

School of Accounting

**An Examination of Earnings Quality in Australia: Do Auditor Attributes
Matter?**

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**This thesis is presented for the Degree of
Doctor of Philosophy
of
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DECLARATION

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

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

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ABSTRACT

This study examines the effect of multiple auditor attributes underpinning auditor quality (that is, auditor brand, auditor specialization, provision of non-audit services, and audit partner tenure) on earnings quality across a longitudinal timeframe. The analysis is important given continuing questions and uncertainty of the precise nature of the auditor quality/earnings quality linkage, and the need to validate if recent corporate governance reforms designed to improve auditor quality increase the quality of reported earnings. The hypotheses are developed within an agency theory framework and tested using data collected from a sample of 250 firms per year spanning the period January 1 2008 to December 31 2012 (giving a final sample of 1,250 firm-year observations). Findings indicate that auditor brand and audit partner tenure are significantly negatively associated with earnings management practices. The main results of the study are largely supported by a range of robustness and sensitivity tests. Results from this study have clear implications for auditors, corporate management/firms, regulators, capital market participants, and scholars alike on the utility of auditor brand name and audit partner tenure in constraining earnings management.

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DEDICATION

To my grandmother (Mrs. Gursharan Kaur), father (Mr. Balbir Singh), mother (Mrs. Poonam Singh), and sister (Mrs. Gunesha Singh). This thesis would have little meaning if not for all of you.

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ABBREVIATIONS

AAERs	Accounting and Auditing Enforcement Releases
AARF	Australian Accounting Research Foundation
AGAAP	Australian Generally Accepted Accounting Principles
AICPA	American Institute of Certified Public Accountants
AIFRS	Australian Equivalent of International Financial Reporting Standards
APESB	Accounting Professional and Ethical Standards Board
ASAs	Australian Auditing Standards
ASAEs	Standards on Assurance Engagements
ASIC	Australian Securities and Investments Commission
ASREs	Standards on Review Engagements
ASX	Australian Securities Exchange
ASX CGC	Australian Securities Exchange Corporate Governance Council
AUASB	Auditing and Assurance Standards Board
BRC	Blue Ribbon Committee
CALDB	Companies Auditors and Liquidators Disciplinary Board
CEO	Chief Executive Officer
CFO	Chief Financial Officer
CIA	Certified Internal Auditor
CLERP 9	Corporate Law Economic Reform Program (Audit Reform and Corporate Disclosure) Act 2004 (Australia)
CSRC	China Securities Regulatory Commission
DTT	Deloitte Touche Tohmatsu
EC	European Commission
EU	European Union
EY	Ernst & Young
FASB	Financial Accounting Standards Board
FCCG	Financial Committee on Corporate Governance
FRC	Financial Reporting Council
GAO	Government Accountability Office (US)
GAAP	Generally Accepted Accounting Principles
GFC	Global Financial Crisis

GICS	Global Industry Classification Standard
GSs	Guidance Statements
IAASB	International Auditing and Assurance Standards Board
IAF	Internal Audit Function
IASB	International Accounting Standards Board
ICAA	Institute of Chartered Accountants in Australia
ICAEW	Institute of Chartered Accountants in England and Wales
IESBA	International Ethics Standards Board for Accountants
IFAC	International Federation of Accountants
IFRS	International Financial Reporting Standards
IIA	Institute of Internal Auditors
INSTs	Institutional Investors
IPA	Institute of Public Accountants
IPO	Initial Public Offering
ISAs	International Standards on Auditing
MBO	Management Buyout
MCCG	Malaysian Code on Corporate Governance
NACD	National Association of Corporate Directors
NYSE	New York Stock Exchange
OLS	Ordinary Least Squares
PCAOB	Public Company Accounting Oversight Board (US)
POB	Public Oversight Board (US)
PwC	PricewaterhouseCoopers
SEC	Securities and Exchange Commission (US)
SOX	Sarbanes-Oxley Act 2002 (US)
S&P	Standard & Poor's
UK	United Kingdom
US	United States of America

CHAPTER ONE: INTRODUCTION

1.1 BACKGROUND AND MOTIVATION

Earnings is the single most important output of the accounting system (Graham, Harvey, and Rajgopal 2005) widely used by internal and external financial statement users in decision making. Reported earnings help shape corporate policies surrounding executive compensation, debt covenants, and capital raising; provide feedback to accounting standard setters on the effectiveness of promulgated standards; and ultimately influence economic growth and development (Levitt 1998; Schipper and Vincent 2003; Ricol 2004). Earnings quality becomes questionable when managers have an incentive to manage reported earnings opportunistically. Accounting practices allow managers a great deal of discretion in reporting earnings, especially around accruals. This judgment could be used wisely to create advantages for the users of financial statements in the form of efficient decision making (Beneish, Capkun, and Fridson 2013). However, separation of ownership from control of a firm determines that managers have control advantages over external information users in producing information and this induces managers to use the flexibility provided by accounting principles to manage income opportunistically for their own benefit (Krishnan et al. 2011; Habib, Bhuiyan, and Islam 2013). This practice of earnings management distorts a firm's true financial performance and subjects financial statement users towards making excessively optimistic expectations regarding the future performance of the corporate firm (Krishnan et al. 2011).

The end of the 1990s and the beginning of the 21st century witnessed a series of major accounting scandals around the world resulting from the persistent use of inappropriate earnings management over several years (for example, Enron and WorldCom in the United States of America (US), HIH and One-Tel in Australia, and Parmalat in Europe). In response to the high profile accounting scandals, a number of regulatory changes were implemented throughout the world to improve the quality of corporate governance practices (National Association of Corporate Directors (NACD) 1996; Securities and Exchange Commission (SEC) 2000; Joint Committee on Public Accounts and Audit 2002). Major reforms such as the Sarbanes-Oxley Act

(SOX) (enacted on 30 July 2002) in the US; the Corporate Law Economic Reform Program (Audit Reform and Corporate Disclosure) Act 2004 (also known as ‘CLERP 9’) (enacted on 1 July 2004) as well as the Australian Securities Exchange (ASX) Corporate Governance Council’s Principles of Good Corporate Governance and Best Practice Recommendations (ASX CGC 2003) in Australia; and the Directive 2004/109/EC (enacted on 15 December 2004) of the European Parliament were introduced with the objective of improving the credibility, objectivity, and accuracy of the financial reporting process.

Despite the recent significant alterations to corporate governance regulations, regulators remain under pressure to promote mechanisms that enhance the quality of reported earnings by firms. One pivotal mechanism of particular focus (across corporate governance reforms introduced in various developed and emerging capital markets since the late 1990s) is the external auditor. The external auditor’s value and role have become firmly engrained in key legislative statutes of countries worldwide (Imhoff 2003). An overwhelming premise underlying the major reform efforts over the past few decades is that introducing requirements and recommendations to improve external auditor quality will ultimately improve earnings quality. Despite substantial empirical research, there remains much conjecture, uncertainty, and debate about both the precise underlying nature of the earnings quality/auditor quality linkage and whether the corporate governance reforms introduced to [reputedly] improve auditor quality actually impact the quality of reported earnings.

Capital markets have been shown to reward firms that employ better auditors and auditor reputation matters (Vanstraelen 2000; Wallace 2004; Skinner and Srinivasan 2012). High auditor quality is perceived to reduce the uncertainty associated with financial statements in the eyes of contracting parties not involved with the preparation of such statements. For instance, client firms of BigN¹ or industry specialist auditors have been shown to enjoy a lower cost of equity capital (Khurana and Raman 2004; Azizkhani, Monroe, and Shailer 2010), lower cost of debt financing (Mansi, Maxwell, and Miller 2004; Pittman and Fortin 2004; Fortin and Pittman 2007; Karjalainen 2011; Causholli and Knechel 2012); lower levels of IPO underpricing (Chang et al. 2008), and higher earnings response coefficients

¹ The dummy variable BigN auditors is a proxy for brand name auditors and a surrogate measure for audit quality, representing Big8 auditors (1988-1989), Big6 auditors (1989-1998), Big5 auditors (1998-2002), and Big4 auditors (2002-present).

