used to artificially transform a variable from continuous to dichotomous. The way in which this conversion is conducted can be critical to the subsequent results of the study. For example, when measuring auditor tenure, Craswell and Francis (1999) measured whether there had been a change in auditor in the past 3 years. It is necessary to consider whether their results may have been different if they had instead measured auditor change in the proceeding 2 years or perhaps the proceeding 5 years. In another study, Ferguson, Francis and Stokes (2003) measure profitability by ascertaining whether a firm had experienced a loss in any of the past three years. The results for this variable were not significant, but again it is necessary to consider if perhaps their results

would have been different if this profitability variable was specified differently (e.g. loss in the current year). To address a number of these issues in the current study, additional analysis is carried out and reported in Chapter 7.

Endogeneity is a potential issue for many of the audit fee models used in audit pricing research. Endogeneity can occur when analysing audit fees and non-audit fees (Whisenant, Sankaraguruswamy & Raghunandan 2003) and between audit fees and governance variables (Knechel & Willekens 2006).

The control variables included in the audit fee model of the present study are derived from the prior literature discussed above and are discussed in Chapter 5, and include for example, client size (assets), leverage (debt to equity ratio) and whether a going concern audit opinion was issued.

2.3. Corporate governance and internal control

2.3.1. An introduction to corporate governance research

In order to examine the impact of corporate governance on audit fees it is necessary to understand the theory and prior research in this area and this is discussed below. Of particular relevance to this study is the measurement of audit committee characteristics which are included as part of this discussion.

Carcello, Hermanson & Ye (2011) describe corporate governance research literature in just one sentence, 'Generally speaking, 'good' audit committee and board characteristics are associated with measures of 'good' accounting and auditing and with more effective internal controls' (Carcello, Hermanson & Ye 2011, p. 3). The authors further explain that the association between 'good' corporate governance and 'good' accounting and auditing outcomes is mainly derived from findings from Anglo-American based research, which has been the focus of much of the corporate governance research.

Research investigating 'good' corporate governance has for the most part examined company audit committees and boards. Audit committees have been examined with reference to the financial expertise and independence of members (see, for example, Abbott, Parker & Peters 2004) as well as the size of the committee and the frequency of meetings (see, for example,

Huang & Thiruvadi 2010). Boards have been primarily assessed with respect to the independence of board members (see, for example, Beasley 1996) with some studies specifically examining CEO duality where the CEO is also the chairperson of the board (see, for example, Chapple, Ferguson & Kang 2009).

Accounting outcomes are generally identified as good where there is less earnings management (see, for example, Klein 2002) and the absence of fraud (see, for example, Abbott, Park & Parker 2000; Beasley 1996; Sharma 2004) or restatements (see, for example, Abbott, Parker & Peters 2004). Auditing outcomes have been examined by looking at a range of factors including the type (size) of auditor (see, for example, Beasley & Petroni 2001), the fees paid to the auditor for audit and non-audit services (see, for example, Carcello et al. 2002), and the audit opinion (see, for example, Carcello & Neal 2000). The strength of internal controls on the other hand, have been typically measured using internal control audit opinions or disclosures by management of internal control effectiveness (see, for example, Hoitash, Hoitash & Bedard 2009).

Although most prior accounting research in the area of corporate governance examines boards and/or audit committees and the association with accounting, auditing and/or control outcomes, corporate governance is broader than the board of directors and the audit committee alone. While the board and the audit committee play a large and important part of an entity's internal governance mechanisms, there are additional elements of internal governance as well as external governance elements which also warrant discussion. Brown, Beekes & Verhoeven (2011, p. 111) explained that 'internal characteristics are those that result from the decisions and actions of the shareholders and the board, such as the constitution and membership of the board of directors and its committees and the structure of and the form of executive compensation'.

In this section, the theoretical background of corporate governance research will be discussed followed by a discussion of the key internal and external characteristics of corporate governance, including internal control.

2.3.2. Theoretical background of corporate governance research

Brown, Beekes & Verhoeven (2011, p. 99) explain that as a result of its breadth, corporate governance research is ‘characterised by the lack of a unifying theory’ and that this ‘state of affairs is an inevitable reflection of the range of perspectives academics have taken when thinking about corporate governance matters’. This is evident not only in the nature of the questions asked by researchers, but also in the framing of such questions, the fundamental ideas and reasoning that support hypotheses, the way in which models are specified, the definition and measurement of dependent and explanatory variables, the estimators used, how tests are applied, and how conclusions are reached (Brown, Beekes & Verhoeven 2011). The nature of corporate governance and the outcomes it is expected to produce depend largely on the theoretical perspective adopted by the researcher.

Carcello, Hermanson and Ye (2011) noted that although much of the governance research is underpinned by agency theory, audit committee research is an area where multiple theoretical perspectives have been adopted. Researchers often find that audit committee members who are interviewed about governance may provide responses which reflect a combination of governance theories (Beasley et al. 2010), as directors seek to balance the monitoring function consistent with agency theory with other considerations including the promotion of legitimacy consistent with institutional theory or providing assistance to management consistent with resource dependence theory (Carcello, Hermanson and Ye 2011).

The various theories used in corporate governance research include agency theory, transaction cost economics, stewardship theory, resource dependence theory, managerial hegemony theory, class hegemony theory and institutional theory. While the present study is underpinned by agency theory to be discussed in Chapter 3, each of the other aforementioned theories will be discussed briefly for the purposes of providing a more complete discussion of corporate governance theory.

Transaction-cost economics shares a number of similarities with agency theory in respect of its underlying assumptions. Both theories assume that managers are rational, opportunistic, and will act in their own self-interest (Simon 1976). A key distinction is drawn between the two theories when comparing their cost focus. More specifically, while agency theory focuses on reducing the agency costs that result from the separation of ownership and management

through monitoring and providing incentives that align the interests of both parties (to be discussed in greater detail in Chapter 3.1.1), transaction-cost economics focuses on transaction costs associated with an economic exchange. These costs may include search and information costs, bargaining costs or policy and enforcement costs. Within an organisation, costs which do not form a cost of production (including corporate governance) are considered a transaction cost. Following from this, agency theory and transaction-cost economics differ largely in their basic unit of analysis which in the case of agency theory is the individual agent and in the case of transaction-cost economics is the transaction (Stiles & Taylor 2001).

Stewardship theory on the other hand, differs greatly from agency theory and transaction cost economics in its view of management's motives. Where agency theory and transaction cost economics perceive managers as self-interested actors who may engage in opportunistic behaviour, stewardship theory views managers as being motivated by non-financial factors such as a desire to achieve and to benefit from intrinsic satisfaction that comes with challenging work, responsibility and the respect of one's colleagues (Donaldson 1990). Stewardship theory views managers as striving 'to be good stewards of corporate assets' (Donaldson 1990, p. 376). Where agency theory takes a positive view of board and audit committee independence, stewardship theory believes that combining the role of chief-executive and chairman of the board can be beneficial to an organisation by providing a unified direction and stronger command and control (Stiles & Taylor 2001).

Resource dependency theory views the boards role as being less for the purpose of monitoring management but rather as a means by which management can access scarce resources (Aldrich & Pfeffer 1976; Boyd 1990; Pfeffer & Salancik 1978) and assist the organisation with high-level strategic planning (Williamson 1999). In this way, the board is seen as a partner to management as opposed to an independent monitoring mechanism. According to Reingold (1999), 'many of today's high-tech board members see their job as actively setting the company's course. Indeed, on many high-tech boards, outsiders are brought in for their connections or specific technical knowledge rather than their independent perspective.' It therefore follows that under the resource dependency perspective; important board characteristics will include industry expertise, strategic planning skills and access to external networks and resources (Boyd 1990). Beyond the board of directors, Cohen, Krishnamoorthy and Wright (2008) explain that according to the resource dependency perspective, members of the audit committee who have industry expertise are likely to be better able to understand and

assess the financial reporting quality of the corporation more so than members without industry expertise, but who are entirely independent.

Managerial hegemony theory acknowledges the divergent interests of managers and shareholders but considers corporate governance to be ineffective in reducing the agency problems associated with the separation of ownership and control in corporations (Mace 1971). This theory views the board of directors as existing for legal purposes only and denies the board's ability to control an organisation in practice. This is mainly due to the belief that the CEO has effective control of the board and even outside directors are unable to act independently as they are influenced by the prestige, monetary and other rewards associated with their directorship. As a result, the board becomes merely a 'rubber stamping' function of the organisation (Herman 1981). This perspective suggests that a corporation's senior management will select allies who will not oppose their actions (Patton & Baker 1987), but who will instead act merely as passive participants who are dependent on the company management for information related to the organisation and/or the industry in which it operates (Wolfson 1984). The role of directors under this perspective is in contrast to the agency theory perspective where directors act independently to monitor the actions of management.

Cohen, Krishnamoorthy and Wright (2008) explained that a key implication of the managerial hegemony perspective is that even though a corporation may have a fully compliant audit committee with 'independent' members, they will nonetheless be acting under the influence of management, and as such, will be likely to ask only simple and unobtrusive questions. Moreover, they will likely act as an ally to management in disputes that might arise between the auditor and the corporation's management.

In terms of class hegemony theory, like agency theory, this theory shares the assumption of self-interest and goal incongruence. This theory has a Marxist origin and holds the view that an organisation is governed (and as such power is held) by an elite few and that these few will seek to perpetuate this class-based governance structure through interlocking directorates which act as part of a strategy to construct elitist networks (Zeitlin 1974).

Turning to institutional theory, Cohen, Krishnamoorthy and Wright (2008, p. 186) explained that 'in essence, institutional theory emphasises how governance mechanisms fulfil ritualistic roles that help legitimize the interactions among the various actors within the corporate

governance mosaic'. DiMaggio and Powell (1983) claimed that through the process of institutional isomorphism, institutions over time, tend to become similar to other institutions around them.

Isomorphic processes can be coercive, normative or mimetic (DiMaggio & Powell 1983). Coercive isomorphism results from external regulation. An example of this could be the requirement for all listed corporations to have an audit committee. Normative isomorphism occurs through a process of socialisation and so for example may occur when a senior manager from one organisation takes a position at a new organisation and implements policies and structures that were effective at their prior place of employment. Mimetic isomorphism occurs when organisations mimic one another and is more likely to occur in uncertain environments (DiMaggio and Powell 1983). An example may be an organisation modelling their corporate governance policies on that of an industry leader or published guidelines without any significant consideration given to the effectiveness of such policies (Cohen, Krishnamoorthy & Wright 2008).

Cohen, Krishnamoorthy and Wright (2008, p. 187) explained that one implication of institutional theory and corporate governance is that during periods of uncertainty, the board and the audit committee may engage in merely ceremonial and symbolic roles to fulfil the need for legitimacy. Meyer and Rowan (1977) described a process of 'decoupling' which can occur as a result of conflicting institutional and organisational pressures. Decoupling is said to occur where an organisation superficially adopts new structures without necessarily implementing the associated practices (Boxenbaum & Jonsson 2008). A further implication is put forth by Tuttle and Dillard (2007) that institutional theory proposes there is a tendency within institutions to attract homogeneous individuals and so as a result board and audit committee members may be similar in terms of their background and experiences and as such may be less inclined to question each other or the institutions management.

From the above discussion, it can be seen that there are many theories which are used to underpin studies which investigate corporate governance. The corporate governance aspects of the present study are underpinned by agency theory, the substitution effect and signalling theory which are each discussed in Chapter 3. Nevertheless, the above summary of common theories used in corporate governance research has been included in order to provide greater theoretical context to the literature discussed in the following section.

2.3.3. Corporate governance characteristics

Corporate governance characteristics can be considered as either internal or external to the company. Internal corporate governance characteristics generally relate to the characteristics and functions of board, committees and internal audit. Typically, external corporate governance characteristics such as monitoring by block-holders are outside of the Board's control. While some view these mechanisms as complementing internal characteristics and others view these mechanisms as substituting for them, under either perspective, external governance characteristics have an influence on overall outcomes (Brown, Beekes & Verhoeven 2011). Key corporate governance characteristics investigated in the prior research are discussed below under the headings of internal and external characteristics.

Internal characteristics

Components of internal corporate governance which have been investigated by researchers include the board of directors, CEO duality, the audit and remuneration committees, internal control and internal audit. Literature relating to each of these components will now be discussed in turn.

The board of directors

The Australian Securities Exchange (ASX) acknowledge in their Corporate Governance Principles and Recommendations (Australian Securities Exchange 2019) that a high performing and effective board of directors is necessary for the appropriate governance of a listed entity and the size, composition, skills and commitment of the board should be such that it is able to effectively discharge its duties. The duties of the board include objective setting, monitoring and controlling the activities of the company and as such the board is central to the decision-making within the company (Fama & Jensen 1983).

Researchers have examined how the size and composition of the board can impact on its ability to function effectively and have generally found that smaller boards are more effective in terms of decision making (Yermack 1996). This is somewhat consistent with the ASX recommendation that 'the board needs to be of sufficient size so that the requirements of the business can be met and changes to the composition of the board and its committees can be managed without undue disruption. However, it should not be so large as to be unwieldy.' (Australian Securities Exchange 2019, p. 12).

A company's board comprises executive and non-executive directors. Executive directors are employed by the organisation to provide strategic advice based on their expertise in the industry (Brown, Beekes & Verhoeven 2011). Non-executive directors are often professionals with experience in a different business or industry, and importantly these directors will often have a substantial reputation to protect (Brown, Beekes & Verhoeven 2011). A crucial role of the non-executive director is to monitor the activities of the board as well as the quality of financial reporting and as such the independence of these directors is essential if they are to effectively carry out this monitoring role (Brown, Beekes & Verhoeven 2011).

The Australian Securities Exchange (2010) recommended that the majority of a company's board should be independent directors and define such a director as a 'a director who is free of any interest, position or relationship that might influence, or reasonably be perceived to influence, in a material respect their capacity to bring an independent judgement to bear on issues before the board and to act in the best interests of the entity as a whole rather than those of an individual security holder or other party' (Australian Securities Exchange 2019, p. 35). This recommendation that the board comprise a majority of independent directors is consistent with the early contention by Fama and Jensen (1983) who claim that independent directors' act as the chief mechanism for the monitoring of management's actions. Fama and Jensen (1983, p. 315) explained that these '...board members act as arbiters in disagreements among internal managers and carry out tasks that involve serious agency problems between internal managers and residual claimants'. The impacts of independent directors on accounting and auditing outcomes have been examined by a number of researchers.

From an accounting perspective, a number of studies have explored the relationship between board independence and its relationship with accounting quality. For example, Chang and Sun (2009) found a positive relationship between board independence and earnings informativeness (the strength of the correlation between earnings and return) following the introduction of the Sarbanes-Oxley Act (2002).

In terms of earnings management, Peasnell, Pope and Young (2005) reported from their sample of UK firms, that independent directors play an important role in limiting income-increasing earnings management that may otherwise be undertaken in an effort to avoid reporting losses. However, in contrast, Chtourou, Bedard and Courteau (2001) in their US based study, found no association between board independence and earnings management. From an Australian

perspective, Davidson, Goodwin-Stewart and Kent (2005) examined this relationship and reported evidence from their sample of 434 listed Australian firms, to support their hypothesis that earnings management is negatively associated with the independence of the board of directors. In the US, Klein (2002) also found evidence that independent directors play an important role in constraining earnings management.

From an auditing perspective, researchers have examined the relationship between board independence and auditor selection and change, audit risk assessment, planning and opinions and audit fees. Literature in the area of corporate governance and auditing suggests that firms with strong corporate governance are more likely to appoint and maintain high-quality external auditors (Carcello, Hemanson & Ye 2011). While much of the literature examines composition of the audit committee, there are a smaller number of studies that examine board independence and the auditor. For example, Chen and Zhou (2007) found that following the failure of the Big-N audit firm Anderson, companies with more independent boards were more likely to appoint a Big-N auditor to replace Anderson rather than a smaller firm. Further, Lee, Mande and Ortman (2004) found that board independence has a negative association with auditor resignations. Sharma, Boo and Sharma (2008) undertook an experimental study using Singaporean Big-N auditors. The authors reported that auditors were more likely to accept a client when corporate governance (including board independence) is stronger. They also found that clients with stronger corporate governance (including board independence) are assessed as having a lower level 'control environment' risk and auditors' are more likely to rely on the client's internal controls and thereby reduce the level of substantive testing.

Beasley (1996) studied the relationship between corporate governance and fraud. He sought to empirically test whether the inclusion of outside directors on a company's board reduced the occurrence of fraudulent financial reporting and misappropriation of assets by top management. The results of this study showed that companies that were not subject to fraud included significantly higher percentages of outside directors on their board when compared to a sample of companies that were not subject to fraud. In a similar vein, Dechow, Sloan and Sweeney (1996) found that those firms engaged in earnings manipulation are more likely to have a board of directors that is dominated by the firm's management.

In an Australian context, the results of research conducted by Chapple, Ferguson and Kang (2009) did not find that an increase in the proportion of non-executive board members resulted

in a lower occurrence of fraud. However, it is necessary to consider that Chapple, Ferguson and Kang (2009) limited their investigation to misappropriation-type fraud and perhaps the results would be different in the case of fraudulent financial reporting. An earlier study by Sharma (2004) also investigated fraud in Australia, and while 61.3% of the cases used in this study involved misappropriation of assets by company management, the researcher noted that these same cases also involved falsification of financial records. The remaining 38.7% of fraud cases used in Sharma's (2004) study involved only fraudulent financial reporting. Sharma (2004) also found that an increase in the proportion of independent directors resulted in a lower likelihood of fraud.

The results of prior research investigating board independence and fraud appear to be somewhat inconsistent. This is potentially due to the limitations related to the measurement of board independence. Beasley (1996) explains that 'grey' directors are those board members that although not employed by the company, are nonetheless related to management. Examples of grey directors include legal professionals who perform work for the firm or retired executives. This is distinct from independent directors who Beasley (1996) describes as having no relationship to the company aside from the role of director. The relationship between a Director and an organisation can be complex and as such the true independence of the Director may not be accurately documented. Furthermore, the proxies for independence used in much of the accounting literature, provide little insight into the conduct of the board (MacAvoy & Millstein 2003).

CEO duality

In addition to the proportion of independent directors, researchers have also investigated the association between CEO duality (i.e. where the CEO chairs the board of directors) and fraud. According to Beasley (1996), CEO duality did not significantly affect the likelihood of fraudulent activity. Uzun, Szewczyk and Varma (2004) arrived at a similar conclusion noting that although the relationship between CEO duality and fraud was positive, but it was not statistically significant. Contrary to the above findings, Dechow, Sloan and Sweeney (1996) reported that companies engaging in earnings manipulation were more likely to have a CEO that at the same time acts as the chair of the board. Farber (2005) found that a year prior to detection, fraud companies were more likely to have CEO duality than non-fraud firms. However, three years following the detection of fraud, the fraud companies had indistinguishable differences from their matched non-fraud companies with respect to CEO

duality. This seems to indicate that the detection of fraud served as a catalyst to remedy the issue of CEO duality.

In an Australian context, Sharma (2004) and Chapple, Ferguson and Kang (2009) have each found that CEO duality was significantly and positively associated with the likelihood of fraud. The research undertaken by Sharma (2004) focussed on cases involving fraudulent financial reporting (which may have also incorporated misappropriation of assets) while the study by Chapple, Ferguson and Kang (2009) focused on misappropriation of assets (which may have also incorporated fraudulent financial reporting).

The present study does not examine the effect of CEO duality on fraud. This is because CEO duality is strongly discouraged in the ASX Corporate Governance Principles and Recommendations (Australian Securities Exchange 2019). Although these principles are not mandatory⁵, it is nonetheless becoming increasingly rare to find a company CEO also acting as Chair of the Board.

The audit committee

The ASX Corporate Governance Principles and Recommendations (Australian Securities Exchange 2019, p. 19) state that ‘a listed entity should have appropriate processes to verify the integrity of its corporate reports.’. The first recommendation under this principle is the establishment of an audit committee. Recommendations in relation to the structure of the audit committee include that it consists only of non-executive directors and comprise a majority of independent directors. In addition, the committee should be independently chaired by a member other than the chair of the board; have a minimum of three members; and, possess a formal charter.

Whilst audit committees are not mandatory for all Australian companies, listing rule 12.7 requires that companies in the S&P / ASX 300 Index at the commencement of its financial year

⁵ ‘Under the Principles and Recommendations, if the board of a listed entity considers that a Council recommendation is not appropriate to its particular circumstances, it is entitled not to adopt it. If it does so, however, it must explain why it has not adopted the recommendation – the “if not, why not” approach’ (Australian Securities Exchange 2019, p. 2).

must adhere to the above-mentioned recommendations of the ASX on the composition, operation and responsibility of the audit committee.

The moderating impact of audit committee characteristics on audit fees in response to fraud are investigated as part of the present study. For this reason, it is necessary to understand how these characteristics are measured and incorporated into the prior research. The specification of audit committee variables used in the present study are listed and discussed in Chapter 5.5.4 of the thesis.

Researchers examining the role and impact of the audit committee have examined such factors as audit committee independence, audit committee size, meeting frequency and the financial expertise of audit committee members. Each of these audit committee characteristics will be discussed in turn below, and will be followed by a discussion in relation to audit committee characteristics and the impact on fraud.

Audit committee independence has been measured in a number of different ways. Commonly, researchers have used the percentage of independent audit committee members (see, for example, Rahman & Ali 2006). Other researchers have used a dichotomous variable where the audit committee is either comprised of 100% independent members or it is not (see, for example, Abbott et al. 2003). Alternative measures have included the audit committee's familiarity with the external auditor (Williams 2002).

Researchers have examined the impact of audit committee independence on the cost of capital. For example, Anderson, Mansi and Reeb (2004) found that audit committee independence is associated with a lower cost of debt finance. From an accounting quality perspective, audit committee independence has been associated with a higher level of disclosure quality (Karamanou & Vafeas 2005) and fully independent audit committees are found by Bryan et al. (2004) to be positively related to earnings informativeness. Chang and Sun (2009) also reported a positive relationship between information informativeness and the post-SOX disclosure of corporate governance information including audit committee independence. Anderson, Gillan and Deli (2003) however, found board independence to be more strongly related to earnings informativeness compared to audit committee independence. In fact, Pomeroy and Thornton (2008) explained that audit committee independence may reduce the perceived accounting

quality by identifying abnormal accruals and potentially bringing to light the need to restate the accounts.

Audit committee independence has been shown to play an important role in monitoring both external audit quality (Abbott, Park & Parker 2000) and external auditor independence (Abbott et al. 2003). Researchers have also examined the relationship between audit committee independence and external auditor appointment and change. In terms of appointment, prior to the introduction of the Sarbanes-Oxley Act (2002), independent audit committees were less likely to appoint an audit firm where the company has key officers who are alumni of the audit firm (Lennox & Park 2007). With respect to auditor change, audit committee independence is negatively associated with external auditor resignations (Lee, Mande & Ortman 2004) and auditor dismissal following a going concern opinion (Bronson et al. 2009). On the other hand, Chen and Zhou (2007) studied the failure of Anderson and associated auditor changes and found that firms with greater audit committee independence ended their engagement with Anderson sooner.

Following from the above, Chen and Zhou (2007) also found that companies with more audit committee members and a greater number of audit committee meetings were more likely to select a Big-N auditor to replace Anderson.

In terms of audit committee financial expertise, research in the area suggests a relationship between financial expertise and stock market reactions. Davidson, Xie and Xu (2004) provided evidence that shareholders value financial expertise on the audit committee. In particular, accounting expertise is highly regarded (DeFond, Hann & Hu 2005). Krishan and Lee (2009) reported that companies who bear a higher risk of litigation and those with stronger governance mechanisms are more likely to appoint accounting experts to their audit committee. The impact on shareholder confidence is also reflected in a study by Hermanson, Krishnan and Ye (2009) who reported that shareholder votes to ratify an auditor are positively associated with audit committee financial expertise. This indicates that the shareholders have more confidence with respect to the auditor being voted on when the audit committee has a greater level of financial expertise.

Of particular relevance to this study is the relationship between the audit committee characteristics and fraud. Since the core function of the audit committee is to safeguard the integrity of entities' financial reports, it is not surprising that Dechow, Sloan and Sweeney (1996) reported that firms involved in earnings manipulation are less likely to have an audit committee. However, it is interesting that Beasley's (1996) study found no evidence that the existence of an audit committee reduced the likelihood of fraud. It should be noted however, that the study used a broad notion of fraud. Notwithstanding the findings by Beasley (1996), a number of researchers (see, for example, Brazel & Schmidt 2019; Mustafa & Youssef 2010) have investigated the characteristics of audit committees and the relationship between these characteristics and the incidence of fraud as explained in greater detail below.

The frequency of audit committee meetings has been found by a number of researchers to have a significant negative relationship with fraudulent financial reporting (Abbott, Park & Parker 2000; Farber 2005; Owens-Jackson, Robinson & Shelton 2009). However, these findings are inconsistent with the study by Huang and Thiruvadi (2010) which found that meeting frequency of the audit committee is not associated with the prevention of fraud. Similarly, Huang and Thiruvadi (2010) also found that the number of audit committee members does not reduce the incidence of fraud. Rather, fraud prevention is found by Huang and Thiruvadi (2010) to be significantly associated with the financial expertise of the audit committee. This finding is consistent with the results of Farber's (2005) investigation which found that firms involved in fraudulent financial reporting have fewer financial experts on the audit committee. Mustafa and Youssef (2010) studied the relationship between the financial expertise of the audit committee and the incidence of misappropriation of assets type fraud, and found that 'the higher the percentage of financial expert members and the higher the percentage of independent members on the (audit committee), the lower the likelihood of misappropriation of assets' (Mustafa & Youssef 2010, p. 221).

The proportion of independent members on the audit committee and the relationship between such committee composition and the likelihood of financial reporting fraud has been the subject of a number of studies which also found a significant negative relationship (Abbott, Park & Parker 2000; Beasley, Carcello & Hermanson 1999; Brazel & Schmidt 2019; Carcello et al. 2011; Crutchley, Jensen & Marshall 2007; Uzun, Szewczyk & Varma 2004). For example, Beasley et al. (1999) found that companies involved in fraudulent financial reporting are less likely to have an independent audit committee. Carcello et al. (2011) reported that companies

possess a higher number of financial restatements when audit committee member selection is influenced by the CEO when compared to a sample where the CEO is not involved in the selection. Interestingly, this was found to be the case despite the audit committees being comprised exclusively of members who met all regulatory requirements to be considered as independent. The relationship between audit committee member tenure and the incidence of fraud has also been investigated to a lesser extent with Mustafa and Meier (2006) finding a significant negative relationship with respect to misappropriation of assets-type fraud. More recently, Brazel and Schmidt (2019) investigated whether audit committees reduce fraud risk by constraining inconsistencies between financial measures and related non-financial measures. They reported that companies with longer tenured audit committee chairs were less likely to exhibit large inconsistencies between their reported revenue growth and the associated non-financial measures. Interestingly, they found that companies with audit committee chairs who possess industry expertise were more likely to be associated with large inconsistencies compared to companies with audit committee chairs who were not industry experts (Brazel & Schmidt 2019).

Given that audit committee characteristics are shown to impact on the likelihood of fraud, the present study examines whether the external auditor considers audit committee characteristics (independence, size and meeting frequency) when deciding the extent of additional work required in response to known misappropriation of assets type fraud.

The remuneration committee

The Australian Securities Exchange (2019, p. 29) explained that 'having a separate remuneration committee can be an efficient and effective mechanism to bring the focus and independent judgement needed on remuneration decisions'. Further, when discussing the responsibilities of the committee, the ASX advised that the committee should review and provide recommendations to the board on the remuneration policies for directors and senior executives. In relation to its structure, the Australian Securities Exchange (2019) recommends that a remuneration committee should have a minimum of three members, comprise of mainly independent directors and be chaired by one of the independent directors.

Uzun, Szewczyk and Varma (2004) explained that a remuneration committee can reduce agency problems by developing incentive schemes in such a way as to align the goals of management and shareholders. However, Crutchley, Jensen and Marshall (2007) argued that

rather than reduce this agency problem, an incentive-based remuneration structure may motivate management to smooth earnings.

Researching the relationship between remuneration committees and fraud, Uzun, Szewczyk and Varma (2004) provided evidence that remuneration committee composition is a significant factor in the likelihood of fraudulent financial reporting. More specifically, the percentage of non-independent directors on the committee is positively and significantly related to the likelihood of fraud. Interestingly, Uzun, Szewczyk and Varma (2004, p. 41) did not find a significant relationship between independent directors and explained that ‘these results indicate that the percentage of independent directors may not be significant but the degree to which those directors have business or personal ties to the company or the CEO affects the likelihood of fraud’. Similarly, Crutchley, Jensen and Marshall (2007) found that firms involved in ‘accounting scandals’ have significantly fewer outside directors on their remuneration committee than those that are not.

With respect to other remuneration committee characteristics, Uzun, Szewczyk and Varma (2004) did not find a significant relationship between the frequency of committee meetings and the likelihood of fraud.

Uzun, Szewczyk and Varma (2004) explained that a remuneration committee can reduce agency problems by developing incentive schemes in such a way as to align the goals of management and shareholders. However, rather than reduce this agency problem, an incentive-based remuneration structure may motivate management to smooth earnings (Crutchley, Jensen & Marshall 2007) and/or fraudulently report financial information. Given that the present study is focussed on misappropriation of assets type fraud rather than fraudulent financial reporting, remuneration committee characteristics are not included as part of this study. However, while prior studies have examined links between executive compensation structures and fraud (see, for example, Erickson, Hanlon & Maydew 2006), the area of remuneration committee characteristics and fraudulent financial reporting is currently under-researched, particularly so in Australia given the Australian Securities Exchange (2019) recommendations in relation to how a remuneration committee should be structured. An avenue for future research is an examination of the impact of remuneration committee characteristics on the likelihood of fraudulent financial reporting in an Australian context.

Internal control and internal audit

The Committee of Sponsoring Organisations of the Treadway Commission (COSO) (1992) defined internal control as having the following five components; information and communication, risk assessment, control environment, control activities and monitoring. The above components are also used by Auditing Standard *ASA 315 'Identifying and Assessing the Risks of Material Misstatement through Understanding the Entity and Its Environment'* to describe internal control. This standard details each component and describes the control environment as follows:

The control environment includes the governance and management functions and the attitudes, awareness, and actions of those charged with governance and management concerning the entity's internal control and its importance in the entity. The control environment sets the tone of an organisation, influencing the control consciousness of its people. (Auditing and Assurance Standards Board 2015, p. 30).

According to the guidance provided in the Appendix to *ASA 315*, the control environment encompasses the following elements:

- Communication and enforcement of integrity and ethical values
- Commitment to competence
- Participation by those charged with governance
- Management's philosophy and operating style
- Organisational structure
- Assignment of authority and responsibility
- Human resources policies and practices

Participation by those charged with (corporate) governance can significantly influence the control consciousness of an entity (Auditing and Assurance Standards Board *ASA 315* 2015, Appendix). The attributes of those charged with governance include 'independence from management, their experience and stature, the extent of their involvement and scrutiny of activities, the appropriateness of their actions, the information they receive, the degree to which difficult questions are raised and pursued with management and their interaction with internal and external auditors' (Auditing and Assurance Standards Board *ASA 315* 2015, para. 82).

Effective internal controls are important for the integrity of financial reporting and to ensure appropriate systems are in place to both monitor and manage risk. The primary responsibility for internal control rests with the board. However, this responsibility is often delegated to the

audit committee (Brown, Beekes & Verhoeven 2011). Organisations with effective corporate governance mechanisms in place are likely to ensure that internal controls are sound and are used effectively (Chapple, Ferguson & Kang 2009).

Many firms have an internal audit function to evaluate internal controls. ‘An internal audit function can assist a listed entity...by bringing a systematic, disciplined approach to evaluating and continually improving the effectiveness of its risk management and internal control processes’ (Australian Securities Exchange 2019, p. 27). The Australian Securities Exchange (2019) state that ideally, if a listed entity has an internal audit function, the head of internal audit should have a direct reporting line to the board or the audit committee.

The resources committed to internal audit activities are dependent on a company’s size, risk and financial capacity (Carcello, Hermanson & Raghunandan 2005). While some companies maintain an ‘in house’ internal audit function, others choose to outsource these activities or to combine ‘in house’ and outsourced internal audit activities (Brown, Beekes & Verhoeven 2011).

There is a lack of research in the area of fraud and internal control, likely due to the difficulties involved in firstly, identifying fraud firms (particularly in the case of misappropriation of assets) and secondly, measuring internal controls which for the most part are unobservable from outside the organisation. Nonetheless, it is generally accepted that effective internal control processes can assist in both the prevention and detection of fraud.

Donelson, Ege and McInnis (2016), examined whether weak internal controls increased the risk of financial reporting fraud by top managers. They found that weaknesses in entity-wide controls (rather than process-level controls) are positively and significantly associated with a higher risk of fraudulent financial reporting. This research differs from the present study since it does not consider the impact of internal control on MOA fraud (but rather fraudulent financial reporting). Further, rather than examining the impact of internal controls on the likelihood of fraud, the present study examines whether the existence of specific fraud-related internal controls impact the level of audit effort exerted by the auditor when their clients have experienced known MOA fraud.

One of few studies to examine MOA fraud, Coram, Ferguson and Moroney (2008), used internal audit to indirectly study internal control. The investigators identified firms that had detected and self-reported misappropriation of assets through the 2004 KPMG fraud surveys.

The researchers:

argue that better controls (and internal audit) will be associated with a greater propensity to detect and self-report fraud; however, it is possible that better controls will be associated with a greater propensity to prevent fraud, leading to less overall detected and self-reported fraud (Coram, Ferguson & Moroney 2008, p.557).

Essentially, while it is generally agreed that strong internal controls may through prevention reduce the number of frauds within an organisation, strong internal controls may actually increase the number of detected frauds as those frauds that are perpetrated are more likely to be discovered. This is not an easy issue to overcome in fraud-related research however the present study does not investigate the impact that internal control has on fraud but rather, examines how internal control impacts on the auditor's response to fraud in the client firm. Essentially the present study will examine whether the level of audit effort (proxied by audit fees) is impacted by the existence of fraud-related internal controls such as resources allocated to fraud prevention and detection strategies. In addition, while Coram, Ferguson and Moroney (2008) focussed on the internal audit function, the present study directly examines specific internal controls such as the reporting of detected fraud to law enforcement authorities.

External Characteristics

External corporate governance mechanisms which have been the subject of prior research include block-holders and external auditors. Literature relating to each of these components is now discussed in turn.

Monitoring by block-holders

Beasley (1996) described block-holders as those shareholders who hold at least 5% of shares and who do not have management affiliations. Often, block-holders will be institutional owners and according to Murray (2001), it is not uncommon for individual financial institutions to be the single largest shareholder in Australian listed firms.

To protect their investment, block-holders and institutional shareholders will closely monitor the actions of management (Jensen 1993), and are able to force management to undertake activities to improve the firm's value (Brown, Beekes & Verhoeven 2011). Bethel, Liebeskind

& Opler (1998) explain that block-holders will often target firms with poor performance. Brown, Beekes and Verhoeven (2011) further explained that poorly performing firms are targeted as there is an expectation that costs will be recovered through the enhanced value of the investment.

Borokhovich et al. (2006) explained that in order for a block-holder to effectively monitor the activities of management, the block-holder should be independent; having no business ties with the firm. While the impact of block-holders as a monitoring mechanism is not included as part of the present study, this represents a potential area for further research.

External auditors

External audit forms an important part of a firm's governance. The need for financial statements to be audited by an independent external auditor is widely recognised as giving assurance to stakeholders of management stewardship of the firm's resources (Watts & Zimmerman 1983). From an agency perspective, the audit can be viewed as a form of monitoring whereby the auditor reviews the actions of the agent (management) on behalf of the principal (shareholders).

Research in relation to corporate governance and external auditors have centred on audit quality and how this might be determined or measured. Since, audit quality cannot be directly observed or measured; researchers have identified proxies that may be used including the size of the audit firm, the provision of non-audit services, auditor tenure and audit fees.

In relation to the size of the audit firm, DeAngelo (1981) explained that large audit firms have a greater reputation to protect compared to smaller audit firms. This, together with greater litigation risk (DeAngelo 1981; Dye 1993) potentially as a result of 'deeper pockets' (Lennox 1999), may give larger auditors a greater incentive to act with increased conservatism and diligence. While an association has been made between large audit firms and higher audit quality over the past several decades (DeAngelo 1981; Lennox 1999; Palmrose 1988), this presumption has been questioned following the high-profile audit failures such as Enron and WorldCom that took place in the early 2000's (Chaney & Philipich 2002).

In terms of non-audit services, since the audit is a form of monitoring it follows from an agency theory perspective that the greater the independence of the auditor, the better the monitoring

and the higher quality the audit. A number of researchers have found a positive relationship between the provision of non-audit services and discretionary accruals (Frankel, Johnson & Nelson 2002; Larcker & Richardson 2004). However, DeFond, Raghunandan & Subramanyam (2002) did not find a significant association between non-audit services and the independence of the auditor measured by issuance of a going-concern opinion. In Australia, regulatory attention on the independence of the auditor and in particular, a focus on the provision of non-audit services provided to clients, has seen this practice restricted. It is now required that the value of any non-audit services provided by the audit firm is required to be disclosed in the financial reports of the client (Corporations Act 2001, s.300).

Turning to auditor tenure, Carey and Simnett (2006) reported an association among Australian firms, between longer audit partner tenure and lower audit quality. The evidence supporting the association found in the study primarily related to non-Big-N audit clients. On the other hand, some researchers have found evidence to support the claim that longer auditor tenure may contribute to a higher quality audit and a lower incidence of audit failure due to the benefits of reduced information asymmetry between the auditor and management (Brown, Beekes & Verhoeven 2011). For example, Chen, Lin and Lin (2008) found a negative association between discretionary accruals and audit firm tenure and Myers, Myers and Omer (2003) examined discretionary accruals and found evidence that a longer-term relationship with their external auditor effectively constrains management discretion.

2.3.4. A critique of corporate governance research

Key criticisms of corporate governance research include endogeneity, high level measures of independence, the heavy reliance of proxies due to a limited ability to observe processes and increased regulation leading to a decrease in variation.

A common issue related to endogeneity in corporate governance research is that management is likely to be a key driver of both governance characteristics as well as the accounting and/or auditing outcomes being examined. However, in the majority of studies, management is not included as part of the analysis (Cohen, Krishnamoorthy & Wright 2004). Researchers are generally constrained in their ability to include management characteristics as part of the analysis due to the lack of data availability.

Governance characteristics examined in corporate governance research typically include variables for board and audit committee independence. Data related to a director's independence is usually obtained from a firm's annual report and is typically measured as the number of reported non-executive/independent directors as divided by the total number of directors on the board/audit committee. The relationship between a director and an organisation can be complex and as such the true independence of the director may not be accurately represented in the annual report. MacAvoy and Millstein (2003, p. 37) argued that proxies for independence 'shed little light on the conduct of an independent board'. This is not a limitation that can be readily overcome as the true independence of a director is not able to be precisely gauged. As such, it is necessary in one's interpretation of results to consider whether a so-called independent or non-executive director can truly be considered independent of the organisation.

In addition, MacAvoy and Millstein (2003) claimed that research should focus on the actions of the board. This call has also been echoed by Carcello, Hermanson and Ye (2011, p. 4) who encouraged future research 'to address governance processes (what boards and audit committees actually do and how they do it), not just governance characteristics such as independence or financial expertise'. With respect to governance and fraud, the present study goes beyond the use of high-level governance proxies and examines specific fraud-related governance processes. Examples of such processes include whether the firm allocated resources to fraud prevention and detection strategies and in the case of discovered fraud, what action was taken against perpetrators.

A further limitation to corporate governance research relates to the increase in governance regulation. As the governance of organisations becomes increasingly regulated, there has been a reduction in the degree of variation in the governance characteristics that one may observe. For example, CEO duality is strongly discouraged by the Australian Securities Exchange (2019) and in recent times it is unusual to find a company CEO acting as Chair of the Board. This lack of variation makes it difficult for the researcher to study the impact of various governance mechanisms on accounting/auditing outcomes using recent publicly available company data. It is important to recognise that governance variation still exists but is likely to be found more-so in the finer details of governance processes rather than in high-level governance structures reported in annual reports. Carcello, Hermanson and Ye (2011) acknowledged that as a researcher *outside* the company, where it is not possible to observe the

actual processes taking place, public companies' governance characteristics are becoming increasingly similar. This issue is addressed in the present study by using the KPMG fraud surveys to gain insights from *inside* the organisations under investigation to examine the finer details of their fraud-related governance processes and internal controls where greater variation can be found.

3. Theoretical and Conceptual Frameworks

This Chapter provides an overview of the theories which underpin this research (Chapter 3.1) as well as the development of the conceptual framework (Chapter 3.2) that has been developed based upon these underlying theories. The theoretical and conceptual framework provides the foundation for the development of hypotheses presented in Chapter 4 of the thesis.

3.1. Theoretical Framework

The theories used to underpin this research include agency theory, the substitution effect, role conflict theory and signalling theory. The background of each of these theories will be discussed in Chapter 3.1.1 to 3.1.4. A discussion of these theories within the context of this research project is presented in Chapter 3.2 along with the conceptual framework.

3.1.1. Agency theory

Agency theory is concerned with the relationships between principals and agents. Jensen and Meckling (1976, p. 308) define the agency relationship as ‘a contract under which one or more persons (principals) engage another person (the agent) to perform some service on their behalf which involves delegating some decision-making authority to the agent’.

In performing services on behalf of the principal, agency theory assumes that individuals (agents) will act in their own self-interest and as such where agent’s interests differ from the interests of the principal, a conflict-of interest can arise. In the case of commercial organisations, an agency relationship exists between shareholders (as principals) and managers (as agents). A separate agency relationship also exists between managers (as principals) and lower-level employees (as agents) within the organisation. Ettredge, Reed and Stone (2000) described costs emanating from the former relationship as external agency costs and the latter as internal agency costs. These external and internal agency costs occur because managers and lower-level staff may engage in inappropriate activities such as shirking or excessive risk-taking behaviour to further advance their own self-interest.

Managers and lower-level staff may be encouraged to act in the best interests of shareholders through the establishment of appropriate agent incentives such as performance-based rewards and by incurring monitoring costs designed to limit any activities which diverge from shareholder interests (Jensen & Meckling 1976). A further means by which a conflict of interest

can be managed or avoided is to require the agent to expend (or forego) resources in the form of a guarantee that the principal's interests will not be harmed by the actions of the agent and if such actions do occur, the principal will be compensated by the agent (Jensen & Meckling 1976). The costs associated with the latter scenario are known as bonding costs.

Agency costs are those costs incurred as a result of a principal-agent conflict including the costs involved in managing such conflict. Jensen and Meckling (1976) described three major types of agency costs:

1. Monitoring costs (costs associated with monitoring agent behaviour) such as audit fees
2. Bonding costs (costs associated with bonding in order to align the interests of agents and principals) such as the implementation of a performance-based rewards system
3. Residual loss (costs associated with the divergence between the agent's behaviour and such behaviour that would otherwise maximise the principal's welfare) such as lost productivity through shirking or fraud-related losses.

In the absence of monitoring and bonding costs, there will typically be greater residual loss due to inappropriate managerial behaviour (for example, fraud). Conversely, excessive agency costs may result if shareholders through superfluous monitoring and bonding initiatives seek to ensure that *all* managerial and staff actions are in accordance with shareholder interests. Therefore, decisions pertaining to the management of principal-agency conflict are undertaken within the context of cost-benefit considerations.

In respect of the audit:

the origin of auditing goes back to times scarcely less remote than that of accounting...Whenever the advance of civilization brought about the necessity of one man being entrusted to some extent with the property of another the advisability of some kind of check upon the fidelity of the former would become apparent (Jack & Jack 1905, p. 75).

Expenditures to monitor managerial and staff behaviour may include the cost of an external audit, maintaining an audit committee and the establishment and maintenance of internal controls such as pre-employment screening. In this sense, the external audit, corporate governance function and internal controls can be viewed as monitoring mechanisms used to reduce residual agency costs associated with management and other staff acting in their own self-interest rather than in the interests of shareholders.

The degree to which these mechanisms are employed will be determined with reference to the costs and benefits of doing so subject to minimum requirements imposed by regulatory bodies. Such regulatory requirements in Australia include for example, that a listed entity (on the S&P All Ordinaries Index) must have an audit committee (Australian Securities Exchange 2019) and that companies (other than small proprietary companies and those companies that have been granted audit relief) must have their annual financial report audited and obtain an audit report from an external auditor (Corporations Act 2001, s.301).

Agency theory is widely used in the auditing and corporate governance literature with researchers investigating, for example, the role of the auditor in agency conflict and corporate governance (Cho & Wu 2014), agency conflicts and auditing in private firms (Hope, Langli & Thomas 2012) and the governance of non-profit organisations (Van Puyvelde et al. 2011).

In the context of corporate governance, the agency relationship consists of managers as agents and shareholders as principals. Agency theory is premised by the assumption of rationality and the opportunism of agents. Effective corporate governance including the audit committee is required to prevent managers acting in their own self-interest to the detriment of shareholders.

More specifically, because of the separation of ownership and control within a corporation, agency theory perceives managers as actors who may engage in opportunistic behaviour to promote their own self-interest (Jensen & Meckling 1976). One way in which these agency costs can be reduced is to provide an independent party (the board of directors and associated committees) to monitor the agent (the management) and to report back to the principal (the shareholders) (Cohen, Krishnamoorthy & Wright 2008). It therefore follows that under the agency theory perspective, important audit committee characteristics will include independence from the corporation's management to effectively monitor and control management activities.

Agency theory is not without its limitations. The theory assumes that an 'organisations actions are driven by individuals' pursuit of self-interest' (Mihret 2014, p. 771) and has been criticised for its failure to explain the inconsistent application of this self-interest assumption. More specifically, critics have claimed that the assumption that individuals will act in their own self-interest is inconsistent with the idea that an external party (i.e. the external auditor) can be

trusted to monitor the actions of management given that the auditor is both appointed and remunerated by management (Armstrong 1989).

The ‘self-interest’ assumption has also been criticised by researchers who hold alternative philosophical views. For example, Marxist theorists argue that an individual’s behaviour cannot be considered separately from the social context within which they occur (Hula 1984). Mihret (2014) explains that the Marxist approach recognises there are social (Bryer 1999) and cultural (Bryer 2000) influences that are key determinants of decision making (Avineri 1971). Despite the above, agency theory is widely used and has been empirically supported in the auditing literature.

The application of agency theory to the present study is discussed in Chapter 3.2.

3.1.2. The substitution effect

Since there are a variety of mechanisms that can be used to achieve the alignment of the interests of shareholders, managers and lower level staff, a number of researchers (see, for example, Rediker & Seth 1995) contend that the extent to which a particular mechanism is employed should be influenced by the extent to which other mechanisms are simultaneously used within the firm. According to the substitution effect (also known as the substitution hypothesis), a significant part of the external audit can be substituted by the work of internal corporate governance mechanisms that result in a high level of transparency and provide high quality and thus reliable financial reports (Naser et al. 2013). The substitution hypothesis has been empirically tested in relation to internal governance and external audit fees and results have been mixed (see, for example, Ettredge, Reed & Stone 2000; Naser et al. 2013).

In describing the origins of the audit pricing model, Ferguson (2005) discusses the substitution effect with reference to Simunic’s (1980) seminal work and explains that:

Simunic (1980) provides the theoretical underpinning for the most often applied audit fee model used in economics of auditing research. For the auditee, Simunic suggests that an audit functions as a type of insurance, the benefits of which arise from liability avoidance to financial statement users (shareholders, creditors) in the event of litigation. This theoretical approach also explains the relative demand for internal versus external auditing. Simunic argues that a substitution effect occurs between internal and external auditing, dependent on the relative strength of the client’s internal controls (Ferguson 2005, p. 55).