(Balsam, Krishnan, and Yang 2003; Ghosh and Moon 2005). Scholars have also shown a higher fee premium being commanded by BigN auditors (Francis, Maydew, and Sparks 1999; Kim, Chung, and Firth 2003; Francis and Wang 2008; Francis and Yu 2009; Rusmin 2010) as well as industry specialist auditors (Craswell, Francis, and Taylor 1995; Seethamaran, Gul, and Lynn 2002; Balsam, Krishnan, and Yang 2003; Ferguson, Francis, and Stokes 2003; Krishnan 2003; Francis, Reichelt, and Wang 2005; Ferguson, Francis, and Stokes 2006; Basioudis and Francis 2007; Carson and Fargher 2007; Choi et al. 2008; Carson 2009) in many countries while simultaneously being associated with superior earnings quality. However, prior literature generally finds mixed evidence on the association between higher quality auditors and earnings management practices exhibited by client firms. For instance, while some scholars find the employment of a BigN auditor to be negatively associated with earnings management practices (Koh 2003; Lai et al. 2013), other scholars fail to find a significant association between the two (Davidson, Goodwin-Stewart, and Kent 2005). Likewise, scholars find mixed evidence on the association between employment of an industry specialist auditor and the prevalence of earnings management practices (Rusmin 2011; Jaggi, Gul, and Lau 2012).

Though routinely acknowledging that the quality of an external auditor is composed of a range of underlying properties, many empirical researchers concentrate on a single attribute. In adopting a narrow lens (that is, focusing on a single attribute) such research (whilst providing valuable insight) potentially ignores complementary and/or supplementary influences of omitted attributes thereby masking or biasing findings. A broader holistic examination of auditor quality/earnings quality linkage using a more comprehensive range of external auditor attributes may assist to consolidate and link prior empirical research findings. Therefore, this study examines the auditor quality/earnings quality linkage through a broader lens (that is, utilizing a more comprehensive set of auditor attributes to define auditor quality) within the Australian capital market. Four auditor attributes that have gained considerable attention, and that are pertinent to this study, are: (a) auditor brand name (Big4); (b) auditor specialization; (c) provision of non-audit services; and (d) audit partner tenure. Specifically, the first two attributes are primarily defined by the auditing industry and profession, whilst the latter two are guided by governance guidelines.

The Australian capital market is an interesting and important setting for examining the auditor attributes/earnings management linkage through the broader auditor attribute lens.

The Australian corporate governance environment has undergone substantial changes since the beginning of the new millennium (for example, ASX CGC 2003, CLERP 9) with the emphasis placed on improving auditor quality with at least one projected benefit being greater earnings quality. As yet, there is limited research to determine if the regulatory reforms introduced affected the auditor quality/earnings quality linkage within the Australian setting. For instance, while corporate governance reforms such as the CLERP 9 significantly altered the financial reporting and auditing landscape in Australia, empirical research examining the auditor attributes/earnings management linkage has primarily focused on the pre-CLERP 9 period (Gul, Lynn, and Tsui 2002; Davidson, Goodwin-Stewart, and Kent 2005; Hamilton et al. 2005; Carey and Simnett 2006; Coulton, Ruddock, and Taylor 2007; Fargher, Lee, and Mande 2008; Rusmin et al. 2009; Rusmin 2011).

The Australian audit market also offers an interesting setting by being less saturated with Big4 firms relative to other developed economies (for example, US and United Kingdom (UK)) (Rusmin et al. 2007). A lower proportion of ASX listed firms engaging Big4 auditors relative to other capital markets provides an opportunity to determine the importance of other auditor attributes. Prior research on auditor attributes/earnings management linkage has relied predominantly on US data. In contrast to the US, the litigation environment in Australia is also lower. As a consequence, the incentives for corporate management to engage in opportunistic earnings management and/or the level of attentiveness of auditors in ensuring the credibility of reported earnings in Australia may differ somewhat to the US jurisdiction thereby providing valuable insights to understanding the universal nature of the auditor quality/earnings quality linkage. Finally, the Australian audit market has a substantially longer history of reporting key auditor related information (such as the amount of non-audit services and the engagement partner's identity) than other developed economies (for example, US). This may infer that the Australian capital market participants could have a longer history of determining auditor quality based on a broader spectrum of attributes than other developed economies where the disclosure of key auditor properties were till recently limited. For instance, while the identification of the audit partner in Australia allows a more comprehensive and

thorough analysis of audit tenure, US studies are hampered by audit tenure based on the audit firm and hence the economies of scope associated with continually auditing a firm and auditor/firm independence cannot directly be tested.

1.2 RESEARCH QUESTIONS AND OBJECTIVES

The auditor attributes/earnings management linkage warrants further investigation as it has been subjected to intense debate in prior Australian and overseas literature. Extreme volatility in international capital markets including Australia during 2007 and 2008 as highlighted by rapid fluctuations in major stock market indices and near collapse of Wall Street in the US raises crucial and intriguing questions about earnings quality and its association with earnings management and auditor attributes. A comprehensive understanding of the auditor attributes/earnings management link and the potential bearing on earnings quality can assist regulators to formulate strategies and legislation to restore credibility in earnings and reduce ongoing volatility in capital markets. Corporate governance is continually under reform and by studying the linkage between a range of auditor attributes and earnings management, changes to regulations governing certain auditor attributes such as auditor independence and audit partner tenure will be able to be made if necessary, therefore improving overall corporate governance practices.

Examining the auditor attributes/earnings management linkage in the Australian context is also of considerable interest. For example, corporate governance has attracted intense debate and activity in Australia as a result of high-profile corporate collapses (for example, HIH, One-Tel, and Harris Scarfe). Consequently, governance reforms in the form of ASX CGC 2003 and CLERP 9 have been introduced to restore investor confidence in the Australian capital market and both regulators and investors have acknowledged the important role of the external auditor as a key corporate governance mechanism (CLERP 9; Lai et al. 2013). As mentioned in section 1.1, empirical research in Australia has primarily examined the auditor attributes/earnings management linkage in the pre-CLERP 9 period. CLERP 9 reform was introduced with the intent of significantly improving the auditing and financial reporting processes in Australia.² This study being

² CLERP 9 is a substantial piece of legislation that included reforms relating to the general and specific requirements for independence of Australian company auditors (including a written declaration by the auditor to the directors confirming compliance with the auditor independence requirements of the Corporations Act 2001 and avoiding a 'conflict of interest situation', restrictions on auditors being employed by an audit client,

conducted in the post-CLERP 9 period has the potential to shed some new light and understanding on the debate surrounding the effectiveness and true impact of the CLERP 9 legislation. The study also focuses on Australia since empirical findings to date (in relation to examining the effectiveness of auditor attributes in constraining earnings management) using Australian data are mixed. For instance, mixed evidence has been obtained by studies that have looked at the association between earnings management and auditor attributes such as brand name (Koh 2003; Davidson, Goodwin-Stewart, and Kent 2005), provision of non-audit services (Coulton, Ruddock, and Taylor 2007; Rusmin et al. 2009), and partner tenure (Carey and Simnett 2006; Fargher, Lee, and Mande 2008). There is also paucity of existing research examining the relationship between crucial auditor attributes such as auditor specialization and earnings management in Australia. Most importantly, there is no published earnings management literature in the Australian context which has examined a range of important auditor attributes in unison (that is, holistically).

The primary objective of this study is to provide a comprehensive analysis of the association between four pivotal auditor attributes (that is, auditor brand name, auditor specialization, provision of non-audit services, and audit partner tenure) and earnings management practices in Australian publicly listed firms. Though studies of auditor attributes and earnings management are not unique, prior empirical research, particularly in Australia, has generally examined auditor attributes only in isolation (that is, individually) (Gul, Lynn, and Tsui 2002; Davidson, Goodwin-Stewart, and Kent 2005; Hamilton et al. 2005; Carey and Simnett 2006; Coulton, Ruddock, and Taylor 2007; Fargher and Jiang 2008; Rusmin et al. 2009; Lai et al. 2013). The novelty of this study is that this study considers the influence of key auditor attributes in unison, and the association, if any, with earnings management. Specifically, this study will investigate the influence of four pivotal auditor attributes in aggregate (and on a dis-aggregate basis) on earnings management.

Consistent with the primary objective, this study's main research question is identified as follows:

additional specific requirements on appointment as an auditor, disclosure of non-audit services, significant expansion in auditor duties to inform ASIC of suspected contraventions of the Corporations Act, and the attendance of the auditor at the annual general meeting), liability of Australian company auditors (replacement of joint and several liability with proportionate liability for economic loss or property damage arising from misleading or deceptive conduct in relation to a financial product or financial services), disclosure of directors' and senior managers' remuneration in financial reports, financial reporting, infringement notices for continuous disclosure contraventions and enhanced penalty provisions (Behan Legal 2004; Gay and Simnett 2009).

RQ: Are auditor attributes associated with the earnings management practices of Australian publicly listed firms?

In addition to answering this study's main research question, a number of other significant research objectives shall also be investigated. Since the study uses both profession/industry driven auditor attributes (auditor brand name and auditor specialization) as well as governance guideline driven auditor attributes (provision of non-audit services and audit partner tenure), the findings can provide guidance on the category of auditor attributes of greater importance in constraining earnings management practices prevalent in Australian publicly listed firms. Also, with the use of alternative measures of auditor attributes in the study (for instance, alternative specifications of auditor specialization and different metrics for non-audit services and audit partner tenure), valuable insights can be provided into the continued appropriateness of using attributes to reflect key auditor characteristics.

1.3 SIGNIFICANCE OF THE STUDY

Results from this study make several important contributions. First, though there have been a number of studies examining specific auditor traits and earnings management, no published study to the researcher's knowledge, particularly in Australia, has undertaken a broad, holistic examination of the auditor attributes/earnings management linkage using a comprehensive range of pivotal auditor attributes (namely, auditor brand name, auditor specialization, provision of non-audit services, and audit partner tenure) in unison. A narrow lens approach (that is, focusing on a single attribute) generally adopted in prior research (whilst providing valuable insights) has the potential to mask or bias findings as a result of ignoring complementary and/or supplementary influences of omitted attributes. By examining a broader lens (that is, utilizing a more comprehensive set of auditor attributes to define auditor quality), this study aims to provide a deeper understanding of an important corporate governance mechanism (that is, the external auditor) and the extent to which it promotes integrity and credibility of financial reporting.

Second, considering a comprehensive analysis of the auditor attributes/earnings management linkage in the Australian context is of considerable interest. As outlined in section 1.2, there is paucity of existing research examining

the impact of certain pivotal auditor attributes such as auditor specialization on earnings management. In addition, empirical findings to date based on studies examining the impact of other pivotal auditor attributes, namely, auditor brand name (Koh 2003; Davidson, Goodwin-Stewart, and Kent 2005), provision of non-audit services (Coulton, Ruddock, and Taylor 2007; Rusmin et al. 2009), and audit partner tenure (Carey and Simnett 2006; Fargher, Lee, and Mande 2008) on earnings management are mixed. Hence, there exists limited and controversial evidence on which auditor attributes most significantly constrain earnings management and, therefore, are most important auditor attributes in improving the integrity of a firm's financial reporting process and earnings quality. Research on the relative importance of auditor traits has economic consequences for both legislators and auditors in the respective roles as regulators and monitors.

Third, this study will also provide a contemporaneous update on the extent of earnings management practices prevalent in Australian publicly listed firms. Earnings management is estimated using the aggregate (total) accruals approach.³ Despite the popularity of aggregate accruals approach in estimating earnings management in prior literature, it has often been criticized as creating biased and noisy estimates of discretionary accruals that provide mixed results (Dechow, Sloan, and Sweeney 1995; Kang and Sivaramakrishnan 1995; Guay, Kothari, and Watts 1996; Dechow, Richardson, and Tuna 2003; Kothari, Leone, and Wasley 2005). In an attempt to mitigate such issues and enhance the validity and reliability of the results, four different variations of the aggregate accruals approach are chosen to estimate discretionary accruals, thereby reflecting on the methodological improvements in this study. The four models based on aggregate accruals are: (1) the cross-sectional version of Dechow, Sloan, and Sweeney's (1995) modified Jones model; (2) Kothari, Leone, and Wasley's (2005) performance adjusted model; (3) Dechow, Richardson, and Tuna's (2003) lagged model; and (4) Dechow, Richardson, and Tuna's (2003) forward-looking model.

Fourth, using three specifications of discretionary accrual measures (namely, absolute value of discretionary accruals, positive (income-increasing) discretionary

³ Given the focus of this study is to examine the auditor attributes/earnings management linkage, the use of discretionary accruals as a proxy of earnings management is momentous since it reflects a maintained assumption that the quality of audited data is a joint product of underlying attributes of management representations and audit quality (Hamilton et al. 2005; Coulton, Ruddock, and Taylor 2007).

accruals, and negative (income-decreasing) discretionary accruals) this study provides a complete picture on the auditor attributes/earnings management linkage. Whilst this study primarily focuses on capturing the extent of earnings management practices through the use of absolute value of discretionary accruals when examining the auditor attributes/earnings management linkage, separate tests will also be conducted to investigate whether the external auditor variables used in this study are differentially related with positive and negative discretionary accruals. Positive discretionary accruals used for earnings overstatements are generally considered opportunistic aggressive earnings management having been associated with most recent high profile examples of allegedly fraudulent accounting and associated audit failures while negative discretionary accruals used for the downward adjustment of reported earnings are generally considered as a form of conservative accounting (Ashbaugh, LaFond, and Mayhew 2003).

Fifth, prior studies examining the auditor attributes/earnings management linkage in Australia have primarily focused on time periods prior to CLERP 9's final passage into law on 1 July 2004 (Gul, Lynn, and Tsui 2002; Davidson, Goodwin-Stewart, and Kent 2005; Hamilton et al. 2005; Carey and Simnett 2006; Coulton, Ruddock, and Taylor 2007; Fargher, Lee, and Mande 2008; Rusmin et al. 2009; Rusmin 2011). The 'Corporations Legislation Amendment (Simpler Regulatory System) Act 2007' which was granted the royal assent on 28 June 2007 signalled the completion of the 'bedding down' of the major auditor regulatory reforms introduced by CLERP 9 in 2004 (The Treasury 2010). All CLERP 9 changes are reflected in the observation window (1 January 2008 to 31 December 2012) selected for the purposes of this study. Hence, the results from this study may also be used to determine the extent to which CLERP 9 regulations have been successful in achieving the objectives of using the statutory external auditing process to improve the quality of reported earnings by firms. Whilst the effectiveness of SOX on the auditor attributes/earnings management linkage is well researched (Hoitash, Markelevich, and Barragato 2007; Li 2009), similar research on CLERP 9 is lacking.

Sixth, prior research on auditor attributes/earnings management linkage has been conducted predominantly in the US context. By examining the link between auditor attributes and earnings management in the Australian setting, this study

provides evidence on the extent to which US findings can be generalized to a different governance and financial reporting regime.