In the case of large companies, at most, the substitution of external monitoring mechanisms such as the external audit for internal mechanisms such as internal control and corporate

governance would be limited to partial substitution. Complete substitution is not possible since generally these entities must have their annual financial report audited and obtain an audit report from an external auditor (Corporations Act 2001, s.301). More specifically, while the external audit could not be entirely replaced with internal monitoring mechanisms, the extent of audit work demanded by the client or deemed required by the auditor could potentially be reduced where other monitoring mechanisms are being used within the firm. This may impact on the extent of audit effort expended by the auditor. For example, *ASA 610 'Using the Work of Internal Auditors'* applies where:

depending on whether the internal audit function's organisational status and relevant policies and procedures adequately support the objectivity of the internal auditors, the level of competency of the internal audit function, and whether the function applies a systematic and disciplined approach, the external auditor may also be able to use the work of the internal audit function in a constructive and complementary manner... Such use of that work modifies the nature or timing, or reduces the extent, of audit procedures to be performed directly by the external auditor (Auditing and Assurance Standards Board ASA 610 2013, para. 8).

The application of the substitution effect to the present study is discussed in Chapter 3.2.

3.1.3. Role conflict theory

The extent of audit work undertaken by the auditor may also be impacted by any role conflict faced by the auditor. Literature relating to roles and role conflict dates back to the 1950's (Gross, Mason & McEachern 1958). Role conflict describes a circumstance where a role incumbent is faced with what they perceive to be incompatible expectations of how their role should be performed (Gross, Mason & McEachern 1958). Rizzo, House and Lirtzman (1970) identified four basic types of role conflict that may cause the conflicted individual to feel stressed and to perform poorly. These conflict types are labelled 'intersender', 'interrole', 'intrasender' and 'person-role'.

Intersender conflict occurs when inconsistent demands are made by one or more role senders who set the expectations for the role. *Interrole* conflict occurs when a person holds two or more roles concurrently. *Intrasender* conflict occurs when time, resources and capabilities of the individual are not sufficient to fulfil the role as expected. *Person-role* conflict occurs when an individual's personal values or standards are inconsistent with the behaviour required to fulfil the role.

There are a number of studies that have used role conflict theory to study the role of the auditor. Alleyne, Devonish and Alleyne (2006) used role conflict theory to examine the perceptions of

auditor independence in Barbados. The authors found a number of factors including the provision of non-audit services, long periods of tenure, and economic dependence on the client to be negatively associated with perceived auditor independence. Koo and Sim (1999) explored the role conflict of auditors in Korea and emphasised the need to separate the auditor's role into a separate service and monitoring functions. Separation of such roles can mitigate the effects of *interrole* conflict where an individual simultaneously holds two or more roles with conflicting expectations.

Given that the auditor is engaged by an entity's management to perform a monitoring service on behalf of shareholders, auditors are at risk of *intersender* role conflict whereby they may seek to meet the expectations of so as to ensure their ongoing tenure and the expectations of shareholders and the public in order to fulfil their legal (and ethical) responsibilities as auditor. In circumstances which tend to warrant further investigation by the auditor (such as fraud), the expected behaviour of auditors by management and shareholders may differ. For example, management may request that the auditor overlook certain discrepancies where shareholders might expect that such discrepancies be further investigated. These differing expectations may cause '*intersender*' role conflict for the auditor. In resolving such conflict, the extent of work carried out by the auditor may be impacted by their propensity (or otherwise) to act independently from the influence of management.

Intrasender conflict may also impact on the extent of work conducted by the auditor. Less audit effort may be expended where the auditor's time, resources and capabilities are not sufficient to fulfil the role as expected. Role conflict in a variety of forms therefore has the potential to impact on the amount of effort expended by the auditor in carrying out the audit.

The application of role conflict theory to the present study is discussed in Chapter 3.2.

3.1.4. Signalling theory

Signalling theory was developed by Spence (1973) in the context of the job market but has since been applied in various contexts to describe behaviour when information asymmetry exists between two parties (that is, each party has access to different information). Essential to signalling theory is the signaller, the signal and the receiver. Generally, one party (the sender) must decide whether and how to convey (signal) information to the other party (the receiver) (Connelly et al. 2010).

In relation to the signaller, Connelly et al. (2010) explained that at the core of signalling theory in an organisational context is that signallers are insiders who obtain information about a subject that is not available to parties outside the organisation. In an agency relationship, the insider is the agent (e.g. management, directors) and the outsider is the principal (e.g. shareholders).

In terms of the signal, the information held by insiders is information that would be useful to outsiders and may be positive or negative, or a combination of both positive and negative information. Signalling theory is primarily (but not necessarily always) concerned with the intentional communication of information of a positive nature that is conveyed to outsiders in an effort to communicate with outsiders about positive organisational attributes (Connelly et al. 2010). In terms of financial reporting, management may have information relating to the quality of the financial reports. This information would certainly be beneficial to shareholders in terms of understanding the reliability of the financial reports in order to make buy and sell decisions related to their shareholding.

Connelly et al. (2010) described two characteristics which contribute to the success (or otherwise) of a signal. The first characteristic is the observability of the signal. In order for the signal to be received by the receiver it must be observable. If the signal cannot be observed by the receiver then the transmission of the signal will fail. Observability is therefore a fundamental characteristic of an effective signal. The second characteristic is the signalling costs which is sometimes referred to the 'theory of costly signalling' (Bird & Smith 2005). Where a signal is costly to obtain in terms of monetary expense or other resources such as time (e.g. certification or assurance), the theory of cost signalling provides that the cost will be less for organisations that already possess the underlying qualities associated with the signal compared with organisations who do not possess these qualities but instead attempt to cheat or send a false signal (Connelly et al. 2010). In the latter case, it is more likely (but not guaranteed) that the costs associated with producing the signal will outweigh the benefits of doing so.

Receivers are those parties outsider the organisation who lack information about the subject in question but would benefit from receiving this information. For signalling to occur, the receiver should be expected to respond to the signal in a way in which the signaller will benefit. That

is, given that there are costs involved in producing a signal, there must be an incentive for the signaller to send the signal. For example, the signaller may benefit where the receiver chooses to purchase shares in the organisation or to retain shares that they already own. According to Connelly et al. (2010):

the signaller should benefit by some action from the receiver that the receiver would not otherwise have done ... this usually involves selection of the signaller in favour of some [other] alternatives (Connelly et al. 2010, p. 45).

The application of signalling theory to the present study is discussed in Chapter 3.2.

3.2. The conceptual framework

Using the above literature on fraud, corporate governance, internal controls and audit pricing (including auditor specialisation), I have developed the conceptual model which is presented in Figure 6. This figure shows the various theories which explain the proposed relationships of this study. The conceptual framework is discussed in three parts in sections 3.2.1 to 3.2.3.

The first part of the framework is concerned with the relationship between fraud discovery and the impact of this on an auditor's fraud risk assessment and the subsequent extent of monitoring required by the auditor. The second part of the framework is concerned with the relationship between the fraud risk assessment and monitoring (from part one) and the impact this has on audit effort. The final part of the framework is concerned with the audit effort (from part two) and the impact on the audit fees charged by the auditor. Each part of the conceptual model is discussed in turn in sections 3.2.1 to 3.2.3. The breakdown of the conceptual model into its three parts and the section discussing each part is illustrated in Figure 7.

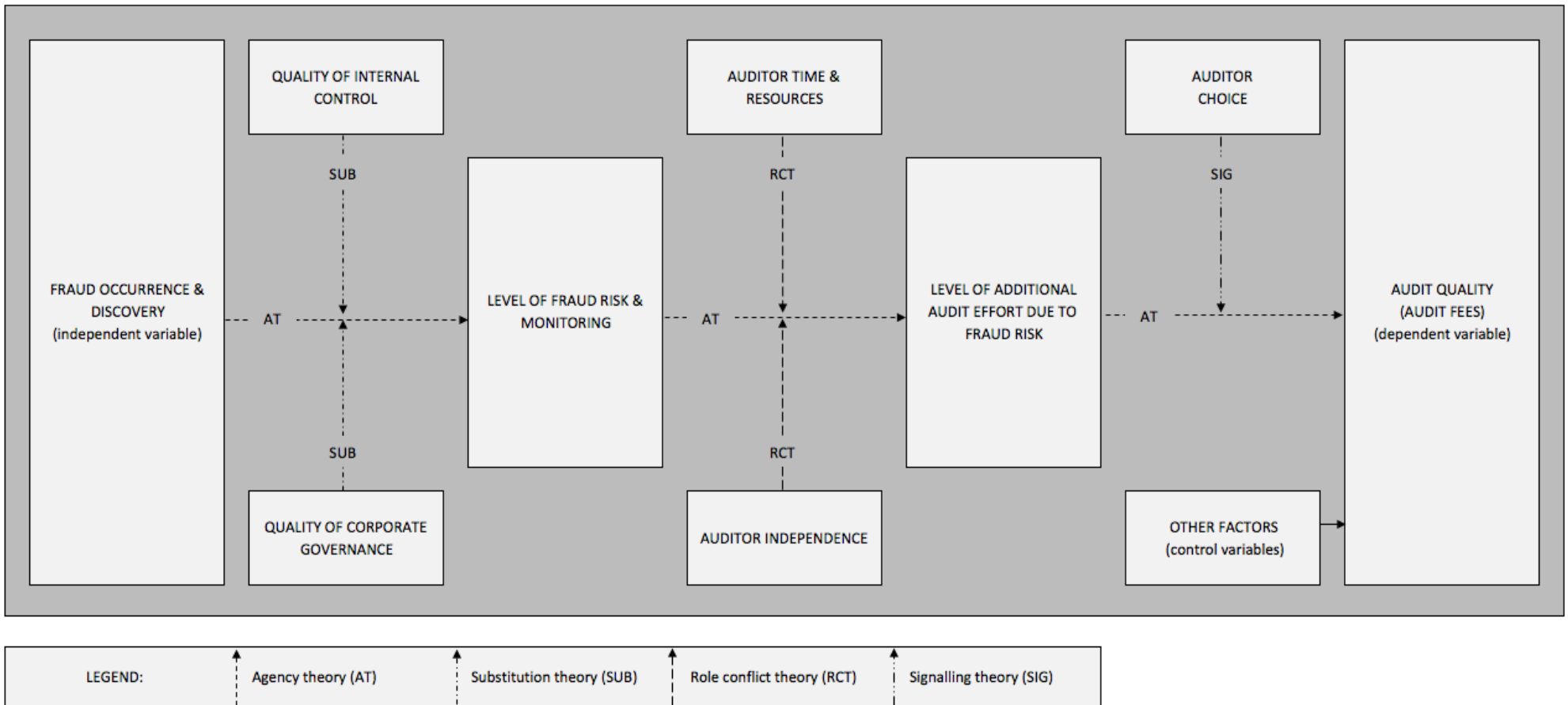


Figure 6 The conceptual framework



Figure 7 The conceptual framework (segmented)

The theoretical contribution of this research is discussed in Chapter 3.2.4 and includes the investigation of how the substitution effect, role conflict theory and signalling theory interconnect within an agency framework. This investigation has not previously been undertaken in the context of known fraud. As discussed further in Chapter 3.2.4 this research tests theory using relationships that have not previously been tested, and uses variables that have not been used in previous research.

3.2.1. Part one of the conceptual framework

Part one of the framework is represented in Figure 8 below and is concerned with the relationship between fraud discovery and the impact of this on an auditor’s fraud risk assessment and the subsequent extent of monitoring required by the auditor.

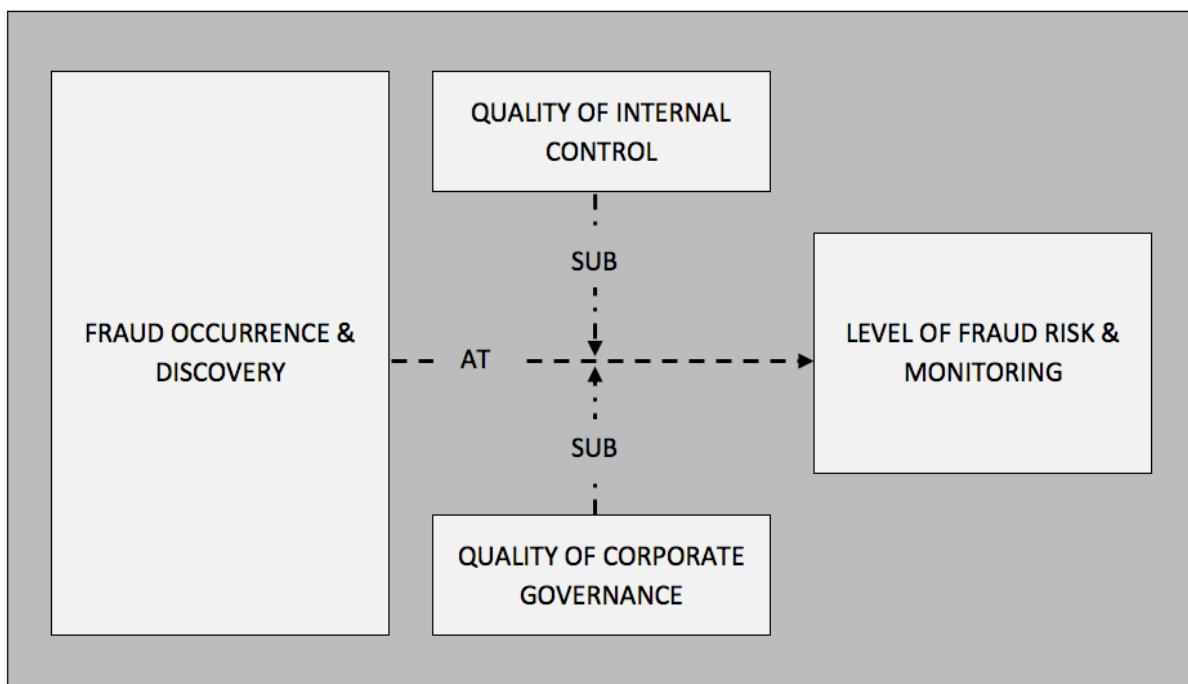


Figure 8 Part 1 of the conceptual framework

Fraud (misappropriation of assets) is an agency cost emanating from the principal-agency conflict. In the case of fraud, management and/or lower-level employees have engaged in inappropriate behaviour to further advance their own self-interest. Fraud is considered a residual loss as it is the direct result of the divergence between the agent’s behaviour and the actions that would otherwise benefit shareholders. According to agency theory, to reduce residual agency costs, monitoring or bonding costs must increase. In the context of misappropriation of assets fraud, an increase in monitoring may be considered an appropriate response to reduce fraud-related residual agency costs.

Applying this to the auditing context, a known incidence of fraud may increase the auditor's fraud risk assessment (the risk that the financial report is materially misstated as a result of fraud). While it is expected that the auditor will consider the risk of fraud in all financial audit engagements, where known fraud has occurred within an organisation, given that it is material in nature, it is reasonable to expect this to result in a higher fraud risk assessment by the auditor than would otherwise be the case. An increase in monitoring may be required to counter this increased fraud risk and thereby reduce the fraud risk back to a level that the auditor believes is reasonable to accept.

More specifically, according to the auditing standards, 'The auditor shall make enquiries of management, internal audit, and others within the entity as appropriate, to determine whether they have knowledge of any actual, suspected or alleged fraud affecting the entity' (Auditing and Assurance Standards Board ASA 240 2018, para. 42). With this knowledge and given that 'the auditor cannot assume that an instance of fraud is an isolated occurrence' (Auditing and Assurance Standards Board ASA 240 2018, para. 92), the auditor must design and implement appropriate responses to obtain appropriate and sufficient audit evidence in relation to the assessed risk of material misstatement due to fraud. An appropriate response by the auditor may be an increase in the extent of monitoring required for clients which have experienced known MOA fraud compared to those clients which have not.

It is important to recognise here that monitoring may take a variety of forms and is not restricted to monitoring by the external auditor. According to the substitution effect/theory, internal monitoring through the corporate governance function and internal controls may partially reduce the need for monitoring by the external auditor. Where an organisation demonstrates strong governance characteristics (e.g. audit committee independence) and internal controls (e.g. whistle blower provisions) and compliance with best practice guidelines such as the ASX Corporate Governance Principles and Recommendations, (Australian Securities Exchange 2019), the risk of material misstatement due to fraud as assessed by the auditor may be lower compared to the assessed risk of an entity with weak corporate governance characteristics. In the presence of known fraud, the auditor may have greater confidence that an entity with strong corporate governance, through its internal monitoring mechanisms is more likely to have detected all material fraud and prevented further fraud from occurring.

On the other hand, the mere existence of fraud may render a client’s corporate governance function and internal controls (as perceived by the auditor) to be weak given that they were not sufficiently effective to have prevented the fraud occurring in the first instance. In this case, in the context of known fraud, the auditor may not consider even best-practice internal controls and audit committee structures to be effective substitutes for the monitoring function provided by the external audit.

This research will draw on the agency theory and the substitution effect to investigate whether the auditor considers the strength of a firm’s corporate governance and fraud-related internal controls when undertaking a fraud risk assessment and deciding upon the extent of additional external monitoring required to reduce the costs of fraud as an agency related residual loss.

3.2.2. Part two of the conceptual framework

Part two of the framework is represented in Figure 9 and is concerned with the relationship between the level of fraud risk assessment and monitoring and the impact this has on audit effort (i.e. the number of hours expended by the auditor).

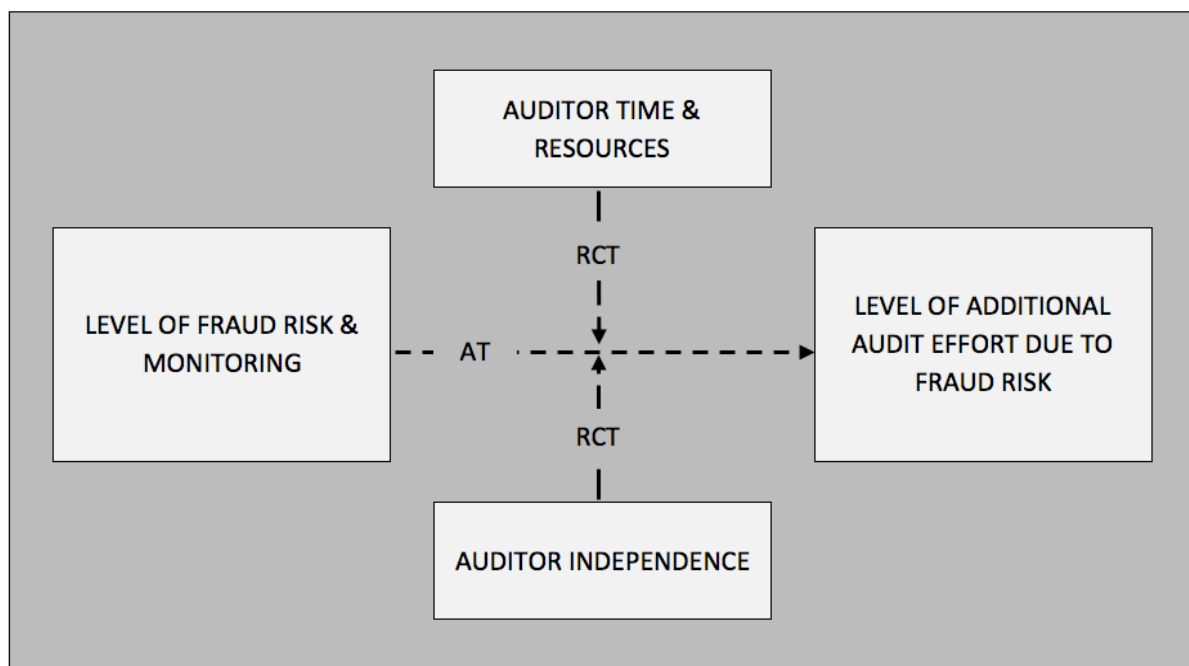


Figure 9 Part 2 of the conceptual framework

In an optimal environment, free of conflicts and constraints, once the auditor has decided on the extent of additional monitoring required so as to reduce agency costs and their fraud risk assessment to an acceptable level, the auditor would go on to expend the additional effort

required in order to undertake that precise amount of additional monitoring. However, according to role conflict theory, where an individual is faced with what they perceive to be incompatible expectations of how their role should be performed (i.e. role conflict), they may feel uncertain of their actions and as a result become stressed. This can lead to job dissatisfaction and a lack of motivation and consequently their performance may be sub-optimal (Rizzo, House & Lirtzman 1970). As a result of role-conflict, the auditor may not expend the necessary amount of effort to perform the level of monitoring assessed to be required of the auditor.

More specifically, applying various types of conflict categorised by Rizzo, House and Lirtzman, (1970) to the role of the auditor may assist to identify areas where role conflict may occur. For example, *intrasender* role conflict might occur as result of the auditor having insufficient time, resources or capabilities. In addition, if the auditor or audit firm holds dual roles of advisor and auditor this may lead to *interrole* conflict where the independence of the auditor may be impacted and their response to fraud could be influenced by management. Even in the absence of providing non-audit services to the client, given that the auditor is engaged by an entity's management to perform a monitoring service on behalf of shareholders, auditors are at risk of *intersender* role conflict whereby they may seek to meet the expectations of management so as to ensure their ongoing tenure. In circumstances where management may pressure the auditor to overlook fraudulent activity, the extent of work carried out by the auditor may be impacted by their propensity (or otherwise) to act independently from the influence of management.

In accordance with agency and role conflict theory, it follows that insufficient resources and/or a lack of independence may cause role conflict and this conflict may prevent the auditor from carrying out the additional monitoring to the full extent required. This will therefore impact on the amount of additional audit effort expended by the auditor in response to fraud. The impact of insufficient time, resources and capabilities on audit fees has been studied in the prior literature using proxies such as whether the audit was carried out during the auditors' busy season and whether the auditor is a Big-N auditor with potentially greater access to resources and capabilities. The impact of auditor independence on audit fees has also been investigated in the prior literature using proxies such the extent of non-audit fees charged by the auditor. Given the extent of prior literature which investigates these relationships, busy season, non-

audit fees and big-4 auditors will be controlled for in the present study, rather than specifically tested as part of the analysis.

3.2.3. Part three of the conceptual framework

The third part of the framework is presented in Figure 10 and is concerned with the level of audit effort and the impact on the audit fees charged by the auditor.

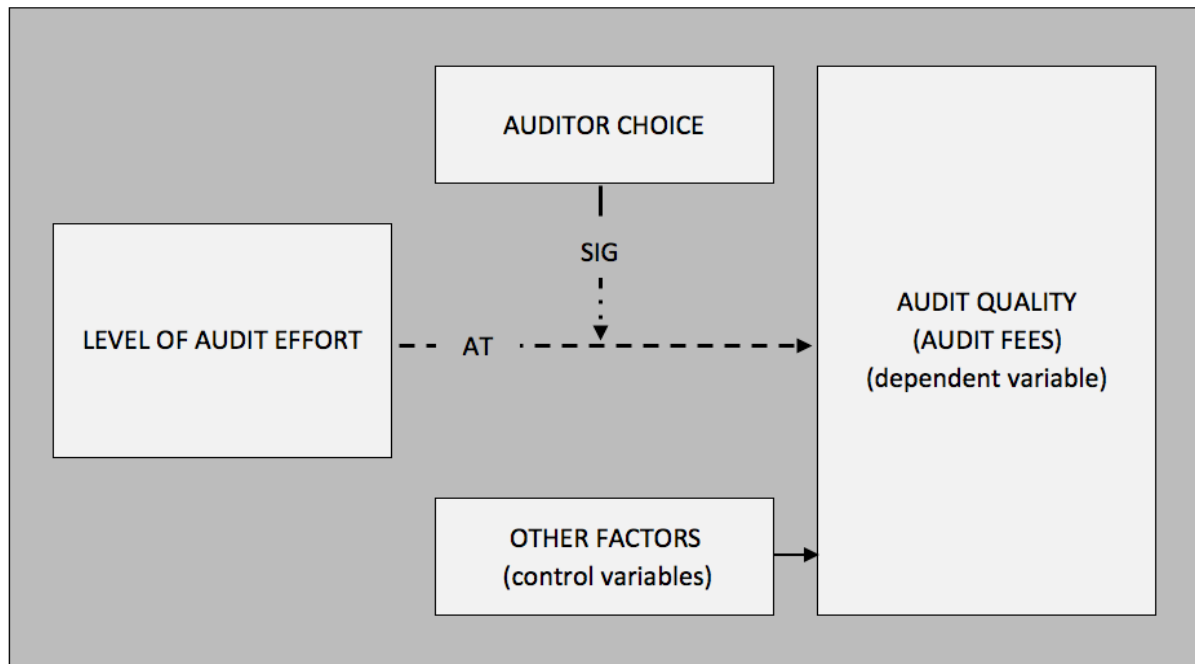


Figure 10 Part 3 of the conceptual framework

Additional external monitoring requires the auditor to expend additional effort and this translates into additional audit fees. These additional audit fees are considered a monitoring cost under agency theory and seek to reduce fraud as a residual agency loss.

The degree to which (additional) audit effort translates to audit fees will be impacted by the audit price. The higher the fee charged by the auditor per unit of work the greater will be the absolute impact of any additional work undertaken on the audit fee. The choice of the auditor and whether the chosen auditor charges a fee premium will therefore impact on this relationship. More specifically:

under signalling theory, management of companies with agency problems have incentive to signal to the market that they have effective internal corporate governance and attempt to reduce agency costs and increase the value of the company by appointing a high-profile external auditor who goes through strict and intensive external audit to assure the stakeholders that management works to their interest (Wang 2009 cited in Naser et al. 2013; Wang & Zhou 2006).

High-profile auditors including Big-N firms and industry specialists may charge a premium for their services. According to the theory of cost signalling, those firms who already possess effective internal corporate governance are more likely to receive a net benefit from engaging a high-profile auditor. These firms are therefore more likely to engage such an auditor compared to a firm with ineffective internal corporate governance who would be required to cheat or attempt to provide a false signal.

In accordance with agency and signalling theory, firms with strong corporate governance (i.e. audit committee characteristics) may be more likely to engage a high-profile auditor that charges a fee premium. This fee premium means that audit fees will be higher than they would have otherwise been if a high-profile auditor had not been engaged. It is also recognised that there are many variables aside from fraud and the choice of auditor that impact audit fees (for example, client size, industry, profitability); and these other factors are controlled for in the study.

3.2.4. Theoretical contribution

The present study contributes to the aforementioned theories in a number of ways. Firstly, the interconnection between agency theory and the substitution effect, role conflict theory and signalling theory have not been examined in this context previously. The proposed interconnection as presented in the conceptual framework is developed based on prior theory development and the extant literature and is unique to the present study.

Secondly, this research tests theory using relationships that have not previously been tested. For example, does the external auditor consider corporate governance and internal control factors as a substitute when deciding the extent of additional work required in the context of known MOA fraud. More specifically, this study considers whether corporate governance and internal controls can substitute for a portion of the work undertaken by the external auditor in reducing audit risk to an acceptably low level, thereby reducing the amount of work required to be undertaken by the auditor for a client with known MOA fraud.

Thirdly, this research also tests theories using variables that have not been well established in previous research, for example examining the impact of signalling by engaging an auditor specialist with auditor specialisation assessed at a partner level. Research which examines the industry expertise of audit partners is limited since audit partner data has not been historically

available in many jurisdictions. Similarly, misappropriation of assets is under-researched due to the difficulty of obtaining sufficient data. This research examines misappropriation of assets using a unique and proprietary data set.

4. Hypothesis Development

4.1 Introduction

This Chapter details the development of the research hypotheses which are tested as part of the present study. These hypotheses are derived from the literature review and the theoretical and conceptual frameworks which were presented in Chapters Two and Three of the thesis. The hypotheses will be tested in order to examine the following four key research questions which underpin this research:

***RQ1:** To what extent if any, do auditors undertake additional work (proxied by audit fees) when their clients have experienced known MOA fraud?*

***RQ2:** To what extent if any, do corporate governance characteristics (specifically audit committee attributes) impact the amount of additional work (proxied by audit fees) undertaken by the auditor when their clients have experienced known MOA fraud?*

***RQ3:** To what extent if any, do fraud-related internal controls impact the amount of additional work (proxied by audit fees) undertaken by the auditor when their clients have experienced known MOA fraud?*

***RQ4:** To what extent if any, does auditor industry specialisation impact the level of audit fees when their clients have experienced known MOA fraud?*

The first research question considers the response of auditors in conducting an audit engagement when their client has experienced known MOA fraud. More specifically, this research question is concerned with whether auditors undertake additional audit work (proxied by audit fees) when known MOA fraud exists. The second research question considers whether auditors consider client specific corporate governance characteristics when determining the audit fees of those clients who have experienced known MOA fraud. The corporate governance characteristics that are used in this study are audit committee independence, size and meeting frequency. The third research question considers whether auditors consider client specific fraud-related internal control factors when determining the audit fees of those client who have

experienced known fraud. Specifically, the internal control factors used are whether the company has allocated resources to fraud prevention and detection, whether the fraud was detected as a result of the company's internal controls and whether the fraud was reported to law enforcement authorities. The fourth research question considers the extent to which auditor industry specialisation impacts the audit fees of clients who have experienced known MOA fraud.

To examine these four key research questions, a series of smaller hypotheses have been developed and are presented below. The remainder of this Chapter will be structured as follows: The next section below describes the hypotheses development in relation to additional audit work (if any) undertaken by auditors when their client has experienced known MOA fraud. The sections to follow this will describe the hypotheses development as it relates to the auditor's consideration of a client's corporate governance and fraud related internal control factors in determining the audit fee. This will be followed in a further section that will describe the hypotheses development regarding the effect of auditor industry specialisation and audit fees of clients who have experienced known MOA fraud.

4.2 Fraud and audit fees

The relationship between fraud and audit fees is examined in order to respond to the following research question:

RQ1: To what extent if any, do auditors undertake additional work (proxied by audit fees) when their clients have experienced known MOA fraud?

A known incidence of fraud may increase the auditor's assessment of the risk that the financial report is materially misstated. To reduce the risk to an acceptably low level the auditor may undertake additional audit work resulting in additional audit fee for the client. This section discusses the development of the first two hypotheses which examine the relationship between fraud and audit fees.

While an auditor is expected to consider the risk of fraud in all financial audit engagements, where an incidence of known fraud has occurred it is reasonable to expect this would lead to a higher fraud risk assessment by the auditor. Following such an assessment, an increase in the level of monitoring may be undertaken to effectively reduce the fraud risk back to a level that

the auditor believes is reasonable to accept in the circumstances. More specifically, the auditor may decide that additional monitoring in the form of increased audit procedures (including analytical and substantive testing) is required.

Additional external monitoring requires the auditor to expend additional effort. Audit effort is a difficult variable to measure directly as this data is generally not accessible and particularly so on a large scale. However, researchers that have accessed data relating to both auditor labour hours and audit fees have shown that audit fees provide a reliable proxy for audit effort (Bedard & Johnstone 2006 cited in Hogan & Wilkins 2008; Bell, Landsman & Shackelford 2001). I therefore expect that any additional audit effort associated with known fraud will translate into additional audit fees.

This is supported by the study by Johnstone and Bedard (2001) who found that audit partners assessments of fraud and inherent risk were significantly and positively related to the planned audit fee. Further, Sharma (2004) found a significant, positive relationship between audit fees and the likelihood of fraud. The author explains that since fraud firms are considered to carry a greater audit risk, auditors will likely extend both the scope and rigor of these audits and as such the additional costs associated with carrying out the audit may be recouped through higher audit fees. Lenard and Petruska (2012) reported that firms subject to class action securities fraud litigation paid higher audit fees and Markelevich and Rosner (2013) found that fraud firms incurred significantly higher (combined audit and non-audit) fees.

In summary, given that the auditing standards require auditors to discharge formal responsibilities regarding the consideration of fraud in the audit of a financial report and that additional audit effort is shown to be reflected in the audit fee, the following alternative hypothesis is proposed:

H₁: Companies with higher losses from misappropriation of assets as reported in the KPMG fraud survey pay higher audit fees than those companies with lower (or no) losses from misappropriation of assets as reported in the KPMG fraud survey.

4.3 Corporate governance, internal control and audit fees

The relationship between corporate governance and audit fees and internal control and audit fees are each examined in order to respectively respond to the following research questions:

RQ2: To what extent if any, do corporate governance characteristics (specifically audit committee attributes) impact the amount of additional work (proxied by audit fees) undertaken by the auditor when their clients have experienced known MOA fraud?

RQ3: To what extent if any, do fraud-related internal controls impact the amount of additional work (proxied by audit fees) undertaken by the auditor when their clients have experienced known MOA fraud?

According to substitution theory, internal monitoring of an organisation through the corporate governance function and internal controls may partially reduce the need for monitoring by the external auditor, and as a consequence this may reduce the audit fee. On the other hand, according to agency and signalling theory, firms with strong corporate governance are more likely to engage a high-profile auditor that may charge a fee premium thereby increasing the audit fee.

Organisations that demonstrate strong corporate governance characteristics (e.g. audit committee independence) and internal controls (e.g. fraud prevention and detection strategies), may have a lower risk of material misstatement as perceived by the auditor. In the circumstance where known MOA fraud exists, the auditor may have greater confidence that an organisation with strong corporate governance and internal control, through its internal monitoring mechanisms has detected all material fraud and prevented further fraud from taking place. Beasley, Carcello and Hermanson (1999) explained that in auditing companies with poor audit committee governance, the auditor should consider the potential probability for higher audit risk. Given that risk is a key determinant of audit price (Simunic 1980), the decreased risk associated with firms with strong corporate governance and internal control may result in a lower audit price.

Alternatively, the mere existence of fraud in the first instance may render a client's corporate governance and internal controls functions as weak given that they were not functioning

sufficiently to have prevented the fraud taking place. In the context of known MOA fraud, potentially the auditor may not even consider best-practice internal controls and audit committee structures to be an effective substitute for the monitoring function provided by the external audit. Further complicating the relationship between corporate governance and audit fees is that according to signalling theory, those firms who already possess effective corporate governance and internal control are more likely to benefit from engaging a high-profile auditor and are therefore more likely to do so. These high-profile auditors including Big-N firms and industry specialists may charge a premium for their services thereby resulting in higher audit fees.

These alternative perspectives may explain why a number of studies (Abbott et al. 2003; Carcello et al. 2002) have found a positive association between the quality of corporate governance and audit fees. For example, Carcello et al. (2002) reported a significant positive relationship between audit committee independence and audit fees. Abbot et al. (2003) also found that audit committee independence was significantly, positively associated with audit fees. However, the frequency of audit committee meetings was not found to be associated with audit fees.

Drawing from the above theories, the following hypothesis is proposed and is expressed in the null form because the direction of the potential relationship is not clear from prior research:

H₂: Of those companies that have reported having experienced fraud in the preceding two years as part of the KPMG fraud survey, there is no significant relationship between audit committee quality (independence, size, activity) and audit fees.

In addition to corporate governance, it is also proposed that internal controls may impact audit fees. According to Hogan and Wilkins (2008), in the presence of internal control weakness, auditors are unable to issue an unqualified audit opinion without undertaking a greater level of substantive testing (Hogan & Wilkins 2008). However, early studies undertaken prior to the introduction of the Sarbanes-Oxley Act did not find evidence that audit effort increases in response to increased control risk (Felix, Gramling & Maletta 2001; Hackenbrack & Knechel 1997; O'Keefe, Simunic & Stein 1994).

Conversely, in the post Sarbanes-Oxley era, Hogan and Wilkins (2008) reported that audit fees are significantly higher for firms with deficient internal controls indicating that the auditor undertakes increased audit work in response to increased control risk.

Given that the data used for the present study relates to the post Sarbanes-Oxley era, the following hypothesis is proposed and is stated in the alternative form:

H₃: Of those companies that have reported having experienced fraud in the preceding two years as part of the KPMG fraud survey, companies who report having stronger fraud prevention/detection controls will pay lower audit fees than those who do not.

4.4 Auditor industry specialisation and audit fees

The relationship between auditor industry specialisation and audit fees is examined in order to respond to the following research question:

RQ4: To what extent if any, does auditor industry specialisation impact the level of audit fees when their clients have experienced known MOA fraud?

The degree to which (additional) audit effort translates to audit fees will be impacted by the audit price. The higher the fee charged by the auditor per unit of work the greater will be the absolute impact of any additional work undertaken on the audit fee. The choice of the auditor and whether the chosen auditor charges a fee premium will therefore impact on this relationship.

Audits undertaken by industry specialist auditors are expected to be of a higher quality due to the industry-specific knowledge and experience of the auditor (Carcello & Nagy 2002). A number of studies have investigated the relationship between auditor specialisation and audit fees with some mixed results. Early studies did not find a relationship between industry specialist expertise and audit fees (Palmrose 1986). However, Craswell, Francis and Taylor (1995) found that the (then) Big-8 audit firms who were industry specialists charged audit fees with a premium of around 34% compared to Big-8 audit firms that were not industry specialists. Ferguson and Stokes (2002) undertook further research in this area, and did not find strong support for the existence of industry specialist premiums in the years following the Big-8 and Big-6 mergers in Australia; and particularly after 1990.

A potential explanation for such mixed results is the neutralising impact of increased demand and increased economies of scale. More specifically, if an audit partner is able to successfully differentiate their product from that of their competitors, then they may go on to charge higher fees due to the generation of additional demand for their product. There may also be costs to the industry specialist in terms of acquiring and maintaining the necessary expertise and they may seek to recover these costs in the fees charged. However, long run cost savings may result due to economies of scale and other efficiencies gained from auditing similar firms in respect of industry.

Encouraged by the earlier findings of Craswell, Francis and Taylor (1995) of an approximately 34% fee premium, Ferguson, Francis and Stokes (2003) re-analysed the data used in Ferguson and Stokes (2002) using an alternative research design. The authors found during the time of the Big-5 accounting firms, an average fee premium of 24% for industry specialists when the auditor was both the 'city based' industry leader as well as in the top two audit firms in the industry on a 'national level'. Francis, Reichelt and Wang (2005) also went on to identify a fee premium of 19% where the audit firm is both a national and city industry leader. However, Basioudis and Francis (2007) reported a 15% fee premium only for city industry leaders, and no fee premiums associated with national industry leaders.

These findings indicate that the interaction of national and city leadership and the resulting impact on audit fees may vary. Furthermore, research is scarce regarding the interaction of partner specialisation with national or city leadership in the context of audit fees. Given the uncertainty of these relationships, the following hypothesis is proposed in the null form:

H₄: Companies audited by an industry specialist auditor do not pay higher or lower audit fees compared to those companies who are not audited by an industry specialist auditor.

4.5. Summary of hypothesis development

Table 1 provides a summary of each of the hypotheses to be tested in the present study. The table maps each research question to the relevant theory and the subsequent hypotheses.

Table 1 Hypothesis development

Research Question		Theory	Hypothesis	
1	To what extent if any, do auditors undertake additional work (proxied by audit fees) when their clients have experienced known MOA fraud?	Agency Theory	H1:	Companies with higher losses from misappropriation of assets as reported in the KPMG fraud survey pay higher audit fees than those companies with lower (or no) losses from misappropriation of assets as reported in the KPMG fraud survey.
2	To what extent if any, do corporate governance characteristics (specifically audit committee attributes) impact the amount of additional work (proxied by audit fees) undertaken by the auditor when their clients have experienced known MOA fraud?	Agency Theory The Substitution Effect	H2:	Of those companies that have reported having experienced fraud in the preceding two years as part of the KPMG fraud survey, there is no significant relationship between audit committee quality (independence, size, activity) and audit fees.
3	To what extent if any, do fraud-related internal controls impact the amount of additional work (proxied by audit fees) undertaken by the auditor when their clients have experienced known MOA fraud?	Agency Theory The Substitution Effect	H3:	Of those companies that have reported having experienced fraud in the preceding two years as part of the KPMG fraud survey, companies who report having stronger fraud prevention/detection controls will pay lower audit fees than those who do not.
4	To what extent if any, does auditor industry specialisation impact the level of audit fees when their clients have experienced known MOA fraud?	Agency Theory Signalling Theory	H4:	Companies audited by an industry specialist auditor do not pay higher or lower audit fees compared to those companies who are not audited by an industry specialist auditor.

5. Research Methodology

5.1. Introduction

This Chapter discusses the research methodology adopted in this study in order to test the hypotheses discussed in Chapter 4. The next section provides a justification for the research methodology and design. This is followed by an outline of the sample selection and the data collection process including details of the data sources used. The definition and measurement of the hypothesised variables used in the study will then be provided, and this will be followed by the model development and specification. The Chapter will conclude with a summary of the research methodology and design.

5.2. Justification of the research methodology

This study employs a quantitative approach to research design and analysis. Deductive reasoning is used to draw hypotheses from agency, substitution, role conflict and signalling theories which seeks to explain fraud, corporate governance, internal control, auditor specialisation and audit fees. Empirical models are developed based on these hypotheses, and data is collected and analysed so as to test the models, hypotheses and the theories which underpin them.

From an epistemological and ontological standpoint, a positivist paradigm has been adopted. This paradigm takes the position that the world has only a single reality and that phenomenon can be studied independent of context (Scotland 2012). The study will be undertaken using an objectivist and regulatory perspective thus adopting a functionalist paradigm characterised by pragmatism and the assumption that human action is rational (Burrell & Morgan 1979). The quantitative approach which uses mathematical and statistical techniques allows for the inference of the findings and is well suited to the philosophical and positivist foundations of the study. Further, the research questions to be examined in the study are best addressed using this approach.

5.3. Sample selection

There were several steps involved in the sample selection process and a summary of this process is illustrated in Figure 11 and is discussed below.

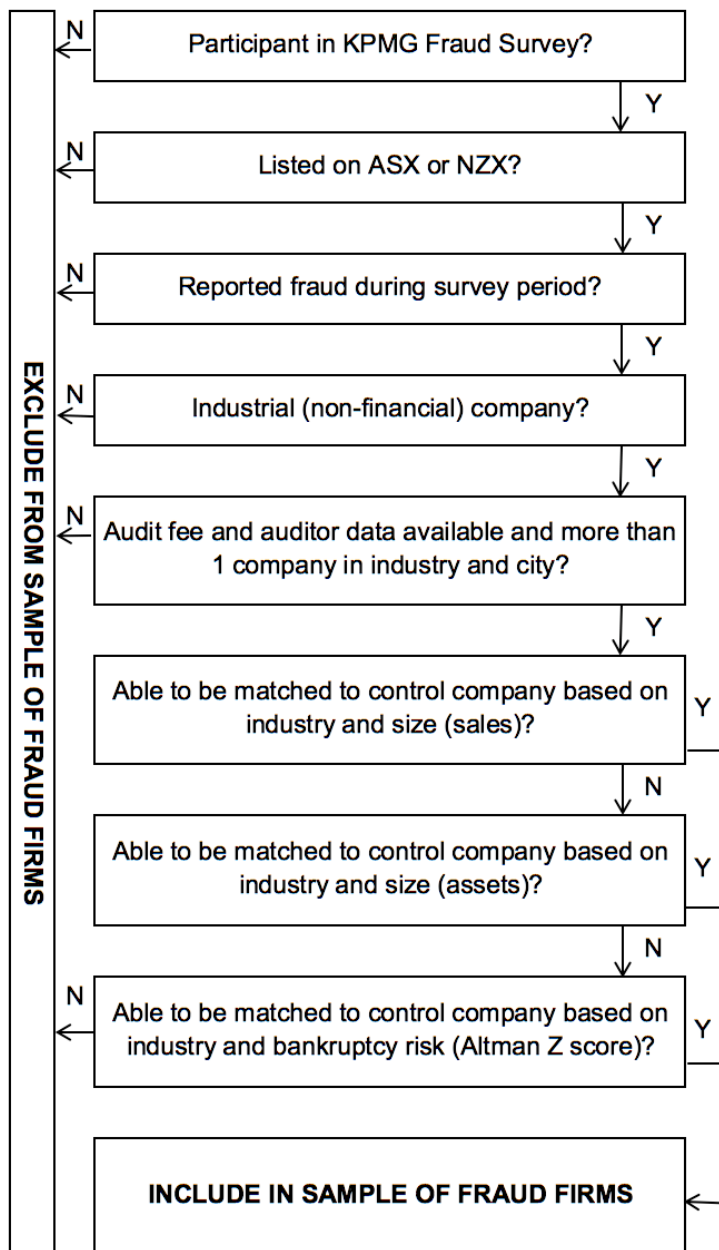


Figure 11 The sample selection process

Firstly, the listed companies that have detected and reported fraud using the KPMG fraud biennial surveys are identified using data which has been made available by the original research team at the University of Melbourne who undertook the surveys. There are 1,542 respondents to the four surveys combined (undertaken in 2004, 2006, 2008 and 2010) which cover an 8-year period from 2002 to 2010. Many of the respondents are non-listed entities such as charities, public sector agencies and private companies. The number of respondents listed on the ASX or New Zealand Stock Exchange (NZX) is 273. Of these respondents, 100 (36.6%) reported at least one incidence of fraud within the survey period. Due to unique industry factors and consistent with prior research (see, for example, DeFond, Francis, & Wong 2000; Francis

1984; Simunic 1980) companies within the financial services sector are removed and the fraud sample is therefore reduced to 69 companies. Audit fee and audit partner data is not available for New Zealand companies during the period under investigation and therefore these companies are removed from the sample reducing the number of fraud companies to 61. One further company is then removed from the sample as it is the only company in its industry and state/territory thereby automatically resulting in its auditor being the industry specialist leader at both the city and partner levels. The final usable sample of fraud firms for the period 2002-2010 is 60.

Finally, an attempt is made to match each fraud company in this sample with a comparable control company. To form the matched sample, and consistent with prior research (Abbott, Park & Parker 2000; Beasley 1996; Sharma 2004), matching is primarily based on industry and size. Industry is determined using the one digit SIC code. Each fraud company is compared to other companies within the same industry division and where possible is matched with a company of similar (+/- 25%) size based on sales. Table 2 provides further details regarding the way in which the matched sample of 120 firms is derived.

Table 2 Sample selection and matching process

	2004	2006	2008	2010	TOTAL
Participant in KPMG fraud survey	443	465	420	214	1,542
Listed on ASX or NZX	98	76	66	33	273
Reported fraud during survey period	19	32	32	17	100
Industrial (non-financial) company	15	19	22	13	69
Audit fee and auditor data available	12	19	19	11	61
More than 1 company in industry and city	12	18	19	11	60
Matched on industry and size (sales)	9	13	13	8	43
Matched on industry and size (total assets)	3	3	4	3	13
Matched on industry and bankruptcy risk (Altman z score (1983))	0	2	2	0	4
Total fraud companies matched	12	18	19	11	60
Total matched sample	24	36	38	22	120

As noted in Table 2, a total of 43 fraud companies were matched based on sales. Where there are no other companies within the same industry division with a similar level of sales, the company is instead matched with a company from the same industry division with a similar (+/- 25%) level of total assets. A total of 13 fraud companies were matched based on total assets. On the rare occasion that a company cannot be matched based on size (measured as either sales or total assets) the company is instead matched with a company from the same industry that has a similar (+/- 25%) risk of bankruptcy. The risk of bankruptcy is measured using the Altman (1983) Z score and a total of 4 fraud companies were matched based on this measure. The total matched sample comprises 120 companies from six broad industry sectors. A breakdown of the sample by industry sector is provided in Table 3.

Table 3 Industry summary

	2004	2006	2008	2010	TOTAL
Mining	2	10	4	4	20
Construction	0	0	6	4	10
Manufacturing	10	12	16	6	44
Transportation, Communications, Electric, Gas and Sanitary Services	6	4	6	4	20
Wholesale Trade	2	2	0	2	6
Services	4	8	6	2	20
Total	24	36	38	22	120

The highest number of companies in the matched sample are from the manufacturing industry (n=44). This is followed jointly by the combined transportation, communications, electric, gas and sanitary services industry (n=20) as well as the mining industry (n=20) and services industries (n=20). A smaller number of companies in the matched sample are from the construction industry (n=10) and the wholesale trade industry (n=6).

5.4. Data collection and sources

Data is collected from a range of sources including the KPMG fraud survey data, the Orbis/Osiris, Connect 4 and SIRCA databases as well as manual data collection from company annual reports (including the audit report). The data collection process comprises a number of steps. The process is summarised in Table 4 and the data sources and collection process is explained in more detail below.