Overall, this study will benefit a number of key stakeholders. Regulators and policymakers would be able to determine the effectiveness and true impact of legislation introduced to improve the quality of reported earnings and therefore, the integrity of the financial reporting process. This can benefit capital market participants by minimizing poor corporate governance reporting and, potentially, subsequent corporate failure. Auditors will also be able to determine which combination of the four attributes examined (that is, auditor brand name, auditor specialization, provision of non-audit services, and audit partner tenure) can benefit the auditors most to enhance audit quality and earnings quality. Finally, scholars will also benefit as this study will provide a contemporaneous update on auditor quality/earnings quality in Australia and suggest directions for future research.

1.4 LIMITATIONS OF THE STUDY

While this study has a number of strengths, it is not without limitations. First, this study uses discretionary accruals models to detect earnings management. These models have often been subjected to criticism in prior literature. Scholars argue that these models produce biased and noisy estimates of discretionary accruals giving rise to mixed results (Dechow, Sloan, and Sweeney 1995; Kang and Sivaramakrishnan 1995; Guay, Kothari, and Watts 1996; Teoh, Wong, and Rao 1998; Dechow, Richardson, and Tuna 2003; Kothari, Leone, and Wasley 2005). Despite these criticisms, a great deal of earnings management literature continues to employ these models to investigate earning management practices (Graham and Moore 2013; Hossain 2013). This is likely due to lack of other suitable models. The preeminent estimation approach to detect earnings management remains an open empirical question that is beyond the scope of this research. However, as outlined in section 1.3, in an attempt to control for misspecification bias and to improve the reliability of the discretionary accruals, this research employs four versions of the discretionary accruals models.

Second, whilst this study looks at four auditor attributes which have been most commonly used and referred to in prior literature (Balsam, Krishnan, and Yang 2003; Krishnan 2003; Carey and Simnett 2006; Hossain 2013; Lai et al. 2013), this is

acknowledged as a limitation given that other auditor attributes such as auditor workload compression and audit report lag (though of lesser importance due to the quality of their measure) are likely to impact earnings management as well.

Third, the data for all of the variables used in this study to test the hypotheses are collected from firms' annual reports which limit the amount and type of data that can be collected. For instance, whilst other alternative firm specific measures may exist for the variables used in this study, such measures given their proprietary nature are excluded from this study.

Fourth, whilst a range of control variables are identified for inclusion in tests to control for further potential influencers (in addition to external auditor attributes) of earnings management incidence, it is highly probable that other factors, not controlled for in these tests, could affect financial reporting quality. However, as the objective of this study is not to test causality, but instead the relation between earnings management and the attributes of an external auditor, the effect of this on the findings might be considered to be of minor consequence.

Fifth, for the purposes of this study, data is collected from only one country, namely, Australia. Consequently, the results of this study may not be generalizable to countries with different institutional settings. While the limitations are acknowledged, the strength of this study and the potential importance of the findings are not diminished.

1.5 THESIS OUTLINE

The remainder of the chapters in this thesis is organized as follows. Chapter Two provides an in-depth literature review on earnings quality, earnings management, and audit quality. This chapter also provides a comprehensive background to the association between the auditor and the Australian regulatory environment. Specifically, the Australian audit market is detailed with references made to the type and size of the auditing service providers which exist. References are also made to key regulators such as the Financial Reporting Council (FRC) and the Australian Securities and Investments Commission (ASIC) and to key legislation such as CLERP 9 and the ASX Listing Rules. Chapter Three discusses the theoretical underpinnings of this study by detailing agency theory tenants. The chapter begins by outlining the theoretical framework of corporate governance and discusses the five

main underlying theories (that is, agency theory, institutional theory, stakeholder theory, resource dependency theory, and stewardship theory). The empirical literature relating to each of the four key auditor attributes examined in this study (that is, auditor brand name (Big4), industry specialization, provision of non-audit services, and auditor tenure) is then discussed and the justification for each auditor attributes' expected relationship to earnings quality detailed. A conceptual schema is provided to illustrate the key relationships examined in this study.

Chapter Four outlines the sample collection and selection process, justifies the selection of the time period and details the primary research methodology utilized, namely the use of multiple regression. In particular, measures of earnings management (dependent variable), auditor attributes (independent variables), and the use of control variables (all supported by prior empirical literature) are detailed and related statistical tests and regression models specified.

Chapter Five reports on the descriptive statistics and univariate results. Initially, steps taken to ensure the normality of data collected and the validity of assumptions for the subsequent multiple regressions are outlined, including basic sample descriptive statistics (such as mean, median, standard deviation, 25 percentile, and 75 percentile). Chapter Five also reports and discusses results from Pearson's correlation analyses. Chapter Six presents the results of the pooled ordinary least squares (OLS) regressions examining the relationship between the selected auditor attributes (both in isolation and in unison) and earnings management. Scrutiny of all findings and the applications on the derived hypotheses are also shown in this chapter.

Chapter Seven details the robustness and sensitivity tests completed. The selection of alternative measures/proxies for both earnings management and auditor attributes is discussed. A number of partitioning tests are also undertaken based on client characteristics (such as size and growth), signed discretionary accruals, extreme earnings management, auditor brand, and length of audit partner tenure.

Chapter Eight summarizes the key findings, implications, contributions, and limitations of this study. Finally, the entire study and major findings are reviewed concluding with suggestions for future research directions.

CHAPTER TWO: LITERATURE REVIEW

2.1 OVERVIEW OF THE CHAPTER

Chapter One provided the background and motivation to this study. The key research question and objectives of this study were specified in detail. In addition, the significance and limitations of this study were also identified.

Chapter Two discusses the empirical literature surrounding earnings quality, earnings management, and audit quality. The chapter begins with reviewing the concept of earnings quality. The properties and determinants of earnings quality are then detailed. Next, a comprehensive overview is provided on the concept, measures, and determinants of earnings management. The theoretical underpinnings of audit quality are then identified. The general impact and determinants of auditor quality are also outlined and audit quality in Australia is discussed. Finally, a summary of Chapter Two is provided.

2.2 EARNINGS QUALITY

High quality financial reporting by firms enhances overall market efficiency by encouraging capital providers (and other stakeholders) into making investment, credit and similar resource allocation decisions and hence, reduces stakeholders' uncertainty about the entity (International Accounting Standards Board (IASB) 2008). Biddle, Hilary, and Verdi (2009, p.113) define financial reporting quality as "the precision with which financial reporting conveys information about the firm's operations, in particular its expected cash flows, that inform equity investors." High quality financial reports reduce information asymmetries and consequently lower the cost of capital (Glosten and Milgrom 1985; Amihud and Mendelson 1986; Diamond and Verrecchia 1991; Bhattacharya, Daouk, and Welker 2003; Barth, Konchitchki, and Landsman 2013). High quality financial reporting is considered, therefore, to be a key component of efficient capital markets.

Earnings quality is extensively used as a summary indicator of financial reporting quality since (1) it is easier to observe the former compared to the latter; and (2) scholars view earnings quality as a sufficient statistic for overall financial reporting quality; or, even if earnings is not sufficient, statements by some scholars (for example, Lev (1989)) suggest that earnings is the most important outcome

indicator of the financial reporting process (Francis, Olsson, and Schipper 2006, 2008). Earnings are considered to be of high quality if they are precise with respect to an underlying construct that pertains to capital market decisions (Francis, Olsson, and Schipper 2006, 2008).

The credibility and usefulness of reported earnings (and by association, the quality of accounting numbers) has long been of interest to investors, regulators as well as scholars. The subject of earnings quality has received heightened attention due to the wave of high-profile accounting scandals (for example: Enron and WorldCom in the US, HIH and One-Tel in Australia, and Satyam Computers in India, amongst others), fraud, and litigation near the beginning of the new millennium (Chambers 1999; Iyengar, Land, and Zampelli 2010).