Table 4 Data collection process and data sources

	Process	Data source
1	Identify Australian and New Zealand companies that have completed the KPMG fraud surveys	KPMG fraud survey data
2	Identify those companies from step 1 that are listed	Orbis/Osiris database
3	Identify those companies from step 2 that reported fraud during the survey period. For these companies collect fraud and internal control data	KPMG fraud survey data
4	Identify those companies from step 3 that are industrial (non-financial) sector	Orbis/Osiris database ASX GICS Map
5	For the companies identified in step 4, collect data relating to the audit fees and the auditor and eliminate those firms for which this data is not available.	Connect 4 database SIRCA database Company annual reports
6	Match each of the fraud companies from step 5 with a comparable control company	Orbis/Osiris database
7	For the complete matched sample established in step 6, collect a range of financial data for the relevant year	Orbis/Osiris database
8	For the complete matched sample established in step 6 collect the remaining audit fee and auditor data for the relevant year	Connect 4 database SIRCA database
9	For each of the complete matched sample established in step 6 collect corporate governance data	SIRCA database Company annual reports
10	Identify the population of Australian companies that are listed and operate in the industrial sector	Connect 4 database
11	For the population identified in step 10, collect the audit fee data for the relevant year	Connect 4 database SIRCA database
12	For the population identified in step 10, collect the auditor details including the audit firm and audit partner	Connect 4 database Company annual reports
13	For the population identified in step 10, collect the audit office details	Orbis/Osiris database ASX ISIN Map Company annual reports
14	From the data collected from steps 10 to 13, for each industry, determine which auditors are industry specialists	Manual calculations assisted by Excel
15	For the complete matched sample established in step 6, indicate which companies are audited by an industry specialist	From step 14

The data collection process was undertaken in three stages. The first stage involved collecting data for only the fraud sample. The second stage involved collecting data for the control sample as well as the total matched sample. The third stage involved collecting data from the broader population to determine auditor industry specialisation.

The first stage of the data collection process commenced with the KPMG fraud survey data. This data was initially used to identify companies that had completed the surveys (step 1). Once these companies were identified, they were cross checked against the Orbis/Osiris database to identify which companies were listed on the Australian or New Zealand Securities Exchanges (step 2). Once the listed survey participants were identified, the KPMG survey data was used to determine which of these companies reported having experience MOA fraud during the survey period (step 3). For these listed fraud companies, the value of the single largest fraud was obtained from the survey data as well as the survey responses to a number of internal control related survey questions (step 3). The Orbis/Osiris database was then used to confirm the industry of each of the listed fraud companies. The information provided by this database was the 4-digit Global Industry Classification Standard (GICS) code. The industry descriptions were obtained by mapping each code to the industry description using the ASX GICS Map available on the ASX website (step 4). This step allowed the sample to be narrowed to exclude financial firms. For the remaining listed fraud companies, the audit fee data and the name of the audit firm were primarily obtained from the Connect 4 or SIRCA databases. However, since neither of these databases had complete audit information, in some instances this data was instead hand collected from the company's annual report (step 5).

The next stage in the process involved identifying the control group using a matching approach. To carry out this task, industry and financial data was obtained from the Orbis/Osiris database (step 6). Once the matched sample was determined, a range of financial data was collected for the total matched sample also from the Orbis/Osiris database (step 7). For only the control sample, audit fee data and the name of the audit firm were primarily obtained from the Connect 4 or SIRCA databases. However, where this information could not be obtained from these databases, this data was instead hand collected from the company's annual report (step 8). This information had been previously collected for the fraud sample in step 5. Corporate governance data (audit committee characteristics) was then collected for the entire matched sample. This was undertaken using a combination of the SIRCA database together with hand collection from company annual reports (step 9).

The final stage of the data collection process commenced with identifying the population of Australian listed companies using the Connect 4 database (step 10). From the population identified in step 10, audit fee data was collected from a combination of the Connect 4 and SIRCA databases for each listed company in those industries and years represented in the previously determined matched sample (step 11). For example, in the previously determined sample there was at least one fraud company with a corresponding control company in the health care industry (2-digit GICS 35) in the 2008 survey. This means that audit fee data was collected for all listed companies in the health care industry for 2008 in order to later determine the specialist auditor in that industry for that year. On the other hand, in my previously determined sample, there were no companies from the information technology industry (2-digit GICS 45) in the 2004 survey. This means that audit fee data was not collected for listed companies in the information technology industry for 2004 since it was not necessary to determine the specialist auditor in that industry for that year. The auditor details were then collected including the audit firm from the Connect 4 database. The audit partner data was also collected from the Connect 4 database where available and otherwise directly from the company's annual report (step 12).

Continuing this stage of data collection, next, the audit office data was collected. This data was not available from Connect 4 and as such this was collected using both the Orbis/Osiris database and hand collection and then collated with the auditor data previously collected from Connect 4 (step 13). The collation process was not simple since many companies had changed names during the period of analysis and the names varied between databases. Where a company was unable to be matched by name it was matched using the International Securities Identification Number (ISIN). However, while the ISIN codes were listed on the Orbis/Osiris database they were not listed on the Connect 4 database which instead used ASX codes. This meant that each ASX code from the Connect 4 database was first mapped to its corresponding ISIN code using the ISIN spreadsheet from the ASX which lists both the ASX code and the ISIN code. Once the ISIN code was determined, this was used to extract the relevant audit office data from the Orbis/Osiris database. In total, across all years, there were 1,414 cases where the data was unable to be matched or obtained from the Orbis/Osiris database and was instead hand collected from the company's annual report. Once this information was collected, manual calculations (assisted by Excel) were undertaken to determine the specialist auditor in each industry (step 14). This process is discussed further in Chapter 5.5.3. Finally, the data for

the matched sample was then updated to include whether or not the company was audited by an industry specialist auditor (step 15).

The steps listed in Table 4 and described above, were then repeated for each of the relevant years of the study, being 2004, 2006, 2008, 2010). A breakdown of data collected to determine industry specialisation per steps 10-13 described above is provided in Table 5 below. More specifically Table 5 shows that the audit fee and auditor data was collated from Connect 4, Orbis/Osiris and hand collected from annual reports.

Table 5 Data collection for auditor industry specialisation

	2004	2006	2008	2010	Total
Listed Companies from Connect 4 database	1,259	1,507	1,846	1,740	6,352
<i>LESS SPECIALISATION DATA <u>NOT</u></i>					
<i>REQUIRED AS INDUSTRY NOT INCLUDED</i>					
<i>IN SAMPLE:</i>					
Energy (10)	-	-	-	-	-
Materials (15)	-	-	-	-	-
Industrials (20)	-	-	-	-	-
Consumer discretionary (25)	-	-	-	-	-
Consumer staples (30)	-	-	-	-	-
Health care (35)	-	-	-	(126)	(126)
Financials (40)	(212)	(273)	(315)	(272)	(1,072)
Information technology (45)	(126)	-	-	-	(126)
Telecommunication services (50)	-	(31)	-	-	(31)
Utilities (55)	-	-	(31)	-	(31)
	(338)	(304)	(346)	(398)	(1,386)
<i>SPECIALISATION DATA REQUIRED AS</i>					
<i>INDUSTRY <u>IS</u> INCLUDED IN SAMPLE</i>					
	921	1,203	1,500	1,342	4,966
<i>AUDIT FIRM DATA:</i>					
Obtained directly from Connect 4	921	1,203	1,500	1,342	4,966
	921	1,203	1,500	1,342	4,966
Obtained directly from Connect 4	-	-	-	-	-
Obtained from Orbis/Osiris and matched to					
Connect 4 using ISIN	340	59	790	1,201	2,390

	2004	2006	2008	2010	Total
Obtained from Orbis/Osiris and matched to Connect 4 using Name	111	637	375	39	1,162
Hand collected from audit report	470	507	335	102	1,414
	921	1,203	1,500	1,342	4,966
<i>AUDIT PARTNER DATA:</i>					
Obtained directly from Connect 4	874	1,145	1,444	1,328	4,791
Hand collected from audit report	12	22	12	11	57
Partner not specified in audit report	35	36	44	3	118
	921	1,203	1,500	1,342	4,966
<i>AUDIT FEE DATA:</i>					
Obtained directly from Connect 4 or SIRCA	913	1,164	1,474	1,331	4,883
Hand collected from annual report	2	22	14	7	45
Annual report not available from Connect 4 or company website	1	1	3	1	6
Audit fees not specified in annual report	5	16	9	3	33
	921	1,203	1,500	1,342	4,966

Access to the databases discussed above was provided by RMIT University and also the University of Aston (whilst I was as a research visitor). Access to annual reports (including audit reports) was available from the RMIT University library as well as company websites.

Access to data from the 2004, 2006, 2008 and 2010 KPMG fraud surveys was granted by the research team responsible for the KPMG fraud surveys during this time. Access was also granted to the 2002 fraud survey and some earlier data. However, vital information is missing for these years and could not be located, rendering the data for these years unusable for the purposes of this study. The final survey which relates to the two years up to and including 2012 was undertaken by a different research team. Although access to this data was requested from KPMG, access to the data was not able to be obtained.

Data for 2004, 2006, 2008 and 2010 were provided in a combination of Microsoft Excel, Microsoft Access, FileMaker Pro and hardcopy formats. Regardless of the format, the identifiable respondent details such as name and address were provided separately to the survey response data. More specifically, a coded distribution list was provided as well as survey responses which were de-identified and coded in accordance with the distribution list.

The survey questionnaires varied for each survey period and therefore the first step for each period was to identify the question number that corresponded to the question which asked whether the company had experienced fraud during the survey period. Once this question number was identified, the companies that experienced fraud were identified by first checking the responses to this question number in the data spreadsheet. Then I recorded the company reference numbers that corresponded with those that answered yes to this question. Finally, these company reference numbers were manually matched against the distribution list to obtain the names of these fraud companies. A similar process to that described above is undertaken to identify the value of the fraud experienced by each of these companies, as well as the responses to internal control related questions.

5.5. Definition and measurement of variables

The variables of interest which are investigated as part of this study include fraud, corporate governance, internal controls, and auditor industry specialisation. The relationships between each of these variables and audit fees is the main focus of the study. This section will explain how each of these variables is defined and measured and will also include a discussion of the control variables used in the study. An alphabetical list of all variables used within the study is provided in Appendix 3.

5.5.1 Audit fees

Audit fees are the dependent variable in this study as defined in Table 6 below:

Table 6 Audit fee variable definition

Variable	Definition
LAF	= natural log of the value of the audit fee in AUD

Consistent with prior research in this area (see, for example, Behn et al. 1999; Francis, Reichelt & Wang 2005; Jaggi & Xin 2017; Knechel et al. 2019), the natural log transformation is applied to audit fees (first expressed in thousands of Australian dollars).

5.5.2 Fraud

Fraud is a fundamental dependent variable used in this study and is defined in Table 7 below:

Table 7 Fraud variable definition

Variable	Definition
LFRAUD	= natural log of the value of the single largest fraud in AUD

A company may have experienced more than one known occurrence of MOA fraud during the period under investigation. The KPMG fraud surveys do not collect data in relation to the total value of MOA fraud but rather the value of the single largest MOA fraud that occurred during the survey period. This value is then transformed using the log transformation for analysis as part of the present study. The fraud variable is examined in all models (1 through 4) which are discussed further in Chapter 5.6 of this Chapter. Regressing the (log transformed) value of fraud against audit fees is a unique contribution of this research as this information is generally quite difficult to obtain⁶.

5.5.3 Corporate governance

This section provides the definition and measurement of the corporate governance variables being audit committee independence as well as audit committee size and activity. These independent variables are examined in model 3 which is discussed further in Chapter 5.6.3 of this Chapter. A summary of the definitions of the corporate governance variables is provided in Table 8.

Table 8 Corporate governance variables and definitions

Variable	Definition
ACIND	= the proportion of non-executive directors on the audit committee
ACSIZE	= the number of directors on the audit committee
ACMEET	= the number of audit committee meetings held during the year

Audit committee independence is measured as the proportion of non-executive directors on the audit committee. This definition follows that used by Beasley (1996) and Bradbury, Mak and Tan (2006). Audit committee size is measured by the number of directors on the audit committee at the end of the financial year. This measure has previously been adopted by Yang and Krishnan (2005). Finally, audit committee activity is measured by the number of audit committee meetings held during the year, consistent with the study by Huang & Thiruvadi (2010).

⁶ Several models are also analysed defining fraud as a dummy variable. The results of this additional analysis is reported in Chapter 7. Fraud as a dummy variable has been used by Sharma (2004) in an Australian based study.

5.5.4 Internal control

The definition and measurement of the internal control variables are provided in this section. These independent variables will be examined in model 4 which is discussed further in Chapter 5.6.4. A summary of the definitions of these internal control variables are provided in Table 9.

Table 9 Internal control variables and definitions

Variable	Definition
IARES	Indicator variable = 1 if the company allocates internal audit resources to fraud prevention and/or detection, 0 otherwise
ICDET	Indicator variable = 1 if the company detected their single largest fraud using internal controls, 0 otherwise
ICFAIL	Indicator variable = 1 if internal control failure was a key factor in allowing the company's single largest fraud to occur, 0 otherwise
REPLE	Indicator variable = 1, if the company reported their single largest fraud to law enforcement authorities, 0 otherwise

The above information related to internal control is not publicly available and therefore has not been used in prior literature. Given the nature of the survey and the questions asked of the respondents, the use of an indicator variable is most appropriate to measure these internal control characteristics. For example, respondents are asked whether their company allocates internal audit resources to fraud prevention and/or detection but does not ask the extent of the resources allocated in dollar terms, hours or personnel.

5.5.5 Auditor industry specialisation

A number of different approaches have been used to measure auditor industry specialisation. These include determining which auditor audits the highest number of clients in a given industry, which auditor generates the highest value of audit fees from clients in a given industry, as well as the combined assets or sales of clients audited from a particular industry.

The present study follows the measurement of auditor industry specialisation used by a number of researchers (see, for example, Basioudis & Francis 2007) which determines auditor industry specialisation using market share based on audit fees generated within each relevant industry. This approach is most common in the literature and being continuous, has a clear advantage over the practice of measuring specialisation using the discrete number of clients. This is because it avoids the problem of 'ties' where two or more auditors might audit the same number of clients in a given industry. Basioudis and Francis (2007) were unable to identify fee

premiums for industry specialisation when the number of clients was used to determine specialisation. Furthermore, the authors reported that determining specialisation based on client's assets and client's sales also interfered with their results by adding additional noise in the model.

Auditor specialisation is determined using market share based on audit fees at the national, city and partner level. To first determine auditor specialisation at the national level, I divided all ASX listed companies into their respective industry classifications, using the 2-digit GICS industry classifications. For each industry I determine the total audit fees charged by each audit firm and then divide this amount by the total audit fees charged by all audit firms for clients within that industry. This gives us the market share based on fees for each audit firm at national level. The firm with the highest market share is labelled the 'number 1 national industry specialist'. The firm with the second highest market share is labelled the 'number 2 national industry specialist'.

Secondly, to determine auditor specialisation at the city/office level I divided all ASX listed companies into their respective industry classifications using the 2-digit GICS industry classifications. I then further divided the sample into the company's auditor location. These are based on the major capital cities in Australia. Similar to other Australian studies I found that the auditor location is predominately the same as the client company's own location (Ferguson, Francis & Stokes 2003). For each industry/location combination, I determined the total audit fees charged by each audit firm and then divided this amount by the total audit fees charged by all audit firms for clients within that industry and location. This gave the market share based on fees for each audit office. The office with the highest market share was labelled the 'number 1 city industry specialist'. The office with the second highest market share is labelled the 'number 2 city industry specialist'.

Next, I determined auditor specialisation at the partner/national level. To do this, I determined the total audit fees charged by each audit partner for each industry, and then divided this amount by the total audit fees charged by all audit partners for clients within that industry. This gave the market share based on fees for each audit partner. The partner with the highest market share was labelled the 'number 1 industry specialist partner'. The partner with the second highest market share was labelled the 'number 2 industry specialist partner'.

Finally, to determine auditor specialisation at the partner/city level, I took the same industry/location combinations used for the city/office level analysis, and for each industry/location combination, I determined the total audit fees charged by each audit partner and then divided this amount by the total audit fees charged by all audit partners for clients within that industry and location. This gave the market share based on fees for each audit partner. The partner with the highest market share was labelled the ‘number 1 industry specialist partner’. The partner with the second highest market share was labelled the ‘number 2 industry specialist partner’.

Once the number 1 and number 2 specialists were determined for each industry at the national, city and partner levels, dummy variables were assigned based on various national, city and partner combinations. Prior research has identified the existence of premiums where specialisation exists at multiple levels such as office level and national level (Ferguson, Francis & Stokes 2003). Therefore, I tested specialisation at the national level, city level and combined national/city level. In addition, I measured specialisation at the partner level, and combined partner/national, partner/city and partner/national+partner/city level. The various combinations are provided in tables 10 and 11.

Due to the inconsistent results of prior research, a broader definition of industry specialisation was adopted whereby the first and second highest-ranked auditor by market share were each considered to be industry specialists. This is consistent with Ferguson, Francis and Stokes (2003) who examined both the industry leaders and the second highest-ranked auditors to ‘counter any misspecification that might result from industry expertise residing outside the leading firm’ (Ferguson 2005, p.59).

The variables associated with this broader determination of specialisation are defined in Tables 10 and 11. Table 10 provides the definitions for auditor industry specialisation under the *firm national-city framework*, and Table 11 provides the definitions for auditor industry specialisation under the *partner national-city framework*.

Table 10 Firm national-city framework variable definition

Variable	Definition
NAT1OR2+CITY1OR2	Indicator variable = 1 if the audit firm is the first or second highest-ranked by market share for the industry both nationally (NAT1OR2) and on a city basis (CITY1OR2), 0 otherwise
NAT1OR2+CITY0	Indicator variable = 1 if the audit firm is the first or second highest-ranked by market share for the industry nationally (NAT1OR2) but not on a city basis (CITY0), 0 otherwise
NAT0+CITY1OR2	Indicator variable = 1 if the audit firm is the first or second highest-ranked by market share for the industry on a city basis (CITY1OR2) but not nationally (NAT0), 0 otherwise
NSB4+NAT0+CITY0	Indicator variable = 1 if the audit firm is a non-specialist Big-4 firm (NSB4) that is not the first or second highest-ranked by market share for the industry either on a national (NAT0) or city basis (CITY0), 0 otherwise

Table 11 Partner national-city framework variable definition

Variable	Definition
PARNAT1OR2+PARCITY1OR2	Indicator variable = 1 if the audit partner is the first or second highest-ranked by market share for the industry both nationally (NAT1OR2) and on a city basis (CITY1OR2), 0 otherwise
PARNAT1OR2+PARCITY0	Indicator variable = 1 if the audit partner is the first or second highest-ranked by market share for the industry nationally (NAT1OR2) but not on a city basis (CITY0), 0 otherwise
PARNAT0+PARCITY1OR2	Indicator variable = 1 if the audit partner is the first or second highest-ranked by market share for the industry on a city basis (CITY1OR2) but not nationally (NAT0), 0 otherwise
NSB4+PARNAT0+PARCITY0	Indicator variable = 1 if the audit partner is from a non-specialist Big-4 firm (NSB4) and the partner is not the first or second highest-ranked by market share for the industry either on a national (NAT0) or city basis (CITY0), 0 otherwise

5.5.6 Control variables

There are a number of control variables used in this study. These variables have been developed from prior literature and it is not uncommon for the explanatory power of regression models (R^2) used in this area of research to exceed 70%. Table 12 summarises the control variables used and the way in which they are defined.

Table 12 Control variables and definitions

Variable	Definition
LTA	= natural log of total assets in AUD
SQSUBS	= square root of number of subsidiaries
CATA	= the ratio of current assets over total assets
QUICK	= quick ratio
DE	= long-term debt to total equity
ROI	= return on investment
OPINION	Indicator variable = 1 if the company received a going concern audit opinion, 0 otherwise
BUSY	Indicator variable = 1 if the company has a 30 June financial year-end, 0 otherwise
LOSS	Indicator variable = 1 if the company has shown net loss in the last three years, 0 otherwise
LNAF	= natural log of non-audit fees in AUD
BIG4	Indicator variable = 1 if the company is audited by a Big-4 audit firm, 0 otherwise

Similar to much of the prior research, transformations are required to linearize particular control variables. The natural log transformation is applied to total assets (*LTA*) and non-audit fees (*LNAF*). The square root of the number of subsidiaries (*SQSUB*) is used to transform this variable as some companies have zero subsidiaries, and the Ln of zero is undefined. The control variables are similar to those used in prior research (see, for example, Andre, Broye, Pong & Schatt 2016; Basioudis & Ellwood 2005; Craswell, Francis & Taylor 1995; Ferguson, Francis & Stokes 2003; Ferguson & Stokes 2002; Francis 1984; Francis & Stokes 1986; Park 2019). Greater audit fees are expected for larger clients (*LTA*) with increased audit complexity (*SQSUBS*), audit problems (*OPINION*) and greater risk associated with inherent risk (*CATA*) and leverage (*DE*). Previous literature reports a premium where audit services and non-audit services are jointly provided to clients and, as such, higher audit fees are expected for clients with greater non-audit fees (*LNAF*). Fee premiums have also been reported where audits are provided by a Big-4 auditor (*BIG4*). I expect to see lower audit fees associated with reduced inherent risk (*QUICK*) and higher profitability (*ROI*) which also reduce the risk to the auditor.

In addition, I expect higher fees for clients with a 30 June year end as these audits are likely to be conducted at a ‘busy’ time for auditors and, as such, the client has less negotiating power. In respect of clients who have experienced a net loss in any of the last 3 years (*LOSS*), I expect to see lower audit fees consistent with prior studies as these clients have a reduced ability to pay. It is acknowledged, however, that a net loss also increases the risk to the auditor and as such may positively affect audit fees.

Dummy variables for industry fixed effects are also included in each model. The industries are determined with reference to the 2-digit GICS code. Dummy variables for each year (2004, 2006, 2008, 2010) are also included as fixed effects in each of the models.

5.6. Model development and specification

A series of audit fee regression models are used to estimate the effect of the various variables of interest in this study. This approach has been used in much of the prior literature (see, for example, Andre, Broye, Pong & Schatt 2016; Basioudis & Ellwood 2005; Craswell, Francis & Taylor 1995; Ferguson, Francis & Stokes 2003; Ferguson & Stokes 2002; Francis 1984; Francis & Stokes 1986; Park 2019). As previously mentioned, the range of control variables have been established in prior research with adjusted R^2 's often exceeding 0.70 and 0.80.

Four models are examined as part of this study in order to respond to the hypotheses discussed in Chapter 4. Each of the four models will be specified below.

5.6.1. Model 1: The basic model

Model 1 is a basic model which examines the impact of fraud on audit fees and uses a number of control variables similar to those used in prior research as discussed in Chapter 5.5.6 of the thesis. The relationships examined as part of this model are illustrated in Figure 12.

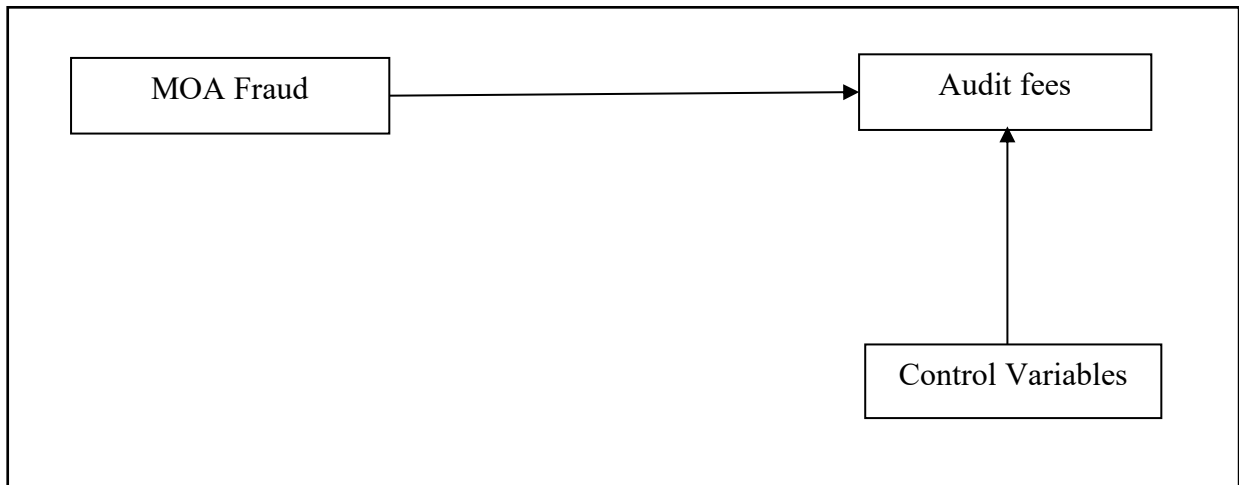


Figure 12 Model 1: The basic model

The model analyses data from the total matched sample (n=120) and has been designed in order to test the following hypothesis:

H1 Companies with higher losses from misappropriation of assets as reported in the KPMG fraud survey pay higher audit fees than those companies with lower (or no) losses from misappropriation of assets as reported in the KPMG fraud survey.

The regression model used is:

$$LAF = b_0 + b_1 LTA + b_2 SQSUB + b_3 CATA + b_4 QUICK + b_5 DE + b_6 ROI + b_7 OPINION + b_8 BUSY + b_9 LOSS + b_{10} LNAF + b_{11} BIG4 + b_{12} LFRAUD + e$$

where:

- LAF = natural log of audit fees in AUD
- LTA = natural log of total assets in AUD
- SQSUBS = square root of number of subsidiaries
- CATA = the ratio of current assets over total assets
- QUICK = quick ratio
- DE = long-term debt to total equity
- ROI = return on investment
- OPINION Indicator variable = 1 if the company received a going concern audit opinion, 0 otherwise
- BUSY Indicator variable = 1 if the company has a 30 June financial year-end, 0 otherwise
- LOSS Indicator variable = 1 if the company has shown net loss in the last three years, 0 otherwise
- LNAF = natural log of non-audit fees in AUD
- BIG4 = Indicator variable = 1 if the company is audited by a Big-4 audit firm, 0 otherwise

LFRAUD = natural log of the value of the single largest fraud in AUD

Industry and year fixed effects are also included in the model.

5.6.2. Model 2: Considering the impact of corporate governance

Model 2 is an extension of model 1 and examines the impact of corporate governance on audit fees. The relationships examined as part of this model are illustrated in Figure 13.

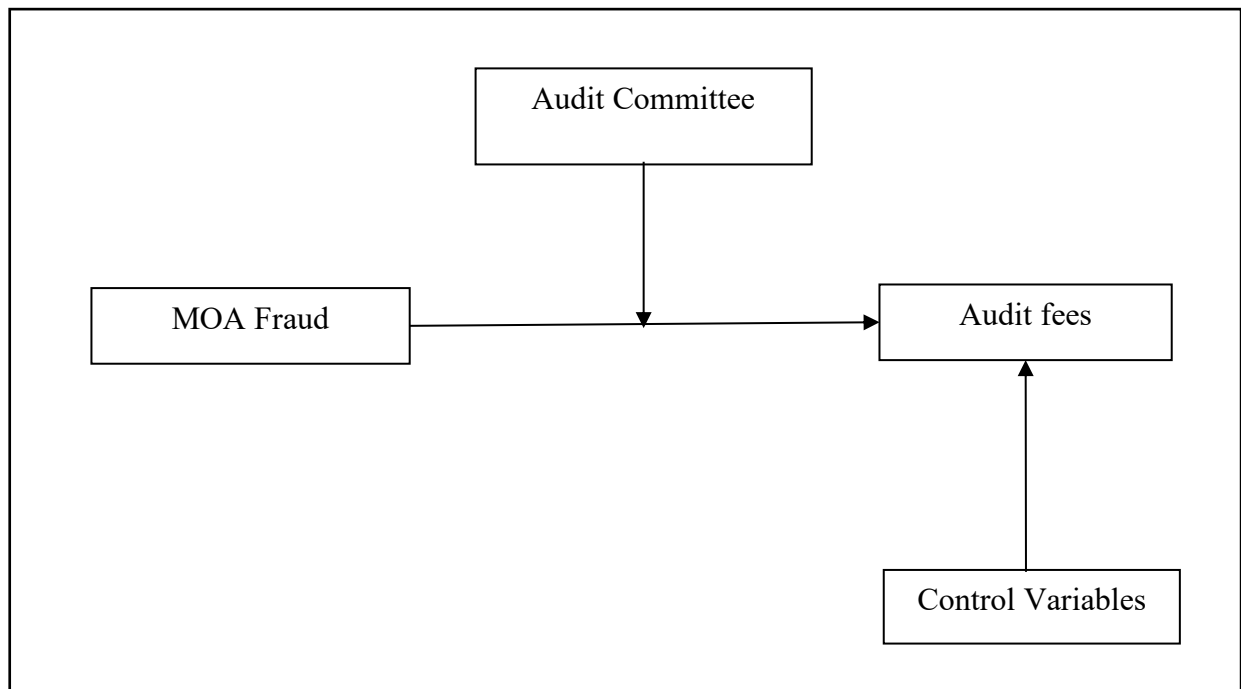


Figure 13 Model 2: Considering the impact of corporate governance

The model analyses data from the sample of fraud companies (n=60) and has been designed in order in order to test the following hypotheses:

H₂ Of those companies that have reported having experienced fraud in the preceding two years as part of the KPMG fraud survey, there is no significant relationship between audit committee quality (independence, size, activity) and audit fees.

The regression model used is:

$$\text{LAF} = b_0 + b_1 \text{LTA} + b_2 \text{SQSUB} + b_3 \text{CATA} + b_4 \text{QUICK} + b_5 \text{DE} + b_6 \text{ROI} + b_7 \text{OPINION} + b_8 \text{BUSY} + b_9 \text{LOSS} + b_{10} \text{LNAF} + b_{11} \text{BIG4} + b_{12} \text{LFRAUD} + b_{13} \text{ACIND} + b_{14} \text{ACSIZE} + b_{15} \text{ACMEET} + e$$

where:

LAF	= natural log of audit fees in AUD
LTA	= natural log of total assets in AUD
SQSUBS	= square root of number of subsidiaries
CATA	= the ratio of current assets over total assets
QUICK	= quick ratio
DE	= long-term debt to total equity
ROI	= return on investment
OPINION	Indicator variable = 1 if the company received a going concern audit opinion, 0 otherwise
BUSY	Indicator variable = 1 if the company has a 30 June financial year-end, 0 otherwise
LOSS	Indicator variable = 1 if the company has shown net loss in the last three years, 0 otherwise
LNAF	= natural log of non-audit fees in AUD
BIG4	= Indicator variable = 1 if the company is audited by a Big-4 audit firm, 0 otherwise
LFRAUD	= natural log of the value of the single largest fraud in AUD
ACIND	= the proportion of non-executive directors on the audit committee
ACSIZE	= the number of directors on the audit committee
ACMEET	= the number of audit committee meetings held during the year

Industry and year fixed effects are also included in the model.

5.6.3. Model 3: Considering the impact of internal controls

Model 3 is also an extension of model 1 and examines the impact of internal control on audit fees. The relationships examined as part of this model are illustrated in Figure 14.

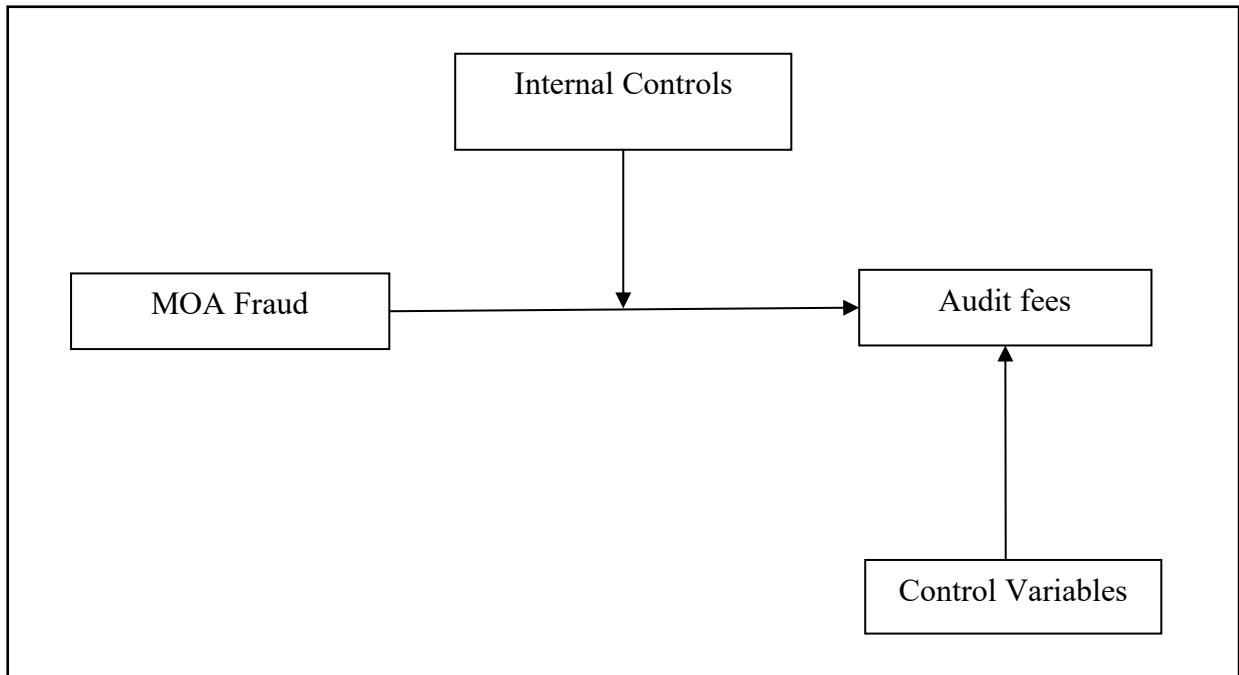


Figure 14 Model 3: Considering the impact of internal controls

The model analyses data from the sample of fraud companies (n=60) and has been designed in order in order to test the following hypothesis:

H₃ Of those companies that have reported having experienced fraud in the preceding two years as part of the KPMG fraud survey, companies who report having stronger fraud prevention/detection controls will pay lower audit fees than those who do not.

The regression model used is:

$$LAF = b_0 + b_1 LTA + b_2 SQSUB + b_3 CATA + b_4 QUICK + b_5 DE + b_6 ROI + b_7 OPINION + b_8 BUSY + b_9 LOSS + b_{10} LNAF + b_{11} BIG4 + b_{12} LFRAUD + b_{13} IARES + b_{14} ICDET + b_{15} ICFAIL + b_{16} REPLE + e$$

where:

- LAF = natural log of audit fees in AUD
- LTA = natural log of total assets in AUD
- SQSUBS = square root of number of subsidiaries
- CATA = the ratio of current assets over total assets
- QUICK = quick ratio

DE	= long-term debt to total assets
ROI	= return on investment
OPINION	Indicator variable = 1 if the company received a going concern audit opinion, 0 otherwise
BUSY	Indicator variable = 1 if the company has a 30 June financial year-end, 0 otherwise
LOSS	Indicator variable = 1 if the company has shown net loss in the last three years, 0 otherwise
LNAF	= natural log of non-audit fees in AUD
BIG4	= Indicator variable = 1 if the company is audited by a Big-4 audit firm, 0 otherwise
LFRAUD	= natural log of the value of the single largest fraud in AUD
IARES	Indicator variable = 1 if the company allocates internal audit resources to fraud prevention and/or detection, 0 otherwise
ICDET	Indicator variable = 1 if the company detected their single largest fraud using internal controls, 0 otherwise
ICFAIL	Indicator variable = 1 if internal control failure was a key factor in allowing the company's single largest fraud to occur, 0 otherwise
REPLE	Indicator variable = 1, if the company reported their single largest fraud to law enforcement authorities, 0 otherwise

Industry and year fixed effects are also included in the model.

5.6.4. Model 4: Considering the impact of auditor industry specialisation

Model 4 is an extension of model 1 and also examines the impact of auditor industry specialisation on audit fees. The relationships examined as part of this model are illustrated in Figure 15.

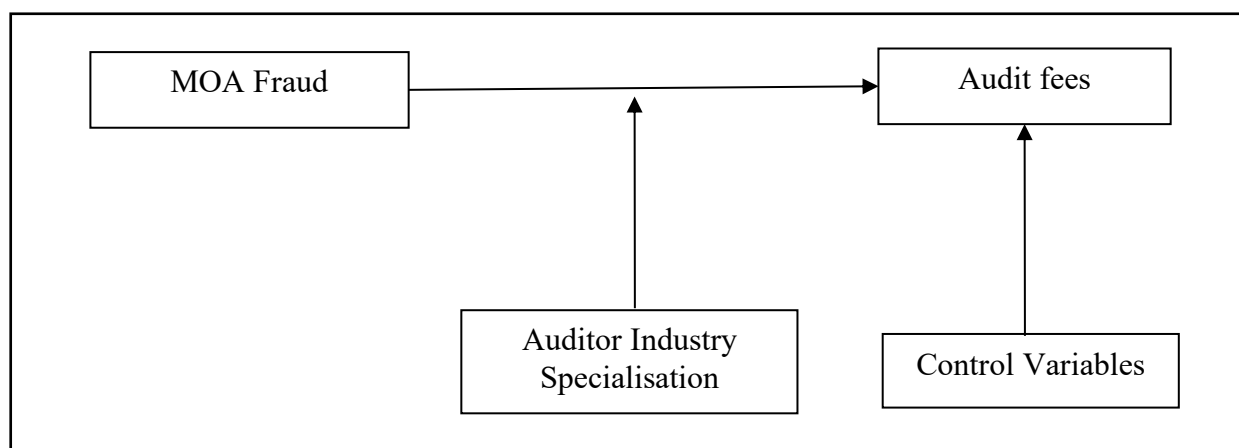


Figure 15 Model 4: Considering the impact of auditor industry specialisation

The model analyses data from the sample of fraud companies (n=60) and has been designed in order in order to test the following hypothesis:

H4 Companies audited by an industry specialist auditor do not pay higher or lower audit fees compared to those companies who are not audited by an industry specialist auditor.

There are two variations of the regression model. The first analyses audit firm specialisation using the *firm national-city framework* and the second analyses audit partner specialisation using the *partner national-city framework*. The regression models used are:

$$\text{LAF} = b_0 + b_1 \text{LTA} + b_2 \text{SQSUB} + b_3 \text{CATA} + b_4 \text{QUICK} + b_5 \text{DE} + b_6 \text{ROI} + b_7 \text{OPINION} + b_8 \text{BUSY} + b_9 \text{LOSS} + b_{10} \text{LNAF} + b_{11} \text{LFRAUD} + b_{12} \text{NAT1OR2+CITY1OR2} + b_{13} \text{NAT1OR2+CITY0} + b_{14} \text{NAT0+CITY1OR2} + b_{15} \text{NSB4+NAT0+CITY0} + e$$

$$\text{LAF} = b_0 + b_1 \text{LTA} + b_2 \text{SQSUB} + b_3 \text{CATA} + b_4 \text{QUICK} + b_5 \text{DE} + b_6 \text{ROI} + b_7 \text{OPINION} + b_8 \text{BUSY} + b_9 \text{LOSS} + b_{10} \text{LNAF} + b_{11} \text{LFRAUD} + b_{12} \text{PARNAT1OR2+PARCITY1OR2} + b_{13} \text{PARNAT0+PARCITY1OR2} + b_{14} \text{NSB4+PARNAT0+PARCITY0} + e$$

where:

LAF	= natural log of audit fees in AUD
LTA	= natural log of total assets in AUD
SQSUBS	= square root of No. of subsidiaries
CATA	= the ratio of current assets over total assets
QUICK	= quick ratio
DE	= long-term debt to total assets
ROI	= return on investment
OPINION	Indicator variable = 1 if the company received a going concern audit opinion, 0 otherwise
BUSY	Indicator variable = 1 if the company has a 30 June financial year-end, 0 otherwise
LOSS	Indicator variable = 1 if the company has shown net loss in the last three years, 0 otherwise
LNAF	= natural log of non-audit fees in AUD
LFRAUD	= natural log of the value of the single largest fraud in AUD

NAT1OR2+CITY1 OR2	Indicator variable = 1 if the audit firm is the first or second highest-ranked by market share for the industry both nationally (NAT1OR2) and on a city basis (CITY1OR2), 0 otherwise
NAT1OR2+CITY0	Indicator variable = 1 if the audit firm is the first or second highest-ranked by market share for the industry nationally (NAT1OR2) but not on a city basis (CITY0), 0 otherwise
NAT0+CITY1OR2	Indicator variable = 1 if the audit firm is the first or second highest-ranked by market share for the industry on a city basis (CITY1OR2) but not nationally (NAT0), 0 otherwise
NSB4+NAT0 +CITY0	Indicator variable = 1 if the audit firm is a non-specialist Big-4 firm (NSB4) that is not the first or second highest-ranked by market share for the industry either on a national (NAT0) or city basis (CITY0), 0 otherwise
PARNAT1OR2+ PARCITY1OR2	Indicator variable = 1 if the audit partner is the first or second highest-ranked by market share for the industry both nationally (PARNAT1OR2) and on a city basis (PARCITY1OR2), 0 otherwise
PARNAT0+ PARCITY1OR2	Indicator variable = 1 if the audit partner is the first or second highest-ranked by market share for the industry on a city basis (PARCITY1OR2) but not nationally (PARNAT0), 0 otherwise
NSB4+PARNAT0 +PARCITY0	Indicator variable = 1 if the audit partner is from a non-specialist Big-4 firm (NSB4) and the partner is not the first or second highest-ranked by market share for the industry either on a national (PARNAT0) or city basis (PARCITY0), 0 otherwise

Industry and year fixed effects are also included in the model.

5.7. Summary of research methodology

This Chapter explained the methodology of the study. Justification for adopting a positivist approach to the study has been provided. The sample selection and data collection process has been detailed, and the sources of data have been discussed. The dependent variable, independent (test) variables and the control variables used in this study have been defined and the development of the four models used in the study have been discussed with reference back to the hypotheses of the study.

From an epistemological and ontological standpoint, a positivist paradigm has been adopted. This paradigm takes the position that the world has only a single reality and that phenomena

can be studied independent of context. The study is undertaken using an objectivist and regulatory perspective thus adopting a functionalist paradigm characterised by pragmatism and the assumption that human action is rational (Burrell and Morgan 1979).

The quantitative approach uses mathematical and statistical techniques and allows for the inference of the findings and is well suited to the philosophical and positivist foundations of the study.

Employing a quantitative approach to research design and analysis, a deductive approach is used to draw hypotheses from agency theory, substitution, role conflict and signalling theories which seeks to explain the relationships between fraud, auditor specialisation, corporate governance, internal control and audit fees. Four empirical models are presented based on these hypotheses and data is collected and analysed so as to test the models, hypotheses and the theories which underpin them.

6. Data Analysis, Results and Discussion

This Chapter of the thesis includes the data analysis, results of the hypothesis testing and related discussion. First, the results of the auditor industry specialisation analysis are provided including details of the first and second market leaders determined on a national level, city level, national-partner level and city-partner level. Following this is a brief discussion concerning outliers and influential cases and then the testing of parametric assumptions. Descriptive statistics will then be presented and discussed, and this will be followed by regression analysis including presentation of the statistical findings and a discussion of these findings in relation to the stated hypotheses. Additional analysis has also been undertaken in relation to each of the four models and this is presented in Chapter 7 of the thesis.

6.1. Auditor industry specialisation

Prior to undertaking regression analysis, auditor data was analysed using Microsoft Excel to determine auditor industry specialisation at the national, city and partner levels.

An auditor was determined to be an industry specialist at either the national, city or partner level where the following two conditions were satisfied:

1. The audit firm was a Big-4 accounting firm; and
2. The audit firm, office or partner was the first or second market leader; measured using market share in the relevant industry.

The first condition is straightforward to determine with the Big-4 accounting firms comprising Deloitte (DEL), Price Waterhouse Coopers (PWC), Ernst and Young (EY) and KPMG (KPMG).

The second condition being market leadership per industry was determined for each year-industry-location combination relevant to both the fraud and control samples. Due to the time-consuming and labour-intensive process required to determine auditor specialisation, this was not undertaken for those year-industry-location combinations which were not relevant to the samples since this information would not be necessary for the statistical analysis. For example, in 2010, there were no companies in the sample that were in the health care industry (GICS 35) and as such, market leaders have not been determined for the health care industry in 2010. In 2008 however, there was at least one company in the sample from this industry and so the market leaders were determined for the health care industry in 2008.

The industry ‘market leaders’ at the national level for all relevant year-industry combinations are presented in Appendix 7. Also listed is the market share percentage held by the auditor. The market share relates only to clients listed on the ASX and is determined by first calculating the total audit fees charged by each audit firm within an industry and then dividing this amount by the total audit fees charged by all audit firms for clients within that industry. This approach is consistent with prior studies (see, for example, Basioudis & Francis 2007).

The industry ‘market leaders’ and their respective market share percentage at the city level for all relevant year-industry-location combinations are presented in Appendix 7. The market shares in this city-wide analysis are separately calculated using the audit fees paid by all listed companies within an industry across each capital city.

There are a limited number of studies which examine auditor industry specialisation at the partner level (see, for example, Chi & Chin 2011; Goodwin & Wu 2014; Mohd Kharuddin, Basioudis & Hay 2019; Nagy 2014; Zerni 2012). As an emerging research area, there is not a single well-established approach for the measurement of partner level specialisation. This study uses an extension of the method used by Mohd Kharuddin, Basioudis & Hay (2019) who measure partner specialisation using the market share of audit fees at the city-partner level. The present study follows the same approach but also determines specialisation at the national-partner level. The industry ‘market leaders’ and their respective market share percentage at the *national-partner* level for all relevant year-industry-location combinations are presented in Appendix 7. The market shares in this nation-wide analysis are calculated using the audit fees paid by all listed companies within an industry across Australia. For example, when determining the market leading partner in a given year in the utilities industry (GIC 55), the audit fees charged by audit partners in Melbourne are compared with the audit fees charged by audit partners in Adelaide (as well as all other capital cities) to determine which audit partner charges the most audit fees to listed clients in the utilities industry in all of Australia.

The industry ‘market leaders’ and their respective market share percentage at the *city-partner* level for all relevant year-industry-location combinations are presented in Appendix 7. The market shares in this city-wide analysis are separately calculated using the audit fees paid by all listed companies within an industry across each capital city. For example, when determining the market leading partner in a given year in the utilities industry (GIC 55), the audit fees charged by each individual audit partner in Melbourne is compared with the total audit fees

charged by all audit partners in Melbourne to determine which audit partner charges the most audit fees to listed clients in the utilities industry in Melbourne.

6.2. Descriptive Statistics

Descriptive statistics for the variables included in the audit fees model used in this study are reported in Table 13. The total audit fees across the sample is AUD\$106,568,993 with a mean of AUD\$888,075. The total value of reported (single-largest) fraud across the sample was AUD\$17,181,900 with a mean calculated as AUD\$286,356 across the total sample and AUD\$572,712 across the 60 companies in the sample that reported having experienced fraud.

In relation to audit committee characteristics, across the total sample, the mean proportion of independent members on the audit committee (*ACIND*) was 87.8%, this ranges from zero independent audit committee members to 100% of the audit committee members being independent. The mean number of members on the audit committee (*ACSIZE*) was 3.808 members with a range of zero (where no audit committee exists) to 9 members and the mean number of meetings (*ACMEET*) was 3.417 ranging from zero to 8 meetings. Compared to the control sample, the companies in the fraud sample, on average, had a slightly higher proportion of independent members on the audit committee (*ACIND* = 88.2% versus 87.4%), had a greater number of audit committee members (*ACSIZE*) = 3.967 versus 3.650) and a higher number of audit committee meetings (*ACMEET* = 3.583 versus 3.250).

In terms of internal control data which was only available for collection from the fraud sample, slightly less than half of these companies (46.7%) allocated internal audit resources to fraud prevention and/or detection (*IARES*). In terms of the single largest fraud experienced by these companies during the survey period, in 50% of cases, the most significant factor allowing the fraud to occur was internal control failure (*ICFAIL*) which also includes the override of internal controls⁸. In almost one third (31.7%) of cases the single largest fraud was detected by the company's own internal controls (*ICDET*). In 60% of cases, the single largest fraud was reported to an external law enforcement authority.

⁸ An override of internal controls is also considered an internal control failure for the purpose of this study since internal controls should be structured to prevent the ability to override. If the control has been overridden, then the internal control has 'failed' by allowing this to occur.

Table 13 Descriptive statistics

	FRAUD SAMPLE					CONTROL SAMPLE					TOTAL SAMPLE				
	N	MIN	MAX	MEAN	SD	N	MIN	MAX	MEAN	SD	N	MIN	MAX	MEAN	SD
AUDIT FEES (\$'000)	60	25	11,023	1,031	1,584	60	14	4,675	745	951	120	14	11,023	888	1,309
TOTAL ASSETS (\$'000)	60	695	65,254,018	3,574,176	8,916,302	60	684	17,533,488	2,451,379	3,594,390	120	684	65,254,018	3,012,777	6,792,609
SUBS	60	-	23.791	8.854	5.505	60	-	16.371	6.801	3.776	120	-	23.791	7.827	4.812
CATA	60	0.012	0.739	0.375	0.184	60	0.047	0.776	0.406	0.201	120	0.012	0.776	0.391	0.193
QUICK	60	0.045	10.488	1.358	1.458	60	0.207	8.216	1.515	1.597	120	0.045	10.488	1.437	1.525
DE	60	0.026	4.198	1.321	0.850	60	(1.505)	21.178	1.771	3.126	120	(1.505)	21.178	1.546	2.292
ROI	60	(2.129)	0.514	0.088	0.305	60	(3.826)	0.389	(0.049)	0.699	120	(3.826)	0.514	0.019	0.541
OPINION	60	-	1.000	0.017	0.129	60	-	1.000	0.050	0.220	120	-	1.000	0.033	0.180
BUSY	60	-	1.000	0.667	0.475	60	-	1.000	0.733	0.446	120	-	1.000	0.700	0.460
LOSS	60	-	1.000	0.200	0.403	60	-	1.000	0.317	0.469	120	-	1.000	0.258	0.440
NON-AUDIT FEES (\$'000)	60	-	3,732	511	893	60	-	5,178	397	906	120	-	5,178	454	898
FRAUD VALUE (\$'000)	60	1	9,990	573	1,635	N/A	N/A	N/A	N/A	N/A	120	-	9,990	286	1,187
BIG4	60	-	1.000	0.950	0.220	60	-	1.000	0.800	0.403	120	-	1.000	0.875	0.332
ACIND	60	-	1.000	0.882	0.241	60	-	1.000	0.874	0.251	120	-	1.000	0.878	0.245
ACSIZE	60	-	7.000	3.967	1.562	60	-	9.000	3.650	1.527	120	-	9.000	3.808	1.546
ACMEET	60	-	8.000	3.583	1.650	60	-	8.000	3.250	1.723	120	-	8.000	3.417	1.688
IARES	60	-	1.000	0.467	0.503	N/A	N/A	N/A	N/A	N/A	60	-	1.000	0.467	0.503
ICDET	60	-	1.000	0.317	0.469	N/A	N/A	N/A	N/A	N/A	60	-	1.000	0.317	0.469
IC FAIL	60	-	1.000	0.500	0.504	N/A	N/A	N/A	N/A	N/A	60	-	1.000	0.500	0.504
REPLE	60	-	1.000	0.600	0.494	N/A	N/A	N/A	N/A	N/A	60	-	1.000	0.600	0.494
NAT1OR2+CITY1OR2	60	-	1.000	0.550	0.502	60	-	1.000	0.500	0.504	120	-	1.000	0.525	0.501
NAT1OR2+CITY0	60	-	1.000	0.050	0.220	60	-	1.000	0.100	0.303	120	-	1.000	0.075	0.264
NAT0+CITY1OR2	60	-	1.000	0.117	0.324	60	-	1.000	0.117	0.324	120	-	1.000	0.117	0.322
NSB4+NAT0+CITY0	60	-	1.000	0.233	0.427	60	-	1.000	0.083	0.279	120	-	1.000	0.158	0.367
PARNAT1OR2+PARCITY1OR2	60	-	1.000	0.150	0.360	60	-	1.000	0.050	0.220	120	-	1.000	0.100	0.290
PARNAT1OR2+PARCITY0	60	-	-	-	-	60	-	1.000	0.017	0.129	120	-	1.000	0.008	0.091
PARNAT0+PARCITY1OR2	60	-	1.000	0.200	0.403	60	-	1.000	0.217	0.415	120	-	1.000	0.208	0.408
NSB4+PARNAT0+PARCITY0	60	-	1.000	0.600	0.494	60	-	1.000	0.517	0.504	120	-	1.000	0.558	0.499

Just over half (52.5%) of the total sample used a joint national-city industry specialist audit *firm* ($NATIOR2+CITYIOR2$). This means that the company's auditor was a Big-4 firm that had the highest or second highest market share in the company's industry both nationally and in the city in which they were based. The proportion of companies using a joint national-city industry specialist audit firm ($NATIOR2+CITYIOR2$) is relatively similar for both the fraud sample (55%) and the control sample (50%). A smaller number of companies in the total sample (7.5%) used an audit firm that is an industry specialist at the national level but not at the city level ($NATIOR2+CITY0$). This is less common for companies in the fraud sample (5%) compared to the control sample (10%). A higher proportion of companies use an audit firm which was an industry specialist at the city level but not at the national level (11.7%) ($NAT0+CITYIOR2$). This proportion remains consistent across both the fraud sample (11.7%) and the control sample (11.7%). Just less than one in six (15.8%) of companies used a Big-4 audit firm that is not an industry specialist audit firm ($NSB4+NAT0+CITY0$). This was more common for companies in the fraud sample (23.3%) compared to companies in the control sample (8.3%).

Only 10% of the total sample used a joint national-city industry specialist audit *partner* ($PARNATIOR2+PARCITYIOR2$). This means that the audit partner was from a Big-4 firm and that partner had the highest or second highest market share in the company's industry both nationally and in the city in which they were based. The proportion of companies using a joint national-city industry specialist audit firm is differs for the fraud sample (15%) and the control sample (5%). Only a single company in the total sample (0.8%) used an audit partner that was an industry specialist at the national level but not at the city level ($PARNATIOR2+PARCITY0$)⁹. This company was part of the control sample and this represents 1.7% of the control sample compared to 0% for the fraud sample. A much higher proportion (20.8%) of companies used an audit partner which was an industry specialist at the city level but not at the national level ($PARNAT0+PARCITYIOR2$). This was only slightly less common for companies in the fraud sample (20%) compared to the control sample (21.7%). Over half (55.8%) of companies used an audit partner from a Big-4 audit firm who

⁹ If an audit partner has the first or second highest market share when compared to all audit partners nationally, then typically they will also have the first or second highest market share when compared only to the audit partners in their city location. This is because audit partners do not typically audit clients across different city locations. In the single observation where an audit partner was the national specialist but not the city specialist, the audit partner did audit clients from across at least two city locations and was the industry specialist in their main location but not in their secondary location (where the company in the control sample was based).

was not an industry specialist audit partner ($NSB4+PARNAT0+PARCITY0$). This was more common for companies in the fraud sample (60%) compared to companies in the control sample (51.7%).

6.3. Outliers and influential cases

A number of diagnostic processes were undertaken to identify potential outliers and/or highly influential cases. This included an evaluation of Mahalanobis distance, Cook's distance, leverage values and covariance ratios. Across all variables, five cases were identified as potentially influential. Firstly, the applicable variables were winsorised to maximum of 3 standard deviations to eliminate excessive influence. Following this process, the R^2 of the models and the significance of the regression co-efficients was only slightly altered. Secondly, the data was trimmed to entirely remove the previously identified cases. Again, the R^2 of the models and the significance of the regression coefficients was only slightly altered. Hence, the reported regressions relate to the full sample data without winsorising and trimming. When making the decision to include the full sample data without winsorising or trimming, consideration was also given to the limited sample size of the study.

6.4. Evaluation of statistical assumptions

Hair, Anderson, Tatham and Black (1998) explain that a number of assumptions underlie multiple regression analysis and that these assumptions must therefore be tested and if violations of these assumptions occurs then corrective action must be taken. When using regression analysis to draw conclusions about a population, it is necessary that a number of assumptions related to the regression models be true. These include normally distributed errors, independent errors, homoscedasticity, linearity and an absence of multi-collinearity (Field 2009).

To maximise normality and linearity, a number of data transformations were undertaken consistent with prior literature. The natural log transformation was applied to audit fees (LAF), total assets (LTA), non-audit fees ($LNAF$) and fraud value ($LFRAUD$). The square root of the number of subsidiaries ($SQSUB$) was used to transform this variable as some companies had zero subsidiaries, and the Ln of zero is undefined.

Each of these assumptions was tested using a range of statistical analyses available in the SPSS statistical package. The testing associated with each of these assumptions will each be discussed in turn.

Normally distributed errors

The assumption of normally distributed errors assumes that the residuals of the regression model are normally distributed, random and have a mean of zero (Field 2009). This assumption was tested visually using histograms and probability plots (presented in Appendix 3). Based on the visual assessment of histograms and probability plots, the assumption of normality was not violated.

The normality assumption was also tested against the standardised residuals using the Kolmogorov-Smirnov test and the Shapiro-Wilk test. The results of these tests appear in Table 14 below.

Table 14 Models 1-4: Testing for normality using the K-S and S-W tests

	Kolmogorov-Smirnov			Shapiro-Wilk		
	Statistic	df	Sig.	Statistic	df	Sig.
Model 1a	0.064	60	0.200	0.980	60	0.414
Model 1b	0.069	120	0.200	0.969	120	0.008
Model 2a	0.075	60	0.200	0.984	60	0.614
Model 3a	0.057	60	0.200	0.986	60	0.725
Model 4a	0.092	60	0.200	0.986	60	0.703
Model 4b	0.067	60	0.200	0.985	60	0.665

All models are not significant according to the Kolmogorov-Smirnov test which indicates that the residuals do not deviate from normality. According to the Shapiro-Wilk test, model 1b which uses the total matched sample (n=120) is significant which indicates a deviation from normality. When tested separately, the fraud sample (which is model 1a) and the control sample (which is not reported) are not significant according to the Shapiro-Wilk test. It is likely therefore that the significance in the total matched sample is as a result of combining the fraud sample and the control group and thereby creating a larger sample. Field (2009) warns that these tests can be significant in larger samples even when scores only slightly differ from normality. For this reason, the tests should always be interpreted in conjunction with the visual tests of normality.

On the basis of the visual assessment as well as the results of the normality tests, the assumption of normality is not violated for models 1 through 4.

Independent errors

The assumption of independent errors (also known as a lack of auto-correlation) requires that the residuals for any two observations should be independent and therefore not correlated (Field 2009). This assumption is tested for each model using the Durbin-Watson test and the results are presented and discussed below.

Field (2009) explains that a Durbin-Watson statistic of less than 1 or greater than 3 is a cause for concern. A value greater than 2 indicates negative auto-correlation, a value below 2 indicates positive auto-correlation and a value of 2 means there is no auto-correlation. Field (2009) warns that values close to 2 may still be problematic depending on the sample size and the model. Reference tables originally produced by Savin and White (1977) were used to evaluate whether the Durbin-Watson statistics as reported in Table 15 were at an acceptable level (with consideration given to the sample size and the number of regressors in the model). Based on this evaluation, the assumption of independent errors is not violated for models 1 through 5.

Table 15 Models 1-4: Testing for independent errors using the Durbin-Watson test

	Durbin-Watson
Model 1a	1.900
Model 1b	2.055
Model 2a	1.936
Model 3a	1.685
Model 4a	2.438
Model 4b	2.154

Homoscedasticity and linearity

The homoscedasticity assumption requires with each level of the predictor variables, that the variance of residual terms remain constant (Field 2009). This assumption is tested visually by plotting the standardised residual against the predicted values (presented in Appendix 4). Non-homoscedasticity (i.e. heteroscedasticity) typically presents as a funnel shape. Based on the

visual assessment of these plots with random and even dispersion of points, the assumption of homoscedasticity is not violated.

The linearity assumption requires that the mean values of the dependent variable for each increment of the independent variables are positioned along a straight line (Field 2009). This assumption is tested visually by using the same plots as used to evaluate homoscedasticity above. Similarly, based on the visual assessment of these plots with random and even dispersion of points, the assumption of linearity is also not violated.

Absence of multicollinearity

The absence of multicollinearity assumption requires that there is no exact collinearity between independent variables. Multicollinearity was tested using the variance inflation factors (VIF's) as reported in Appendix 5. There are no specific thresholds at which VIF's indicate multicollinearity but Myers (1990) suggest that a value greater than 10 may indicate that the assumption is violated.

Model 2a (n=60) included a single instance whereby the VIF of the ln of total assets (*LTA*) was slightly greater than 10 (VIF=11.699). A review of the Pearson correlation matrix for this model showed that of all independent variables in the model, the ln of total assets (*LTA*) was most highly correlated with the square root of subsidiaries (*SQSUBS*) with a correlation of $r=0.679$, $p<.001$. The VIF for the square root of subsidiaries (*SQSUBS*) is well below 10 (VIF=4.479). It should be noted however that the potential multicollinearity in model 2a is limited only to the control variables and therefore this does not create any problems for the interpretation of the test variables being analysed.

Models 4a and 4b include interacted variables. To reduce multicollinearity in the interaction variables, the *LFRAUD* variable was centred. Although this substantially reduced the reported VIF's, many remain greater than 10 (refer to appendix 6 for a list of VIF's and tolerance values). However, Friedrich (1982) explains that although an interaction term and its component variables are commonly highly correlated (thus resulting in high VIF's), this multicollinearity is not problematic for the interpretation of the results. Unlike an 'additive' model, in an 'interactive' model, multicollinearity does not distort the coefficients. (Friedrich 1982).

The remaining VIF values for all other independent variables across all models are at an acceptable level which indicates that other than the instances discussed above, there is little collinearity among the independent variables used in this analysis.

Therefore, overall the statistical assumptions which underlie multiple regression analysis being normally distributed errors, independent errors, homoscedasticity, linearity and an absence of (problematic) multicollinearity are met.

6.5. Regression analysis

Following the analysis and discussion of the descriptive statistics in Chapter 6.4 of the thesis, this section will report and discuss the results of the multivariate regression analysis undertaken using the SPSS statistical package to better understand the relationship between MOA fraud and audit fees and the impact of corporate governance, internal control and auditor industry specialisation. The results of each of the four models presented in Chapter 5.6 of the thesis will be reported and discussed in turn. The multivariate regression analysis results of models 1-5 are discussed in Chapters 6.5.1 to 6.5.5. The results of additional analysis are included and discussed further in Chapter 7 of the thesis.

To best respond to each of the research questions of the study, some of the models presented in Chapters 6.5.1 to 6.5.5 use the fraud sample only (n=60), while others use the total matched sample (n=120). As such particular attention is drawn to the sample size displayed at the lowermost of each regression table.

6.5.1. Model 1

Model 1 is presented in Table 16 using both the fraud sample (model 1a) and the total matched sample (model 1b). Consistent with audit fee models reported in prior research, models 1a and 1b each have high levels of explanatory power with adjusted R²s of 88.0% and 81.7% respectively. The F-ratios are both highly significant (p<0.001) indicating a good linear fit. Model 1a is investigating only those firms which have experienced known MOA fraud and is based only on the fraud sample and as such n=60. Model 1b is based on the total matched sample and as such n=120.

The analysis was first conducted for those firms which reported having experienced MOA fraud. Further testing was undertaken using a matched sample where each fraud company was

matched with a control company as discussed in Chapter 5.3 of the thesis. While fraud (*LFRAUD*) was positive and significant in both models 1a and 1b, the results were stronger in model 1a which only included fraud firms. More specifically, compared to model 1b, model 1a had a higher adjusted R² (88.0% versus 81.7%), the fraud variable had a larger co-efficient (0.056 versus 0.016) and was more highly significant (p<.0.01 versus p<0.10). Given the weakening of the statistical results associated with the inclusion of the control sample, the remaining models presented in this chapter of the thesis have been primarily analysed using only the fraud sample. However, where appropriate, additional analysis has been conducted using the total matched sample and this is reported in chapter 7.

Table 16 Regression analysis (models 1a and 1b)

Independent variables	Prediction	(1a) <i>Estimate</i> (<i>t-value</i>)	(1b) <i>Estimate</i> (<i>t-value</i>)
Constant		5.776*** (6.016)	4.12*** (5.833)
<i>Control Variables</i>			
LTA	+	0.317*** (4.752)	0.448*** (10.99)
SQSUBS	+	0.079*** (3.927)	0.038*** (2.391)
CATA	+	-0.813** (-1.748)	-1.009*** (-3.255)
QUICK	-	-0.17* (-1.677)	-0.062* (-1.486)
DE	+	-0.047 (-0.431)	0.008 (0.315)
ROI	-	-0.637* (-1.463)	0.002 (0.017)
OPINION	+	-1.506*** (-2.795)	-0.561** (-1.867)
BUSY	+	-0.082 (-0.563)	0.141 (1.144)
LOSS	+	0.27* (1.351)	0.198* (1.413)
LNAF	+	0.022 (0.853)	0.01 (0.555)
BIG4	+	0.497 (1.142)	0.1 (0.522)
<i>Test Variable</i>			
LFRAUD	+	0.056*** (2.714)	0.016* (1.563)
F-value (p-value)		19.82 (<0.001)	24.086 (<0.001)
Adj. R ²		0.880	0.817
Sample size		n=60	n=120

*** are significant at p<0.01, ** are significant at p<0.05 and * are significant at p<0.10.

Significance values are one-tailed for those variables with predicted signs.

Industry fixed effects and year fixed effects are included in the model but are not reported for brevity.

Control variables

A number of the control variables are significant in both models 1 and 1b as presented in Table 16. Client size (*LTA*) and client complexity (*SQSUBS*) are both positive and highly significant ($p < 0.001$ for both models). A higher ratio of current assets to total assets (*CATA*) can be expected to result in higher audit fees due to the inherent risk associated with auditing current assets including inventory and receivables as these are generally considered to be difficult to audit (Newton & Ashton 1989; Simunic 1980). However, across models 1a and 1b, there is a significant negative relationship between the ratio of current assets to total assets (*CATA*) and audit fees ($p < 0.05, 0.01$ respectively). That is, a higher ratio results in lower audit fees. I provide two possible explanations for this finding. Firstly, what were once considered to be difficult areas to audit, accounts receivable and inventory may have over time become less complex with the advancement in technologies such as, for example, computerised (and more recently, cloud-based) inventory and debtor management systems. Secondly, a greater proportion of current assets indicate greater liquidity in the business, and this may reduce an auditor's risk assessment in regard to going concern issues and the client's ability to pay their debts as and when they fall due.

A client's liquidity (*QUICK*) has a weakly significant negative relationship with audit fees ($p < .10$ for both models). Return on assets (*ROI*) also has a weakly significant negative relationship with audit fees however this is only the case for the fraud sample (model 1a). Clients who receive a going concern audit opinion (*OPINION*) may be expected to pay higher audit fees as such an opinion may indicate audit problems (Hay, Knechel & Wong 2006). However, I found a significant negative relationship between the issuance of a going concern opinion (*OPINION*) and audit fees ($p < 0.01, 0.05$ respectively). An explanation of this finding is similar to the explanation often given where poor profitability (usually measured by a net loss) results in lower audit fees despite the increased risk associated with a loss-making company. Although the relationship between a net loss and audit fees is generally expected to be positive, Ferguson, Francis and Stokes (2003) explain that clients with operating losses may have lower audit fees due to an inability to pay higher fees. The same may be true for clients that receive a going concern opinion. In this case, the auditor is concerned that the client may be unable to pay their debts as when they fall due and may respond to this diminished ability to pay by charging lower fees. There is a positive and weakly significant relationship between client profitability (*LOSS*) and audit fees ($p < 0.1$ for both models).

There is no significant relationship between leverage (*DE*) and audit fees across models 1-3. I also found no significant relationship between a client having a non-30 June year end (*BUSY*) and audit fees and the level of non-audit fees (*LNAF*) paid by a client and audit fees. Similarly, no significant relationship is found between a client engaging a Big-4 (*BIG4*) auditor and audit fees.

Test variable

Fraud

In relation to fraud (*LFRAUD*), there is a significant and positive relationship in both models 1a and 1b, however the results were stronger in model 1a, which only included fraud firms ($p < 0.01$) compared to model 1b ($p < 0.10$), which included the total matched sample. The significant findings are consistent with the expectation that auditors will be required to undertake additional work where clients have experienced known fraud. There may also be a greater perceived audit risk with fraud effected clients. Larger fraud losses are more likely to be associated with a greater amount of additional audit work and a greater perceived risk and this is likely to be reflected in a higher audit fee.

This addresses the first research question and the first hypothesis, being:

RQ1: In conducting the audit engagement, to what extent if any, do auditors undertake additional work (proxied by audit fees) when their clients have experienced known MOA fraud?

H₁: Companies with higher losses from misappropriation of assets as reported in the KPMG fraud survey pay higher audit fees than those companies with lower (or no) losses from misappropriation of assets as reported in the KPMG fraud survey.

The positive relationship between known MOA fraud and audit fees can be explained by additional work being undertaken by the auditor. This is supported by prior literature which has established that audit fees provide a reliable proxy for audit effort (Bedard & Johnstone 2006 cited in Hogan & Wilkins 2008; Bell, Landsman & Shackelford 2001).

While it is expected that the auditor will consider the risk of fraud in all financial audit engagements, it is understandable that a higher fraud risk assessment would be made by the

auditor where an incidence of known fraud has occurred. Following from this and consistent with agency theory, a high fraud risk assessment results in an increased level of monitoring in order to reduce the of fraud risk to an acceptable level. The additional monitoring undertaken by the auditor constitutes additional audit work and thereby results in additional audit fees.

These findings add to the developing body of evidence reported in the literature which shows a relationship between fraud risk and audit fees. This includes the significant and positive relationships between audit partners assessments of fraud and the planned audit fee (Johnstone & Bedard 2001), class action securities fraud litigation and audit fees (Lenard & Petruska 2012) as well as fraud firms and combined audit and non-audit fees (Markelevich & Rosner 2013). The findings also build on the smaller study undertaken by Sharma (2004) who explains that since fraud firms carry a greater audit risk, auditors will likely expand the audit and the additional costs associated with the extended scope and rigor of these audits may be recouped through higher audit fees.

Based on the results of models 1a and 1b reported in Table 16, hypothesis 1 is supported. Companies with higher losses from MOA pay higher audit fees than those companies with lower (or no) losses from MOA fraud. Additional external monitoring requires the auditor to expend additional effort and this translates into additional audit fees. These additional audit fees are considered a monitoring cost under agency theory.

Additional testing to further explore the relationship between fraud and audit fees is included in Chapter 7.1 of the thesis. While models 1a and 1b reported above found a positive and significant relationship between fraud value (*LFRAUD*) and audit fees, additional testing indicates that where a dummy variable is used to measure fraud, this does not have a significant relationship with audit fees. This suggests that the auditor considers the value of the fraud when determining the level of additional work required (which is proxied by the audit fee) rather than merely responding to the simple occurrence of MOA fraud which can occur in both smaller and larger amounts. Further analysis suggests that the auditor not only considers the absolute value of fraud (*LFRAUD*) when determining the level of additional work required but considers the size of the fraud relative to the size of the company (measured using total assets).

6.5.2. Models 2 and 3

Models 2a and 3a are presented in Table 17 and each use the fraud sample (n=60).

Table 17 Regression analysis (models 2a and 3a)

Independent variables	Prediction	(2a) <i>Estimate</i> (<i>t-value</i>)	(3a) <i>Estimate</i> (<i>t-value</i>)
Constant		5.719*** (5.131)	5.174*** (5.054)
<i>Control Variables</i>			
LTA	+	0.333*** (3.747)	0.354*** (5.003)
SQSUBS	+	0.077*** (3.467)	0.073*** (3.685)
CATA	+	-0.76* (-1.512)	-0.572 (-1.19)
QUICK	-	-0.176* (-1.573)	-0.212** (-2.027)
DE	+	-0.065 (-0.534)	-0.051 (-0.481)
ROI	-	-0.604 (-1.24)	-0.887** (-1.974)
OPINION	+	-1.499*** (-2.65)	-1.996*** (-3.554)
BUSY	+	-0.095 (-0.613)	0.01 (0.061)
LOSS	+	0.257 (1.223)	0.358** (1.809)
LNAF	+	0.024 (0.867)	0.015 (0.586)
BIG4	+	0.467 (1.005)	0.504 (1.141)
<i>Test Variable</i>			
LFRAUD	+	0.052** (2.283)	0.061*** (2.842)
ACIND	+/-	-0.153 (-0.334)	
ACSIZE	+/-	-0.001 (-0.009)	
ACMEET	+/-	-0.012 (-0.211)	
IARES	-		-0.092 (-0.549)
ICDET	-		-0.378** (-2.348)
ICFAIL	+		-0.062 (-0.464)
REPLE	-		0.144 (0.905)
F-value (p-value)		16.169 (<0.001)	18.299 (<0.001)
Adj. R ²		0.870	0.888
Sample size		n=60	n=60

*** are significant at p<0.01, ** are significant at p<0.05 and * are significant at p<0.10.

Significance values are one-tailed for those variables with predicted signs.

Industry fixed effects and year fixed effects are included in the model but are not reported for brevity.

Model 2a is investigating the impact that corporate governance (more specifically, audit committee characteristics) has on audit fees where the client has experienced known MOA fraud whereas model 3a is investigating the impact that fraud-related internal controls have on audit fees where the client has experienced known MOA fraud. Each model has high levels of explanatory power with adjusted R²'s of 87.0% and 88.8% respectively. The F-ratios are both highly significant ($p < 0.001$) indicating a good linear fit.

Control variables

A number of the control variables are significant across models 1 and 2 presented in Table 17. More specifically, client size (*LTA*) and client complexity (*SQSUBS*) are both positive and highly significant in each model ($p < 0.01$). As with model 1 (a and b), model 2a shows a significant negative relationship between the ratio of current assets to total assets (*CATA*) and audit fees ($p < .1$). However, this relationship is only weakly significant in model 2a and not significant in model 3a. Possible explanations for the weakly significant relationship in model 2a are as discussed in Chapter 6.5.1 and relates to a potential reduction in the complexity associated with auditing current assets, the reduced risk of going concern issues as the client's ability to pay their debts as and when they fall due.

A client's liquidity (*QUICK*) has a significant negative relationship with audit fees with the level of significance varying across models 1 and 2 ($p < .01$ and $.05$ respectively). As with models 1a and 1b, models 2a and 3a also show a significant negative relationship between the issuance of a going concern opinion (*OPINION*) and audit fees across models ($p < 0.01$). A possible explanation of this finding is as discussed in Chapter 6.5.1 and relates to the auditor concern in relation to the client's ability to pay their debts as when they fall due and as such the auditor may respond to this reduced ability to pay by charging lower fees.

Consistent with a number of prior studies (see, for example, Abbott et al. 2003), model 3a shows a significant and positive relationship between client profitability (*LOSS*) and audit fees ($p < 0.05$). The model also found a significant and negative relationship between return on investment (*ROI*) and audit fees ($p < .05$). However, most prior studies that have examined the relationship between profitability and audit fees did not find the existence of a significant relationship either positive or negative (see, for example, Lee & Mande 2005; Simunic 1980). In addition, profitability (*LOSS*) and return on investment (*ROI*) are not significant in model 2a. There is also no significant relationship between leverage (*DE*) and audit fees across either

model. Further, there is no significant relationship between a client having a non-30 June year end (*BUSY*) and audit fees and the level of non-audit fees (*LNAF*) paid by a client and audit fees across both models. Finally, no significant relationship is found between a client engaging a Big-4 (*BIG4*) auditor and audit fees in either model.

This finding is inconsistent with much of the prior research which has reported a positive association between Big-N audit firms and higher audit fees (see, for example, Francis 1984; Francis & Simon 1987; Hay, Knechel & Wong 2006).

Test variables

Fraud

In relation to fraud (*LFRAUD*), there is a significant and positive relationship in both models 2a and 3a, with stronger results in model 3a ($p < 0.01$) which investigates the impact of fraud-related internal controls on audit fees compared to model 2a ($p < 0.05$) which investigates corporate governance attributes, more specifically, audit committee characteristics on audit fees. The significant findings in both models are consistent with the expectation that auditors will undertake additional audit work where clients have experienced known MOA fraud.

In addition to the findings related to model 1a and 1b as discussed in the previous section (Chapter 6.5.1), the results of models 2a and 3a provided further support for the acceptance of hypothesis 1 that companies with higher losses from misappropriation of assets as reported in the KPMG fraud survey, pay higher audit fees than those companies with lower losses from misappropriation of assets.

Corporate governance

The impact of corporate governance on audit fees is analysed in model 2a. All audit committee related corporate governance variables, being audit committee independence (*ACIND*), audit committee size (*ACSIZE*) and number of audit committee meetings (*ACMEET*) are not significant.

This addresses the second research question and the second hypothesis, being:

RQ2: To what extent if any, do corporate governance characteristics (specifically audit committee attributes) impact the amount of additional work (proxied by audit fees) undertaken by the auditor when their clients have experienced known fraud?

H₂: Of those companies that have reported having experienced fraud in the preceding two years as part of the KPMG fraud survey, there is no significant relationship between audit committee independence, size and activity and audit fees.

The absence of a significant relationship between the corporate governance function and audit fees may be explained by the mere existence of fraud in the first instance rendering a client's corporate governance as weak given that such governance was not functioning sufficiently to have prevented the fraud taking place. In the sample analysed, where each entity has experienced known MOA fraud, the auditor may not pay regard to even best-practice audit committee structures as an effective substitute for the monitoring function that is provided by the external audit. That is, while according to substitution theory one may expect a company's audit committee structure and activity to impact audit fees, perhaps the propensity of the auditor to allow the partial substitution of external monitoring with internal monitoring is constrained. This might occur in cases where the internal monitoring has been shown as ineffective in preventing MOA fraud.

To further investigate this possibility, rather than using the fraud sample (n=60), as reported in model 2a, additional analysis was separately carried out first on the control sample of companies (n=60) and second on the entire matched sample (n=120) to determine whether audit committee structure and activity was significantly and positively related to audit fees using these alternative samples. All audit committee related corporate governance variables, being audit committee independence (*ACIND*), audit committee size (*ACSIZE*) and number of audit committee meetings (*ACMEET*) were not significantly related to audit fees despite undertaking this analysis using (1) the fraud sample, (2) the control sample and (3) the entire matched sample. The results of this additional analysis are reported in Chapter 7.2 and indicate that the absence of a significant relationship between the corporate governance function and audit fees in model 2a does not appear to be related to the use of a fraud sample where the corporate governance structure has failed to prevent the occurrence of MOA fraud. Further analysis was undertaken using dummy variables to indicate where audit committee independence, audit committee size and audit committee meetings were equal to above the median values determined using the entire matched sample. This analysis was conducted on the total matched sample as well as on the fraud sample only. Using this alternative measurement, the relationship between each audit committee characteristic and audit fees remains insignificant across both samples.

Another possible explanation for not finding a significant relationship between the corporate governance function and audit fees is the potential for the impacts created by substitution theory (which suggests a negative association between effective corporate governance and audit fees) and signalling theory (which suggests a positive association between effective corporate governance and audit fees) to co-exist, thereby offsetting the impacts that each creates.

The contrasting directionality associated with substitution and signalling theory may explain why the present study does not find a significant relationship between corporate governance characteristics and audit fees. Further research may seek to disentangle these impacts and better understand how corporate governance structures impact audit fees.

Based on the results of model 2a including the additional analysis undertaken, hypotheses 2 as stated in the null form, is therefore supported.

Internal controls

The impact of internal controls on audit fees is analysed in model 3a. As expected, there is a significant negative relationship ($p < 0.05$) between fraud detection via internal controls (*ICDET*) and audit fees. There is no significant relationship found between the allocation of internal audit resources (*IARES*), fraud resulting from internal control failure (*ICFAIL*) or fraud reported to legal authorities (*REPLE*) and audit fees.

This addresses the third research question and the third hypothesis, being:

RQ3: To what extent if any, do fraud-related internal controls impact the amount of additional work (proxied by audit fees) undertaken by the auditor when their clients have experienced known fraud?

H₃: Of those companies that have reported having experienced fraud in the preceding two years as part of the KPMG fraud survey, companies who report having stronger fraud prevention/detection controls will pay lower audit fees than those who do not.

The results of model 3a provide evidence that companies pay lower audit fees when their single largest fraud during the survey period was detected as a result of the organisations own internal

controls (*ICDET*). More specifically, when a company's single largest fraud is detected via internal controls, the company pays on average 31.48% less in audit fees than those companies where the single largest fraud was detected via other means. Such detection may provide auditors with greater confidence in the effectiveness of a company's internal controls compared to those companies where the single largest fraud was detected by other means (such as notification by an employee or an external party, external audit or anonymous tip-off).

Where MOA fraud has taken place, internal controls must have failed to prevent such occurrence. Notwithstanding this finding, where internal controls are seen to be working effectively in terms of fraud detection, it would be expected according to substitution theory, that the auditor would be required to undertake less work (to reduce audit risk to an acceptable level) and as such audit fees would be lower. This is because the auditor is able to place greater reliance on the client's internal controls to detect fraud and this would reduce the extent to which the auditor expands the audit in response to MOA fraud.

Conversely, when auditing companies whose internal controls are not operating effectively to detect fraud, auditors will place less reliance on the client's internal controls to detect fraud and therefore must undertake greater audit work, thus resulting in higher audit fees. This finding builds on the prior literature by Hogan and Wilkins (2008), who reported that where internal controls are weak, auditors are required to undertake a greater level of substantive testing before being able to issue an unqualified audit opinion. The researchers reported that firms with deficient internal controls pay significantly higher audit fees indicating that the auditor carries out increased audit work as a response to the increased control risk.

Interestingly, the other measures of internal control used in the present study are not found to be significantly related to audit fees. A possible explanation for this unexpected finding is as follows. While fraud detection via internal controls (*ICDET*) relates to the detection of fraud, the remaining internal control variables analysed as part of this study (*IARES*, *ICFAIL*, *REPLE*) relate, at least in part, to the prevention of fraud. Since this segment of the analysis includes only those firms who have experienced MOA fraud to some degree, the existence of prevention-focused, fraud-related internal controls may be dismissed by the auditor when undertaking their fraud risk assessment given that any such controls have proven ineffective in preventing fraud occurrence.

More specifically, the allocation of internal audit resources (*IARES*) is expected to improve the internal audit function of the company. ‘An internal audit function can assist ...by bringing a systematic, disciplined approach to evaluating and continually improving the effectiveness of its risk management and internal control processes’ (Australian Securities Exchange 2010, p. 30). It would be expected, therefore, that the internal audit function would include the detection but also the prevention of MOA fraud. In relation to MOA fraud resulting from an internal control failure (*ICFAIL*), this variable measures whether the survey respondent believes that poor internal controls or an override of internal controls was the most important factor that allowed the companies single largest fraud to occur (as opposed to other causes such as risks peculiar to the industry, or collusion between employees and third parties). This variable represents the respondent’s (company) perspective regarding the ineffectiveness of internal controls, however from the auditor’s perspective, it could be considered that any instance of MOA fraud is evidence of internal control failure and, as such, the company’s perspective regarding the effectiveness (or otherwise) of prevention-focused fraud-related internal controls may be of little relevance to the auditor when undertaking a fraud risk assessment and therefore determining the extent of audit work required and the subsequent audit fee.

Finally, whether or not the company’s single largest fraud was reported to external law enforcement (*REPLE*), also relates to fraud prevention since such actions can deter potential perpetrators from committing fraud. Each of the aforementioned prevention-focused, fraud-related internal controls, may have limited impact on the auditor’s fraud risk assessment, audit effort and subsequent audit fee since all of the companies examined in this part of the analysis have failed to prevent the occurrence of MOA fraud. If ‘the proof of the pudding is in the eating’ then it could be that the proof of prevention-focused, fraud-related internal controls is in their ability to prevent fraud and on that basis, each company under examination has failed, possibly rendering these variables redundant to the auditor when setting the audit fee. Further research examining prevention-focused fraud-related internal control using a sample comprised of companies that have not experienced MOA fraud may produce different results and is suggested as an avenue for further research.

Based on the results of model 3a, hypothesis 3 is partially supported. More specifically, of those companies that have reported having experienced fraud in the preceding two years as part of the KPMG fraud survey, companies who report having stronger fraud detection controls will pay lower audit fees than those who do not, while companies who report having stronger fraud

prevention controls will not pay lower audit fees than those who do not. Further analysis included in Chapter 7 examines the combined impact of prevention-focussed fraud-related internal controls. This additional analysis uses a dummy variable to represent those companies who allocate internal audit resources to fraud prevention and/or detection AND internal control failure was not a key factor in allowing the company's single largest fraud to occur AND the company reported their single largest fraud to law enforcement authorities. This additional analysis found that even the combined impact of these prevention-focussed fraud-related internal controls still has no impact on the audit fee.

These findings contribute to the extant literature in relation to internal governance and external audit fees where the results have been mixed (see, for example, Ettredge, Reed & Stone 2000; Naser et al. 2013). In particular, the results of the present study support the existence of a substitution effect whereby the additional work undertaken by the auditor in response to known MOA fraud is reduced in response to strong fraud detection controls.

6.5.3. Model 4

Models 4a and 4b are presented in Table 18 using two different specifications for auditor industry specialisation. Model 4a analyses auditor industry specialisation using the *firm national-city framework* whereas model 4b analyses auditor industry specialisation using the *partner national-city framework*. Models 4a and 4b each use the fraud sample (n=60) in their analysis and investigate the impact that auditor industry specialisation has on audit fees where the client has experienced known MOA fraud. Each model has a very high level of explanatory power with adjusted R²'s of 90.6% and 90.0% respectively. The F-ratios are both highly significant (p<0.001) which indicates a good linear fit.

Table 18 Regression analysis (model 4)

Independent variables	Prediction	4a <i>Estimate</i> <i>(t-value)</i>	4b <i>Estimate</i> <i>(t-value)</i>
Constant		3.044*** (1.583)	4.508*** (3.413)
<i>Control Variables</i>			
LTA	+	0.467*** (4.67)	0.382*** (5.415)
SQSUBS	+	0.063*** (2.888)	0.063*** (3.270)
CATA	+	-0.728* (-1.489)	-0.911** (-2.137)
QUICK	-	-0.182**	-0.082

			(-1.829)	(-0.849)
DE	+	-0.156**	(-1.54)	(-0.653)
ROI	-	-0.526	(-1.147)	(-0.388)
OPINION	-	-1.551***	(-3.135)	(-3.083)
BUSY	+	-0.106	(-0.744)	(-0.081)
LOSS	+	0.09	(0.46)	0.315*
LNAF	+	0.013	(0.474)	0.011
			(0.480)	
Test Variables				
LFRAUD^	+	0.589**	(2.425)	0.329**
NAT1OR2+CITY1OR2	+/-	1.164**	(2.234)	(1.815)
NAT1OR2+CITY0	+/-	1.270**	(2.147)	
NAT0+CITY1OR2	+/-	1.527**	(2.706)	
NAT1OR2+CITY1OR2xLFRAUD^	+/-	-0.498*	(-1.921)	
NAT1OR2+CITY0xLFRAUD^	+/-	-0.982**	(-2.144)	
NAT0+CITY1OR2xLFRAUD^	+/-	-0.579**	(-2.404)	
NSB4+NAT0+CITY0	+/-	1.128**	(2.146)	
NSB4+NAT0+CITY0xLFRAUD^	+/-	-0.527*	(-1.992)	
PARNAT1OR2+PARCITY1OR2	+/-			1.618***
PARNAT0+PARCITY1OR2	+/-			(2.865)
PARNAT1OR2+PARCITY1OR2xLFRAUD^	+/-			1.096**
PARNAT0+PARCITY1OR2xLFRAUD^	+/-			(2.049)
NSB4+PARNAT0+PARCITY0	+/-			-0.335*
NSB4+PARNAT0+PARCITY0xLFRAUD^	+/-			(-1.759)
				-0.343*
				(-1.833)
				1.031*
				(1.962)
				-0.239
				(-1.252)
F-value (p-value)			19.861	19.234
Adj. R ²			(<0.001)	(<0.001)
Sample size			0.906	0.900
			n=60	n=60

^The LFRAUD variable is centred to reduce multicollinearity in the interacted variables.

*** are significant at $p < 0.01$, ** are significant at $p < 0.05$ and * are significant at $p < 0.10$.

Significance values are one-tailed for those variables with predicted signs.

Industry fixed effects and year fixed effects are included in the model but are not reported for brevity.

Control variables

Many of the control variables are significant across models 4a and 4b. Client size (*LTA*) and client complexity (*SQSUBS*) are each positive and highly significant ($p < 0.001$) across both

model specifications. As with models 1 (a and b) and 2, there is a significant negative relationship between the ratio of current assets to total assets (*CATA*) and audit fees ($p < 0.10$ and $p < 0.5$ respectively). That is, a higher ratio results in lower audit fees. Possible explanations for this significant relationship are as discussed in Chapter 6.5.1 and include a potential decrease over time in the complexity of auditing current assets and the lower risk of going concern issues as the ratio indicates greater liquidity.

A client's liquidity (*QUICK*) and leverage (*DE*) each have a significant negative relationship with audit fees for model 4a ($p < .05$ for both variables), however no significant relationship is identified for model 4b. A higher leverage (*DE*) is expected to result in higher audit fees due to the increased leverage and greater risk associated with higher levels of debt (Simunic 1980). I found a significant negative relationship between leverage (*DE*) and audit fees. That is, a higher leverage results in lower audit fees. An explanation of this finding is similar to the explanation often given where poor profitability (usually measured by a net loss) results in lower audit fees despite the increased risk associated with a loss making (or in this case more highly-leveraged) company. Ferguson, Francis and Stokes (2003) explain that clients with operating losses may have lower audit fees due to an inability to pay higher fees. The same may be true for clients that are more highly leveraged are therefore more greatly encumbered with debt.

As is the case with models 1 (a and b) 2 and 3, both models 4a and 4b show a significant negative relationship between the issuance of a going concern opinion (*OPINION*) and audit fees ($p < 0.01$ for both models). A possible explanation of this finding is as previously discussed in Chapter 6.5.1 and relates to the client's inability to pay their debts as when they fall due. In these circumstances, the auditor may respond by charging lower fees.

A positive and weakly significant relationship exists between client profitability (*LOSS*) and audit fees in model 4b ($p < 0.1$) however no significant relationship is found for model 4a. No significant relationship between return on investment (*ROI*) and audit fees is found in either model. Likewise, there is no significant relationship between a client having a non-30 June year end (*BUSY*) and audit fees and there is also no significant relationship between the level of non-audit fees (*LNAF*) paid by a client and audit fees.

Test variables

Fraud

In relation to fraud (*LFRAUD*), there is a significant and positive relationship in both models 4a and 4b ($p < 0.05$ for both models). The significant findings in both models 4a and 4b is consistent with the expectation that auditors will undertake additional audit work where clients have experienced known MOA fraud. These findings, in conjunction with the significant and positive relationships between fraud (*LFRAUD*) and audit fees that were presented in models 1 (a and b), 2 and 3 consistently support the acceptance of hypothesis 1. That is, companies with higher losses from misappropriation of assets as reported in the KPMG fraud survey pay higher audit fees than those companies with lower losses from misappropriation of assets.

Auditor industry specialisation

The relationship between auditor industry specialisation and audit fees is examined in order to respond to the fourth research question and the fourth hypothesis:

RQ4: To what extent if any, does auditor industry specialisation impact the level of audit fees when their clients have experienced known fraud?

H₄ Companies audited by an industry specialist auditor do not pay higher or lower audit fees compared to those companies who are not audited by an industry specialist audit firm.

First, the impact of auditor industry specialisation was analysed at the *firm* level with specialists determined on both a national and city level (model 4a). This approach which is referred to as the *firm national-city framework* was first developed by Ferguson, Francis and Stokes (2003) in Australia and has since been used by researchers in other jurisdictions such as the US (Francis, Reichelt & Wang 2005) and the UK (Basioudis & Francis 2007, Mohd Kharuddin and Basioudis 2018). Second, the impact of auditor industry specialisation was analysed at the audit *partner* level also with specialists determined on both a national and city level (model 4b). This approach is referred to as the *partner national-city framework*. Analysis of specialisation at the partner level is based on the view that the audit partner's industry-based knowledge and experience cannot be easily shared with other audit partners within the firm (Chi & Chin 2011). This means that audit quality is not consistent across the audit firm and is impacted by the audit partner's individual reputation and characteristics including industry-based knowledge and experience (Goodwin and Wu 2014). There are a limited number of

studies which have considered the impact of the audit partner industry expertise on audit fees (see, for example, Chi & Chin 2011; Goodwin & Wu 2014; Mohd Kharuddin, Basioudis & Hay 2019; Nagy 2014; Zerni 2012).

The results of each analysis will be examined in turn.

Firm National-City Framework (model 4a)

Using the *firm national-city framework*, industry specialist auditors are positively and significantly associated with higher audit fees. This association exists not only when the audit firm is a joint national-city specialist ($NAT1OR2+CITY1OR2$) ($p<0.05$) but also where the audit firm is a national specialist but not a city specialist ($NAT1OR2+CITY0$) ($p<0.05$) or conversely where the audit firm is a city specialist but not a national specialist ($NAT0+CITY1OR2$) ($p<0.05$). Further, Big-4 firms who are not industry specialists under the *firm national-city framework* ($NSB4+NAT12ORCITY12$) are also positively and significantly associated with higher audit fees ($p<0.05$) compared to non-Big-4 firms. However, according to the estimated coefficients reported in Table 18, the relationship between non-specialist Big-4 firms and audit fees is weaker compared to the relationship between industry specialist audit firms and audit fees (regardless of the specialist measure being used under the *firm national-city framework*).

While there is evidence of higher audit fees being charged by specialist and non-specialist Big-4 firms, the strongest relationship exists for those auditors who are industry specialists at the city level but not the national level ($NAT0+CITY1OR2$). If, as according to Ferguson, Francis and Stokes (2003, p. 446) ‘industry expertise that is priced by the audit market is city-specific and a function of local-office industry leadership’, then it follows that a fee premium may be charged by these auditors. However, since the auditor’s industry expertise is limited to the local-office rather than operating on a national scale, it follows that substantial economies of scale may not be realised. The application of premium pricing that is not offset by substantial economies of scale may explain why auditors who are industry specialists at the city level but not the national level charge higher fee premiums than those auditors who are industry specialists at both the city and national levels ($NAT1OR2+CITY1OR2$).

These findings add a further dimension to the growing body of literature which examines joint national-city industry leadership and are in contrast with an earlier Australian based study by

Ferguson, Francis and Stokes (2003) which found that a fee premium was only present when the auditor was both the ‘city based’ industry leader and in the top two audit firms in the industry on a ‘national level’. Similarly, in a recent UK based study, Mohd Kharuddin and Basioudis (2018) found that fee premiums for industry leadership are only associated with the city-specific industry leaders if, and when, they are also the national industry leaders. The findings from this UK based study differed from an earlier study by Basioudis and Francis (2007) which was also conducted in the UK, and reported a 15% fee premium for city industry leaders and no fee premiums associated with national industry leaders. In contrast to these aforementioned studies, the present study found a fee premium exists not only when the audit firm is a joint national-city specialist but also where the audit firm is a national specialist but not a city or conversely where the audit firm is a city specialist but not a national specialist.