Earnings numbers are often the product of deliberate choices between business options and various accounting treatments (Bernstein and Siegel 1979). High quality earnings (and hence, high quality of financial reporting represented by timely, transparent, and reliable financial statements) is imperative for financial report users involved in making contracting decisions, including compensation arrangements and debt agreements; for investor protection; for accounting standard setters to seek feedback on whether the standards promulgated are effective; and for economic growth and development (Levitt 1998; Schipper and Vincent 2003; Ricol 2004). On the contrary, Low quality earnings induce unintended wealth transfers including overcompensation to managers, mask deteriorating solvency leading to misinformed lenders, cause misallocation of capital, mislead standard setters, and ultimately lead to a significant increase in the cost of equity and a decrease in trading in the stock markets (Bhattacharya, Daouk, and Welker 2003; Schipper and Vincent 2003).

2.2.1 Concept and definition

Earnings quality is a multidimensional construct and has several definitions in prior literature. Pratt (2000, p.750) defines earnings quality as the “extent to which net income reported on the income statement differs from true earnings.” Schipper and Vincent (2003, p.98) define earnings quality as the extent to which reported earnings faithfully represent⁴ Hicksian income⁵, an economic-based definition of

⁴ Representation faithfulness means “correspondence or agreement between a measure or description and the phenomenon that it purports to represent” (Financial Accounting Standards Board (FASB) Concepts Statement No 2, para. 63).

earnings developed by the British economist John Richard Hicks in his book *Value and Capital* published in 1939. Ecker et al. (2006, p.750) view earnings quality as a measure of information risk and define earnings quality “in terms of precision, namely, the mapping of current accruals into current, last year, and next year cash flows.” Dechow, Ge, and Schrand (2010, p.344) document higher earnings quality to “provide more information about the features of a firm’s financial performance that are relevant to a specific decision made by a specific decision-maker.”

Earnings quality is unobserved and measured by a multitude of plausible proxies developed in empirical literature. There is no generally accepted method to measure quality of earnings (Hermanns 2006). Bernstein and Siegel (1979) document comparative integrity, reliability, and predictability to highlight the notion of “quality” in the context of earnings evaluation. Schipper and Vincent (2003) refer to decision usefulness of financial statements, defined in terms of relevance, reliability and comparability/consistency, an earnings quality construct derived from qualitative concepts in the Financial Accounting Standards Board (FASB) conceptual framework (FASB 1978). The various proposals, developed largely under the decision usefulness rubric, being forwarded by scholars to measure earnings quality include accrual quality, persistence, predictability, smoothness, value relevance, timeliness, conservatism, restatements, total accruals, ratio of cash from operations to income, and unexpected accruals (or abnormal or discretionary accruals) reflecting earnings management (Schipper and Vincent 2003; Francis et al. 2004; Dechow, Ge, and Schrand 2010; Damerjian et al. 2013).

2.2.2 Properties of earnings quality

Prior literature had identified accrual quality, earnings persistence, earnings predictability, earnings smoothness, value relevance, timeliness, and earnings conservatism as commonly researched properties of earnings quality (Francis et al. 2004). The first four properties can be categorized as accounting based since these are typically measured using accounting information only and the last three properties can be categorized as market-based since these are typically based on relations between market data and accounting data (Francis et al. 2004).

The accrual component of earnings is subject to greater uncertainty than the realized cash flow component of earnings and the strong negative correlation

⁵ “Hicksian income corresponds to the amount that can be consumed (that is, paid out as dividends) during a period, while leaving the firm equally well off at the beginning and the end of the period” (Hicks 1939, p.176).

between a firm's accruals and cash flows has been used to reflect on the informativeness of the firm's earnings (Dechow 1994; Sloan 1996; Dechow, Kothari, and Watts 1998; Francis et al. 2005; Wysocki 2009). Accrual quality can be separated into its innate and discretionary components wherein the innate accrual quality component is dependent on the firm's business model and operating environment while the discretionary component is related to earnings management (Francis et al. 2005).⁶ A considerable amount of previous literature has found higher earnings quality to be a function of higher accrual quality with poor accrual quality being associated with higher costs of capital in terms of both debt and equity (Dechow and Dichev 2002; Balsam, Krishnan, and Yang 2003; Myers, Myers, and Omer 2003; Francis et al. 2004, 2005; Chen, Lin, and Lin 2008; Biddle, Hilary, and Verdi 2009; Gray, Koh, and Tong 2009; Kim and Qi 2010). However, in a study using an asset pricing test with a two stage cross-sectional regression technique, Core, Guay, and Verdi (2008) find no association between accrual quality and future stock returns and conclude that there is no evidence suggesting accrual quality to be a "priced risk factor".

Several researchers define earnings persistence in terms of sustainability (Bodie, Kane, and Marcus 2002; Revsine et al. 2008). A large body of literature considers sustainable core earnings to be good indicators of future earnings and also desirable for equity valuation models because of being value relevant and recurring in nature (Kormendi and Lipe 1987; Lipe 1990; Bernstein and Wild 2000; Beneish and Vargus 2002; Penman and Zhang 2002; Bhattacharya, Daouk, and Welker 2003; Brown and Sivakumar 2003; Richardson 2003; Schipper and Vincent 2003; Francis et al. 2004; Penman and Zhang 2006; Balkrishna, Coulton, and Taylor 2007; Anderson, Woodhouse, and Ramsay 2008; Revsine et al. 2008; Barton, Hansen, and Pownall 2010; Gaio 2010). However, Frankel and Litov (2008) document that higher persistence of earnings reflects good quality earnings only for profitable firms.

Earnings predictability⁷ has been defined in prior literature as the ability of past earnings to predict future earnings (Lipe 1990; Finger 1994; Fairfield, Sweeney, and Yohn 1996; Barth, Beaver, and Landsman 2001; Barua 2006) and future cash

⁶ Please see section 2.3 for a complete discussion on earnings management.

⁷ The academic literature commonly uses the terms predictability and persistence interchangeably (Sloan 1996; Barth et al. 1999; Barth, Beaver, and Landsman 2001; Coulton, Taylor, and Taylor 2005). However, Schipper and Vincent (2003) note that a large variance of a typical shock to the earnings series will result in a possible contradiction between persistence and predictability with highly persistent earnings having low predictive ability. In the words of Lipe (1990, p.50) "The difference between predictability and persistence is that predictability of earnings is a function of the average absolute magnitude of the annual earnings shocks, whereas the time-series persistence of earnings reflects the autocorrelation in earnings"

flows⁸ (Finger 1994; Mikhail, Walther, and Willis 2003; Chen 2004). A number of scholars have shown that higher earnings predictability reflects higher earnings quality and that firms with relatively less predictable earnings are subjected to post-earnings-announcement drifts and higher cost of equity capital than comparable firms with more predictable earnings (Bernard and Thomas 1989; Freeman and Tse 1989; Bernard and Thomas 1990; Bricker et al. 1995; Affleck-Graves, Callahan, and Chipalkatti 2002; Li et al. 2009). However, Francis et al.(2004) find predictability to have an inconsistent and unreliable association with cost of equity.