The findings of the present study, therefore, seem to be inconsistent with the extant body of research. It is important to recognise, however, that the present study employs a distinctive sample whereby the relationship between auditor industry specialisation and audit fees is being examined only for clients that have experienced known MOA fraud. Further, there are also inconsistent findings within the existing literature even when research is undertaken within the same geographical context (see, for example, Basioudis and Francis 2007; Mohd Kharuddin and Basioudis 2018). A potential explanation for the inconsistent results among the prior research is the offsetting impacts associated with both increased demand and increased economies of scale. That is, if an audit firm is able to effectively differentiate their service offering from that of their competitors, they may go on to charge higher fees in response to the additional demand for their services. Further, there may be costs to the industry specialist in terms of both acquiring and maintaining the necessary expertise to differentiate themselves, and they may seek to recoup these costs by charging a higher audit fee. On the other hand, long run cost savings may be realised due to economies of scale and other operating efficiencies gained from auditing companies within the same industry. The precise relationship between auditor industry specialisation and audit fees is not yet well understood and is an evolving area of research. There may be unknown factors which moderate the relationship between auditor industry specialisation and audit fees, and such factors may explain the inconsistent findings within the literature. Incorporating fraud into the model adds another dimension to the literature and may assist to further understand how auditor industry specialisation impacts audit fees.

To further investigate the relationship between auditor industry specialisation and the audit fees of clients who have experienced known MOA fraud, a series of interactions are included in the model. More specifically, each measure of industry specialisation is combined with the value of the single largest MOA fraud experienced by the client in the relevant period (*LFRAUD*). The inclusion of these interactions in the model provides some interesting insights. In particular, the combination of auditor industry specialisation and fraud value is significantly and *negatively* associated with audit fees. This is the case regardless of whether the interaction includes industry specialisation measured at the joint city-national level (*NAT1OR2+CITY1OR2xLFRAUD*) ($p<.1$), national only (*NAT1OR2+CITY0xLFRAUD*) ($p<0.05$) or city only (*NAT0+CITY1OR2xLFRAUD*) ($p<0.05$). This negative association exists even though when examined individually, auditor industry specialisation (measured as either joint city-national, national only or city only specialisation) and fraud value are each significantly and *positively* associated with audit fees. Further, the combination of non-specialist Big-4 auditors and fraud value (*NSB4+NAT0+CITY0xLFRAUD*) is also significantly and *negatively* associated with audit fees ($p<.1$) when individually both of these variables are also significantly and *positively* associated with audit fees.

There are two broad interpretations of this finding. First, the fee premium charged by a high-profile industry specialist or Big-4 auditor may be moderated by the value of the single largest MOA fraud experienced by the client whereby the fee premium charged is less for clients who have experienced a higher value single largest fraud. A potential explanation for this moderating effect is that a client may expect that the auditor will detect any material MOA fraud as well as identify internal control weaknesses that might allow fraud to occur. The percentage of frauds actually detected by the external auditor has been reported to be in the range of 1% (KPMG 2009) to 4% (The Association of Certified Fraud Examiners 2018). The resulting expectation gap may be greater where a company engages a high-profile industry specialist or Big-4 auditor to undertake the audit, given the reputation of these firms to conduct a high-quality audit which may be expected to include the prevention and detection of MOA fraud. When a client experiences MOA fraud, despite having engaged a high-profile industry specialist or Big-4 auditor, the expectation gap may become apparent. In response to any client dissatisfaction and in an attempt to retain the client, the industry specialist or Big-4 auditor may decide to absorb some of the costs associated with the additional work undertaken as a result of the MOA fraud rather than charge the client in full.

Second, the additional audit fees charged to clients in response to known MOA fraud may be moderated by the level of industry expertise and auditor reputation whereby the cost of additional fees charged by the auditor in response to fraud is less where the auditor is a high-profile industry specialist or Big-4 auditor. A potential explanation for this moderating effect is that the cost of additional work undertaken by high-profile industry specialist or Big-4 auditors in response to fraud may be less than that of other auditors, and this may result in lower fees. Lower costs may be incurred due to standardised processes and greater access to tools and resources. To ensure the delivery of high-quality audits around the world, audit firms generally, and in particular, the Big-4, employ universal firm policies and audit methodologies (Bik 2010; Bik & Hooghiemstra 2018). These include detailed rules in relation to the critical audit procedures that must be performed during each stage of the audit (Barrett et al. 2005; Bik & Hooghiemstra 2018). It may be that compared to other audit firms, more work in relation to MOA fraud and associated internal controls is incorporated into these standardised audit procedures undertaken by the auditor. This being the case, it follows that less ‘additional work’ would be required in response to MOA fraud. Further, where additional work is performed, high-profile industry specialist or Big-4 auditors may have greater access to existing tools and resources through their global network. This may allow such work to be conducted more efficiently compared to other audit firms who may need to design audit processes and carry out audit procedures with less standardisation, and in a less efficient manner.

Additional testing to further explore this interaction effect is presented in Chapter 7.4 of the thesis.

Partner National-City Framework (model 4b)

Using the *partner national-city framework*, there is a positive and significant association between industry specialist auditors and higher audit fees. This association is strongest and highly significant when the audit partner is a joint national-city specialist ($PARNATIO2+PARCITY1OR2$) ($p<0.001$) but also persists with *less of an effect where the auditor partner is a city specialist but not a national specialist* ($PARNAT0+PARCITY1OR2$) ($p<0.05$)¹⁰. Further, Big-4 partners who are not industry specialists under the *partner national-*

¹⁰ As discussed in Chapter 6.4 of the thesis, under the *partner national-city framework*, a variable to indicate if the audit partner is the first or second highest-ranked by market share for the industry nationally but not on a city basis ($PARNATIO2+PARCITY0$) is not included in the analysis since there are no observations in the fraud sample for national audit partner specialists that are not also specialists at the city level.

city framework ($NSB4+PARNAT0+PARCITY0$) are also positively and significantly associated with higher audit fees ($p<0.1$) compared to non-Big-4 firms. However, according to the estimated coefficients reported in Table 18 and similar to *firm national-city framework* (discussed above), the analysis undertaken using the *partner national-city framework*, indicates that the relationship between non-specialist Big-4 partners and audit fees is weaker compared to the relationship between industry specialist audit partners and audit fees. This is the case, irrespective of the specialist measure being used under the *partner national-city framework*.

This study contributes to the evolving body of research which examines the impact of auditor industry specialisation on audit fees where specialisation is measured at the *partner* level. The findings add support for the existence of fee premiums being charged by industry specialist audit partners consistent with the findings of prior studies (Chi & Chin 2011; Goodwin & Wu 2014; Mohd Kharuddin, Basioudis & Hay 2019; Nagy 2014; Zerni 2012). Although, the present study is not the first to examine this relationship in an Australian context (see, for example, Goodwin & Wu 2014), this is the only study to specifically examine the impact of partner level specialisation on audit fees in the context of clients who have experienced known MOA fraud.

A number of interactions are also included in the model to further investigate the relationship between auditor industry specialisation and the audit fees charged to those clients who have experienced known MOA fraud. These interactions involve combining each measure of industry specialisation with the value of the single largest MOA fraud experienced by the client in the relevant period ($LFRAUD$). As with the *firm national-city framework*, the combination of auditor industry specialisation and fraud value is significantly and negatively associated with audit fees when the analysis is undertaken using the *partner national-city framework*. This is the case regardless of whether the interaction includes industry specialisation that has been measured at the joint partner national-city level ($PARNATI0R2+PARCITYI0R2xLFRAUD$) ($p<.1$), or measured at the city-only level ($PARNAT0+PARCITYI0R2xLFRAUD$) ($p<0.1$). Once again, as with the findings from the *firm national-city framework* analysis, this negative association exists even though when tested separately, auditor industry specialisation and fraud value are each significantly and positively associated with audit fees. However, unlike the *firm national-city framework* analysis, although the estimated coefficient does indicate a negative relationship, the combination of non-specialist Big-4 auditors and fraud value ($NSB4+NAT0+CITY0xLFRAUD$) is not significantly associated with audit fees.

Potential explanations for these findings are the same as those discussed for the *firm national-city framework* however the non-significant finding for the combination of non-specialist Big-4 auditors and fraud value ($NSB4+NAT0+CITY0 \times LFRAUD$) may indicate that when MOA fraud occurs and is undetected by the auditor, the resulting expectation gap is greater where a company engages an industry specialist Big-4 audit partner to manage the audit compared to a non-industry specialist Big-4 audit partner. A reduced level of client dissatisfaction could result in the non-specialist Big-4 auditor being less inclined to absorb some of the costs associated with the additional work undertaken as a result of the MOA fraud. Further, the cost of additional work undertaken in response to MOA fraud may be more for non-specialist Big-4 auditors compared to industry specialist Big-4 auditors as they may not have the same access to industry-relevant tools, resources and standardised processes. Additional testing to further explore this interaction effect is presented in Chapter 7.4 of the thesis.

Overall, the results of models 4a and 4b, provide support for the rejection of hypothesis 4 (as stated in the null form). Results of the analysis provide evidence that the choice of auditor impacts the audit fees paid by those companies who have experienced known MOA fraud. Fee premiums associated with the engagement of industry specialist auditors (at either the *firm* or *partner* level) as well as premiums charged by non-specialist Big-4 auditors represent additional agency costs in the form of monitoring costs. However, despite these additional costs, such a choice may be beneficial since engaging a high-profile external auditor (such as an industry specialist or Big-4 auditor) who conducts a strict and intensive external audit may signal to the market that the company has effective internal corporate governance (Wang 2009 cited in Naser et al. 2013; Wang & Zhou 2006).

6.6. Summary of data analysis, results and discussion

This chapter comprised the main data analysis, results and related discussion. First, auditor industry specialists were presented at the firm and partner levels on a national and city basis. Next, descriptive statistics were provided and discussed. Of particular interest, the total audit fees across the sample is AUD\$106,568,993 with a mean of AUD\$888,075. The total value of reported (single-largest) MOA fraud across the sample is AUD\$17,181,900 with a mean calculated as AUD\$286,356 across the total sample and AUD\$572,712 across the 60 companies in the sample that reported having experienced fraud. Following this, outliers and influential cases were briefly discussed before an evaluation of the statistical assumptions which underlie multiple regression analysis were provided. These assumptions, being normally

distributed errors, independent errors, homoscedasticity, linearity and an absence of multicollinearity were met.

Finally, regression analysis was undertaken to test the hypotheses and the results of this analysis were presented and discussed. A brief summary is included in Table 19 below. Based on the results of models 1a and 1b, hypothesis 1 is supported. That is, companies with higher losses from MOA fraud pay higher audit fees than those companies with lower (or no) losses from MOA fraud. This can be explained by the auditor expending additional audit effort and this additional effort translates into higher audit fees. These additional audit fees are considered an external monitoring cost under agency theory.

The results of model 2a provide support for the acceptance of hypotheses 2 as stated in the null form. The present study does not find a significant relationship between corporate governance characteristics and audit fees. A potential explanation for this is the contrasting directionality associated with substitution and signalling theories. Further research to better understand how corporate governance structures impact audit fees is encouraged.

The results of model 3, provide partial support for the acceptance of hypothesis 3. More specifically, the results of the present study support the existence of a substitution effect whereby the additional work undertaken by the auditor in response to known MOA fraud is reduced in response to strong fraud *detection* controls. However, this substitution effect is not found to exist for those companies who report having strong fraud *prevention* controls.

The results of models 4a and 4b, provide support for the rejection of hypothesis 4 (as stated in the null form). The study provides evidence that the choice to engage an industry specialist auditor impacts the audit fees paid by those companies who have experienced known MOA fraud. The fee premiums charged by industry specialist auditors (at either the *firm* or *partner* level) as well as by non-specialist Big-4 auditors represent an additional external monitoring cost under agency theory. Additional analysis to further explore these findings in relation to fraud, corporate governance, internal controls and auditor industry specialisation is included in Chapter 7.

Table 19 Summary of results

Research Question		Theory	Hypothesis		Result
1	To what extent if any, do auditors undertake additional work (proxied by audit fees) when their clients have experienced known MOA fraud?	Agency Theory	H1:	Companies with higher losses from misappropriation of assets as reported in the KPMG fraud survey pay higher audit fees than those companies with lower (or no) losses from misappropriation of assets as reported in the KPMG fraud survey.	H1 is supported
2	To what extent if any, do corporate governance characteristics (specifically audit committee attributes) impact the amount of additional work (proxied by audit fees) undertaken by the auditor when their clients have experienced known MOA fraud?	Agency Theory The Substitution Effect	H2:	Of those companies that have reported having experienced fraud in the preceding two years as part of the KPMG fraud survey, there is no significant relationship between audit committee quality (independence, size, activity) and audit fees.	H2 is supported (in the null form)
3	To what extent if any, do fraud-related internal controls impact the amount of additional work (proxied by audit fees) undertaken by the auditor when their clients have experienced known MOA fraud?	Agency Theory The Substitution Effect	H3:	Of those companies that have reported having experienced fraud in the preceding two years as part of the KPMG fraud survey, companies who report having stronger fraud prevention/detection controls will pay lower audit fees than those who do not.	H1 is partially supported
4	To what extent if any, does auditor industry specialisation impact the level of audit fees when their clients have experienced known MOA fraud?	Agency Theory Signalling Theory	H4:	Companies audited by an industry specialist auditor do not pay higher or lower audit fees compared to those companies who are not audited by an industry specialist auditor.	H2 is rejected (in the null form)

7. Additional Testing and Analysis

Additional analysis is undertaken for the purposes of robustness and also to explore the data further in order to gain further insights. This additional analysis includes the use of alternative variable definitions and different samples and sub-samples. This Chapter presents the results of the additional analysis undertaken relating to each of the four models in turn.

7.1. Model 1: Fraud

Model 1c is presented in Table 20 below and is a variation of model 1b which uses a dummy variable for MOA fraud (*DFRAUD*) rather than a continuous variable (*LFRAUD*). More specifically:

DFRAUD = Indicator variable = 1 if the company reported experiencing MOA fraud on the KPMG fraud survey, 0 otherwise

Model 1d is also presented in Table 20 and is a variation of model 1a. Rather than using the fraud value (*LFRAUD*) to measure MOA fraud, this variation includes the value of the single largest fraud relative to the company's total assets (*LFRAUD/LTA*). More specifically:

LFRAUD/LTA = natural log of the value of the single largest fraud in AUD divided by the natural log of total assets in AUD

All other variables for models 1c and 1d have the same specification used in models 1a and 1b and are listed at Chapter 5.6.4 and included in the index of variable definitions at Appendix 3. This analysis is conducted using the total matched sample (n=120).

While models 1a and 1b reported in Chapter 6.5.1 found a positive and significant relationship between fraud value (*LFRAUD*) and audit fees, the dummy variable for fraud (*DFRAUD*) used in model 1c does not have a significant relationship with audit fees. This indicates that the auditor does not necessarily respond to the mere occurrence of MOA fraud which can occur in both minimal and substantial amounts but rather the auditor considers the value of the fraud when determining the level of additional work required (which is proxied by the audit fee).

Table 20 Additional regression analysis (model 1c and 1d)

Independent variables	Prediction	(1c) <i>Estimate</i> (<i>t-value</i>)	(1d) <i>Estimate</i> (<i>t-value</i>)
Constant		4.288*** (6.208)	4.549*** (4.125)
<i>Control Variables</i>			
LTA	+	0.442*** (10.648)	0.374*** (5.545)
SQSUBS	+	0.042*** (2.628)	0.075*** (3.735)
CATA	+	-0.995***	-0.834** (-1.821)
QUICK	-	-0.058* (-1.368)	-0.16* (-1.601)
DE	+	0.006 (0.221)	-0.053 (-0.497)
ROI	-	0.012 (0.096)	-0.633* (-1.479)
OPINION	-	-0.567** (-1.863)	-1.498*** (-2.83)
BUSY	+	0.126 (1.015)	-0.056 (-0.389)
LOSS	+	0.182 (1.286)	0.265 (1.352)
LNAF	+	0.01 (0.597)	0.022 (0.885)
BIG4	+	0.123 (0.623)	0.63* (1.435)
<i>Test Variable</i>			
DFRAUD	+	0.07 (0.611)	
LFRAUD/LTA	+		1.073*** (2.973)
F-value (p-value)		23.491 (<0.001)	20.546 (<0.001)
Adj. R ²		0.813	0.884
Sample size		n=120	n=60

*** are significant at p<0.01, ** are significant at p<0.05 and * are significant at p<0.10.

Significance values are one-tailed for those variables with predicted signs.

Industry fixed effects and year fixed effects are included in the model but are not reported for brevity.

The relationship between the relative size of fraud compared to the company's total assets (*LFRAUD/LTA*) and audit fees is reported in model 1d as positive and highly significant. This indicates that the auditor not only considers the absolute value of fraud (*LFRAUD*) when determining the level of additional work required but considers the size of the fraud relative to the size of the company. This is consistent with the concept of quantitative materiality whereby information is considered quantitatively material if its size exceeds the auditors predetermined materiality level, when compared to an appropriate base such as total assets (Moroney, Campbell & Hamilton 2017).

7.2. Model 2: Corporate governance

Models 2b and 2c are presented in Table 21 below. These models are specified in the same way as model 2a (presented in Chapter 6.5.2), however this analysis is conducted on the control sample (model 2b, n=60) and the total sample (model 2c, n=120) whereas model 2a was conducted only on the fraud sample (n=60).

Table 21 Additional regression analysis (model 2b and 2c)

Independent variables	Prediction	(2b) <i>Estimate</i> (<i>t-value</i>)	(2c) <i>Estimate</i> (<i>t-value</i>)
Constant		5.719*** (5.131)	4.241*** (5.433)
<i>Control Variables</i>			
LTA	+	0.333*** (3.747)	0.445*** (7.926)
SQSUBS	+	0.077*** (3.467)	0.038** (2.177)
CATA	+	-0.76* (-1.512)	-0.964*** (-3.044)
QUICK	-	-0.176* (-1.573)	-0.056* (-1.3)
DE	+	-0.065 (-0.534)	0.004 (0.155)
ROI	-	-0.604 (-1.24)	0.028 (0.222)
OPINION	-	-1.499*** (-2.65)	-0.535** (-1.745)
BUSY	+	-0.095 (-0.613)	0.122 (0.95)
LOSS	+	0.257 (1.223)	0.2* (1.403)
LNAF	+	0.024 (0.867)	0.01 (0.553)
BIG4	+	0.467 (1.005)	0.092 (0.474)
<i>Test Variable</i>			
LFRAUD	+	0.052** (2.283)	0.013 (1.241)
ACIND	+/-	-0.153 (-0.334)	-0.245 (-0.759)
ACSIZE	+/-	-0.001 (-0.009)	0.031 (0.669)
ACMEET	+/-	-0.012 (-0.211)	0.022 (0.537)
F-value (p-value)		16.169 (<0.001)	20.984 (<0.001)
Adj. R ²		0.87	0.814
Sample size		n=60	n=120

*** are significant at p<0.01, ** are significant at p<0.05 and * are significant at p<0.10.

Significance values are one-tailed for those variables with predicted signs.

Industry fixed effects and year fixed effects are included in the model but are not reported for brevity.

When discussing the results of the main analysis (model 2a) in Chapter 6 of the thesis, it was suggested that the absence of a significant relationship between the corporate governance function and audit fees may be explained by the mere existence of fraud in the first instance rendering a client's corporate governance as weak. This is because such governance was not functioning sufficiently to have prevented the fraud taking place. To further test whether this non-significant finding was due to the sample being analysed, where each entity has experienced known MOA fraud, the analysis was repeated on the control sample (n=60), as well as the total matched sample (n=120) comprising both fraud and control companies.

The results of models 2b and 2c presented in Table 21 show that all audit committee related corporate governance variables, being audit committee independence (*ACIND*), audit committee size (*ACSIZE*) and number of audit committee meetings (*ACMEET*) are not significantly related to audit fees despite undertaking this analysis on the control sample only (model 2b) and the entire matched sample (model 2c). The results of this additional analysis indicate that the absence of a significant relationship between the audit committee characteristics and audit fees in model 2a does not appear to be related to the use of a fraud sample.

Models 2d and 2e use different specifications compared to model 2a for each of the corporate governance variables. More specifically:

DACIND	= Indicator variable = 1 if the proportion of non-executive directors on the audit committee is equal to or greater than the median, 0 otherwise
DACSIZE	= Indicator variable = 1 if the number of directors on the audit committee is equal to or greater than the median, 0 otherwise
DACMEET	= Indicator variable = 1 if the number of audit committee meetings held during the year is equal to or greater than the median, 0 otherwise

This analysis is conducted on the fraud sample (model 2d, n=60) and the total sample (model 2e, n=120) and is presented in Table 22 below.

Table 22 Additional regression analysis (model 2d and 2e)

Independent variables	Prediction	(2d) <i>Estimate</i> (<i>t-value</i>)	(2e) <i>Estimate</i> (<i>t-value</i>)
Constant		5.706*** (5.822)	4.314*** (5.892)
<i>Control Variables</i>			
LTA	+	0.299*** (4.096)	0.429*** (9.591)
SQSUBS	+	0.082*** (3.92)	0.041*** (2.484)
CATA	+	-0.719* (-1.409)	-1.002*** (-3.109)
QUICK	-	-0.154* (-1.464)	-0.057* (-1.34)
DE	+	-0.023 (-0.195)	0.011 (0.389)
ROI	-	-0.57 (-1.263)	0.003 (0.024)
OPINION	-	-1.488*** (-2.552)	-0.553** (-1.798)
BUSY	+	-0.071 (-0.459)	0.158 (1.242)
LOSS	+	0.284* (1.32)	0.228 (1.577)
LNAF	+	0.017 (0.622)	0.009 (0.503)
BIG4	+	0.438 (0.966)	0.071 (0.364)
<i>Test Variable</i>			
LFRAUD	+	0.053** (2.393)	0.015* (1.381)
DACIND	+/-	0.027 (0.148)	0.079 (0.569)
DACSIZE	+/-	0.142 (0.885)	0.122 (0.933)
DACMEET	+/-	0.128 (0.758)	0.061 (0.5)
F-value (p-value)		16.803 (<0.001)	20.987 (<0.001)
Adj. R ²		0.784	0.814
Sample size		n=60	n=120

*** are significant at p<0.01, ** are significant at p<0.05 and * are significant at p<0.10.

Significance values are one-tailed for those variables with predicted signs.

Industry fixed effects and year fixed effects are included in the model but are not reported for brevity.

This additional analysis undertaken using dummy variables to indicate where audit committee independence, audit committee size and audit committee meetings were equal to above the median values (determined using the entire matched sample), found a non-significant relationship between all audit committee characteristics analysed and audit fees. This remains the case regardless of whether the analysis is conducted using the fraud sample only (n=60) or the total matched sample (n=120). These results are consistent with model 2a reported in

Chapter 6 of the thesis despite the alternative measures of audit committee characteristics being adopted.

7.3. Model 3: Internal controls

Model 3b is conducted on the fraud sample (n=60) and considers the joint impact of the fraud prevention related controls by combining a number of internal control variables into a single dummy variable (*ICPREV*). The results of this analysis are presented in Table 23 below. The variables which relate (at least in part) to MOA fraud prevention are discussed in Chapter 6.5.2 of the thesis. These include whether there is an allocation of internal audit resources to fraud prevention and/or detection (*IARES*), and whether poor internal controls or an override of internal controls was the most important factor that allowed the companies single largest fraud to occur (*ICFAIL*). These internal control variables also include whether or not the company's single largest fraud was reported to external law enforcement (*REPLE*). More specifically:

ICPREV = Indicator variable = 1 if the company allocates internal audit resources to fraud prevention and/or detection AND internal control failure was not a key factor in allowing the company's single largest fraud to occur AND the company reported their single largest fraud to law enforcement authorities, 0 otherwise.

The findings of this analysis further support the findings of the main analysis (model 3a) reported in Chapter 6, whereby the existence of prevention-focused, fraud-related internal controls were not significantly associated with the audit fees of those companies who have experienced MOA fraud. Model 3a found that individually, the prevention-focused, fraud-related internal controls analysed as part of this study had no significant relationship with audit fees. Model 3b found that even the combined impact of these controls (where a company allocates internal audit resources to fraud prevention and/or detection AND internal control failure was not a key factor in allowing the company's single largest fraud to occur AND the company reported their single largest fraud to law enforcement authorities), still has no significant impact on the audit fee.

Table 23 Additional regression analysis (model 3b)

Independent variables	Prediction	(3b) <i>Estimate</i> <i>(t-value)</i>
Constant		5.675*** (6.488)
<i>Control Variables</i>		
LTA	+	0.33*** (5.249)
SQSUBS	+	0.076*** (3.998)
CATA	+	-0.48 (-1.055)
QUICK	-	-0.233** (-2.365)
DE	+	-0.036 (-0.359)
ROI	-	-0.939** (-2.209)
OPINION	-	-1.878*** (-3.567)
BUSY	+	0.006 (0.039)
LOSS	+	0.375** (1.961)
LNAF	+	0.017 (0.707)
BIG4	+	0.56* (1.355)
<i>Test Variable</i>		
LFRAUD	+	0.059*** (2.942)
ICDET	-	-0.356** (-2.313)
ICPREV	-	0.181 (1.093)
F-value (p-value)		20.991 (<0.001)
Adj. R ²		0.894
Sample size		n=60

*** are significant at $p < 0.01$, ** are significant at $p < 0.05$ and * are significant at $p < 0.10$.

Significance values are one-tailed for those variables with predicted signs.

Industry fixed effects and year fixed effects are included in the model but are not reported for brevity.

7.4. Model 4: Auditor specialisation

Models 4c to 4f are presented in Tables 24 and 25 below. These models are specified in the same way as models 4a and 4b (presented in Chapter 6.5.3), however this analysis is conducted separately on small and large companies to determine whether the relationships between fraud, auditor specialisation and audit fees vary between these different groups.

Table 24 Additional regression analysis (model 4c and 4d)

Independent variables	Prediction	4c (small) Estimate (t-value)	4d (large) Estimate (t-value)
Constant		12.302 (1.240)	6.032 (1.289)
Control Variables			
LTA	+	0.141 (0.293)	0.338 (1.381)
SQSUBS	+	0.021 (0.25)	0.033 (1.048)
CATA	+	-1.674* (-1.801)	1.538 (0.959)
QUICK	-	-0.166 (-1.384)	-0.481 (-1.250)
DE	+	-0.494* (-1.945)	-0.379* (-1.575)
ROI	-	-1.127 (-1.313)	1.002 (0.538)
OPINION	-		-1.760** (-2.150)
BUSY	+	-0.285 (-0.623)	-0.024 (-0.105)
LOSS	+	-0.523 (-1.295)	0.569 (1.246)
LNAF	+	-0.093* (-1.566)	0.090 (1.208)
Test Variables			
LFRAUD [^]	+	-0.279 (-0.328)	0.046 (0.675)
NAT1OR2+CITY1OR2	+/-	0.350 (-0.601)	
NAT1OR2+CITY0	+/-		
NAT0+CITY1OR2	+/-	1.151 (1.983)	
NAT1OR2+CITY1OR2x LFRAUD [^]	+/-	0.242 (0.322)	
NAT1OR2+CITY0x LFRAUD [^]	+/-	0.876 (-0.442)	-0.465 (-0.792)
NAT0+CITY1OR2x LFRAUD [^]	+/-	0.349 (0.415)	-0.073 (-0.748)
NSB4NAT12ORCITY12	+/-	0.546 (0.820)	-0.397 (-0.884)
NSB4NAT12ORCITY12xLFRAUD [^]	+/-	0.363 (0.407)	0.087 (0.414)
F-value (p-value)		10.069 (<0.05)	5.145 (<0.05)
Adj. R ²		0.887	0.767
Sample size		n=30	n=30

[^]The LFRAUD variable is centred to reduce multicollinearity in the interacted variables.

*** are significant at p<0.01, ** are significant at p<0.05 and * are significant at p<0.10.

Significance values are one-tailed for those variables with predicted signs.

Industry fixed effects and year fixed effects are included in the model but are not reported for brevity.

Models 4c and 4d present the results of the *firm national-city framework* when the analysis is applied separately to smaller companies with total assets below the median (model 4c) and larger companies with total assets above the median (model 4d). To determine each sample (n=30), the value of each company's total assets is compared to the median total assets for all companies in the fraud sample.

Models 4e and 4f present the results using the *partner national-city framework* when the analysis is applied separately to smaller companies with total assets below the median (model 4e) and larger companies with total assets above the median (model 4f). Again, to determine each sample (n=30), the value of each company's total assets is compared to the median total assets for all companies in the fraud sample.

When analysing small and large companies separately, the test variables are not significant, other than a weakly significant positive relationship between a Big-4 audit partner who is a non-specialist at the national or city levels (*NSB4PARNATI2ORPARCITY12*) in model 4e. The control variables are also not significant in model 4f. This is inconsistent with the results of model 4a using the *firm national-city framework* and including the entire fraud sample (n=60) where all test variables were statistically significant. Similarly, model 4b which used the *partner national-city framework* included the entire fraud sample (n=60) and in this model, six of the seven test variables were statistically significant. The lack of significant results for models 4e and 4f are likely due to the small sample size of each sub group (n=30) compared to the high number of regressors used in the model. In addition, the decreased sample size has reduced the amount of variance in the model. Where a particular measure of auditor specialisation now has only a single observation in the reduced sample this will result in a perfect correlation between the auditor specialisation variable (for example, *NATI0R2+CITY0*) and the interaction of that variable with fraud value (for example, *NATI0R2+CITY0xLNF*). When this occurs, one of these variables is automatically removed from the model. This is a limitation which cannot be easily addressed in the present study since the number of fraud companies is restricted to the number of listed companies which participated in the KPMG fraud survey.

Table 25 Additional regression analysis (model 4e and 4f)

Independent variables	Prediction	4e	4f
		<i>(small)</i> Estimate <i>(t-value)</i>	<i>(large)</i> Estimate <i>(t-value)</i>
Constant		3.309 (1.111)	4.192 (0.827)
<i>Control Variables</i>			
LTA	+	0.718** (2.402)	0.394 (1.440)
SQSUBS	+	0.083* (1.769)	0.005 (0.110)
CATA	+	-2.33* (-1.947)	0.626 (0.428)
QUICK	-	-0.324* (-1.898)	-0.117 (-0.339)
DE	+	-0.499* (-1.808)	-0.207 (-0.787)
ROI	-	-1.851* (-1.816)	1.419 (0.374)
OPINION	-		-1.137 (-1.340)
BUSY	+	-0.58 (-1.132)	0.086 (0.253)
LOSS	+	-0.412 (-0.962)	0.426 (0.891)
LNAF	+	-0.143* (-1.674)	0.142 (1.391)
<i>Test Variables</i>			
LFRAUD [^]	+	0.549** (2.123)	
PARNAT1OR2+PARCITY1OR2	+/-	0.131 (0.092)	-2.965 (0.274)
PARNAT1OR2+PARCITY1OR2	+/-		-10.468 (-0.285)
PARNAT0+PARCITY1OR2	+/-	0.412 (0.747)	-0.206 (-0.654)
PARNAT1OR2+PARCITY1OR2x LFRAUD [^]	+/-		1.953 (0.292)
PARNAT1OR2+PARCITY0x LFRAUD [^]	+/-	-0.448 (-1.907)	0.019 (0.215)
PARNAT0+PARCITY1OR2x LFRAUD [^]	+/-	-1.071 (-1.778)	-0.005 (-0.060)
NSB4PARNAT12ORPARCITY12	+/-	1.141* (2.327)	
NSB4PARNAT12ORPARCITY12x LFRAUD [^]	+/-	-0.512 (-1.935)	-0.039 (-0.373)
F-value (p-value)		10.403 (<0.01)	4.102 (<0.1)
Adj. R ²		0.886	0.720
Sample size		n=30	n=30

[^]The LFRAUD variable is centred to reduce multicollinearity in the interacted variables.

*** are significant at p<0.01, ** are significant at p<0.05 and * are significant at p<0.10.

Significance values are one-tailed for those variables with predicted signs.

Industry fixed effects and year fixed effects are included in the model but are not reported for brevity.

There were no observations in the sample of an audit partner that is an industry specialist at the national level but not at the city level (PARNAT1OR2+PARCITY0) so this variable and the associated interaction variable (PARNAT1OR2+PARCITY0xLNF) were excluded from the analysis.

Models 4g to 4h are presented in Table 26. These models are specified in the same way as models 4a and 4b (presented in Chapter 6.5.3), however this analysis is conducted on the entire matched sample (n=120) which is comprised of the fraud companies and the corresponding control companies.

Table 26 Additional regression analysis (model 4g and 4h)

Independent variables	Prediction	4g <i>Estimate</i> <i>(t-value)</i>	4h <i>Estimate</i> <i>(t-value)</i>
Constant		4.145*** (5.779)	4.107*** (6.45)
<i>Control Variables</i>			
LTA	+	0.456*** (9.821)	0.466*** (11.846)
SQSUBS	+	0.037** (2.049)	0.027** (1.784)
CATA	+	-0.814*** (-2.574)	-0.812*** (-2.786)
QUICK	-	-0.1** (-2.332)	-0.063* (-1.589)
DE	+	0.006 (0.229)	0.01 (0.416)
ROI	-	-0.034 (-0.278)	0.073 (0.656)
OPINION	-	-0.633** (-2.069)	-0.511** (-1.802)
BUSY	+	0.188* (1.513)	0.187* (1.616)
LOSS	+	0.206* (1.4)	0.176* (1.35)
LNAF	+	0.014 (0.783)	0.003 (0.176)
<i>Test Variables</i>			
LFRAUD^	+	0.074*** (2.409)	0.067** (2.347)
NAT1OR2+CITY1OR2	+/-	0.024 (0.104)	
NAT1OR2+CITY0	+/-	-0.016 (-0.055)	
NAT0+CITY1OR2	+/-	0 (-0.002)	
NAT1OR2+CITY1OR2xLFRAUD^	+/-	-0.067** (-2.039)	
NAT1OR2+CITY0xLFRAUD^	+/-	0.053 (1.053)	
NAT0+CITY1OR2xLFRAUD^	+/-	-0.053 (-1.196)	
NSB4NAT12ORCITY12	+/-	-0.353 (-1.436)	
NSB4NAT12ORCITY12xLFRAUD^	+/-	-0.046 (-0.999)	
PARNAT1OR2+PARCITY1OR2	+/-		0.619** (2.238)
PARNAT0+PARCITY1OR2	+/-		0.027 (0.121)
PARNAT1OR2+PARCITY1OR2xLFRAUD^	+/-		-0.084**

		(-2.158)
PARNAT1OR2+PARCITY0xLFRAUD [^]	+/-	0.181 (1.651)
PARNAT0+PARCITY1OR2xLFRAUD [^]	+/-	-0.073** (-2.124)
NSB4PARNAT12ORPARCITY12	+/-	-0.067 (-0.338)
NSB4PARNAT12ORPARCITY12xLFRAUD [^]	+/-	-0.059* (-1.869)
F-value (p-value)		19.41 23.324 (<0.001) (<0.001)
Adj. R ²		0.823 0.845
Sample size		n=120 n=120

[^]The LFRAUD variable is centred to reduce multicollinearity in the interacted variables.

*** are significant at p<0.01, ** are significant at p<0.05 and * are significant at p<0.10.

Significance values are one-tailed for those variables with predicted signs.

Industry fixed effects and year fixed effects are included in the model but are not reported for brevity.

Many of the test variables relating to auditor industry specialisation which were significant in models 4a and 4b are not significant in models 4g and 4h. In addition, the adjusted R² for model 4a (which analyses only the fraud sample, n=60) is 0.906 whereas the adjusted R² for model 4g (which analyses the total matched sample, n=120) is 0.823, indicating that the latter model has less explanatory power. Similarly, the adjusted R² for model 4b (which analyses only the fraud sample, n=60) is 0.900 compared to an adjusted R² for model 4h (which analyses the total matched sample, n=120) of 0.845. Again, this suggests a dilution of explanatory power as a result of the inclusion of the control companies in the sample. The decrease in explanatory power may be due to the unconfirmed fraud status of the control companies. More specifically, the control sample used in this analysis does not necessarily comprise only companies who have not experienced MOA fraud. Rather, these companies represent a control group where the existence of MOA fraud is unconfirmed.

Models 4i to 4j are a variation models 4g and 4h (presented in Table 26 above) which uses a dummy variable for MOA fraud (*DFRAUD*) rather than a continuous variable (*LFRAUD*). More specifically:

DFRAUD = Indicator variable = 1 if the company reported experiencing MOA fraud on the KPMG fraud survey, 0 otherwise

Models 4i to 4j are presented in Table 27 below.

Table 27 Additional regression analysis (model 4i and 4j)

Independent variables	Prediction	4i <i>Estimate</i> <i>(t-value)</i>	4j <i>Estimate</i> <i>(t-value)</i>
Constant		4.079*** (4.959)	4.034*** (5.807)
<i>Control Variables</i>			
LTA	+	0.441*** (9.46)	0.451*** (11.399)
SQSUBS	+	0.043*** (2.418)	0.031** (2.001)
CATA	+	-0.842*** (-2.615)	-0.816*** (-2.794)
QUICK	-	-0.095** (-2.182)	-0.057* (-1.437)
DE	+	0.006 (0.229)	0.009 (0.369)
ROI	-	-0.024 (-0.188)	0.083 (0.739)
OPINION	-	-0.654** (-2.101)	-0.527** (-1.833)
BUSY	+	0.156 (1.227)	0.159* (1.35)
LOSS	+	0.217* (1.434)	0.155 (1.18)
LNAF	+	0.015 (0.848)	0.004 (0.256)
<i>Test Variables</i>			
DFRAUD	+	0.741** (1.872)	0.665** (1.836)
NAT1OR2+CITY1OR2	+/-	0.401* (1.75)	
NAT1OR2+CITY0	+/-	0.167 (0.513)	
NAT0+CITY1OR2	+/-	0.193 (0.682)	
NAT1OR2+CITY1OR2xDFRAUD	+/-	-0.808* (-1.954)	
NAT1OR2+CITY0xDFRAUD	+/-	-0.487 (-0.899)	
NAT0+CITY1OR2xDFRAUD	+/-	-0.554 (-1.08)	
NSB4NAT12ORCITY12	+/-	-0.129 (-0.389)	
NSB4NAT12ORCITY12XDFRAUD	+/-	-0.488 (-0.898)	
PARNAT1OR2+PARCITY1OR2	+/-		1.167*** (3.238)
PARNAT1OR2+PARCITY0	+/-		-0.902* (-1.674)
PARNAT0+PARCITY1OR2	+/-		0.41* (1.809)
PARNAT1OR2+PARCITY1OR2xDFRAUD	+/-		-1.049** (-2.101)
PARNAT0+PARCITY1OR2xDFRAUD	+/-		-0.794* (-1.91)
NSB4PARNAT12ORPARCITY12	+/-		0.255 (1.244)
NSB4PARNAT12ORPARCITY12XDFRAUD	+/-		-0.678*

		(-1.763)
F-value (p-value)	18.798 (<0.001)	22.853 (<0.001)
Adj. R ²	0.818	0.842
Sample size	n=120	n=120

*** are significant at $p < 0.01$, ** are significant at $p < 0.05$ and * are significant at $p < 0.10$.

Significance values are one-tailed for those variables with predicted signs.

Industry fixed effects and year fixed effects are included in the model but are not reported for brevity.

Compared to models 4g and 4h (which measure fraud as a continuous variable), there are a greater number of significant variables relating to auditor industry specialisation in models 4i and 4j (which measures fraud using a dummy variable). However, many of these are only weakly significant ($p < .10$). The adjusted R² for model 4i (which measures fraud using a dummy variable) is 0.818 whereas the adjusted R² for model 4g (which measures fraud as a continuous variable) is 0.823 indicating similar levels of explanatory power. Likewise, model 4j (which measures fraud using a dummy variable) is 0.842 whereas the adjusted R² for model 4h (which measures fraud as a continuous variable) is 0.845. Again, this provides similar levels of explanatory power whether fraud is measured as continuous variable (*LFRAUD*) or a dummy variable (*DFRAUD*).

Interestingly, in model 1c (presented in Table 20), which included a dummy variable for fraud (*DFRAUD*) as the only test variable, this variable was found to be not significant. However, once the auditor industry specialisation variables are accounted for in the model, the fraud dummy variable (*DFRAUD*) becomes positive and significant ($p < 0.05$).

Overall the additional analysis relating to auditor industry specialisation only partially supports the main findings in models 4a and 4b (presented in Chapter 6.5.3). However, the inconsistent results of the additional analysis are potentially due to sample issues where the sample size is small ($n=30$) for the number of regressors used (models 4c,4d,4e and 4f). An alternative explanation is that the use of larger matched sample which includes control companies ($n=120$) appears to weaken the statistical results.

7.5. Summary of additional testing

The additional analysis presented in this chapter includes the use of alternative variable definitions, and different samples and sub-samples, and has been undertaken for robustness and exploratory purposes.

Model 1c measured fraud using a dummy variable rather than a continuous variable and the relationship between fraud and audit fees using this fraud measure were not significant. This seems to indicate that the auditor does not necessarily respond to the mere occurrence of MOA fraud. Rather, the auditor considers the value of the fraud when determining the level of additional work required. However, when the auditor industry specialisation variables are later accounted for in models 4i and 4j, the fraud dummy variable (*DFRAUD*) becomes positive and significant ($p < 0.05$). The relationship between the relative size of fraud compared to the company's total assets (*LFRAUD/LTA*) and audit fees is reported in model 1d as positive and highly significant. This indicates that the auditor considers the size of the fraud relative to the size of the company when determining the level of additional work required. The findings from models 1c and 1d provide additional insights in relation to the findings of models 1a and 1b.

The results of models 2b and 2c show that all audit committee related corporate governance variables tested are not significantly related to audit fees. This is despite undertaking the analysis on the control sample as part of the main analysis (model 2b) and the total matched sample as part of the additional analysis (model 2c). This suggests that the non-significant findings in model 2a do not appear to be related to the use of only a fraud sample. Further, additional analysis using dummy variables to indicate where audit committee independence, audit committee size and audit committee meetings were equal to or above the median values also found a non-significant relationship between all audit committee characteristics analysed and audit fees. These results support the findings of the main analysis (model 2a) even where alternative measures of audit committee characteristics are used.

The findings of model 3b support the findings of the main analysis (model 3a) whereby the existence of prevention-focused, fraud-related internal controls were not significantly associated with the audit fees of those companies who have experienced MOA fraud. Model 3b found that even the combined impact of these controls also has no significant impact on the audit fee.

The additional analysis undertaken in relation to auditor industry specialisation only partly supports the findings in the main analysis (models 4a and 4b). However, the inconsistent results of the additional analysis are likely due to sample issues where the sample size is small ($n=30$) for the number of regressors used or alternatively, the use of a larger matched sample ($n=120$) appear to weaken the statistical results.

8. Summary and Conclusions

This Chapter of the thesis provides concluding comments, including a summary of the research undertaken and the associated implications of the research findings. It also provides a discussion of the research limitations and avenues for further research.

8.1. Research summary

Based on a unique and proprietary fraud dataset between 2002-2010, this research determined the extent to which external auditors, in exercising their responsibilities relating to auditing standard, *ASA 240 'The Auditor's Responsibilities Relating to Fraud in an Audit of a Financial Report'*, conducted additional audit work (proxied by audit fees) when their audit clients had experienced known fraud. This Australian-based study focussed primarily on fraud relating to misappropriation of assets and employed a matched sample approach for a portion of the analysis. The study contributed to theory by examining how the substitution effect, role-conflict theory and signalling theory interconnect within an agency framework in the context of known fraud. The research investigated whether the corporate governance function and internal control factors impact on the extent of additional work undertaken by auditors. It also examined the impact of auditor industry specialisation (at the firm, office and partner levels) on audit fees in the presence of known fraud. I now provide an overview of each Chapter and its key findings/implications.

Chapter 1: Introduction

Chapter 1 of the thesis provided an introduction to the research, including a discussion of the research motivations, necessary background and an articulation of the research aims. The four research questions addressed by the present study so as to achieve these aims were also presented and discussed. The primary aim of the study was to understand the extent to which external auditors, in exercising their responsibilities under Australian Auditing Standards, conduct additional audit work (proxied by audit fees) when audit clients have experienced known MOA fraud. The secondary aim of the study includes determining whether corporate governance, internal control factors and auditor industry specialisation impact on the extent of any additional audit work undertaken by the auditor. The research questions addressed as part of the study in order to achieve the research aims are as follows:

RQ1: To what extent if any, do auditors undertake additional work (proxied by audit fees) when their clients have experienced known MOA fraud?

RQ2: To what extent if any, do corporate governance characteristics (specifically audit committee attributes) impact the amount of additional work (proxied by audit fees) undertaken by the auditor when their clients have experienced known MOA fraud?

RQ3: To what extent if any, do fraud-related internal controls impact the amount of additional work (proxied by audit fees) undertaken by the auditor when their clients have experienced known MOA fraud?

RQ4: To what extent if any, does auditor industry specialisation impact the level of audit fees when their clients have experienced known MOA fraud?

The introductory chapter also briefly summarised the research methodology as well as the contribution of the research and concluded with an outline of the structure of the thesis.

Chapter 2: Literature review

Chapter 2 of the thesis included a literature review across three broad research areas being fraud, audit pricing, corporate governance and internal control. Within each research area, the theoretical background associated with the research was discussed and a critique of the research from each area was also provided. A comprehensive discussion of research undertaken across each of the three research areas was provided and gaps in the extant literature which are addressed by the present study were identified.

In particular, it was recognised that academic literature related to misappropriation of assets is scarce with only a limited number of Australian based studies (see, for example, Chapple et al. 2009; Sharma 2004, Coram et al. 2008). Further, while there is a scarcity of recent archival research relating to the role of auditing in fraud assessment and detection, there is a substantial body of experimental and other work in this area (see, for example, Bowlin 2011; Earley, Hoffman & Joe 2008; Hammersley, Bamber & Carpenter 2010). While there are several advantages of employing an experimental research design, the present study which relies upon archival data, provides a unique contribution to the developing body of literature in this area.

There are several studies which investigate the auditor's role in constraining discretionary accruals (Becker et al. 1998; Francis, Maydew & Sparks 1999) as a proxy for earnings management. Although this research is often included alongside the fraud literature (Hogan et al. 2008), it is noted that while earnings management and fraud potentially share some similarities (being representative of potentially aggressive and opportunistic behaviour), they are necessarily different. The fundamental difference being that, unlike earnings management, fraudulent financial reporting involves the violation of accounting standards and is therefore illegal. Amongst the research that does specifically identify fraudulent behaviour, the large majority investigates fraudulent financial reporting (see, for example, Trompeter et al. 2013) rather than MOA fraud.

Much of the fraud research has attempted to associate various firm characteristics to the likelihood of fraud (Beasley 1996). The firm characteristics examined in such studies have largely drawn on high-level corporate governance attributes such as board (see, for example, Sharma 2004) and audit committee characteristics (see, for example, Owens-Jackson, Robinson & Shelton 2009). There is consequently a need for greater research which investigates more specific aspects of the control environment such as fraud-related internal controls. The present study has contributed to this gap in the literature by considering whether fraud-related internal controls impact the amount of additional work (proxied by audit fees) undertaken by the auditor when their clients have experienced known MOA fraud. The fraud-related internal controls investigated include internal audit resources allocated to fraud prevention and detection, the detection of MOA fraud through a company's internal controls as well as the reporting of MOA fraud to law enforcement authorities.

Another area of fraud-related research has examined auditor characteristics in an effort to relate factors such as auditor size (Lennox & Pittman 2010), experience (Knapp & Knapp 2001), tenure (Carcello & Nagy 2004b) and specialisation (Carcello & Nagy 2002) to the likelihood of fraud. The studies which measure industry specialisation, tend to do so at both the firm and office-based levels. However, it has been recognised that industry expertise perhaps more likely resides with an audit partner or team of auditors (Carcello & Nagy 2002). There is consequently a need for research which measures industry specialisation at the partner level. Research from Taiwan has found that partner specialisation reduces misstatements (Chin & Chi 2009), however, additional research is needed to investigate the impact of partner

specialisation within other contexts. The present study addresses this need by examining the impact of partner level industry specialisation in the context of MOA fraud.

Chapter 3: Theoretical and conceptual frameworks

Chapter 3 provided an overview of the theories which underpin this research including agency theory, the substitution effect, role conflict theory and signalling theory. In addition, this Chapter presents the conceptual framework which is developed based on the extant literature and each of the aforementioned theories. The conceptual framework is discussed in three interconnected parts and provides a visual representation of the key components and the various theories which explain the proposed relationships of the study. Part one of the framework draws on agency theory and the substitution effect. This part of the framework is concerned with the relationship between fraud discovery and the impact of this on an auditor's fraud risk assessment and the subsequent extent of monitoring required by the auditor. Part two of the framework draws on agency theory and role conflict theory. This part of the framework is concerned with the relationship between the level of fraud risk assessment and monitoring and the impact this has on audit effort. Part three of the framework draws on agency theory and signalling theory, and is concerned with the level of audit effort and the impact on the audit fees charged by the auditor.

The present study contributed to theory in several ways. First, the interconnection between agency theory and the substitution effect, role conflict theory and signalling theory have not been investigated in this context previously. The interconnection as presented in the conceptual framework is unique to the present study.

Second, the study has tested theory using relationships that have not previously been examined. In particular, the study investigated whether corporate governance and internal controls can partially substitute the work carried out by the external auditor to reduce audit risk to an acceptably low level. This reduction in risk may then reduce the amount of work required to be undertaken by the auditor for a client with known MOA fraud.

Third, this study also tested theories using variables that are not yet well established in the extant literature. For example, I examined the impact of signalling by engaging an auditor specialist with auditor specialisation assessed at a *partner* level. Research which has examined the industry expertise of audit partners is scarce because audit partner data has not been

historically available in many jurisdictions. Further, MOA fraud is also under-researched globally due to the difficulty of accessing sufficient data. The present study has been able to examine MOA fraud due to the ability to access a unique and proprietary data set from the biennial KPMG fraud surveys.

Chapter 4: Hypothesis development

Chapter 4 detailed the development of the research hypotheses which were derived from the literature review and the theoretical and conceptual frameworks. Four hypotheses were developed in order to examine the four key research questions which underpin this research.

The first research question considered the response of auditors in conducting an audit engagement when their client has experienced known MOA fraud. More specifically, this research question is concerned with whether auditors undertake additional audit work (proxied by audit fees) when known MOA fraud exists. The first research question was addressed by testing the following hypothesis:

H₁: Companies with higher losses from misappropriation of assets as reported in the KPMG fraud survey pay higher audit fees than those companies with lower (or no) losses from misappropriation of assets as reported in the KPMG fraud survey.

The second research question considered whether auditors consider client specific corporate governance characteristics when determining the audit fees of those clients who have experienced known MOA fraud. The corporate governance characteristics that are used in addressing this question are audit committee independence, size and meeting frequency. The second research question was addressed by testing the following hypothesis:

H₂: Of those companies that have reported having experienced fraud in the preceding two years as part of the KPMG fraud survey, there is no significant relationship between audit committee quality (independence, size, activity) and audit fees.

The third research question considered whether auditors consider client specific fraud-related internal control factors when determining the audit fees of those client who have experienced known fraud. Specifically, the internal control factors used are whether the company has allocated resources to fraud prevention and detection, whether the fraud was detected because

of the company's internal controls, and whether the fraud was reported to law enforcement authorities. The third research question was addressed by testing the following hypothesis:

H₃: Of those companies that have reported having experienced fraud in the preceding two years as part of the KPMG fraud survey, companies who report having stronger fraud prevention/detection controls will pay lower audit fees than those who do not.

The fourth research question considers the extent to which auditor industry specialisation impacts the audit fees of clients who have experienced known MOA fraud. This study measured auditor industry specialisation at the national, city and partner levels. The fourth research question was addressed by testing the following hypothesis:

H₄: Companies audited by an industry specialist auditor do not pay higher or lower audit fees compared to those companies who are not audited by an industry specialist auditor.

The Chapter concluded with a summary which maps each of the four research questions to the relevant theory and the subsequent hypotheses.

Chapter 5: Research methodology

Chapter 5 discussed the research methodology adopted in this study to test the aforementioned hypotheses. This Chapter explains that from an epistemological and ontological standpoint, a positivist paradigm was adopted. The research was carried out using an objectivist and regulatory perspective thus adopting a functionalist paradigm characterised by pragmatism and the assumption that human action is rational (Burrell and Morgan 1979). A quantitative approach which used mathematical and statistical techniques has allowed for the inference of the findings and is well suited to the philosophical and positivist foundations of the research.

This Chapter also detailed the sample selection and data collection process and also discussed the sources of data. The sample selection involved numerous steps, and these were each discussed. A breakdown of the final sample by year and industry classification was also provided. Data collection included a 15-step process across three broad stages. The first stage involved collecting data for only the fraud sample. The second stage involved collecting data for the control sample as well as the total matched sample. The third stage involved collecting data from the broader population to determine auditor industry specialisation. Data was

collected from a range of sources including data obtained from the KPMG fraud surveys, the Orbis/Osiris, Connect 4 and SIRCA databases, as well as manual data collection from company annual reports (including the audit report).

Finally, in this Chapter, the variables used in the study were defined and the development of the four models used in the study were discussed with references back to the four hypotheses of the study. The series of audit fee regression models were developed to estimate the effect of the variables of interest in this study. This approach has been used in much of the prior literature (see, for example, Andre, Broye, Pong & Schatt 2016; Ferguson, Francis & Stokes 2003; Park 2019).

Chapter 6: Data analysis, results and discussion

Chapter 6 reported the main data analysis, results and relevant discussion. First, the process for determining auditor industry specialists at the firm and partner levels on a national and city basis was outlined. Next, descriptive statistics were reported and discussed for the fraud (n=60), control (n=60) and total (n=120) samples. Following this, outliers and influential cases were briefly discussed ahead of testing of the statistical assumptions required for multiple regression analysis. I demonstrated that these statistical assumptions were met. Regression analysis results were presented and discussed. A brief summary of these findings is included below.

In addressing the first research question, the study provided evidence that companies with higher losses from MOA fraud pay higher audit fees than those companies with lower (or no) losses from MOA fraud. This can be explained by the auditor expending additional audit effort and this additional effort translates into higher audit fees. These additional audit fees are considered an external monitoring cost under agency theory. Based on the results of models 1a and 1b, hypothesis 1 is supported.

In addressing the second research question, the study did not find a significant relationship between corporate governance characteristics and audit fees. A potential explanation for this is the contrasting directionality associated with substitution and signalling theories. The results of model 2a provide support for the acceptance of hypotheses 2 as stated in the null form.

In addressing the third research question, the results of the present study supported the existence of a substitution effect whereby the additional work undertaken by the auditor in

response to known MOA fraud is reduced in response to strong fraud *detection* controls. However, this substitution effect is not found to exist for those companies who report having stronger fraud *prevention* controls. The results of model 3a, provide partial support for the acceptance of hypothesis 3.

In addressing the fourth research question, the study provided evidence that the choice to engage an industry specialist auditor impacts the audit fees paid by those companies who have experienced known MOA fraud. The significantly higher fee premiums charged by industry specialist auditors (at either the *firm* or *partner* level), as well as by non-specialist Big-4 auditors, represent an additional external monitoring cost under agency theory. The results of models 4a and 4b, provide support for the rejection of hypothesis 4 (as stated in the null form).

This chapter concludes with a brief summary which maps the results of each of the four hypothesis tests to each of the four research questions and to the relevant theory.

Chapter 7: Additional testing and analysis

Chapter 7 reported the results of further testing and analysis for the purpose of robustness, and to also explore the data to gain additional insights. This supplementary analysis included alternative variable definitions as well as different samples and sub-samples. A brief summary of the findings related to the additional testing and analysis is included below.

An additional model was developed which measured fraud using a dummy variable rather than a continuous variable and the relationship between fraud and audit fees using this fraud measure were not significant. This seemed to suggest that the auditor does not automatically respond to the mere occurrence of MOA fraud. Rather, it appears that the auditor considers the value of MOA fraud when deciding upon the level of additional work required. However, when the auditor industry specialisation variables were also incorporated into the model, the fraud dummy variable became significantly positive. Further, the relationship between the relative size of fraud (compared to the company's total assets) and audit fees is reported as positive and highly significant. This suggested that the auditor considers the size of the fraud relative to the size of the company when deciding the level of additional work required. These findings provided additional insights to the main findings presented in Chapter 6.

Additional testing and analysis showed that all audit committee related corporate governance variables tested are not significantly related to audit fees despite undertaking this analysis separately on the fraud sample, the control sample, and the total matched sample. This suggested that the non-significant findings presented as part of the main analysis in Chapter 6 do not seem to be as a result of using only the fraud sample in the analysis. Further, additional analysis using dummy variables to indicate where audit committee independence, audit committee size and audit committee meetings were equal to or above the median values also found a non-significant relationship between all audit committee characteristics analysed and audit fees. These results supported the findings of the main analysis even where alternative measures of audit committee characteristics are used.

Further testing and analysis found that the *combined* impact of prevention-focused, fraud-related internal controls has no significant impact on the audit fee. This additional testing supported the findings of the main analysis whereby the existence of prevention-focused, fraud-related internal controls were not significantly associated with the audit fees of those companies who have experienced MOA fraud.

Additional analysis undertaken in relation to auditor industry specialisation only partially supported the findings presented in the main analysis. However, it is noted that the inconsistent results of the additional analysis were likely due to sample issues.

8.2. Implications of the research findings

Motivated by the growing concerns in relation to audit quality, the increasingly complex means by which fraud is perpetrated as well as the lack of research in this area, the present study which investigated how auditors respond when their client has experienced known MOA fraud has implications for regulators, researchers, the profession and the public.

In January 2019, ASIC's 'Audit Inspection Program Report' for the period 1 January 2017 to 30 June 2018 reported that in just under a quarter of the key audit areas reviewed, auditors did not obtain a reasonable level of assurance to support the audit opinion that was provided (ASIC 2019). The 2019-2020 Australian Federal Budget has allocated additional taxpayers funds towards improving audit quality over a period of 3 years (Commonwealth of Australia 2019). Research which examines the extent to which auditors discharge their responsibilities in

accordance with the requirements of Australian Auditing Standards can ensure that resources are appropriately allocated to address those areas most in need of improvement.

As noted above, the study found that companies with higher losses from MOA fraud pay higher audit fees than those companies with lower losses from MOA fraud. This suggests that the auditor expends additional audit effort and this additional effort translates into higher audit fees. This contributes to the audit quality discussion among regulators, researchers, the profession and the public by confirming that the auditor is acting (at least in part) in response to their responsibilities pertaining to fraud as required by *ASA 240*. This finding has an associated theoretical contribution, since MOA fraud can be considered an agency problem and these additional audit fees can be regarded as an additional external monitoring cost under agency theory.

These findings contribute to the growing body of literature which has reported a relationship between fraud risk and audit fees. This literature includes the significant and positive relationship between audit partners' assessments of fraud and the planned audit fee (Johnstone & Bedard 2001). It also includes significant and positive relationships between class action securities fraud litigation and audit fees (Lenard & Petruska 2012) as well as fraud firms and combined audit and non-audit fees (Markelevich & Rosner 2013). The findings also build on the study by Sharma (2004) who explained that because fraud firms carry a higher audit risk, auditors will likely extend the scope and rigor of these audits and the additional costs associated with this may be recouped through higher audit fees.

Further, the study did not find a significant relationship between corporate governance characteristics or prevention-focused fraud-related internal controls and audit fees. However, evidence is presented that detection-focused fraud-related internal controls reduce the additional audit work undertaken by the auditor in response to MOA fraud. This provides regulators with greater insights in relation to the factors that the auditor considers when deciding how to respond to MOA fraud in discharging their responsibilities under *ASA 240*. These findings also provide a theoretical contribution by developing a greater understanding of which factors do and do not produce a substitution effect in relation to the external monitoring conducted by the auditor in response to MOA fraud.

These findings contribute to the previous literature in relation to internal governance and external audit fees where the prior results have been inconsistent (see, for example, Ettredge, Reed & Stone 2000; Naser et al. 2013). In particular, the results of the present study support the presence of a substitution effect whereby the additional work undertaken by the auditor in response to known MOA fraud is reduced as a result of strong fraud detection controls.

In addition, the study provided evidence that the choice to engage an industry specialist auditor impacts the audit fees paid by those companies who have experienced known MOA fraud and adds a further dimension to the audit quality discussion. Further, evidence of fee premiums existing for city and partner level industry specialists has implications for accounting firms. If industry specialisation is assessed by the market on a local (office and partner) level rather than purely a national level, then this may impact the marketing strategies adopted by accounting firms. Campaigns to promote local expertise may prove to be more effective in gaining and retaining clients compared to a focus on only the promotion of national and even international reputation. The importance of partner-level expertise may also assist accounting firms to better target professional development programs for staff and may encourage firms to more appropriately value industry specialisation during the recruitment process, particularly when recruiting at more senior levels. From a theoretical perspective, the fee premiums charged by industry specialist auditors as well as by non-specialist Big-4 auditors represent additional external monitoring cost under agency theory.

In relation to the *firm national-city framework* used in this study, the findings add a further dimension to the existing literature which examines joint national-city industry leadership. The findings of the study are in contrast with an earlier Australian based study by Ferguson, Francis and Stokes (2003), as well as UK-based studies by Basioudis and Francis (2007) and Mohd Kharuddin and Basioudis (2018). It is important to note that the present study uses a unique sample whereby the relationship between auditor industry specialisation and audit fees is being investigated only for those clients that have experienced known MOA fraud. Further, there are also inconsistent findings within the existing literature.

In relation to the *partner national-city framework* used in this study, these findings contribute to the developing body of research which investigates the impact of auditor industry specialisation on audit fees where specialisation is measured at the *partner* level. The findings

provide support for the existence of fee premiums being charged by industry specialist audit partners and this is consistent with the findings of prior studies (Chi & Chin 2011; Goodwin & Wu 2014; Mohd Kharuddin, Basioudis & Hay 2019; Nagy 2014; Zerni 2012).

8.3. Research limitations

This study is subject to a number of limitations in relation to the use of the KPMG fraud survey, the development of the control sample, control and test variable measurement and analysis. Each of these limitations is discussed below.

Several limitations arise from the reliance on the KPMG fraud survey. Firstly, the study was limited to listed companies as additional data from outside of the KPMG fraud survey was required to be collected (for example, total assets, audit fees, auditor). This data is not necessarily publicly available for non-listed entities. Since there were a limited number of listed companies who participated in the KPMG fraud survey, this restricted the size of the sample. A larger sample would have allowed for greater and more robust statistical analysis. Secondly, the age of data used in this study is another limitation of this research. KPMG no longer undertakes the biennial fraud surveys, and more recent data (beyond the 2010 survey), could not be readily obtained. Even so, the study provides relevant insights into the issue of MOA fraud which remains an important issue. Thirdly, the precise timing of MOA fraud within the two-year KPMG survey period is unknown, and the administration of the KPMG survey does not align exactly with the respondents' financial years. For example, the 2010 KPMG fraud survey collected data for the period 1 February 2008 to 31 January 2010. The remaining data used in the analysis (such as audit fees, total assets and audit opinion) was collected for the 2010 financial year which for most companies ended on 30 June 2010. It is assumed that at the time of the audit, the MOA fraud is known to both management and the auditor.

Apart from survey-based limitations discussed above it is also acknowledged that for the control sample used in parts of the analysis, other matching approaches could have been adopted. By primarily matching based on industry and size, I have used an approach widely adopted in the literature (see, for example, Abbott, Park & Parker 2000; Beasley 1996; Sharma 2004). It is also recognised that the control sample used in parts of analysis does not necessarily comprise only companies who have not experienced MOA fraud. Rather these companies represent a control group where the existence of MOA fraud is unconfirmed.

It is also acknowledged that different control variables may have been used in the analysis and this may have impacted on the reported results. The control variables which have been included in the analysis were selected based on their use in prior research and with consideration given to the availability of data. The high adjusted R^2 results across all models provides some comfort in relation to the appropriateness of the control variables used. It is also recognised that a number of the test variables included in the analysis could have been measured using alternative approaches. Many of these are explored through the additional analysis and testing reported in Chapter 7. While other measures of specialisation could have been adopted, the approach used is informed by prior research and, in particular, a broader definition of industry specialisation where the first and second highest-ranked auditor by market share are each considered to be industry specialists is adopted in an effort to capture expertise which may extend beyond the market leading audit firm.

A final limitation of the research relates to the potential for omitted variable bias as well as endogeneity which are particularly common among both audit fee and corporate governance research.

8.4. Avenues for further research

This study identifies four key opportunities for further research related to fraud, corporate governance, internal control and auditor specialisation. Each of these is discussed below.

First, this study does not examine the implications of management versus lower-level employee fraud. The data used in this research did not distinguish between management and other employees and as such an analysis could not be conducted in relation to this issue. Further research in this area is encouraged particularly in relation to whether auditors respond differently to fraud committed by management compared to lower-level employees.

Second, the present study does not find a significant relationship between corporate governance characteristics and audit fees. A potential explanation for this is the contrasting directionality associated with substitution and signalling theories. Further research may seek to disentangle these impacts and better understand how corporate governance structures impact audit fees. While this study focuses on audit committee characteristics, further research may examine the impact of other corporate governance characteristics. This includes the impact of internal

governance mechanisms such as the remuneration committee and external governance mechanisms such as block-holders.

Third, the present study found that MOA prevention-focused fraud-related internal controls are not significantly associated with audit fees. However, this analysis was conducted only on firms that had experienced MOA fraud and, as such, the prevention-focused fraud-related internal controls have certainly failed. Research which examines prevention-focused fraud-related internal controls using a sample of companies that have not experienced MOA fraud may generate different results and is therefore suggested as an avenue for further research.

Finally, this study found that the combination of auditor industry specialisation and fraud value is significantly and *negatively* associated with audit fees. This negative association exists even though, when examined individually, auditor industry specialisation and fraud value are each significantly and *positively* associated with audit fees. Further, the combination of non-specialist Big-4 auditors and fraud value is also significantly and *negatively* associated with audit fees when individually both of these variables are also significantly and *positively* associated with audit fees. Two potential explanations offered for these findings are provided. Firstly, in response to any client dissatisfaction and in an attempt to retain the client, the industry specialist or Big-4 auditor may decide to absorb some of the costs associated with the additional work undertaken as a result of the MOA fraud rather than charge the client in full. Secondly, where additional work is performed, high-profile industry specialist or Big-4 auditors may have greater access to existing tools and resources through their global network. This may allow such work to be conducted more efficiently compared to other audit firms who may need to design audit processes and carry out audit procedures with less standardisation and in a less efficient manner. Further research may seek to broaden the understanding of the interaction between industry specialist and Big-4 auditors, and MOA fraud value. More specifically, research which utilises interview with auditors in order to deepen this understanding is encouraged.

9. References

- Abbott, LJ, Park, Y & Parker, S 2000, 'The effects of audit committee activity and independence on corporate fraud', *Managerial Finance*, vol. 26, no. 11, pp. 55–68.
- Abbott, LJ, Parker, S & Peters, GF 2004, 'Audit Committee Characteristics and Restatements', *Auditing: A Journal of Practice & Theory*, vol. 23, no. 1, pp. 69–87.
- Abbott, LJ, Parker, S, Peters, GF & Raghunandan, K 2003, 'The Association between Audit Committee Characteristics and Audit Fees', *Auditing: A Journal of Practice & Theory*, vol. 22, no. 2, pp. 17–32.
- Albrecht, WS, Albrecht, CC & Albrecht, CO 2006, *Fraud Examination*, Thomson South-Western, NY.
- Albrecht, WS & Albrecht, CO 2003, *Fraud Examination and Prevention*. Thomson-Southwestern, Mason, OH.
- Albrecht, WS, Howe, KR, & Romney, MB 1984, *Deterring Fraud: The Internal Auditor's Perspective*, The Institute of Internal Auditors' Research Foundation, Altomonte Springs, FL.
- Aldrich, HE & Pfeffer, J 1976, 'Environments of Organizations' *Annual Review of Sociology*, vol. 2, pp. 79–105.
- Alleyne, PA, Devonish, D & Alleyne, P 2006, 'Perceptions of auditor independence in Barbados', *Managerial auditing journal*, vol. 21, no. 6, pp. 621-635.
- Altman, EI 1983 *Corporate Financial Distress: A Complete Guide to Predicting, Avoiding, and Dealing With Bankruptcy*, John Wiley and Sons, Hoboken, NJ.
- Anderson, KL, Gillan, S & Deli, D 2003 *Boards of directors, audit committees, and the information content of earnings*, Working Paper, Weinberg Center for Corporate Governance.
- Anderson, RC, Mansi, SA & Reeb, DM 2004, 'Board characteristics, accounting report integrity, and the cost of debt', *Journal of Accounting and Economics*, vol. 37, no. 3, pp. 315–342.
- André, P, Broye, G, Pong, C & Schatt, A 2016, 'Are joint audits associated with higher audit fees?', *European Accounting Review*, vol. 25, no. 2, pp. 245-274.

- Arens, AA, Best, P, Shailer, G & Fiedler, B 2013, *Auditing, Assurance Services and Ethics in Australia*, Pearson Higher Education, NSW.
- Armstrong, CS, Jagolinzer, AD & Larcker, DF 2010, 'Chief executive officer equity incentives and accounting irregularities', *Journal of Accounting Research*, vol. 48, no. 2, pp. 225–272.
- Armstrong, P 1989, 'Management, Labour Process and Agency', *Work, Employment & Society*, vol. 3, no. 3, pp. 307–322.
- Association of Certified Fraud Examiners 2018, *Report to the nations: 2018 global study on occupational fraud and abuse*, ACFE Austin, TX.
- Australian Securities Exchange 2019, *Corporate Governance Principles and Recommendations*, 4th edn, ASX.
- Auditing and Assurance Standards Board 2013, *Auditing Standard ASA610: Using the Work of Internal Auditors*, AUASB, Melbourne, VIC.
- Auditing and Assurance Standards Board 2015, *Auditing Standard ASA 315: Identifying and Assessing the Risks of Material Misstatement through Understanding the Entity and Its Environment*, AUASB, Melbourne, VIC.
- Auditing and Assurance Standards Board 2018, *Auditing Standard ASA 240: The Auditor's Responsibilities relating to Fraud in an Audit of a Financial Report*, AUASB, Melbourne, VIC.
- Australian Securities and Investments Commission 2019, *Audit Inspection Program Report for 2017-18*, ASIC.
- Avineri, S 1971, *The social and political thought of Karl Marx*, Cambridge University Press, Cambridge, UK.
- Bandler, J & Zimmerman, A. 2005 'A Walmart legend's trail of deceit', *The Wall Street Journal*, 5 April, viewed 1 March 2015, <<https://www.wsj.com/articles/SB111291400324201359>>.
- Barrett, M, Cooper, DJ & Jamal, K 2005, 'Globalization and the coordinating of work in multinational audits', *Accounting, Organizations and Society*, vol. 30, no. 1, pp. 1–24.
- Basioudis, IG 2007, 'Auditor's engagement risk and audit fees: The role of audit firm alumni', *Journal of Business Finance & Accounting*, vol. 34, no. 9-10, pp.1393-1422.

- Basioudis, IG & Ellwood, S 2005, 'An empirical investigation of price competition and industry specialisation in NHS audit services', *Financial Accountability & Management*, vol. 21, no. 2, pp. 219–248.
- Basioudis, IG & Francis, JR 2007, 'Big 4 audit fee premiums for national and office-level industry leadership in the United Kingdom', *Auditing: A Journal of Practice & Theory*, vol. 26, no. 2, pp. 143–166.
- Beasley, MS 1996, 'An empirical analysis of the relation between the board of director composition and financial statement fraud', *The Accounting Review*, vol. 71, no. 4, pp. 443–465.
- Beasley, MS, Carcello, JV & Hermanson, DR 1999, *Fraudulent financial reporting: 1987-1999: An analysis of U.S. public companies*, Committee of Sponsoring Organizations of the Treadway Commission (COSO).
- Beasley, MS, Carcello, JV, Hermanson, DR & Neal, TL 2010, *Fraudulent Financial Reporting 1998–2007: An Analysis of U.S. Public Companies*. Durham, NC.
- Beasley, MS & Petroni, KR 2001, 'Board Independence and Audit Firm Type', *Auditing: A Journal of Practice & Theory*, vol. 20, no. 1, pp. 97–114.
- Becker, CL, DeFond, ML, Jiambalvo, J & Subramanyam, KR 1998, 'The Effect of Audit Quality on Earnings Management', *Contemporary Accounting Research*, vol. 15, no. 1, pp. 1–24.
- Bedard, JC & Johnstone, K 2006, *A longitudinal comparison of auditors' response to client risk in the Sarbanes-Oxley era*, Working paper, University of Wisconsin.
- Behn, BK, Carcello, JV, Hermanson, DR & Hermanson, RH 1999, 'Client satisfaction and Big 6 audit fees', *Contemporary Accounting Research*, vol. 16, no. 4, pp. 587-608.
- Bell, TB, Landsman, W & Shackelford, D 2001, 'Auditors' perceived business risk and audit fees: Analysis and evidence', *Journal of Accounting Research*, vol. 39, no. 1, pp. 35–43.
- Bernardi, RA 1994, 'Fraud Detection: The Effect of Client Integrity and Competence and Auditor Cognitive Style', *Auditing: A Journal of Practice & Theory*, Vol. 13, pp. 68–84.
- Bethel, JE, Liebeskind, JP & Opler, T 1998, 'Block Share Purchases and Corporate Performance', *The Journal of Finance*, vol. 5, no. 2, pp. 605–634.
- Bik, OPG 2010, *The Behavior of Assurance Professionals: A Cross-Cultural Perspective*, Eburon Uitgeverij BV, Delft, The Netherlands.

- Bik, OPG & Hooghiemstra, R 2018, 'Cultural Differences in Auditors' Compliance with Audit Firm Policy on Fraud Risk Assessment Procedures', *Auditing: A Journal Of Practice & Theory*, vol. 37, no. 4, pp. 25–48.
- Bills, KL, Jeter, DC & Stein, SE 2014, 'Auditor industry specialization and evidence of cost efficiencies in homogenous industries', *The Accounting Review*, vol. 90, no. 5, pp. 1721-1754.
- Bird, RB & Smith, EA 2005, 'Signaling theory, strategic interaction, and symbolic capital', *Current anthropology*, vol. 46, no. 2, pp. 221-248.
- Borokhovich, KA, Brunarski, K, Harman, YS & Parrino, R 2006, 'Variation in the Monitoring Incentives of Outside Stockholders', *Journal of Law and Economics*, vol. 49, no. 2, pp. 651–680.
- Bowlin, K 2011, 'Risk-based auditing, strategic prompts, and auditor sensitivity to the strategic risk of fraud', *The Accounting Review*, vol. 86, no. 4, pp. 1231–1253.
- Boxenbaum, E, & Jonsson, S 2008 'Isomorphism, diffusion and decoupling: Concept evolution and theoretical challenges', in R Greenwood, R Suddaby, C Oliver & K Sahlin-Anderson (eds.), *Handbook of organizational institutionalism*, Sage pp. 79-104.
- Boyd, B 1990, 'Corporate linkages and organizational environment: A test of the resource dependence model', *Strategic Management Journal*, vol. 11, no. 6, pp. 419–430.
- Bradbury, M, Mak, Y & Tan S 2006, 'Board Characteristics, Audit Committee Characteristics and Abnormal Accruals', *Pacific Accounting Review*, vol. 18, no. 2, pp. 47-68.
- Brazel, JF, Carpenter, TD & Jenkins, JG 2010, 'Auditors' use of brainstorming in the consideration of fraud: Reports from the field' *The Accounting Review*, vol. 85, no. 4, pp. 1273-1301.
- Brazel, JF, Jones, KL & Zimbelman, MF 2009, 'Using Nonfinancial Measures to Assess Fraud Risk' *Journal of Accounting Research*, vol. 47, no. 5, pp. 1135–1166.
- Brazel, J & Schmidt, J 2019, 'Do auditors and audit committees lower fraud risk by constraining inconsistencies between financial and nonfinancial measures?' *Auditing: A Journal of Practice & Theory*, vol. 38, no. 1, pp. 103-122.
- Brinn, T, Peel, M & Roberts, R 1994, 'Audit fee determinants of independent & subsidiary

- unquoted companies in the UK—an exploratory study’, *British Accounting Review*, vol. 26, no. 2, pp. 101–121.
- Bronson, SN, Carcello, JV, Hollingsworth, CW & Neal, TL 2009, ‘Are fully independent audit committees really necessary?’, *Journal of Accounting and Public Policy*, vol. 28, no. 4, pp. 265–280.
- Brown, P, Beekes, W & Verhoeven, P 2011, ‘Corporate governance , accounting and finance: A review’, *Accounting & Finance*, vol. 51, no. 1, pp. 96–172.
- Bryan, D, Liu, MC, Tiras, SL & Zhuang, Z 2013, ‘Optimal versus suboptimal choices of accounting expertise on audit committees and earnings quality’, *Review of Accounting Studies*, vol. 18, no. 4, pp. 1123-1158.
- Bryer, RA 1999, ‘Marx and accounting’, *Critical Perspectives on Accounting*, vol. 10, no. 5, pp. 683–709.
- Bryer, RA 2000, ‘The history of accounting and the transition to capitalism in England, Part one: Theory’, *Accounting, Organizations and Society*, vol. 25, no. 2, pp. 131–162.
- Burns, N & Kedia, S 2006, ‘The impact of performance-based compensation on misreporting’, *Journal of Financial Economics*, vol. 79, no. 1, pp. 35–67.
- Burrell, G & Morgan, G 1979, *Sociological paradigms and organisational analysis*, Heinemann, UK.
- Carcello, JV, Hermanson, DR, Neal, TL & Riley Jr, R 2002, ‘Board Characteristics and Audit Fees’, *Contemporary Accounting Research*, vol. 19, no. 3, pp. 365–384.
- Carcello, JV, Hermanson, D & Raghunandan, K 2005, ‘Factors associated with US public companies investment in internal auditing’, *Accounting Horizons*, vol. 19, no. 1, pp. 69–84.
- Carcello, JV, Hermanson, DR & Ye, Z 2011, ‘Corporate governance research in accounting and auditing: Insights, practice implications, and future research directions’, *Auditing: A Journal of Practice & Theory*, vol. 30, no. 3, pp. 1–31.
- Carcello, JV & Nagy, A 2002, ‘Auditor industry specialization and fraudulent financial reporting’ in *Symposium on Auditing Problems*, Univeristy of Kansas, pp. 94–118.
- Carcello, JV & Nagy, AL 2004a, ‘Client size, auditor specialization and fraudulent financial reporting’, *Managerial Auditing Journal*, vol. 19, no. 5, pp. 651–668.

- Carcello, JV & Nagy, A 2004b, 'Audit firm tenure and fraudulent financial reporting', *Auditing: A Journal of Practice & Theory*, vol. 23 ,no. 2, pp. 55–69.
- Carcello, JV & Neal, TL 2000, 'Audit committee composition and auditor reporting', *The Accounting Review*, vol. 75, no. 4, pp. 453–467.
- Carcello, JV, Neal, TL, Palmrose, ZV & Scholz, S 2011, 'CEO involvement in selecting board members, audit committee effectiveness, and restatements', *Contemporary Accounting Research*, vol. 28, no. 2, pp. 396-430.
- Carey, P & Simnett, R 2006, 'Audit Partner Tenure and Audit Quality', *The Accounting Review*, vol. 81, no. 3, pp. 653–676.
- Carpenter, TD 2007, 'Audit team brainstorming, fraud risk identification, and fraud risk assessment: Implications of SAS No. 99', *The Accounting Review*, vol. 82, no. 5, pp. 1119–1140.
- Carpenter, TD & Reimers, JL 2013, 'Professional Skepticism: The Effects of a Partner's Influence and the Level of Fraud Indicators on Auditors' Fraud Judgments and Actions', *Behavioral Research in Accounting*, vol. 25, no. 2, pp. 45-69.
- Carson, E & Fargher, N 2004, 'Audit fees and market segmentation—further evidence on how client size matters within the context of audit fee models', *International Journal of Auditing*, Vol. 8, no. 1, pp. 79–91.
- Carson, E, Simnett, R, Soo, BS & Wright, AM 2012, 'Changes in audit market competition and the Big N premium', *Auditing: A Journal of Practice & Theory*, vol. 31, no. 3, pp. 47-73.
- Chan, P, Ezzamel, M & Gwilliam, D 1993, 'Determinates of audit fees for quoted UK companies', *Journal of Business Finance & Accounting*, vol. 20, no. 6, pp. 765–786.
- Chaney, PK & Philipich, KL 2002, 'Shredded Reputation: The Cost of Audit Failure', *Journal of Accounting Research*, vol. 40, no. 4, pp. 1221–1245.
- Chang, JC & Sun, HL 2009, 'Crossed-listed foreign firms' earnings informativeness, earnings management and disclosures of corporate governance information under SOX', *The International Journal of Accounting*, vol. 44, no. 1, pp. 1–32.
- Chapple, L, Ferguson, C & Kang, D 2009, 'Corporate governance and misappropriation', *Journal of Forensic and Investigative Accounting*, vol. 1, pp. 1–26.
- Chau, L & Siu, W 2000, 'Ethical decision-making in corporate entrepreneurial

- organizations', *Journal of Business Ethics*, vol. 23, pp. 365–375.
- Chen, CY, Lin, CJ & Lin, YC 2008, 'Audit Partner Tenure, Audit Firm Tenure, and Discretionary Accruals: Does Long Auditor Tenure Impair Earnings Quality?' *Contemporary Accounting Research*, vol. 25, no. 2, pp. 415–445.
- Chen, K & Zhou, J 2007, 'Audit Committee, Board Characteristics, and Auditor Switch Decisions by Andersen's Clients', *Contemporary Accounting Research*, vol. 24, no. 4, pp. 1085–1117.
- Chi, HY & Chin, CL 2011, 'Firm versus partner measures of auditor industry expertise and effects on auditor quality', *Auditing: A Journal of Practice & Theory*, vol. 30, no. 2, pp. 201-229.
- Chin, CL & Chi, HY 2009, 'Reducing Restatements with Increased Industry Expertise', *Contemporary Accounting Research*, vol. 26, no. 3, pp. 729–765.
- Cho, CC & Wu, CH 2014, 'Role of auditor in agency conflict and corporate governance', *Chinese Management Studies*, vol. 8, no. 3, pp. 333–353.
- Chtourou, SM, Bedard, J & Courteau, L 2001 *Corporate governance and earnings management*, University of Laval, Quebec, Canada.
- Chung, DY & Lindsay, WD 1988, 'The pricing of audit services: The Canadian perspective' *Contemporary Accounting Research*, vol. 5, no. 1, pp. 19–46.
- Clinard, M & Yeager, P 1980, *Corporate crime*, Free Press, NY.
- Cohen, J, Ding, Y, Lesage, C & Stolowy, H 2011, 'Corporate fraud and managers' behavior: Evidence from the press', *Journal of Business Ethics*, vol. 95, pp. 271–315.
- Cohen, JR, Krishnamoorthy, G & Wright, A 2004, 'The Corporate Governance Mosaic and Financial Reporting Quality', *Journal of Accounting Literature*, vol. 23, pp. 87–152.
- Cohen, JR, Krishnamoorthy, G & Wright, AM 2008, 'Form versus Substance: The Implications for Auditing Practice and Research of Alternative Perspectives on Corporate Governance', *Auditing: A Journal of Practice & Theory*, vol. 27, no. 2, pp. 181–198.
- Coleman, J 2001, *The Criminal Elite: Understanding White Collar Crime*, 5th edn, Worth Publishers, NY.
- Commonwealth of Australia, *Budget 2019-20: Budget Measures, Budget Paper No. 2, 2019-*

20, Commonwealth of Australia.

Connelly, BL, Certo, ST, Ireland, RD & Reutzel, CR 2010, 'Signaling Theory: A Review and Assessment', *Journal of Management*, vol. 37, no. 1, pp. 39–67.

Coram, P, Ferguson, C & Moroney, R 2008, 'Internal audit, alternative internal audit structures and the level of misappropriation of assets fraud', *Accounting & Finance*, vol. 48, pp. 543–559.

Cornish, D & Clarke, R 1986, *The Reasoning Criminal: Rational Choice Perspectives on Offending*, Springer-Verlag, NY.

Corporations Act 2001 Chapter 2M,

<http://www8.austlii.edu.au/au/legis/cth/consol_act/ca2001172/>, viewed 15 March 2013.

Committee of Sponsoring Organisations of the Treadway Commission 1992, *Internal Control – Integrated Framework*, COSO, NY.

Craswell, A & Francis, JR 1999, 'Pricing initial audit engagements: A test of competing theories' *The Accounting Review*, vol. 74, no. 2, pp. 201–216.

Craswell, A, Francis, JR & Taylor, S 1995, 'Auditor brand name reputations and industry specializations', *Journal of Accounting and Economics*, vol. 20, 297–322.

Cressey, D 1953, *Other people's money; a study of the sociology of embezzlement*, Free Press, NY.

Crutchley, CE, Jensen, MRH & Marshall, BB 2007, 'Climate for Scandal: Corporate Environments that Contribute to Accounting Fraud', *The Financial Review*, vol. 42, no. 1, pp. 53–73.

Davidson, R, Dey, A & Smith, A 2013, 'Executives' "off-the-job" behavior, corporate culture, and financial reporting risk', *Journal of Financial Economics*, vol. 117, no. 1, pp. 5-28.

Davidson, R, Goodwin-Stewart, J & Kent, P 2005, 'Internal governance structures and earnings management', *Accounting and Finance*, vol. 45, no. 2, pp. 241–267.

Davidson, WN, Xie, B & Xu, W 2004, 'Market reaction to voluntary announcements of audit committee appointments: The effect of financial expertise', *Journal of Accounting and Public Policy*, vol. 23, no. 4, pp. 279–293.

- Davis, LR, Ricchiute, D & Trompeter, G 1993, 'Audit effort, audit fees, and the provision of nonaudit services to audit clients', *The Accounting Review*, vol. 68, no. 1, pp. 135–150.
- DeAngelo, LE 1981, 'Auditor independence, 'low balling', and disclosure regulation', *Journal of Accounting and Economics*, vol. 3, no. 2, pp. 113–127.
- Dechow, PM, Sloan, RG & Sweeney, AP 1996, 'Causes and consequences of earnings manipulation: An analysis of firms subject to enforcement actions by the SEC', *Contemporary Accounting Research*, vol. 13, no. 1, pp. 1–36.
- DeFond, ML, Francis, JR & Wong, TJ 2000, 'Auditor Industry Specialization and Market Segmentation: Evidence from Hong Kong', *Auditing: A Journal of Practice & Theory*, vol. 19, no. 1, pp. 49–66.
- DeFond, ML, Hann, RN & Hu, X 2005, 'Does the Market Value Financial Expertise on Audit Committees of Boards of Directors?', *Journal of Accounting Research*, vol. 43, no. 2, pp. 153–193.
- DeFond, ML, Raghunandan, K & Subramanyam, KR 2002, 'Do Non-Audit Service Fees Impair Auditor Independence? Evidence from Going Concern Audit Opinions', *Journal of Accounting Research*, vol. 40, no. 4, pp. 1247–1274.
- DeFond, ML & Zhang, J 2014, 'A Review of Archival Auditing Research', *Journal of Accounting and Economics*, vol. 58, no. 2, pp. 275–326.
- Deis, DR & Giroux, G 1996, 'The effect of auditor changes on audit fees, audit hours, and audit quality', *Journal of Accounting and Public Policy*, vol. 15, no. 1, pp. 55–76.
- DeZoort, FT & Harrison, PD 2018, 'Understanding auditors' sense of responsibility for detecting fraud within organizations' *Journal of Business Ethics*, vol. 149, no. 4, pp. 857-874.
- DiMaggio, PJ & Powell, WW 1983, 'The iron cage revisited: Institutional isomorphism and collective rationality in organizational fields', *American sociological review*, vol. 4, no. 2, pp. 147-160.
- Donaldson, L 1990, 'The Ethereal Hand: Organizational Economics and Management Theory', *Academy of Management Review*, vol. 15, no. 3, pp. 369–381.
- Donelson, DC, Ege, MS & McInnis, JM 2016, 'Internal control weaknesses and financial reporting fraud', *Auditing: A Journal of Practice & Theory*, vol. 36, no. 3, pp. 45-69.
- Dorminey, J, Fleming, AS, Kranacher, MJ & Riley Jr, RA 2012, 'The Evolution of Fraud

- Theory', *Issues in Accounting Education*, vol. 27, no. 2, pp. 555–579.
- Dye, RA 1993, 'Auditing Standards, Legal Liability, and Auditor Wealth', *Journal of Political Economy*, vol. 101, no. 5, pp. 887–914.
- Earley, CE, Hoffman, VB & Joe, JR 2008, 'Reducing management's influence on auditors' judgments: An experimental investigation of SOX 404 assessments', *The Accounting Review*, vol. 83, no. 6, pp. 1461-1485.
- Efendi, J, Srivastava, A & Swanson, EP 2007, 'Why do corporate managers misstate financial statements? The role of option compensation and other factors', *Journal of Financial Economics*, vol. 85, no. 3, pp. 667–708.
- Engdahl, O 2008, 'The role of money in economic crime' *British Journal of Criminology*, vol. 48, pp. 154–170.
- Erickson, M, Hanlon, M & Maydew, EL 2006, 'Is There a Link between Executive Equity Incentives and Accounting Fraud?', *Journal of Accounting Research*, vol. 44, no. 1, pp. 113–143.
- Ettredge, M, Reed, M & Stone, M 2000, 'An Examination of Substitution among Monitoring Devices: The Case of Internal and External Audit Expenditures', *Review of Quantitative Finance and Accounting*, vol. 15, no. 1, pp. 57–79.
- Ezzamel, M 2002, 'The Relationship between Categories of Non-Audit Services and Audit Fees: Evidence from UK Companies', *International Journal of Auditing*, vol. 6, no. 1, pp. 13–35.
- Ezzamel, M, Gwilliam, DR & Holland, KM 1996, 'Some Empirical Evidence from Publicly Quoted UK Companies on the Relationship Between the Pricing of Audit and Non-audit Services' *Accounting and Business Research*, vol. 27, no. 1, pp. 3–16.
- Fama, E & Jensen, M 1983, 'Separation of ownership and control', *Journal of Law and Economics*, vol. 26, no. 2, pp. 301–325.
- Farber, D 2005, 'Restoring trust after fraud: Does corporate governance matter?' *The Accounting Review*, vol. 80, no. 2, pp. 539–561.
- Felix, WL, Gramling, AA & Maletta, MJ 2001, 'The contribution of internal audit as a determinant of external audit fees and factors influencing this contribution', *Journal of Accounting Research*, vol. 39, no. 3, pp. 513–534.
- Ferguson, A 2005, 'A review of Australian audit pricing literature', *Accounting Research*

Journal, vol. 18, no. 2, pp. 54–62.

- Ferguson, A, Francis, JR, & Stokes, D 2003, 'The effects of firm-wide and office-level industry expertise on audit pricing', *The Accounting Review*, vol. 78, no. 2, pp. 429–448.
- Ferguson, A, Pündrich, G & Raftery, A 2014, 'Auditor industry specialization, service bundling, and partner effects in a mining-dominated city' *Auditing: A Journal of Practice & Theory*, vol. 33, no. 3, pp. 153-180.
- Ferguson, A & Stokes, D 2002, 'Brand Name Audit Pricing, Industry Specialization, and Leadership Premiums post-Big 8 and Big 6 Mergers', *Contemporary Accounting Research*, vol. 19, no. 1, pp. 77–110.
- Festinger, L 1957, *A Theory of Cognitive Dissonance*, Row Peterson, Evanston, IL.
- Field, A 2009, *Discovering statistics using SPSS*, 3rd edn., Sage, London, UK.
- Financial Reporting Council 2018, *FRC Audit Quality Action Plan*, FRC.
- Financial Reporting Council 2019, *Auditor Disciplinary Processes: Review*, FRC.
- Firth, M 1985, 'An Analysis of Audit Fees and their Determinants in New-Zealand', *Auditing: A Journal of Practice & Theory*, vol. 4, no. 2, pp. 23–37.
- Firth, M 1997, 'The Provision of Non-audit Services and the Pricing of Audit Fees', *Journal of Business Finance & Accounting*, vol. 24, no. 3, pp. 511–526
- Francis, JR 1984, 'The effect of audit firm size on audit prices: A study of the Australian market', *Journal of Accounting and Economics*, vol. 6, no. 2, pp. 133–151.
- Francis, JR, Maydew, EL, & Sparks, HC 1999, 'The Role of Big 6 Auditors in the Credible Reporting of Accruals', *Auditing: A Journal of Practice & Theory*, vol. 18, no. 2, pp. 17–34.
- Francis, JR, Reichelt, K & Wang, D 2005, 'The pricing of national and city-specific reputations for industry expertise in the US audit market', *The Accounting Review*, vol. 80, no. 1, pp. 113–136.
- Francis, JR & Simon, D 1987, 'A test of audit pricing in the small-client segment of the US audit market', *The Accounting Review*, vol. 62, no. 1, pp. 145–157.
- Francis, JR & Stokes, D 1986, 'Audit prices, product differentiation, and scale economies: further evidence from the Australian market', *Journal of Accounting Research*, vol. 24, no. 2, pp. 383–393.

- Frankel, R, Johnson, M & Nelson, K 2002, 'The relation between auditors' fees for nonaudit services and earnings management', *The Accounting Review*, vol. 77, no. s-1, pp. 71–105.
- Friedrich, R J 1982, 'In defense of multiplicative terms in multiple regression equations' *American Journal of Political Science*, pp. 797-833.
- Gonzalez, GC & Hoffman, VB 2018, 'Continuous auditing's effectiveness as a fraud deterrent', *Auditing: A Journal of Practice & Theory*, vol. 37, no. 2, pp. 225-247.
- Goodwin, J & Wu, D 2014, 'Is the effect of industry expertise on audit pricing an office-level or a partner-level phenomenon?', *Review of Accounting Studies*, vol. 19, no. 4, pp. 1532-1578.
- Groot, T & Hernandez, JR 2007, *How trust underpins auditor fraud risk assessments*, Research memorandum ARCA, vol. 0617, Vrije Universiteit Amsterdam, Amsterdam.
- Gross, N, Mason, WS & McEachern, AW 1958, *Explorations in role analysis: Studies of the school superintendency role*, Wiley, Oxford, UK.
- Gujarati, DN 2003, *Basic econometrics*, 4th edn, McGraw-Hill, NY.
- Gul, FA & Ng, AC 2018, 'Auditee religiosity, external monitoring, and the pricing of audit services', *Journal of Business Ethics*, vol. 152, no. 2, pp. 409-436.
- Hackenbrack, K & Knechel, WR 1997, 'Resource Allocation Decisions in Audit Engagements', *Contemporary Accounting Research*, vol. 14, no. 3, pp. 481–499.
- Hair, JF, Anderson, RE, Tatham, RL & Black, WC 1998, *Multivariate data analysis*, 5th edn., Prentice Hall, Upper Saddle River, NJ.
- Hammersley, JS, Bamber, EM & Carpenter, TD 2010, 'The influence of documentation specificity and priming on auditors' fraud risk assessments and evidence evaluation decisions' *The Accounting Review*, vol. 85, no. 2, pp. 547-571.
- Hay, DC, Knechel, WR & Li, V 2006, 'Non-audit Services and Auditor Independence: New Zealand Evidence' *Journal of Business Finance & Accounting*, vol. 33, no. 5–6, pp. 715–734.
- Hay, DC, Knechel, WR & Wong, N 2006, 'Audit Fees: A Meta-analysis of the Effect of Supply and Demand Attributes', *Contemporary Accounting Research*, vol. 23, no. 1, pp. 141–191.