Beidleman (1973, p.653) defines earnings smoothness as the managers' attempt to exercise reporting discretion to "intentionally dampen the fluctuations of their firms' earnings realizations." In terms of the conceptual ability of smoothness to reflect decision usefulness, a large number of scholars view income smoothing (absent firm's accounting choices) as a mechanism by which managers can reveal private information about future earnings to smooth out transitional fluctuations to achieve more informative, representative, and useful reported earnings with a lower implied cost of capital (Ronen and Sadan 1981; Chaney and Lewis 1995; Subramanyam 1996; Demski 1998; Kirschenheiter and Melumad 2002; Schipper and Vincent 2003; Francis et al. 2004; Tucker and Zarowin 2006; Verdi 2006; Chaney, Faccio, and Parsley 2008). In contrast, there are other scholars who view earnings smoothing as a device by which insiders can obfuscate consumption of private control benefits and reduce value relevance to meet bonus targets, protect jobs, promote lower investor risk perception and share price maximization by raising expected cash flow to investors, and reduce firm's perceived bankruptcy risk (Healy 1985; Trueman and Titman 1988; Fudenberg and Tirole 1995; Arya, Glover, and Sunder 1998; Kirschenheiter and Melumad 2002; Leuz, Nanda, and Wysocki 2003). Still other scholars like McInnis (2010) and He, Sidhu, and Tan (2010) finds no relation between earnings smoothness and average stock returns and provide evidence that such a relationship is driven primarily by optimism in analysts' long term earnings forecasts.⁹

⁸ SFAC 1, Objectives of Financial Reporting by Business Enterprises, (FASB 1978, para, 37) states that "one of the main objectives of accounting earnings is to predict the timing, amount and uncertainty of future cash flows."

⁹ He, Sidhu, and Tan (2010) find evidence that income smoothing enhances the precision of both the common and private information of the firm. He, Sidhu, and Tan (2010, p.24) suggest that "if more precise common information reduces the cost of capital, but more precise private information increases the cost of equity capital by increasing the information asymmetry between informed and uninformed investors (Botosan, Plumlee, and Xie 2004), the net outcome could be insignificant."

Value relevance of earnings explains variations in contemporaneous stock market returns or prices and is considered a direct measure of decision usefulness from an equity investor's perspective (Collins, Maydew, and Weiss 1997; Francis and Schipper 1999; Lev and Zarowin 1999). Several scholars have found that the value relevance of earnings has declined while the value relevance of book value of equity has increased over time and suggest that this shift may have resulted from factors such as the increase in number of firms in the technology industry, changes in average firm size, reporting of large number of special items by firms, increased reporting of losses by firms, and intangible intensity across time (Hayn 1995; Elliott and Hanna 1996; Basu 1997; Collins, Maydew, and Weiss 1997; Abrahams and Sidhu 1998; Chang 1998; Brown 1999; Ely and Waymire 1999; Francis, Maydew, and Sparks 1999; Francis and Schipper 1999; Lev and Zarowin 1999; Givoly and Hayn 2000; Ahmed and Falk 2006; Chandra and Ro 2008). However, scholars such as Amir and Lev (1996); Goodwin and Ahmed (2006); and Brimble and Hodgson (2007) have found that value relevance of earnings has not declined. Still other scholars like Jenkins, Kane, and Velury (2009) find that value relevance of current earnings is actually higher during business cycle contraction (compared to business cycle expansion) and the value relevance of expected future earnings is higher during business cycle expansion This finding actually suggests that sample period chosen may have an impact on the value relevance of earnings.

Timely available information is imperative to maintain relevance and reliability of financial statements (Lang and Lundholm 1999). QC 29 "Qualitative characteristics of useful financial information" issued by the Australian Accounting Standards Board (AASB) (Australian Accounting Standards Board Framework (AASB CF 2013-1) 2013, p.23) documents that "Timeliness means having information available to decision-makers in time to be capable of influencing their decisions. Generally, the older the information is the less useful it is." Equity markets perceive asymmetric timeliness as improving earnings quality (Ball, Robin, and Wu 2003; Ball and Shivakumar 2005; Pae, Thornton, and Welker 2005; Ball, Robin, and Sadka 2008). Prior literature has generally found an increase in information quality resulting in lower information risk to be associated with lower cost of equity (Ashbaugh-Skaife et al. 2009). However, Botosan and Plumlee (2002) find more timely disclosures in the form of quarterly reports to shareholders to be accompanied by increased stock price volatility which in turn increases the cost of equity. In a

similar vein, Jackson and Wang (2013) use timeliness of analysts' forecasts as a proxy for precision of the information signal and find that as the precision of information increases so does the cost of capital.

Basu (1997, p.4) defines conservatism as “capturing accountants’ tendency to require higher degree of verification for recognizing good news than bad news in financial statements.” Several scholars find conservatism to be a desirable earnings quality construct since it constrains managerial opportunistic behaviour and reduces information asymmetry between managers and financial statement users (Ball, Kothari, and Robin 2000; Bhattacharya, Daouk, and Welker 2003; Watts 2003; LaFond and Watts 2008; Hui, Matsunaga, and Morse 2009); reduces political costs through timely reporting of bad news (Hui, Matsunaga, and Morse 2009); promotes transparency and improves reporting quality (Ball, Kothari, and Robin 2000; Ball and Shivakumar 2005); and increases firm and equity values (LaFond and Watts 2008). In contrast, some regulators and scholars view conservatism as undesirable since it generates hidden reserves and reduces the predictive ability of earnings (Penman and Zhang 2002); produces information asymmetry and limits the information role of financial statements in equity markets (FASB 1984); and is suggested to be not optimal from a valuation perspective (Connell 2007). Still other scholars such as Bricker et al.(1995) and Francis et al.(2005) find limited or no association between earnings quality and the application of conservative accounting methods.

2.2.3 Factors affecting earnings quality

Empirical literature has identified a number of factors that influence earnings quality. These factors can be classified into three broad categories: (1) country-level factors; (2) firm-level factors; and (3) corporate governance factors.

2.2.3.1 Country-level factors

Empirical literature shows that the environment in which firms operate differs across countries and that the findings from one environment cannot be generalized to countries with different legal, institutional, and financial structures (Ball, Kothari, and Robin 2000). Prior literature has identified quality of legal/judicial institutions, financial reporting practices, level of financial development, and level of economic development as four notable country level

characteristics used as determinants of earnings quality (Dechow, Ge, and Schrand 2010; Gaio 2010).

Empirical literature shows legal origin to be a significant determinant of cross-country differences in financial development (La Porta et al. 1997; Demirguc-Kunt and Maksimovic 1998; La Porta et al. 1998; Ali and Hwang 2000; Ball, Kothari, and Robin 2000; Beck and Levine 2003).¹⁰ Countries with common-law accounting income¹¹, strong investor protection, and high quality judicial systems show significantly greater timeliness in reporting, reduced agency costs of monitoring managers, and higher quality of accounting earnings in terms of persistence, predictability and value relevance compared to countries with code-law accounting income¹², weak investor protection, and low quality judicial systems (Ball, Kothari, and Robin 2000; Leuz, Nanda, and Wysocki 2003; Bushman and Piotroski 2006; Cahan, Emanuel, and Sun 2009; Kanagaretnam, Lim, and Lobo 2013). This has an impact on pressures from security analysts, restrictions associated with leverages and dividends, and managers' and employees' bonuses.

A stream of scholars suggests that principle-based standards (International Financial Reporting Standards (IFRS)), compared to rule-based standards (US Generally Accepted Accounting Principles (US GAAP)) reflect the underlying firm performance instead of alternative accounting treatments for a transaction and are associated with more timely loss recognition, greater value relevance, and a more informative earnings number (Barth and Schipper 2008; Mergenthaler 2009; Jamal and Tan 2010; Peytcheva and Wright 2010; Agoglia, Douppnik, and Tsakumis 2011). However, Ahmed, Neel, and Wang (2013) find the adoption of IFRS even in strong enforcement countries to be associated with a decrease in timeliness of loss recognition and an increase in income smoothing and aggressive reporting of accruals. In another recent study, Li, Liu, and Luo (2013) examine the mandatory shift from US GAAP to IFRS in China and find principles-based accounting standards to be associated with higher earnings management and lower earnings informativeness, at least for firms subjected to weak monitoring and scrutiny.

¹⁰ Gaio (2010) states that differences in accounting standards and practices across countries can be controlled by legal regimes to some extent.

¹¹ Common-law countries (such as US, UK and Australia) involve accounting practices determined primarily in the private sector.