- Herman, E 1981, *Corporate Control, Corporate Power*, Cambridge University Press, NY.
- Hermanson, DR, Krishnan, J & Ye, Z 2009, 'Adverse Section 404 Opinions and Shareholder Dissatisfaction toward Auditors', *Accounting Horizons*, vol. 23, no. 4, pp. 391–409.
- Hogan, CE, Rezaee, Z, Riley, RA & Velury, UK 2008, 'Financial Statement Fraud: Insights from the Academic Literature', *Auditing: A Journal of Practice & Theory*, vol. 27, no. 2, pp. 231–252.
- Hogan, CE & Wilkins, MS 2008, 'Evidence on the Audit Risk Model: Do Auditors Increase Audit Fees in the Presence of Internal Control Deficiencies?', *Contemporary Accounting Research*, vol. 25, no. 1, pp. 219–242.
- Hoitash, R 2007, 'Auditor fees and audit quality', *Managerial Auditing Journal*, vol. 22, no. 8, pp. 761–786.
- Hoitash, R, Hoitash, U & Bedard, JC 2009, 'Corporate governance and internal control over financial reporting', *The Accounting Review*, vol. 84, no. 3, pp. 839–867.
- Hope, OK, Langli, JC & Thomas, WB 2012, 'Agency conflicts and auditing in private firms', *Accounting, Organizations and Society*, vol. 37, no. 7, pp. 500–517.
- Huang, HW & Thiruvadi, S 2010, 'Audit Committee Characteristics and Corporate Fraud', *International Journal of Public Information Systems*, vol. 6, no. 1, pp. 71–82.
- Hula, RC 1984, 'Market strategies as policy tools: the search for alternative approaches to urban revitalization', *Journal of Public Policy*, vol. 4, no. 3, pp. 181–207.
- Hurtt, R 2010, 'Development of a scale to measure professional skepticism', *Auditing: A Journal of Practice & Theory*, vol. 29, no. 1, pp. 149–171.
- Iyer, VM & Rama, DV 2004, 'Clients' Expectations on Audit Judgments: A Note', *Behavioral Research in Accounting*, vol. 16, no. 1, pp. 63–74.
- Jack, TT & Jack, EC 1905, *A History of Accounting and Accountants*, R. Brown (ed.), Frank Cass, Edinburgh.
- Jaggi, B & Xin, HC 2017, 'Impact of Religiosity on Auditors' Behavior and Audit Fees', *Journal of Accounting, Ethics and Public Policy*, vol. 18, no. 3.
- Jensen, MC 1993, 'The modern industrial revolution, exit, and the failure of internal control systems', *The Journal of Finance*, vol. 48, no. 3, pp. 831–880.
- Jensen, M & Meckling, W 1976, 'Theory of the firm: Managerial behavior, agency costs and

- ownership structure' *Journal of Financial Economics*, vol. 3, no. 4, pp. 305–360.
- Johnstone, KM & Bedard, JC 2001, 'Engagement Planning, Bid Pricing, and Client Response in the Market for Initial Attest Engagements', *The Accounting Review*, vol. 76, no. 2, pp. 199–220.
- Karamanou, I & Vafeas, N 2005, 'The Association between Corporate Boards, Audit Committees, and Management Earnings Forecasts: An Empirical Analysis', *Journal of Accounting Research*, vol. 43, no. 3, pp. 453–486.
- Kieffer, SM & Sloan III, JJ 2008, 'Overcoming Moral Hurdles: Using Techniques of Neutralization by White-Collar Suspects as an Interrogation Tool' *Security Journal*, vol. 22, no. 4, pp. 317–330.
- Klein, A 2002, 'Audit committee, board of director characteristics, earning management', *Journal of Accounting and Economics*, vol. 33, no. 3, pp. 375–400.
- Knapp, CA & Knapp, MC 2001, 'The effects of experience and explicit fraud risk assessment in detecting fraud with analytical procedures', *Accounting, Organizations and Society*, vol. 26, no. 1, pp. 25–37.
- Knaus, C 2019, 'Former C|T Group executive accused of defrauding the firm of \$850,000', *The Guardian*, 14 March, viewed 12 June 2019, <<https://www.theguardian.com/australia-news/2019/mar/14/former-ct-group-executive-accused-of-defrauding-the-firm-of-850000>>.
- Knechel, WR 2001, *Auditing: Assurance and risk*, 2nd edn, South Western, Cincinnati, OH.
- Knechel, WR, Mintchik, N, Pevzner, M & Velury, U 2019, 'The effects of generalized trust and civic cooperation on the Big N presence and audit fees across the globe', *Auditing: A Journal of Practice and Theory*, vol. 38, no. 1, pp. 193-219.
- Knechel, WR & Payne, J 2001, 'Additional evidence on audit report lags', *Auditing: A Journal of Practice & Theory*, vol. 20, no. 1, pp. 137–146.
- Knechel, WR & Willekens, M 2006, 'The role of risk management and governance in determining audit demand', *Journal of Business Finance & Accounting*, vol. 33, no. 9–10, pp. 1344–1367.
- Koh, K, Matsumoto, DA & Rajgopal, S 2008, 'Meeting or Beating Analyst Expectations in the Post-Scandals World: Changes in Stock Market Rewards and Managerial Actions', *Contemporary Accounting Research*, vol. 25, no. 4, pp. 1067–1098.

- Koo, CM & Sim, HS 1999 'On the role conflict of auditors in Korea' *Accounting, Auditing & Accountability Journal*, vol. 12, no. 2, pp. 206-219.
- KPMG 2013, *Fraud Survey 2012*, KPMG.
- KPMG 2018a, *Fraud Barometer: A snapshot of fraud in Australia, October 2016 – September 2017*, KPMG.
- KPMG 2018b, *KPMG survey: fraud falling but cyber, identity theft concerns remain*, KPMG, viewed 14 June 2019, <<https://home.kpmg/au/en/home/media/press-releases/2018/02/kpmg-survey-fraud-falling-but-cyber-identity-theft-concerns-remain-14-february-2018>>
- Kranacher, MJ, Riley, RA & Wells, JT 2011, *Forensic Accounting and Fraud Examination*, John Wiley & Sons, NY.
- Krishnan, J & Lee, JE 2009, 'Audit Committee Financial Expertise, Litigation Risk, and Corporate Governance', *Auditing: A Journal of Practice & Theory*, vol. 28, no. 1, pp. 241–261.
- Lambert, TA & Agoglia, CP 2011, 'Closing the loop: Review process factors affecting audit staff follow-through', *Journal of Accounting Research*, vol. 49, no. 5, pp. 1275-1306.
- Lane, R & O'Connell, B 2009, 'The Changing Face of Regulators' Investigations into Financial Statement Fraud', *Accounting Research Journal*, vol. 22, no. 2, pp. 118-43.
- Larcker, DF & Richardson, SA 2004, 'Fees Paid to Audit Firms, Accrual Choices, and Corporate Governance', *Journal of Accounting Research*, vol. 42, no. 3, pp. 625–658.
- Lee, H & Mande, V 2005, 'The Relationship of Audit Committee Characteristics with Endogenously Determined Audit and Non-Audit Fees', *Quarterly Journal of Business & Economic*, vol. 44, pp. 93–112.
- Lee, HY, Mande, V & Ortman, R 2004, 'The Effect of Audit Committee and Board of Director Independence on Auditor Resignation', *Auditing: A Journal of Practice & Theory*, vol. 23, no. 2, pp. 131–146.
- Lenard, M & Petruska, K 2012, 'Indicators of audit fees and fraud classification: impact of SOX', *Managerial Auditing Journal*, vol. 27, no. 5, pp. 500–525.
- Lennox, C & Park, C 2007, 'Audit Firm Appointments, Audit Firm Alumni, and Audit Committee Independence', *Contemporary Accounting Research*, vol. 24, no. 1, pp. 235–258.

- Lennox, C & Pittman, J 2010, 'Big Five Audits and Accounting Fraud' *Contemporary Accounting Research*, vol. 27, no. 1, pp. 209–247.
- Lennox, CS 1999, 'Audit Quality and Auditor Size: An Evaluation of Reputation and Deep Pockets Hypotheses', *Journal of Business Finance*, vol. 26, no. 7-8, pp. 779–805.
- Leventis, S, Dedoulis, E & Abdelsalam, O 2018, 'The impact of religiosity on audit pricing', *Journal of Business Ethics*, vol. 148, no. 1, pp. 53-78.
- Loebbecke, JK, Eining, MM & Willingham, JJ 1989, 'Auditors' experience with material irregularities: Frequency, nature and detectability', *Auditing: A Journal of Practice & Theory*, vol. 9, no. 1, pp. 1–28.
- Lofquist, WS, Cohen, MA, & Rabe, GA 1997, *Debating Corporate Crime*, Anderson Publishing Co., CIN.
- Lynch, AL, Murthy, US & Engle, TJ 2009, 'Fraud Brainstorming Using Computer-Mediated Communication: The Effects of Brainstorming Technique and Facilitation' *The Accounting Review*, vol. 84, no. 4, pp. 1209–1232.
- MacAvoy, PW & Millstein, IM 2003, *The Recurrent Crisis in Corporate Governance*, Palgrave Macmillan, NY.
- Mace, ML 1971, *Directors: Myth and reality*, Cambridge, MA.
- Maher, M, Tiessen, P, Colson, R & Broman, AJ 1992, 'Competition and audit fees' *The Accounting Review*, vol. 67, no. 1, pp. 199–211.
- Markelevich, A & Rosner, R 2013, 'Auditor fees and fraud firms', *Contemporary Accounting Research*, vol. 30, no. 4, pp. 1590–1625.
- Mayhew, BW & Murphy, PR 2014, 'The impact of authority on reporting behavior, rationalization and affect', *Contemporary Accounting Research* vol. 31, no. 2, pp. 420–443.
- Meyer, JW & Rowan, B 1977, 'Institutionalized organizations: Formal structure as myth and ceremony', *American journal of sociology*, vol. 83, no. 2, pp.340–363.
- Mihret, DG 2014, 'How can we explain internal auditing? The inadequacy of agency theory and a labor process alternative', *Critical Perspectives on Accounting*, vol. 25, no. 8, pp. 771–782.
- Mitchell, G 2019, 'Betting \$3 million a day on football games': lawyer gets three years for

fraud', *The Sydney Morning Herald*, 16 January, viewed 12 June 2019, <<https://www.smh.com.au/national/nsw/betting-3-million-a-day-on-football-games-lawyer-gets-three-years-for-fraud-20190116-p50rnp>>.

- Mohd Kharuddin, KA & Basioudis, IG 2018, 'Big 4 audit fee premiums for national-and city-specific industry leadership in the UK: Additional evidence' *International Journal of Auditing*, vol. 22, no. 1, pp. 65-82.
- Mohd Kharuddin, KA, Basioudis, IG & Hay, D 2019, 'Partner industry specialization and audit pricing in the United Kingdom', *Journal of International Accounting, Auditing and Taxation*, vol. 35, pp. 57-70.
- Moroney, R, Campbell, F & Hamilton, J 2017, *Auditing: A Practical Approach*, John Wiley & Sons, Australia.
- Murray, G 2001, 'Interlocking directorates: What do they tell about corporate power in Australia', *Journal of Australian Political Economy*, vol. 47, pp. 5–26.
- Mustafa, ST & Meier HH 2006 'Audit Committees and Misappropriation of Assets: Publicly Held Companies in the United States', *Canadian Accounting Perspectives*, vol. 5, no. 2, pp. 307-333.
- Mustafa, ST & Youssef, N 2010, 'Audit committee financial expertise and misappropriation of assets', *Managerial Auditing Journal*, vol. 25, no. 3, pp. 208–225.
- Myers, RH 1990 *Classical and modern regression with applications*, 2nd edn, Duxbury press, Boston, MA.
- Myers, JN, Myers, L & Omer, TC 2003, 'Exploring the Term of the Auditor Client Relationship and the Quality of Earnings: A Case for Mandatory Auditor Rotation?', *The Accounting Review*, vol. 78, no. 3, pp. 779–799.
- Nagy, AL 2014, 'Audit partner specialization and audit fees', *Managerial Auditing Journal*, vol. 29, no. 6, pp. 513–526.
- Naser, K, Al Kandari, A, Al-Mutairi, A & Nuseibeh, R 2013, 'Can Substitution and Signaling Theories Explain the Relationship between External Audit Fees and the Effectiveness of Internal Corporate Governance?', *Global Journal of Management And Business Research*, vol. 13, no. 5, pp. 41–49.
- Nelson, MW 2009, 'A model and literature review of professional skepticism in auditing', *Auditing: A Journal of Practice & Theory*, vol. 28, no. 2, pp. 1-34.

- Newton, JD & Ashton, RH 1989, 'The association between audit technology and audit delay', *Auditing: A Journal of Practice & Theory*, vol. 8, pp. 22–49.
- O'Keefe, T, Simunic, D & Stein, M 1994, 'The production of audit services: Evidence from a major public accounting firm', *Journal of Accounting Research*, vol. 32, no. 2, pp. 24–261.
- Owens-Jackson, LA, Robinson, D & Shelton, S 2009, 'The association between audit committee characteristics, the contracting process and fraudulent financial reporting' *American Journal of Business*, vol. 24, no. 1, pp. 57–66.
- Palmer, DE 2009, 'Business Leadership: Three Levels of Ethical Analysis', *Journal of Business Ethics*, vol. 88, no. 3, pp. 525–536.
- Palmrose, Z 1986, 'The effect of nonaudit services on the pricing of audit services: Further evidence', *Journal of Accounting Research*, vol. 24, no. 2, pp. 405–411.
- Palmrose, Z 1988, 'An analysis of auditor litigation and audit service quality', *The Accounting Review*, vol. 63, no. 1, pp. 55–73.
- Park, BJ 2019, 'Audit Committees and Managerial Influence on Audit Quality: 'Voluntary' versus 'Mandatory' Approach to Corporate Governance', *Australian Accounting Review*, vol. 29, no. 1, pp. 266–280.
- Patton, A & Baker, JC 1987, 'Why don't directors rock the boat?', *Harvard Business Review*, vol. 65, pp. 10–18.
- Peasnell, KV, Pope, PF & Young, S 2005, 'Board Monitoring and Earnings Management: Do Outside Directors Influence Abnormal Accruals', *Journal of Business Finance & Accounting*, vol. 32, pp. 1311–1346.
- Perols, JL & Lougee, BA 2011, 'The relation between earnings management and financial statement fraud', *Advances in Accounting*, vol. 27, no. 1, pp. 39–53.
- Pfeffer, J & Salancik, G 1978, *The External Control of Organizations: A Resource Dependence Perspective*, Harper & Row, NY.
- Pomeroy, B & Thornton, DB 2008, 'Meta-analysis and the Accounting Literature: The Case of Audit Committee Independence and Financial Reporting Quality', *European Accounting Review*, vol. 17, no. 2, pp. 305–330.
- Rahman, RA & Ali, FHM 2006, 'Board, audit committee, culture and earnings management: Malaysian evidence', *Managerial Auditing Journal*, vol. 21, no. 7, pp. 783–804.

- Ramamoorti, S, Morrison, DE, Koletar, JW & Pope, KR 2013, *A.B.C. 's of Behavioral Forensics*, John Wiley & Sons, Hoboken, NJ.
- Rapoport, M 2003, 'In the money: Scandal can't be foreseen from auditor fees' *Dow Jones News Services*, January 8.
- Rediker, KJ & Seth A 1995, 'Boards of directors and substitution effects of alternative governance mechanisms', *Strategic Management Journal*, vol. 16, no. 2, pp. 85–99.
- Reingold, J 1999 'Dot.com boards are flouting the rules. They're small and packed with insiders. Does it matter?' *Business Week*, 17 January, viewed 4 March 2012
<http://www.businessweek.com/1999/99_51/b3660147>
- Ricchiute, DN 2010, 'Evidence Complexity and Information Search in the Decision to Restate Prior-Period Financial Statements', *Journal of Accounting Research*, vol. 48, no. 3, pp. 687-724.
- Rizzo, JR, House, RJ & Lirtzman, SI 1970, 'Role Conflict and Ambiguity in Complex Organizations', *Administrative Science Quarterly*, vol. 15, no. 2, pp. 150–163.
- Rosner, RL 2003, 'Earnings Manipulation in Failing Firms', *Contemporary Accounting Research*, vol. 20, no. 2, pp. 361–408.
- Ross, L & Nisbett, R 1991, *The Person and the Situation: Perspectives of Social Psychology*, McGraw-Hill, NY.
- Sarbanes-Oxley Act 2002, Washington, DC.
- Savin, NE & White, KJ 1977, 'The Durbin-Watson test for serial correlation with extreme sample sizes or many regressors', *Econometrica: Journal of the Econometric Society*, vol. 45, pp. 1989-1996.
- Scotland, J 2012, 'Exploring the philosophical underpinnings of research: Relating ontology and epistemology to the methodology and methods of the scientific, interpretive, and critical research paradigms', *English language teaching*, vol. 5, no. 9, pp.9-16.
- Scott, WR 2009, *Financial Accounting Theory*, 5th edn, Pearson Prentice Hall, Toronto, Canada.
- Seetharaman, A, Gul, FA & Lynn, S 2002, 'Litigation risk and audit fees: Evidence from UK firms cross-listed on US markets', *Journal of Accounting and Economics*, vol. 33, no. 1, pp. 91–115.

- Sharma, DS, Boo, E & Sharma, VD 2008, 'The impact of non-mandatory corporate governance on auditors' client acceptance, risk and planning judgments', *Accounting and Business Research*, vol. 38, no. 2, pp. 105–120.
- Sharma, V 2004, 'Board of director characteristics, institutional ownership, and fraud: Evidence from Australia', *Auditing: A Journal of Practice & Theory*, vol. 23, no. 2, pp. 105–117.
- Simon, D & Francis, JR 1988, 'The effects of auditor change on audit fees: Tests of price cutting and price recover', *The Accounting Review*, vol. 63, no. 2, pp. 255–269.
- Simon, HA 1976, *Administrative Behaviour*, 3rd edn, Free Press, NY.
- Simunic, DA 1980, 'The pricing of audit services: Theory and evidence', *Journal of Accounting Research*, vol. 22, no. 3, pp. 161–190.
- Smith, JR, Tiras, SL & Vichitlekarn, SS 2000, 'The Interaction between Internal Control Assessment and Substantive Testing in Audits for Fraud', *Contemporary Accounting Research*, vol. 17, no. 2, pp. 327–356.
- Solomons, M 2014, 'Former senior executive accused of misappropriating more than \$4 million from mining giant Anglo American' *ABC News*, 28 October, viewed 3 August 2015, <http://www.abc.net.au/news/2014-10-28/anglo-american-fraud-allegations-against-former-senior-executive/5848620>.
- Spence, M 1973, 'Job Market Signaling', *The Quarterly Journal of Economics*, vol. 87, no. 3, pp. 355–374.
- Stiles, P & Taylor, B 2001, *Boards at work: How directors view their roles and responsibilities*, Oxford University Press Inc, NY.
- Straus, SG, Parker, AM & Bruce, JB 2011, 'The group matters: A review of processes and outcomes in intelligence analysis', *Group Dynamics: Theory, Research, and Practice*, vol. 15, no. 2, pp. 128-146.
- Stubben, SR 2010, 'Discretionary revenues as a measure of earnings management', *The Accounting Review*, vol. 85, no. 2, pp. 695-717.
- Sutherland, EH 1940, 'White-collar criminality', *American Sociological Review*, vol. 5, no. 1, pp. 1–12.
- Sykes, G & Matza, D 1957, *Techniques of neutralization, In Criminological Theory: Past and Present*, 2nd edn, Roxbury Publishing, Los Angeles, CA.

- Trompeter, GM, Carpenter, TD, Desai, N, Jones, KL & Riley, RA 2013, 'A Synthesis of Fraud-Related Research', *Auditing: A Journal of Practice & Theory*, vol. 32, supplement 1, pp. 287–321.
- Trompeter, G & Wright, A 2010, 'The world has changed—Have analytical procedure practices?', *Contemporary Accounting Research*, vol. 27, no. 2, pp. 669-700.
- Trotman, KT, Simnett, R & Khalifa, A 2009, 'Impact of the type of audit team discussions on auditors' generation of material frauds' *Contemporary Accounting Research*, vol. 26, no. 4, pp. 1115-1142.
- Turpen, RA 1990, 'Differential Pricing on Auditors ' Initial Engagements: Further Evidence', *Auditing: A Journal of Practice & Theory*, vol. 9, no. 2, pp. 60–77.
- Tuttle, B & Dillard, J 2007, 'Beyond Competition: Institutional Isomorphism in U.S. Accounting Research', *Accounting Horizons*, vol. 21, no. 4, pp. 387–409.
- Uzun, H, Szewczyk, S, & Varma, R 2004, 'Board composition and corporate fraud', *Financial Analysts Journal*, vol. 60, no. 3, pp. 33–43.
- Van De Bunt, H 2010, 'Walls of secrecy and silence: The Madoff case and cartels in the construction industry', *Criminology & Public Policy*, vol. 9, no. 3, pp. 435–453.
- Van Puyvelde, S, Caers, R, Du Bois, C & Jegers, M 2011, 'The Governance of Nonprofit Organizations: Integrating Agency Theory With Stakeholder and Stewardship Theories', *Nonprofit and Voluntary Sector Quarterly*, vol. 41, no. 3, pp. 431–451.
- Wang, P & Zhou, LA 2006, 'Auditor's choice by China's listed companies and its governance role' *China Accounting Review*, vol. 2, pp. 88–90.
- Wang, Y 2009, 'Control chain, agency conflicts and auditor choice', *Accounting Research*, vol. 6, pp. 65–72.
- Watts, RL & Zimmerman, JL 1983, 'Agency Problems, Auditing, and the Theory of the Firm: Some Evidence', *Journal of Law and Economics*, vol. 26, no. 3, pp. 613–633.
- Wedel, J 2001, 'Corruption and organized crime in post-Communist states: New ways of manifesting old patterns' *Trends in Organized Crime*, vol. 7, no. 1, pp. 3–61.
- Weeks, WA, Longenecker, JG, McKinney, JA & Moore, CW 2005, 'The Role of Mere Exposure Effect on Ethical Tolerance: a Two-Study Approach', *Journal of Business Ethics*, vol. 58, no. 4, pp. 281–294.

- Whisenant, S, Sankaraguruswamy, S,& Raghunandan, K 2003, 'Evidence on the Joint Determination of Audit and Non-Audit Fees', *Journal of Accounting Research*, vol. 41, no. 4, pp. 721–744.
- White, B 2005, Ex-Tyco executives convicted, *The Washington Post*, 18 June, viewed 3 August 2015, <https://www.washingtonpost.com/archive/politics/2005/06/18/ex-tyco-executives-convicted/ea496cec-0e05-4a65-955f-70fdc4d4f9bd/?noredirect=on&utm_term=.a063b46ffdf>.
- Williams, S 2002, *Association between earnings management and properties of independent audit committee members*, Working Paper, Singapore.
- Williamson, OE 1999, 'Strategy research: Governance and competence perspectives', *Strategic Management Journal*, vol. 20, pp. 1087–1108.
- Wolfe, DT & Hermanson, DR 2004 (December), 'The Fraud Diamond: Considering the four elements of fraud', *The CPA Journal*.
- Wolfson, N 1984, *The Modern Corporation: Free Markets versus Regulation*, McGraw Hill, NY.
- Yang, J & Krishnan, J 2005, 'Audit Committees and Quarterly Earnings Management', *International Journal of Auditing*, vol. 9, pp. 201-219.
- Yermack, D 1996, 'Higher market valuation of companies with a small board of directors', *Journal of Financial Economics*, vol. 40, no. 2, pp. 185–211.
- Zeitlin, M 1974, 'Corporate ownership and control: The large corporation and the capitalist class', *American Journal of Sociology*, vol. 79, pp. 1073–1119.
- Zerni, M 2012, 'Audit partner specialization and audit fees: Some evidence from Sweden', *Contemporary Accounting Research*, vol. 29, no. 1, pp. 312–340.

10. Appendices

10.1. Appendix 1: Examples of Possible Audit Procedures

The following are examples of responses to the auditor's assessment of the risk of material misstatements due to misappropriation of assets taken from *ASA 240*.

- Counting cash or securities at or near year-end.
- Confirming directly with customers the account activity (including credit memo and sales return activity as well as dates payments were made) for the period under audit.
- Analysing recoveries of written-off accounts.
- Analysing inventory shortages by location or product type.
- Comparing key inventory ratios to industry norm.
- Reviewing supporting documentation for reductions to the perpetual inventory records.
- Performing a computerised match of the vendor list with a list of employees to identify matches of addresses or phone numbers.
- Performing a computerised search of payroll records to identify duplicate addresses, employee identification or taxing authority numbers or bank accounts.
- Reviewing personnel files for those that contain little or no evidence of activity, for example, lack of performance evaluations.
- Analysing sales discounts and returns for unusual patterns or trends.
- Confirming specific terms of contracts with third parties.
- Obtaining evidence that contracts are being carried out in accordance with their terms.

10.2. Appendix 2: Examples of Fraud Risk Factors

The following are examples of fraud risk factors taken from *ASA 240*.

Incentives/Pressures

(a) Personal financial obligations may create pressure on management or employees with access to cash or other assets susceptible to theft to misappropriate those assets.

(b) Adverse relationships between the entity and employees with access to cash or other assets susceptible to theft may motivate those employees to misappropriate those assets. For example, adverse relationships may be created by the following:

- Known or anticipated future employee layoffs.
- Recent or anticipated changes to employee compensation or benefit plans.
- Promotions, compensation, or other rewards inconsistent with expectations.

Opportunities

(a) Certain characteristics or circumstances may increase the susceptibility of assets to misappropriation. For example, opportunities to misappropriate assets increase when there are the following:

- Large amounts of cash on hand or processed.
- Inventory items that are small in size, of high value, or in high demand.
- Easily convertible assets, such as bearer bonds, diamonds, or computer chips.
- Fixed assets which are small in size, marketable, or lacking observable identification of ownership.

(b) Inadequate internal control over assets may increase the susceptibility of misappropriation of those assets. For example, misappropriation of assets may occur because there is the following:

- Inadequate segregation of duties or independent checks.
- Inadequate oversight of senior management expenditures, such as travel and other re-imbursments.
- Inadequate management oversight of employees responsible for assets, for example, inadequate supervision or monitoring of remote locations.
- Inadequate job applicant screening of employees with access to assets.
- Inadequate record keeping with respect to assets.
- Inadequate system of authorisation and approval of transactions (for example, in purchasing).
- Inadequate physical safeguards over cash, investments, inventory, or fixed assets.

- Lack of complete and timely reconciliations of assets.
- Lack of timely and appropriate documentation of transactions, for example, credits for merchandise returns.
- Lack of mandatory vacations for employees performing key control functions.
- Inadequate management understanding of information technology, which enables information technology employees to perpetrate a misappropriation.
- Inadequate access controls over automated records, including controls over and review of computer systems event logs.

Attitudes/Rationalisations

- Disregard for the need for monitoring or reducing risks related to misappropriations of assets.
- Disregard for internal control over misappropriation of assets by overriding existing controls or by failing to correct known internal control deficiencies.
- Behaviour indicating displeasure or dissatisfaction with the entity or its treatment of the employee.
- Changes in behaviour or lifestyle that may indicate assets have been misappropriated.
- Tolerance of petty theft.

10.3. Appendix 3: Index of variable definitions

Table 28 Index of variable definitions

Variable	Definition
ACIND	= the proportion of non-executive directors on the audit committee
ACMEET	= the number of audit committee meetings held during the year
ACSIZE	= the number of directors on the audit committee
BIG4	Indicator variable = 1 if the company is audited by a Big-4 audit firm, 0 otherwise
BUSY	Indicator variable = 1 if the company has a 30 June financial year-end, 0 otherwise
CATA	= the ratio of current assets over total assets
DE	= long-term debt to total equity
DACIND	= Indicator variable = 1 if the proportion of non-executive directors on the audit committee is equal to or greater than the median, 0 otherwise
DACSIZE	= Indicator variable = 1 if the number of directors on the audit committee is equal to or greater than the median, 0 otherwise
DACMEET	= Indicator variable = 1 if the number of audit committee meetings held during the year is equal to or greater than the median, 0 otherwise
DFRAUD	= Indicator variable = 1 if the company reported experiencing MOA fraud on the KPMG fraud survey, 0 otherwise
IARES	Indicator variable = 1 if the company allocates internal audit resources to fraud prevention and/or detection, 0 otherwise
ICDET	Indicator variable = 1 if the company detected their single largest fraud using internal controls, 0 otherwise
ICFAIL	Indicator variable = 1 if internal control failure was a key factor in allowing the company's single largest fraud to occur, 0 otherwise
LAF	= natural log of the value of the audit fee in AUD
LFRAUD	= natural log of the value of the single largest fraud in AUD
LNAF	= natural log of non-audit fees in AUD
LOSS	Indicator variable = 1 if the company has shown net loss in the last three years, 0 otherwise
LTA	= natural log of total assets in AUD
NAT0+CITY1OR2	Indicator variable = 1 if the audit firm is the first or second highest-ranked by market share for the industry on a city basis (CITY1OR2) but not nationally (NAT0), 0 otherwise
NAT1OR2+CITY0	Indicator variable = 1 if the audit firm is the first or second highest-ranked by market share for the industry nationally (NAT1OR2) but not on a city basis (CITY0), 0 otherwise
NAT1OR2+CITY1OR2	Indicator variable = 1 if the audit firm is the first or second highest-ranked by market share for the industry both nationally (NAT1OR2) and on a city basis (CITY1OR2), 0 otherwise
NSB4+NAT0+CITY0	Indicator variable = 1 if the audit firm is a non-specialist Big-4 firm (NSB4) that is not the first or second highest-ranked by market share for the industry either on a national (NAT0) or city basis (CITY0), 0 otherwise
NSB4+PARNAT0+PARCITY0	Indicator variable = 1 if the audit partner is from a non-specialist Big-4 firm (NSB4) and the partner is not the first or second highest-ranked by market share for the industry either on a national (PARNAT0) or city basis (PARCITY0), 0 otherwise
OPINION	Indicator variable = 1 if the company received a going concern audit opinion, 0 otherwise

Variable	Definition
PARNAT0+PARCITY1OR2	Indicator variable = 1 if the audit partner is the first or second highest-ranked by market share for the industry on a city basis (PARCITY1OR2) but not nationally (PARNAT0), 0 otherwise
PARNAT1OR2+PARCITY1OR2	Indicator variable = 1 if the audit partner is the first or second highest-ranked by market share for the industry both nationally (PRNAT1OR2) and on a city basis (PARCITY1OR2), 0 otherwise
QUICK	= quick ratio
REPLE	Indicator variable = 1, if the company reported their single largest fraud to law enforcement authorities, 0 otherwise
ROI	= return on investment
SQSUBS	= square root of number of subsidiaries

10.4. Appendix 4: Histograms and P-Plots

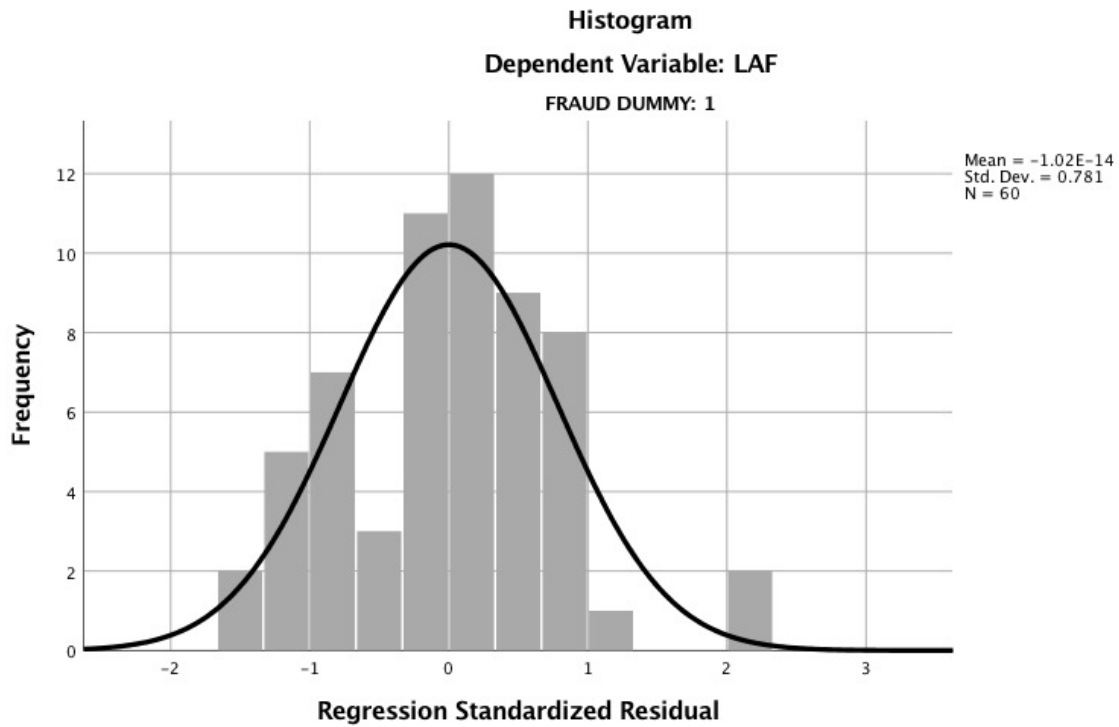


Figure 16 Histogram: Model 1a

Normal P-P Plot of Regression Standardized Residual

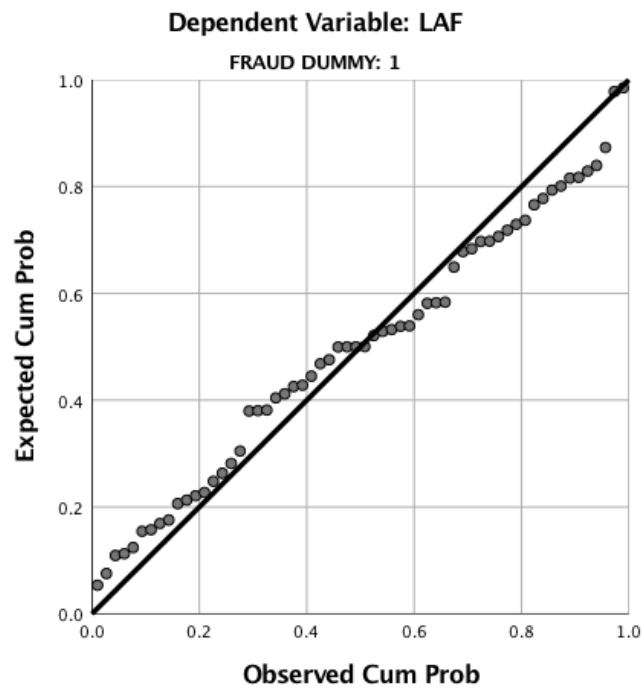


Figure 17 P-Plot: Model 1a

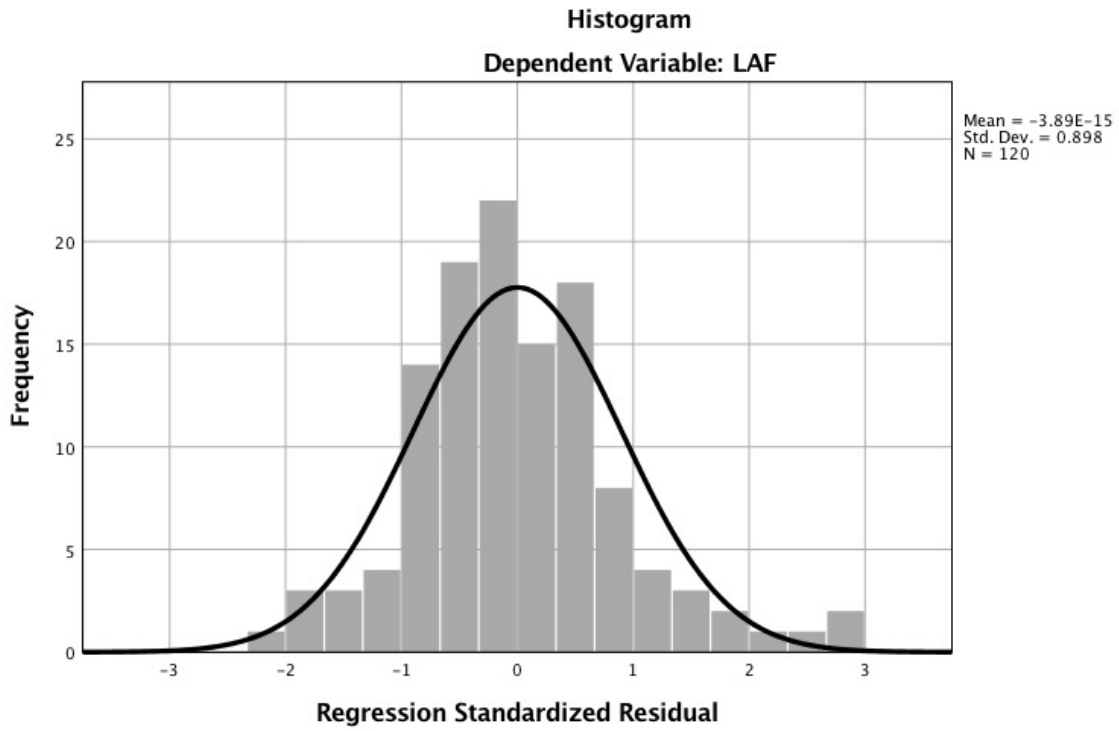


Figure 18 Histogram: Model 1b

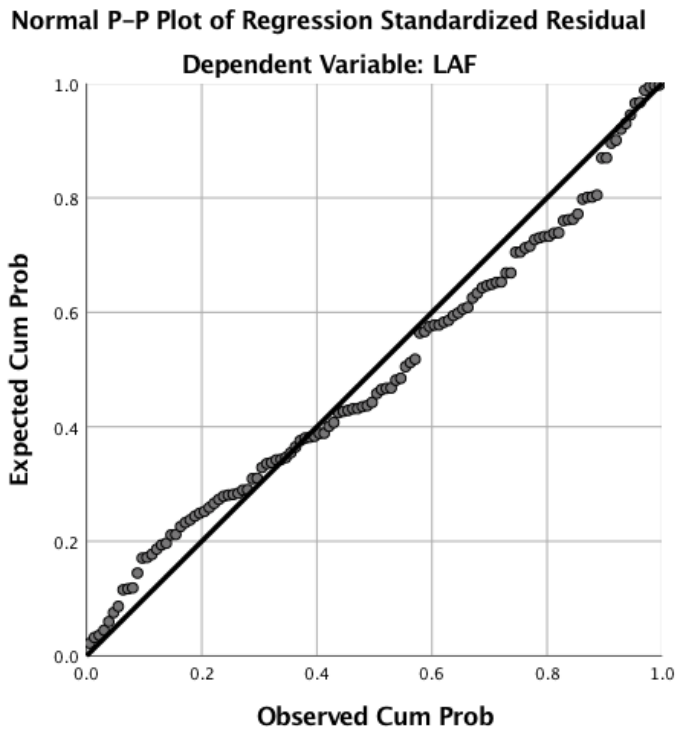


Figure 19 P-Plot: Model 1b

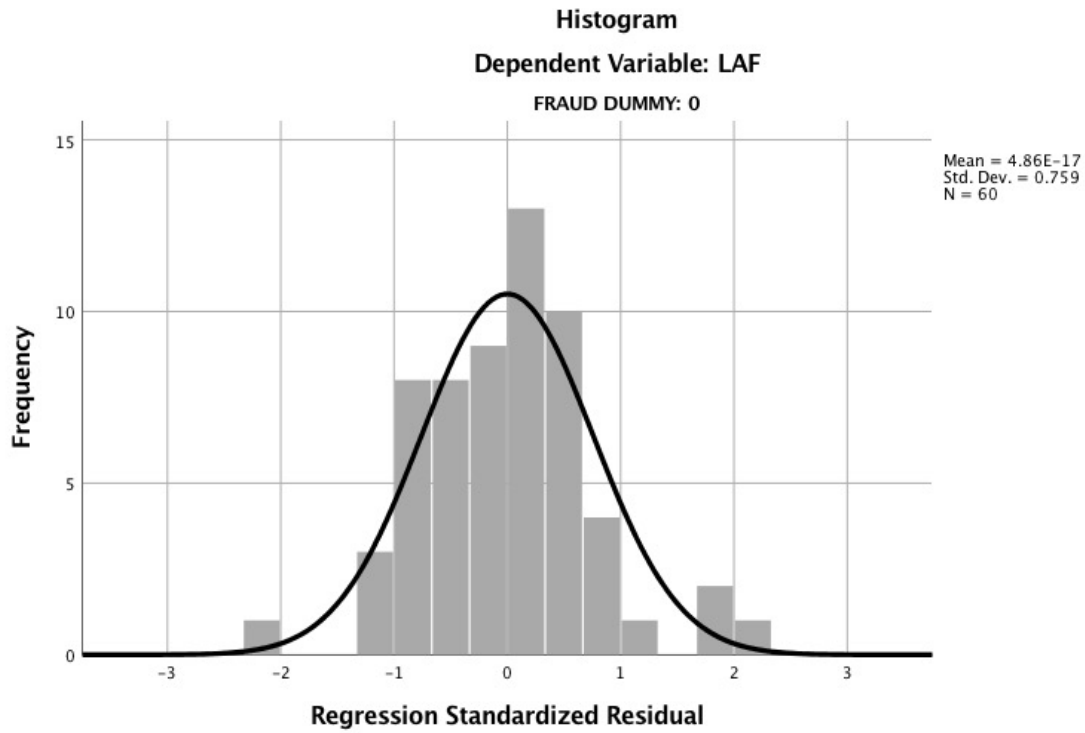


Figure 20 Histogram: Model 2a

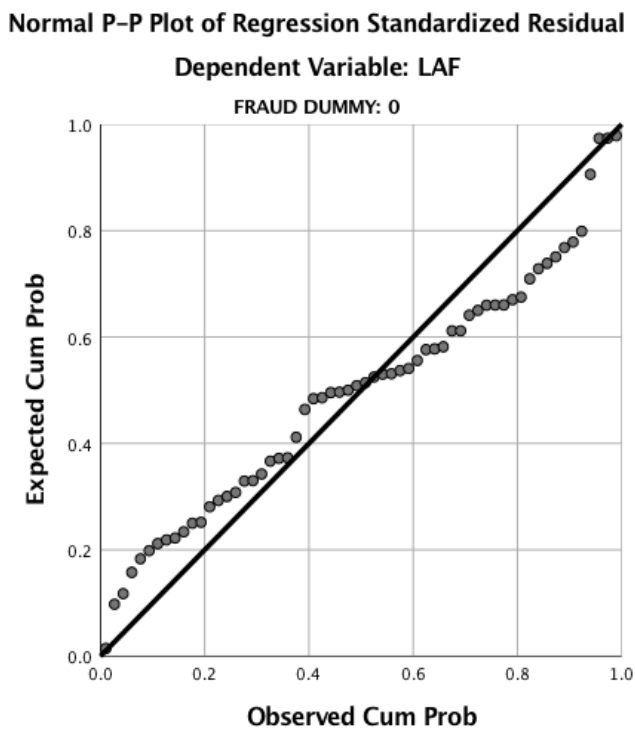


Figure 21 P-Plot: Model 2a

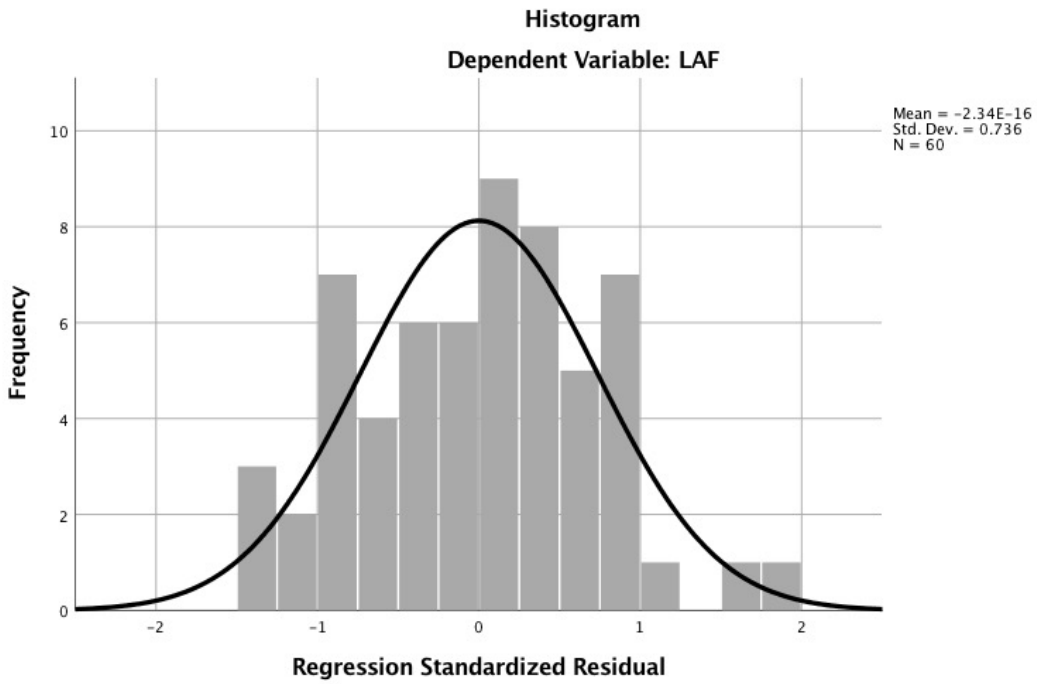


Figure 22 Histogram: Model 3a

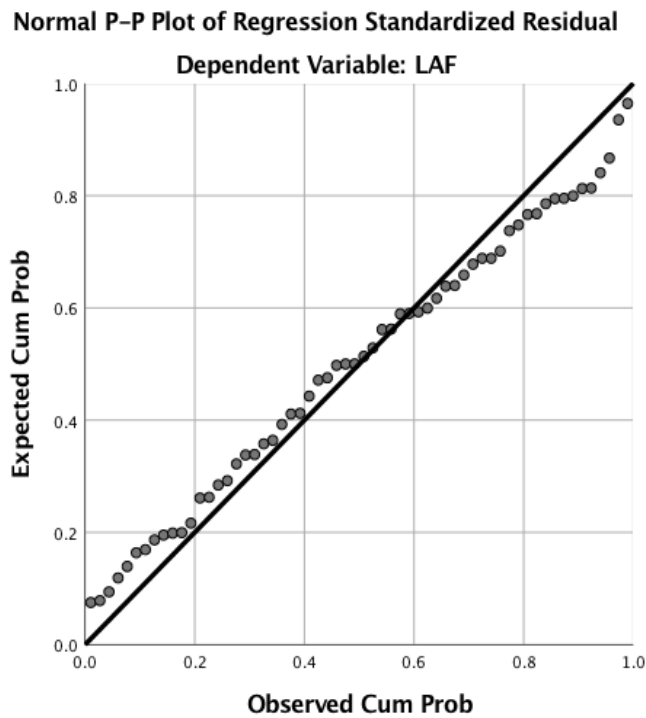


Figure 23 P-Plot: Model 3a

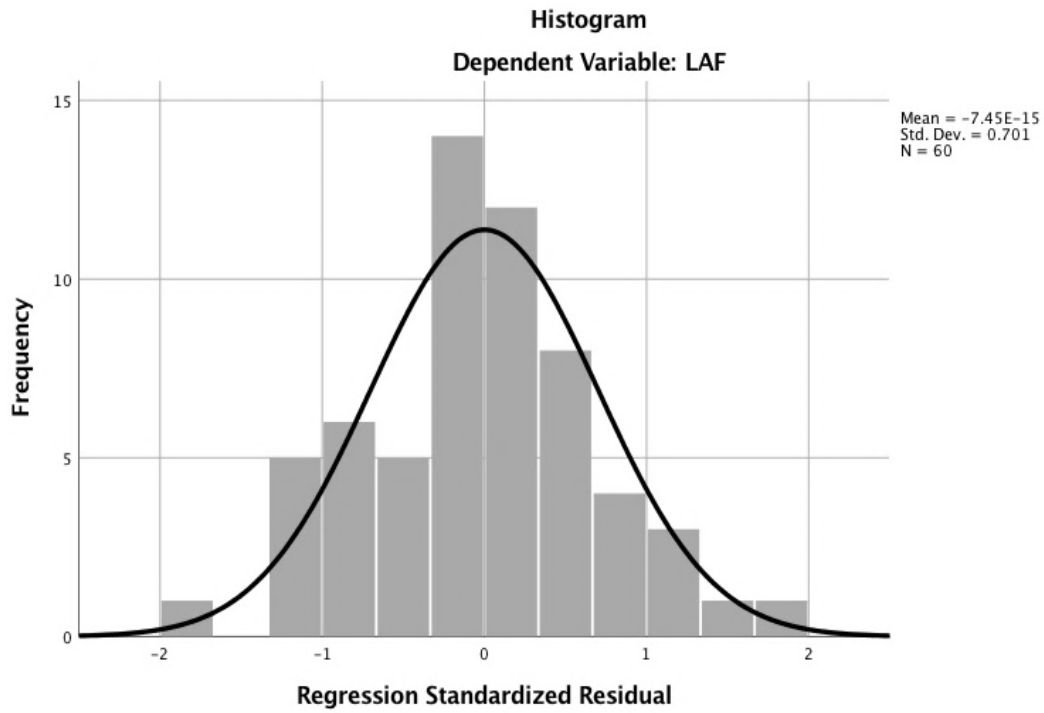


Figure 24 Histogram: Model 4a

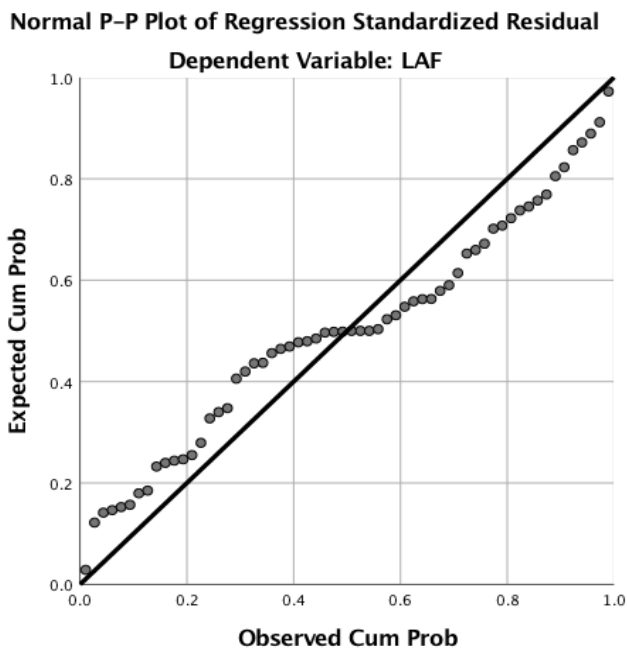


Figure 25 P-Plot: Model 4a

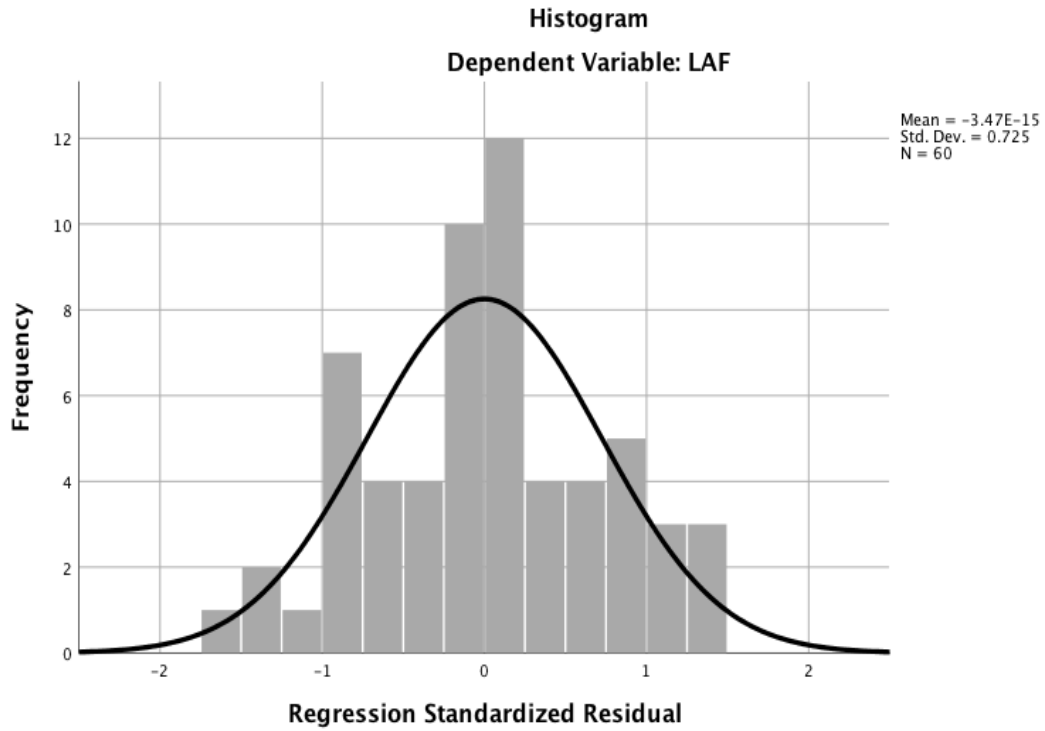
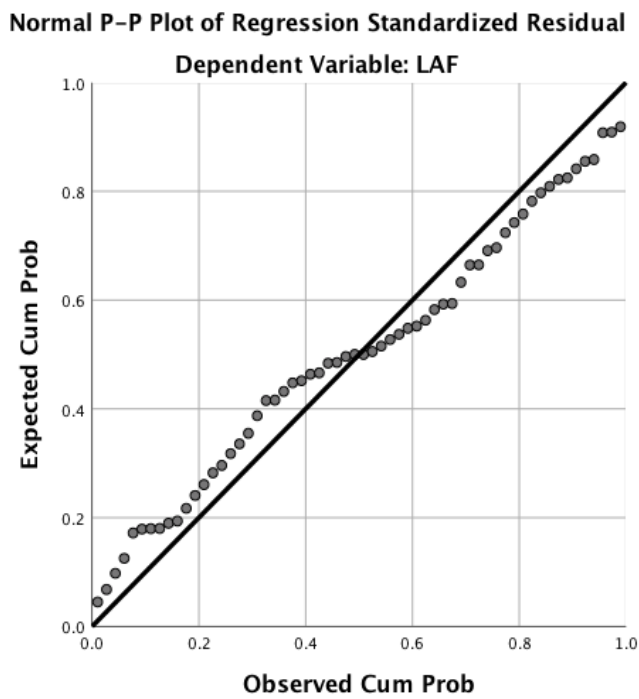