¹² Code-law countries (such as France, Germany and Japan) are subjected to strong political influence at national and firm levels with national accounting standards established and enforced by the government.

Financially developed capital market-oriented economies (for example: US and UK) as opposed to the bank-oriented economies¹³ (for example: France, Germany, and Japan) exhibit greater transparency, investor protection, explanatory power of earnings, and reliance on financial accounting disclosures for decision-making needs, thereby being valued more highly by stock markets (Ali and Hwang 2000; Ball, Robin, and Wu 2003; Norbes and Parker 2004; Gaio and Raposo 2011).

For countries with insufficient economic development there is an absence of necessary infrastructure for credible external verification of a firm's income disclosures and even if such an infrastructure was to exist it would be too costly to support such verification (Ball 2001). Firms in countries with insufficient economic development have little, if any, incentive to assure better earnings quality and on average display lower earnings quality rankings (Gaio 2010).

Scholars such as Bushman and Piotroski (2006) warn that institutions can vary dramatically across countries sharing a similar legal origin and emphasize that in addition to country-level characteristics which look at the macro effects of institutional structures, firm-level characteristics need to be examined to gain a comprehensive understanding of firm-level earnings quality.¹⁴

2.2.3.2 *Firm-level factors*

Gaio (2010) documents that firm-level characteristics have an incremental explanatory power over the overall country unobserved heterogeneity and that firm characteristics are major determinants of earnings quality around the world. Empirical literature shows firm operating characteristics such as firm size, firm growth and investments, firm performance, firm debt, firm capital intensity, firm operating cycle, and firm operating volatility to be associated with various proxies of earnings quality.

One stream of scholars has shown firm size to be positively associated with earnings quality measures (Dechow and Dichev 2002; Francis et al. 2004; Sun 2009; Gaio 2010; Simpson 2013). For instance, Francis et al. (2004) find firm size to be positively associated with six earnings attributes, namely, persistence, predictability,

¹³ In a bank-oriented financial system, which is represented by lower transparency and investor protection, banks supply most capital needs and have direct access to company information leading to a reduced demand for published financial statements.

¹⁴ High-profile accounting scandals such as Enron in the US and HIH in Australia revealed that poor quality accounting numbers exhibited by greedy opportunist firms in developed market oriented economies (with strong legal institutions, investor protection regimes, and high transparency) can take a long time before reaching full public consciousness. In countries with weaker investor protection, Gaio and Raposo (2011) find that firms can compensate for a poor legal environment by having higher quality of earnings (and stock markets seem to award these firms with higher valuation).

smoothness, value relevance, timeliness, and conservatism. In a similar vein, Gaio (2010) finds size to be positively associated with an aggregate earnings measure based on seven earnings attributes, namely, accruals quality, persistence, predictability, smoothness, value relevance, timeliness, and conservatism. Small sized firms are more likely to have internal control deficiencies and are more frequently involved with correcting previously reported earnings (Ge and McVay 2005; Ashbaugh-Skaife, Collins, and Kinney 2007; Doyle, Ge, and McVay 2007a). However, another stream of scholars has found firm size to be negatively associated with earnings quality based on the reasoning that larger firms engage in income-increasing accounting method choices to meet earnings benchmarks (Das, Levine, and Sivaramakrishnan 1998) or income-decreasing accounting method choices in response to being subjected to greater political/regulatory scrutiny (Jensen and Meckling 1976; Watts and Zimmerman 1986).

It can be argued that since high growth firms would need external financing to meet increased investment opportunity needs, these firms would strive to achieve higher earnings quality in line with prior research which shows a negative relationship between earnings quality and cost of capital (Francis et al. 2004, 2005; Chen, Lin, and Lin 2008; Kim and Qi 2010). However, a stream of researchers has found high growth firms to be negatively related with earnings quality by showing that these firms are associated with lower earnings persistence (Nissim and Penman 2001; Penman 2001), target beating (McVay 2006), internal control weaknesses (Ashbaugh-Skaife, Collins, and Kinney 2007), greater measurement errors (Richardson et al. 2005), more earnings restatements¹⁵ (Richardson, Tuna, and Wu 2002), and aggressive reporting of accruals (Dechow, Sloan, and Sweeney 1995; Kasznik 1999; McNichols 2000; Abarbanell and Lehavy 2003; Kothari, Leone, and Wasley 2005; Graham and Moore 2013). In a recent US-based study, Graham and Moore (2013) find that while, on average, high growth firms have lower earnings quality compared to non-high growth firms, the earnings quality for high growth firms has improved in the period after the passage of the SOX relative to lower growth firms.

A large number of scholars have found managers of weak performing firms to engage in opportunistic behaviour and manipulate earnings by hiding internal control weaknesses to meet a positive target more frequently than healthy firms

¹⁵ Levitt (2000) documented earnings restatements arising from accounting errors to be reflective of poor earnings quality.

(Petroni 1992; Dechow 1994; Balsam, Haw, and Lilien 1995; DeFond and Park 1997; Burgstahler, Hail, and Leuz 2006; Doyle, Ge, and McVay 2007a, 2007b; Charitou, Lambertides, and Trigeorgis 2011). However, DeAngelo, DeAngelo, and Skinner (1994) argue that sustained weak performance limits managerial opportunism. For a sample of troubled firms with persistent losses, DeAngelo, DeAngelo, and Skinner (1994) find accruals to reflect firm's underlying economic performance rather than being used as tools to boost earnings.

Prior research generally suggests a firm's debt leverage to be negatively associated with earnings quality. Firm's debt levels have been shown to be associated with income increasing accounting method choices (Bowen, Lacey, and Noreen 1981; Johnson and Ramanan 1988; DeFond and Jiambalvo 1994; Balsam, Haw, and Lilien 1995; Rodriguez-Perez and Hemmen 2010), earnings announcement corrections (Kinney and McDaniel 1989), Accounting and Auditing Enforcement Releases (AAERs)¹⁶ (Dechow, Sloan, and Sweeney 1996; Beneish 1999b), and restatements (Efendi, Srivastava, and Swanson 2007). However, scholars such as DeAngelo, DeAngelo, and Skinner (1994) find relatively little association between firm's debt levels and income increasing accounting method choices. It is often argued that if income increasing accounting method choices are transparent to decision makers and can be rationally inferred to have been taken to avoid debt covenant violation, then such choices may positively contribute towards decision usefulness of earnings for all contracting parties who detect it (Aboody, Barth, and Kasznik 1999).

Cohen (2008) finds capital intensity to be positively associated with earnings quality by serving as a barrier to entry for future competitors and resulting in lower proprietary costs of disclosure. However, Baginski et al. (1999) document earnings persistence to be negatively related to capital intensity and Lev (1989) finds a strong negative relationship between capital intensity and sample autocorrelations of earnings.

Earnings quality has generally been found to be negatively associated with a firm's length of operating cycle (Dechow 1994; Dechow and Dichev 2002; Hao 2009; Gaio 2010) and operating volatility measures (such as sales volatility and cash flow volatility) (Dechow and Dichev 2002; Hribar and Nichols 2007; Gaio 2010;

¹⁶ SEC Accounting and Auditing Enforcement Releases (AAERs) is an external indicator of earnings misstatements reported under Sarbanes-Oxley Act (2002). Several scholars have used AAERs as a proxy for fraudulent financial reporting (Carcello and Palmrose 1994; Dechow, Sloan, and Sweeney 1996; Beneish 1997; Beneish 1999b; Dechow, Richardson, and Sloan 2008).

Gopalan and Jayaraman 2012). For instance, Gaio (2010) finds a firm's length of operating cycle, operating cash flow volatility, and operating sales volatility to be negatively related to an aggregate earnings quality measure based on accruals quality, persistence, predictability, smoothness, value relevance, timeliness, and conservatism.