Figure 26 Histogram: Model 4b

Figure 27 P-Plot: Model 4b



10.5. Appendix 5: Scatter Plots

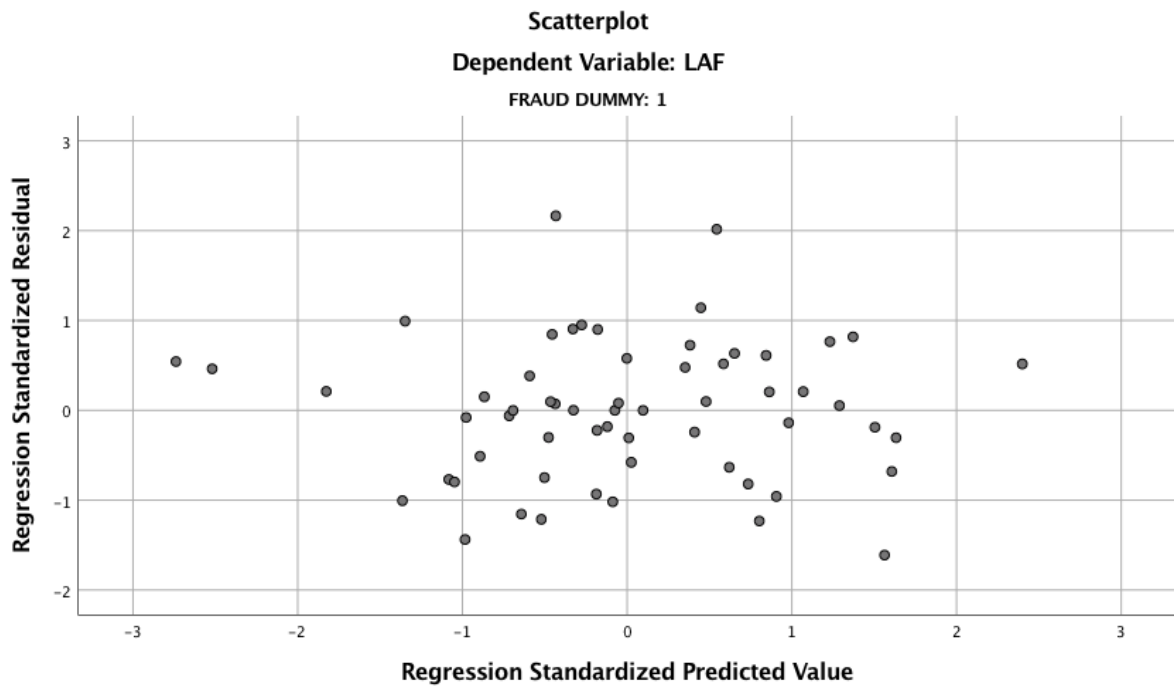


Figure 28 Scatter Plot: Model 1a

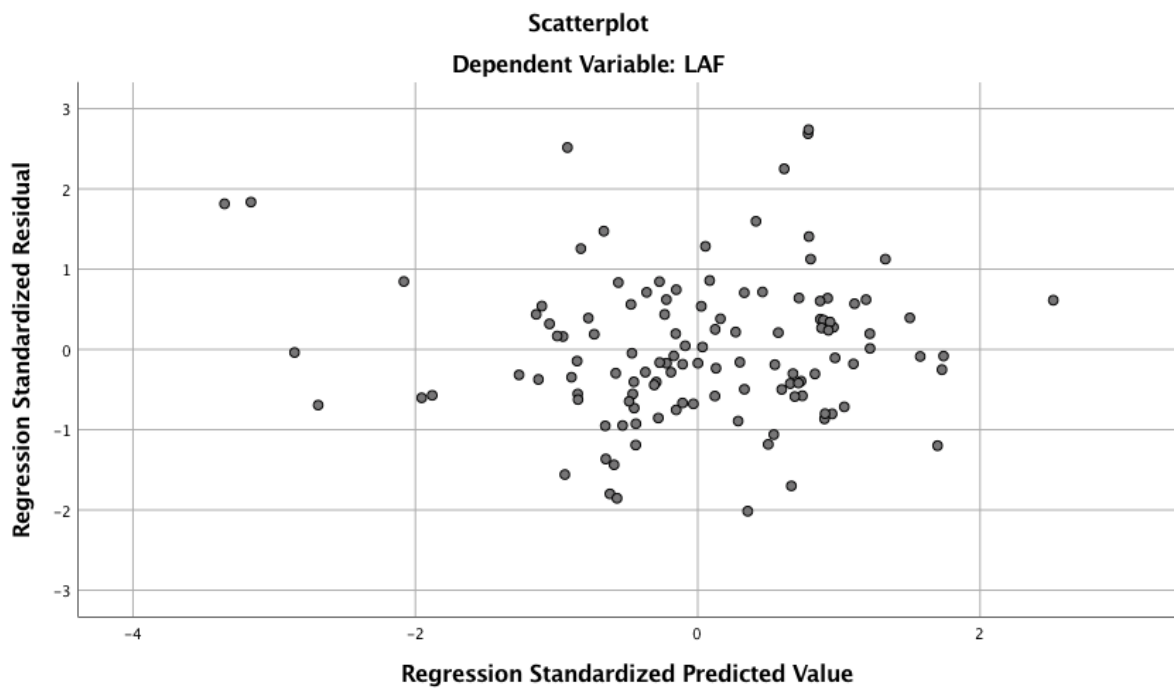


Figure 29 Scatter Plot: Model 1b

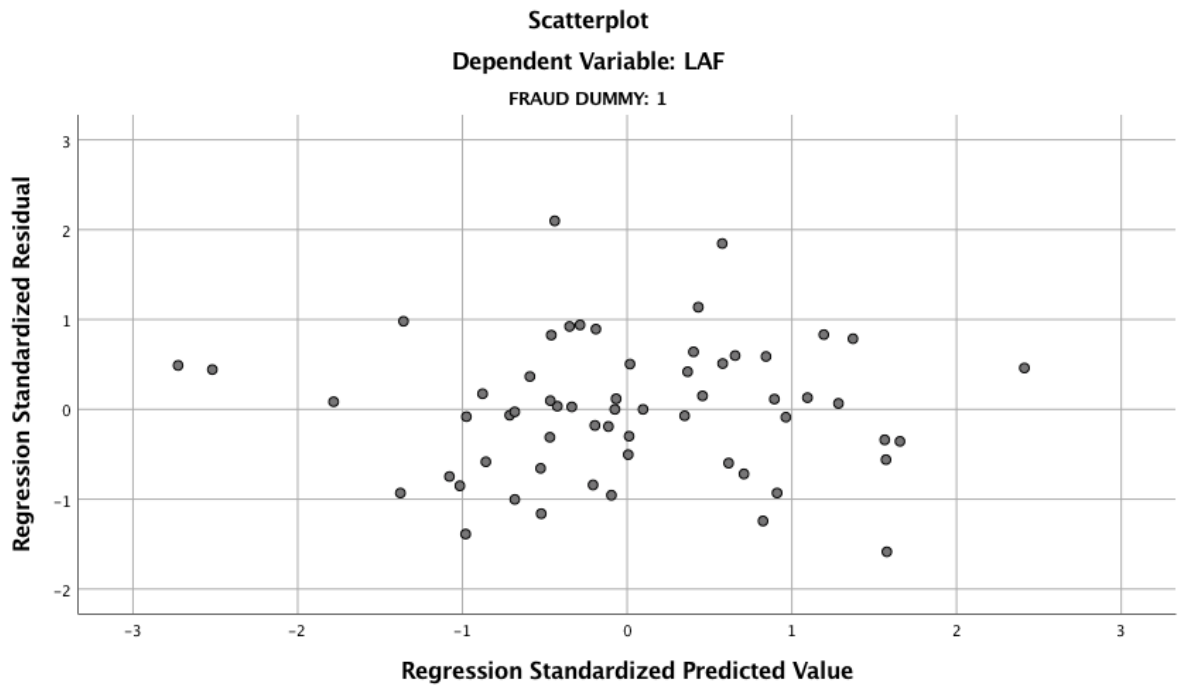


Figure 30 Scatter Plot: Model 2

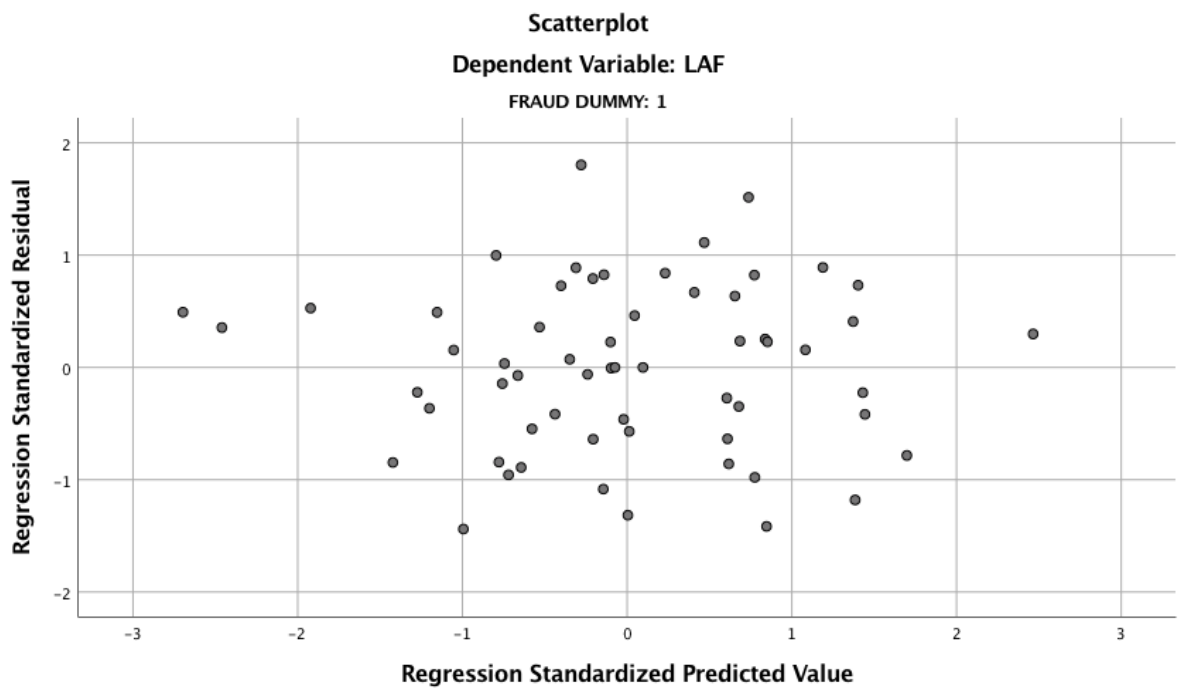


Figure 31 Scatter Plot: Model 3

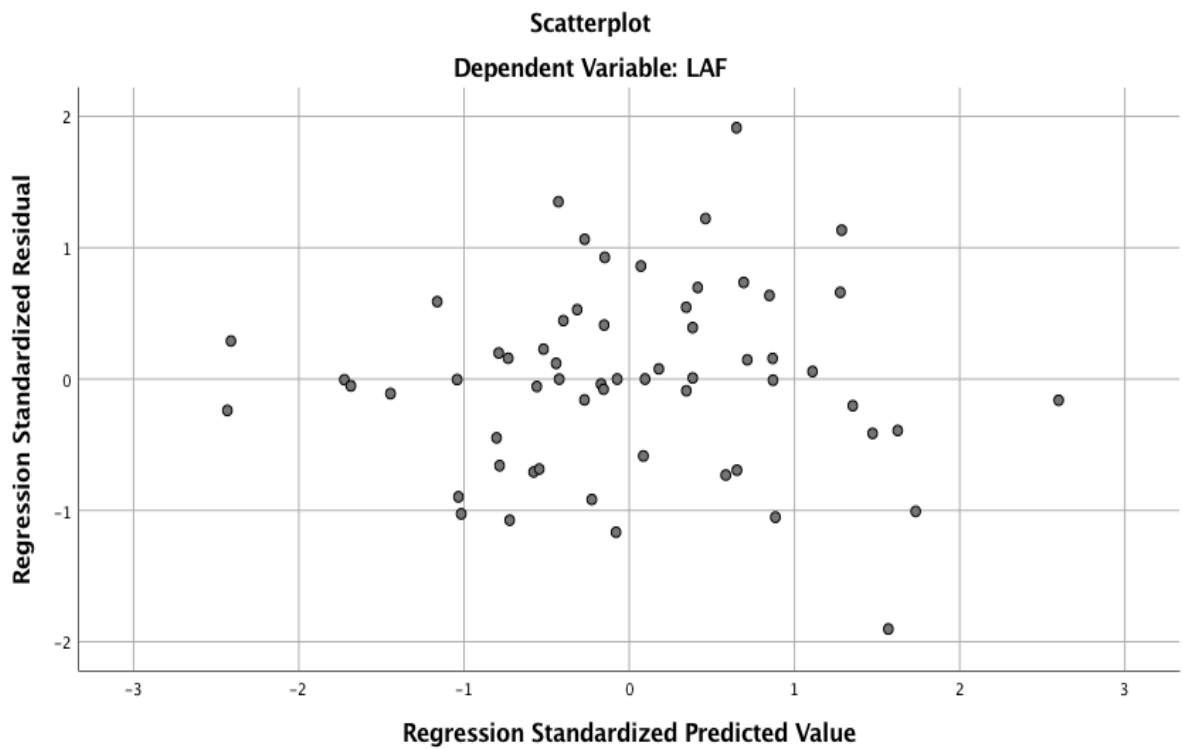


Figure 32 Scatter Plot: Model 4a

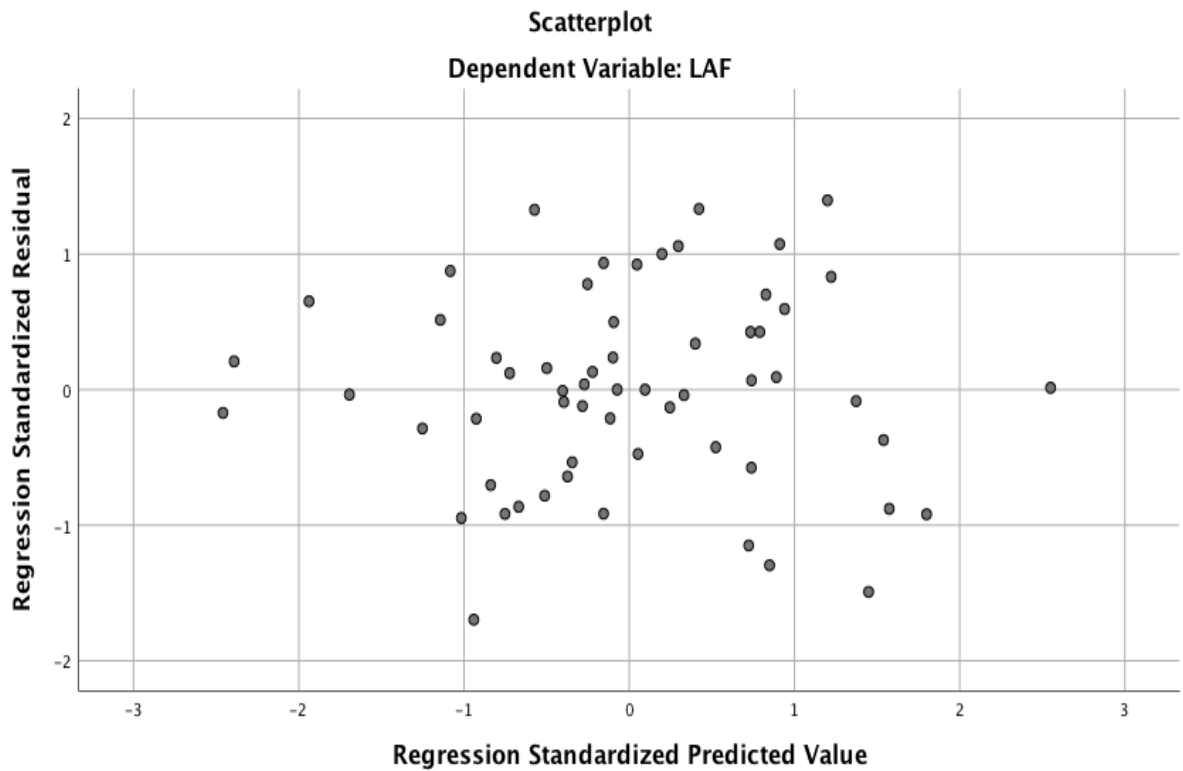


Figure 33 Scatter Plot: Model 4b

10.6. Appendix 6: Variance Inflation Factors (VIF's)

Table 29 Variance inflation factors (VIF): model 1a and 1b

Variable	Model 1a		Model 1b	
	Tol. value	VIF	Tol. value	VIF
LTA	0.140	7.142	0.325	3.078
SQSUBS	0.253	3.960	0.398	2.515
CATA	0.421	2.376	0.665	1.503
QUICK	0.141	7.110	0.588	1.700
DE	0.366	2.733	0.649	1.540
ROI	0.175	5.712	0.575	1.738
OPINION	0.639	1.564	0.809	1.236
BUSY	0.644	1.553	0.737	1.357
LOSS	0.477	2.095	0.626	1.597
LNAF	0.460	2.174	0.627	1.595
BIG4	0.338	2.962	0.587	1.704
LFRAUD	0.669	1.494	0.758	1.319

Table 30 Variance inflation factors (VIF): models 2a and 3a

Variable	Model 2a		Model 3a	
	Tol. value	VIF	Tol. value	VIF
LTA	0.085	11.699	0.116	8.610
SQSUBS	0.223	4.479	0.240	4.169
CATA	0.392	2.553	0.368	2.715
QUICK	0.126	7.912	0.124	8.080
DE	0.315	3.171	0.356	2.812
ROI	0.152	6.596	0.153	6.515
OPINION	0.629	1.589	0.550	1.819
BUSY	0.614	1.629	0.504	1.985
LOSS	0.466	2.146	0.454	2.202
LNAF	0.423	2.364	0.435	2.298
BIG4	0.322	3.110	0.306	3.266
LFRAUD	0.577	1.733	0.568	1.761
ACIND	0.275	3.630	-	-
ACSIZE	0.361	2.773	-	-
ACMEET	0.402	2.485	-	-
IARES	-	-	0.410	2.440
ICDET	-	-	0.506	1.978
ICFAIL	-	-	0.629	1.589
REPLE	-	-	0.470	2.129

Table 31 Variance inflation factors (VIF): models 4a and 4b

Variable	Model 4a		Model 4b	
	Tol. value	VIF	Tol. value	VIF
LTA	0.049	20.449	0.101	9.881
SQSUBS	0.168	5.969	0.223	4.474
CATA	0.300	3.337	0.406	2.462
QUICK	0.115	8.691	0.126	7.945
DE	0.330	3.033	0.351	2.850
ROI	0.124	8.066	0.150	6.653
OPINION	0.597	1.676	0.573	1.744
BUSY	0.534	1.874	0.564	1.773
LOSS	0.392	2.549	0.422	2.368
LNAF	0.334	2.995	0.452	2.213
LFRAUD	0.004	267.219	0.007	144.837
NAT1OR2+CITY1OR2	0.036	28.073	-	-
NAT1OR2+CITY0	0.144	6.940	-	-
NAT0+CITY1OR2	0.073	13.709	-	-
NAT1OR2+CITY1OR2xLNF	0.008	124.081	-	-
NAT1OR2+CITY0xLNF	0.111	8.979	-	-
NAT0+CITY1OR2xLNF	0.009	113.343	-	-
NSB4+NAT12ORCITY12	0.048	20.645	-	-
NSB4+NAT12ORCITY12XLNF	0.047	21.365	-	-
PARNAT1OR2+PARCITY1OR2	-	-	0.061	16.505
PARNAT0+PARCITY1OR2	-	-	0.054	18.591
PARNAT1OR2+PARCITY1OR2xLNF	-	-	0.028	35.111
PARNAT0+PARCITY1OR2xLNF	-	-	0.019	51.947
NSB4+PARNAT12ORPARCITY12	-	-	0.037	26.900
NSB4+PARNAT12ORPARCITY12XLNF	-	-	0.016	61.366

10.7. Appendix 7: Auditor industry leaders and market shares

Table 32 National auditor industry leaders and market shares (firm level)

YEAR	GICS CODE - INDUSTRY	MARKET LEADER 1	MARKET LEADER 2
2010	15 Materials	PWC 39.94%	KPMG 31.84%
2010	20 Industrials	KPMG 38.83%	DEL 21.34%
2010	25 Consumer Discretionary	EY 32.24%	PWC 24.20%
2010	30 Consumer Staples	EY 52.20%	PWC 24.86%
2010	45 Information Technology	EY 22.14%	PWC 18.45%
2010	50 Telecommunication Services	EY 79.56%	DEL 7.53%
2010	55 Utilities	PWC 41.71%	DEL 23.90%
2008	10 Energy	EY 32.94%	KPMG 23.12%
2008	15 Materials	PWC 52.05%	KPMG 25.84%
2008	20 Industrials	KPMG 33.68%	PWC 25.19%
2008	25 Consumer Discretionary	EY 55.80%	PWC 18.32%
2008	30 Consumer Staples	EY 56.51%	PWC 21.16%
2008	35 Health Care	EY 26.67%	KPMG 20.92%
2008	45 Information Technology	EY 22.27%	DEL 13.28%
2008	50 Telecommunication Services	EY 54.69%	KPMG 24.48%
2006	10 Energy	KPMG 38.09%	EY 27.86%
2006	15 Materials	KPMG 43.65%	PWC 27.47%
2006	20 Industrials	KPMG 31.65%	PWC 23.73%
2006	25 Consumer Discretionary	EY 30.32%	PWC 29.53%
2006	30 Consumer Staples	PWC 45.77%	EY 29.29%
2006	35 Health Care	KPMG 33.40%	EY 22.01%
2006	45 Information Technology	PWC 25.57%	EY 18.95%
2006	55 Utilities	DEL 55.65%	EY 28.13%
2004	10 Energy	KPMG 41.47%	EY 34.22%
2004	15 Materials	KPMG 43.63%	PWC 33.96%
2004	20 Industrials	PWC 35.79%	KPMG 24.63%
2004	25 Consumer Discretionary	EY 35.87%	PWC 27.22%
2004	30 Consumer Staples	PWC 43.27%	EY 26.90%
2004	35 Health Care	KPMG 38.68%	EY 33.40%
2004	50 Telecommunication Services	EY 54.51%	KPMG 22.17%
2004	55 Utilities	KPMG 40.10%	DEL 26.41%

Table 33 City auditor industry leaders and market shares (office level)

YEAR	CITY	GICS CODE - INDUSTRY	MARKET LEADER 1	MARKET LEADER 2
2010	ADELAIDE	55 Utilities	PWC 76.36%	GT 14.31%
2010	BRISBANE	20 Industrials	KPMG 52.60%	EY 18.56%
2010	MELBOURNE	15 Materials	PWC 51.29%	KPMG 39.92%
2010	MELBOURNE	20 Industrials	PWC 37.85%	DEL 26.46%
2010	MELBOURNE	25 Consumer Discretionary	EY 48.00%	PWC 20.18%
2010	MELBOURNE	45 Information Technology	PWC 33.47%	EY 20.44%
2010	MELBOURNE	50 Telecommunication Services	EY 92.44%	DEL 7.24%
2010	PERTH	15 Materials	PWC 17.56%	EY 17.18%
2010	PERTH	20 Industrials	KPMG 21.90%	DEL 19.73%
2010	SYDNEY	15 Materials	PWC 28.56%	KPMG 26.62%
2010	SYDNEY	20 Industrials	KPMG 45.59%	DEL 25.74%
2010	SYDNEY	25 Consumer Discretionary	EY 27.42%	KPMG 24.96%
2010	SYDNEY	30 Consumer Staples	EY 45.89%	DEL 24.56%
2008	ADELAIDE	10 Energy	EY 72.61%	GT 19.32%
2008	ADELAIDE	15 Materials	PWC 38.19%	GT 24.60%
2008	BRISBANE	20 Industrials	KPMG 53.57%	PWC 14.10%
2008	BRISBANE	25 Consumer Discretionary	PWC 56.38%	EY 23.57%
2008	MELBOURNE	15 Materials	PWC 64.40%	KPMG 27.96%
2008	MELBOURNE	20 Industrials	PWC 35.51%	DEL 23.63%
2008	MELBOURNE	25 Consumer Discretionary	EY 42.18%	PWC 17.64%
2008	MELBOURNE	35 Health Care	EY 35.32%	KPMG 21.10%
2008	MELBOURNE	45 Information Technology	EY 23.61%	PWC 17.83%
2008	MELBOURNE	50 Telecommunication Services	EY 91.65%	DEL 8.01%
2008	PERTH	10 Energy	EY 45.46%	BDO 9.30%
2008	PERTH	15 Materials	EY 27.27%	PWC 17.29%
2008	PERTH	20 Industrials	EY 23.93%	KPMG 18.27%
2008	SYDNEY	15 Materials	PWC 26.69%	KPMG 26.51%
2008	SYDNEY	20 Industrials	KPMG 38.30%	PWC 28.69%
2008	SYDNEY	25 Consumer Discretionary	PWC 27.98%	EY 24.54%
2008	SYDNEY	30 Consumer Staples	EY 53.25%	DEL 23.50%
2006	ADELAIDE	10 Energy	EY 74.77%	PWC 14.40%
2006	BRISBANE	15 Materials	PWC 52.01%	KPMG 26.71%
2006	BRISBANE	20 Industrials	KPMG 35.87%	EY 27.16%
2006	BRISBANE	55 Utilities	DEL 78.74%	EY 21.26%

YEAR	CITY	GICS CODE - INDUSTRY	MARKET LEADER 1	MARKET LEADER 2
2006	MELBOURNE	15 Materials	KPMG 58.53%	PWC 30.05%
2006	MELBOURNE	20 Industrials	KPMG 37.70%	DEL 23.74%
2006	MELBOURNE	25 Consumer Discretionary	EY 46.75%	PWC 16.49%
2006	MELBOURNE	35 Health Care	KPMG 63.06%	EY 17.97%
2006	MELBOURNE	45 Information Technology	EY 25.54%	DEL 24.73%
2006	PERTH	10 Energy	EY 54.33%	PWC 12.10%
2006	PERTH	15 Materials	EY 28.13%	PWC 20.32%
2006	PERTH	20 Industrials	EY 56.81%	PWC 22.92%
2006	PERTH	25 Consumer Discretionary	PWC 38.05%	EY 20.32%
2006	PERTH	30 Consumer Staples	EY 73.20%	KPMG 24.05%
2006	SYDNEY	10 Energy	KPMG 58.12%	EY 19.37%
2006	SYDNEY	20 Industrials	KPMG 34.54%	PWC 27.71%
2006	SYDNEY	25 Consumer Discretionary	KPMG 27.38%	PWC 26.72%
2006	SYDNEY	30 Consumer Staples	EY 40.28%	DEL 29.52%
2006	SYDNEY	35 Health Care	DEL 34.54%	EY 28.13%
2004	ADELAIDE	10 Energy	KPMG 90.07%	PWC 5.15%
2004	ADELAIDE	55 Utilities	PWC 100.00%	N/A N/A
2004	BRISBANE	20 Industrials	KPMG 60.37%	EY 17.07%
2004	MELBOURNE	15 Materials	KPMG 54.53%	PWC 32.88%
2004	MELBOURNE	20 Industrials	DEL 53.37%	PWC 21.25%
2004	MELBOURNE	35 Health Care	KPMG 49.07%	EY 33.57%
2004	MELBOURNE	50 Telecommunication Services	EY 89.46%	DEL 8.14%
2004	PERTH	10 Energy	EY 76.94%	PWC 5.39%
2004	PERTH	15 Materials	EY 28.36%	PWC 26.45%
2004	PERTH	20 Industrials	EY 57.16%	PWC 19.16%
2004	SYDNEY	15 Materials	DEL 31.80%	KPMG 22.02%
2004	SYDNEY	20 Industrials	PWC 48.14%	KPMG 29.47%
2004	SYDNEY	25 Consumer Discretionary	EY 32.83%	PWC 25.46%
2004	SYDNEY	30 Consumer Staples	KPMG 39.00%	EY 29.82%
2004	SYDNEY	35 Health Care	EY 29.07%	KPMG 27.67%
2004	SYDNEY	50 Telecommunication Services	PWC 40.83%	EY 39.29%

Table 34 National auditor industry leaders and market shares (partner level)

YEAR	GICS CODE - INDUSTRY	MARKET LEADER 1	MARKET LEADER 2
2010	15 Materials	Hubbard, R. (PWC) 28.56%	Figgi, S. (KPMG) 14.81%
2010	20 Industrials	Griffiths, A. (DEL) 6.91%	Sheppard, M. (KPMG) 5.60%
2010	25 Consumer Discretionary	Wallace, T. (EY) 4.18%	Piltz, R. (EY) 4.16%
2010	30 Consumer Staples	Meyerowitz, G. (EY) 26.84%	Mill, A. (PWC) 15.24%
2010	45 Information Technology	Gray, S. (PWC) 10.03%	Loneragan, J. (EY) 4.68%
2010	50 Telecommunication Services	Van Gorp, S. (EY) 69.13%	Watson, D. (DEL) 5.57%
2010	55 Utilities	Upcroft, M. (PWC) 17.94%	Leotta, J. (DEL) 15.73%
2008	10 Energy	McLennan, D. (KPMG) 9.67%	Chamberlain, J. (EY) 9.37%
2008	15 Materials	Hubbard, R. (PWC) 40.89%	Nash, P. (KPMG) 9.33%
2008	20 Industrials	McLennan, D. (KPMG) 7.36%	Irving, M. (DEL) 4.75%
2008	25 Consumer Discretionary	George, C. (EY) 4.41%	Andrews, W. (PWC) 4.37%
2008	30 Consumer Staples	Van Gorp, S. (EY) 26.36%	Mill, A. (PWC) 14.15%
2008	35 Health Care	Wykes, N. (EY) 9.90%	Gordon, B. (PKF) 4.91%
2008	45 Information Technology	Gray, S. (PWC) 6.26%	Shewring, D. (EY) 4.45%
2008	50 Telecommunication Services	Van Gorp, S. (EY) 47.12%	Imbesi, T. (DEL) 4.19%
2006	10 Energy	Van Veen, T. (KPMG) 19.08%	Elliot, M. (EY) 10.29%
2006	15 Materials	Nash, P. (KPMG) 18.00%	O'Connor, J. (PWC) 17.73%
2006	20 Industrials	Epper, M. (KPMG) 10.03%	King, A. (KPMG) 7.15%
2006	25 Consumer Discretionary	Ferguson, S. (EY) 4.86%	Waldron, M. (EY) 4.64%
2006	30 Consumer Staples	McKee, D. (PWC) 22.99%	Grapsas, C. (PWC) 15.52%
2006	35 Health Care	McDonald, P. (KPMG) 23.74%	Holdstock, S. (DEL) 7.11%
2006	45 Information Technology	Yeoman, J. (PWC) 7.92%	Schonberg, S. (PP) 6.17%
2006	55 Utilities	Couttas, G. (DEL) 27.34%	Sheerin, M. (DEL) 22.11%
2004	10 Energy	Dowling, J. (EY) 22.37%	Van Veen, T. (KPMG) 12.27%
2004	15 Materials	Stevens, W. (KPMG) 20.22%	Shannon, P. (KPMG) 17.35%
2004	20 Industrials	Morgan, B. (PWC) 15.72%	Epper, M. (KPMG) 6.00%

YEAR	GICS CODE - INDUSTRY	MARKET LEADER 1	MARKET LEADER 2
2004	25 Consumer Discretionary	Wiadowski, D. 8.41% (PWC)	Waldron, M. (EY) 5.77%
2004	30 Consumer Staples	Grapsas, C. (PWC) 19.32%	McKee, D. (PWC) 15.93%
2004	35 Health Care	McDonald, P. 18.30% (KPMG)	Wingreen, I. (EY) 16.61%
2004	50 Telecommunication Services	Barrett, P. (EY) 47.29%	Imbesi, T. (DEL) 4.42%
2004	55 Utilities	McComish, D. 33.83% (KPMG)	McHutchison, H. 22.30% (DEL)

Table 35 City auditor industry leaders and market shares (partner level)

YEAR	CITY	GICS CODE - INDUSTRY	MARKET LEADER 1	MARKET LEADER 2
2010	ADELAIDE	55 Utilities	Clark, D. (PWC) 76.36%	Humphrey, J. (GT) 14.31%
2010	BRISBANE	20 Industrials	Shannon, P. (KPMG) 26.08%	Reid, M. (EY) 15.84%
2010	MELBOURNE	15 Materials	Hubbard, R. (PWC) 45.83%	Figgi, S. (KPMG) 23.76%
2010	MELBOURNE	20 Industrials	Yeoman, J. (PWC) 16.58%	Waldron, M. (PWC) 10.02%
2010	MELBOURNE	25 Consumer Discretionary	Wallace, T. (EY) 13.67%	Piltz, R (EY) 13.61%
2010	MELBOURNE	45 Information Technology	Gray, S. (PWC) 23.55%	Lonergan, J. (EY) 10.97%
2010	MELBOURNE	50 Telecommunication Services	Van Gorp, S. (EY) 89.83%	Watson, D. (DEL) 7.24%
2010	PERTH	15 Materials	Henry, N. (PWC) 12.58%	Smith, D. (PWC) 11.68%
2010	PERTH	20 Industrials	Richards, A. (DEL) 10.01%	McComish, D. 9.95% (KPMG)
2010	SYDNEY	15 Materials	Rogers, D. (KPMG) 22.08%	Parker, A. (PWC) 18.78%
2010	SYDNEY	20 Industrials	Griffiths, A. (DEL) 12.59%	Sheppard, M. 10.21% (KPMG)
2010	SYDNEY	25 Consumer Discretionary	George, C. (EY) 16.90%	Wigglesworth, J. 8.63% (KPMG)
2010	SYDNEY	30 Consumer Staples	Griffiths, A. (DEL) 22.70%	Van Veen, T. (EY) 19.73%
2008	ADELAIDE	10 Energy	Curtin, R. (EY) 72.61%	Paterson, P. (GT) 9.96%
2008	ADELAIDE	15 Materials	Forman, A. (PWC) 38.19%	Gray, S (GT) 13.17%
2008	BRISBANE	20 Industrials	Shannon, P. (KPMG) 26.60%	Jones, R. (KPMG) 15.32%

YEAR	CITY	GICS CODE - INDUSTRY	MARKET LEADER 1	MARKET LEADER 2
2008	BRISBANE	25 Consumer Discretionary	Hubbard, R. (PWC) 42.01%	Brown, W. (EY) 13.40%
2008	MELBOURNE	15 Materials	Hubbard, R. (PWC) 61.08%	Nash, P. (KPMG) 13.99%
2008	MELBOURNE	20 Industrials	Yeoman, J. (PWC) 17.04%	Biermann, C. (DEL) 9.41%
2008	MELBOURNE	25 Consumer Discretionary	McGregor, D. (EY) 20.35%	Wallace, T. (EY) 9.74%
2008	MELBOURNE	35 Health Care	Jovic, P. (KPMG) 18.57%	Thorn, D. (EY) 14.21%
2008	MELBOURNE	45 Information Technology	Gray, S. (PWC) 14.16%	Shewring, D. (EY) 10.07%
2008	MELBOURNE	50 Telecommunication Services	Van Gorp, S. (EY) 90.16%	Imbesi, T. (DEL) 8.01%
2008	PERTH	10 Energy	Meyerowitz, G. (EY) 17.91%	Tidy, V. (EY) 10.84%
2008	PERTH	15 Materials	Kirkby, R. (EY) 7.44%	Buckingham, G. (EY) 7.17%
2008	PERTH	20 Industrials	McIver, P. (EY) 12.12%	McComish, D. (KPMG) 8.45%
2008	SYDNEY	15 Materials	Rogers, D. (KPMG) 21.38%	Parker, A. (PWC) 19.20%
2008	SYDNEY	20 Industrials	McLennan, D. (KPMG) 11.74%	Irving, M. (DEL) 7.58%
2008	SYDNEY	25 Consumer Discretionary	George, C. (EY) 15.93%	Andrews, W. (PWC) 15.79%
2008	SYDNEY	30 Consumer Staples	Van Veen, T. (EY) 25.47%	Smith, R. (DEL) 21.08%
2006	ADELAIDE	10 Energy	Curtin, R. (EY) 74.77%	Forman, A. (PWC) 14.40%
2006	ADELAIDE	55 Utilities	Forman, A. (PWC) 100.00%	N/A N/A
2006	BRISBANE	15 Materials	Humphries, S. (PWC) 27.90%	Jones, R. (KPMG) 12.03%
2006	BRISBANE	20 Industrials	Power, P. (BEN) 14.71%	Petrie, M. (KPMG) 14.38%
2006	BRISBANE	55 Utilities	Sheerin, M. (DEL) 78.74%	Haywood, M. (EY) 18.13%
2006	MELBOURNE	15 Materials	Nash, P. (KPMG) 29.60%	O'Connor, J. (PWC) 29.00%
2006	MELBOURNE	20 Industrials	King, A. (KPMG) 31.13%	Goldsmith, T. (PWC) 15.19%
2006	MELBOURNE	25 Consumer Discretionary	Waldron, M. (EY) 17.29%	McGregor, D. (EY) 14.72%
2006	MELBOURNE	35 Health Care	McDonald, P. (KPMG) 51.57%	Jovic, P. (KPMG) 10.14%

YEAR	CITY	GICS CODE - INDUSTRY	MARKET LEADER 1	MARKET LEADER 2
2006	MELBOURNE	45 Information Technology	Yeoman, J. (PWC) 16.63%	Schonberg, S. (PP) 12.96%
2006	PERTH	10 Energy	Meyerowitz, G. (EY) 30.35%	Buckingham, G. (EY) 12.98%
2006	PERTH	15 Materials	Smith, D. (PWC) 13.11%	Tidy, V. (EY) 12.92%
2006	PERTH	20 Industrials	Meyerowitz, G. (EY) 42.29%	O'Connor, J. (PWC) 11.33%
2006	PERTH	25 Consumer Discretionary	Gavin, R. (PWC) 21.54%	Roach, R. (PWC) 13.76%
2006	PERTH	30 Consumer Staples	Herald, A. (EY) 69.05%	Hart, T. (KPMG) 21.20%
2006	SYDNEY	10 Energy	Van Veen, T. (EY) 31.49%	Elliot, M. (EY) 16.21%
2006	SYDNEY	20 Industrials	Epper, M. (KPMG) 18.18%	Morgan, B. (PWC) 11.98%
2006	SYDNEY	25 Consumer Discretionary	Ferguson, S. (EY) 10.37%	Wigglesworth, J. (KPMG) 7.49%
2006	SYDNEY	30 Consumer Staples	Smith, R. (DEL) 18.85%	Ezzy, G. (EY) 18.60%
2006	SYDNEY	35 Health Care	Holdstock, S. (DEL) 18.05%	Wykes, N (EY) 12.80%
2004	ADELAIDE	10 Energy	Jovic, P. (KPMG) 90.07%	Forman, A. (PWC) 5.15%
2004	ADELAIDE	55 Utilities	Steel, P (PWC) 100.00%	N/A N/A
2004	BRISBANE	20 Industrials	King, A. (KPMG) 56.36%	Irschitz, W. (EY) 15.71%
2004	MELBOURNE	15 Materials	Stevens, W. (KPMG) 31.31%	Shannon, P. (KPMG) 26.88%
2004	MELBOURNE	20 Industrials	West, J. (DEL) 29.94%	Billings, G. (PWC) 13.40%
2004	MELBOURNE	35 Health Care	McDonald, P. (KPMG) 27.37%	Wingreen, I. (EY) 24.84%
2004	MELBOURNE	50 Telecommunication Services	Barrett, P. (EY) 87.06%	Imbesi, T. (DEL) 8.14%
2004	PERTH	10 Energy	Dowling, J. (EY) 64.56%	Piltz, R (EY) 3.81%
2004	PERTH	15 Materials	Dowling, J. (EY) 10.73%	Buckingham, G. (EY) 10.33%
2004	PERTH	20 Industrials	Meyerowitz, G. (EY) 48.69%	Smith, D. (PWC) 12.50%
2004	SYDNEY	15 Materials	Couttas, G. (DEL) 27.75%	Van Veen, T. (EY) 16.39%
2004	SYDNEY	20 Industrials	Morgan, B. (PWC) 25.69%	Epper, M. (KPMG) 9.80%
2004	SYDNEY	25 Consumer Discretionary	Ferguson, S. (EY) 11.02%	Wiadrowski, D. (PWC) 9.39%
2004	SYDNEY	30 Consumer Staples	Walsh, A. (KPMG) 30.08%	Ezzy, G. (EY) 16.85%
2004	SYDNEY	35 Health Care	Hosking, C. (EY) 16.33%	Boydell, G. (KPMG) 13.85%

YEAR	CITY	GICS CODE - INDUSTRY	MARKET LEADER 1		MARKET LEADER 2	
2004	SYDNEY	50 Telecommunication Services	Whale, D. (PWC)	23.68%	Jackson, C. (EY)	18.13%