2.2.3.3 Corporate governance factors

Sivaramakrishnan and Yu (2008) find that a firm's earnings quality (measured in terms of accrual quality, earnings persistence, and earnings predictability) is high if its corporate governance structure is effective in reducing agency costs. A large number of scholars have found evidence showing that poor governance leads to poor quality financial reporting reflected by earnings manipulation, financial restatements or frauds (Beasley 1996; Dechow, Sloan, and Sweeney 1996; Peasnell, Pope, and Young 2000a, 2000b; Klein 2002a, 2002b; Davidson, Goodwin-Stewart, and Kent 2005). A number of corporate governance factors such as board of directors, audit committee, external auditors, and internal auditors have been shown to impact earnings quality.

The New York Stock Exchange (NYSE) Corporate Accountability and Listing Standards Committee (2002) documents that an effective board of directors needs to ensure two things: (1) whether the accounting choices made by management are valid, and (2) the financial effects of such decisions (Davidson, Goodwin-Stewart, and Kent 2005). Board independence¹⁷, board size, board expertise, board diligence¹⁸, and board gender diversity¹⁹ are board characteristics that have generally been studied in earnings quality literature.

Board independence has generally been found in prior literature to be positively associated with earnings quality (Beasley 1996; Chen and Jaggi 2000; Klein 2002a; Xie, Davidson, and Dadalt 2003; Cheng and Warfield 2005; Davidson, Goodwin-Stewart, and Kent 2005; Hutchinson, Percy, and Erkurtoglu 2008; Lin and Hwang 2010; Frankel, McVay, and Soliman 2011; Goh, Ng, and Yong 2012). For

¹⁷ Board independence refers to the proportion of non-executive outside directors compared to the executive inside directors on the board. A non-executive director is a director who is not employed in a firm's day to day business activities and whose role is to provide an outsider's contribution and oversight to the board of directors (Hanrahan, Ramsay, and Stapledon 2001). The superior monitoring ability of non-executives can be attributed to the incentive to maintain their reputations in the external labor market (Fama and Jensen 1983a, 1983b).

¹⁸ Carcello et al. (2002) document that board diligence includes number of board meetings, preparation before meetings, attentiveness and participation during meetings, and post-meeting follow-up. Number of board meetings is the only aspect of board diligence that is documented publicly since firms generally report this measure of board activity in the annual reports.

¹⁹ Prior literature documents gender diversity on corporate boards to be equivalent to female board participation since women constitute less than 14 percent of board directors and there are virtually no all-female boards (Srinidhi, Gul, and Tsui 2011).

instance, Beasley (1996) finds no-fraud firms to have boards with significantly higher percentages of outside members; Frankel, McVay, and Soliman (2011) find board independence to be positively associated with non-GAAP earnings as a result of reduced opportunism; and Goh, Ng, and Young (2012) find board independence to be associated with higher accruals quality and reduced information asymmetry. However, some scholars find board independence to be unimportant or of limited importance from the perspective of earnings quality (Park and Shin 2004; Peasnell, Pope, and Young 2005). For instance, Peasnell, Pope, and Young (2005) fail to find a significant association between board independence and abnormal accruals, a proxy for earnings management (inverse measure of earnings quality).

Next, a number of prior studies have also found board size to be significantly associated with earnings quality (Beasley 1996; Dalton et al. 1999; Chtourou, Bedard, and Courteau 2001; Xie, Davidson, and Dadalt 2003; Peasnell, Pope, and Young 2005; Ching, Firth, and Rui 2006). However, some inconsistencies exist between the results of these studies. For instance, while Beasley (1996) finds that larger boards are associated with greater financial statement fraud, Xie, Davidson, and Dadalt (2003) find larger boards to be negatively associated with abnormal accruals.

Finally, earnings quality has generally been found to be positively associated with board expertise (Chtourou, Bedard, and Courteau 2001; Xie, Davidson, and Dadalt 2003; Lin and Hwang 2010); board diligence (Xie, Davidson, and Dadalt 2003); and board gender diversity (Srinidhi, Gul, and Tsui 2011). For instance, Xie, Davidson, and Dadalt (2003) find board diligence and expertise to be negatively associated with abnormal accruals; and Srinidhi, Gul, and Tsui (2011) find female board participation to be negatively associated with accrual estimation errors and meeting or beating earnings benchmark behaviour.

The Australian Institute of Company Directors (AICD) (2001) and the Blue Ribbon Committee (1999) document that one of the major benefits of companies establishing audit committees is to obtain improved quality of financial reporting practices, and more specifically quality of earnings. However, empirical research examining the impact of audit committee formation on earnings quality is mixed and inconclusive. For instance, while Wild (1996) finds a significant increase in the market's reaction to earnings reports released after audit committee formation, Jeon, Choi, and Park (2004) do not find a reduction in the aggressive reporting of accruals

following the formation of an audit committee. Abbott et al.(2003) state that the audit committee characteristics, in carrying out obligations, affect audit committee efficiency. Audit committee independence²⁰, audit committee activity²¹, audit committee expertise, and audit committee size are commonly studied audit committee attributes in earnings quality literature.

To begin with, audit committee independence has been found by some scholars to be positively associated with earnings quality (Abbott, Park, and Parker 2000; Davidson, Goodwin-Stewart, and Kent 2005; Hutchinson, Percy, and Erkurtoglu 2008). For instance, Abbott, Park, and Parker (2000) find an audit committee composed of independent directors is less likely to be sanctioned for fraudulent or misleading reporting. However, other scholars fail to find a significant association between audit committee independence and earnings quality (Xie, Davidson, and Dadalt 2003; Choi, Jeon, and Park 2004). For instance, Xie, Davidson, and Dadalt (2003) fail to find a significant association between audit committee independence and abnormal accruals.

Next, prior research has also found a significant association between audit committee activity and earnings quality (Xie, Davidson, and Dadalt 2003; Ghosh, Marra, and Moon 2010). However, some inconsistencies exist between results of these studies and others such as Davidson, Goodwin-Stewart, and Kent (2003) who failed to find an association between earnings management and audit committee activity.

Further, some scholars have found audit committee expertise to be positively associated with earnings quality (Xie, Davidson, and Dadalt 2003; Sultana and Van der Zahn 2013). For example, Sultana and Van der Zahn (2013) find that an audit committee financial expertise is important in recognizing asymmetrical timeliness of losses and improving financial reporting quality. In contrast, scholars such as Ghosh, Marra, and Moon (2010) and Bryan et al. (2013) fail to find a significant association between audit committee expertise and earnings quality. Baxter and Cotter (2009) find differences in the association between audit committee expertise and different earnings quality measures. They (Baxter and Cotter 2009) find greater proportion of

²⁰ Audit committees members are independent if: (1) they, their spouse or children do not currently work or have not worked at the organization or its affiliates within the past 5 years; (2) they have not received compensation from the organization or its affiliates for work other than board service; (3) they are not partners, shareholders or officers of a business with which the organization has significant business (Blue Ribbon Committee (BRC) 1999).

²¹ In prior literature, audit committee activity is proxied by the number of committee meetings (Xie, Davidson, and Dadalt 2003).

accounting expertise on audit committees to be associated with lower accrual estimation errors (suggesting higher earnings quality) while higher abnormal accruals (suggesting lower earnings quality).

Finally, while some studies find a positive association between audit committee size and earnings quality (Yang and Krishnan 2005; Lin, Li, and Yang 2006; Ghosh, Marra, and Moon 2010), other studies fail to find a significant association between the two (Xie, Davidson, and Dadalt 2003; Davidson, Goodwin-Stewart, and Kent 2005). For instance, while Lin, Li, and Yang (2006) find audit committee size to be negatively associated with earnings restatements, Davidson, Goodwin-Stewart, and Kent (2005) fail to find a significant association between audit committee size and abnormal accruals. Overall, prior empirical literature returns mixed evidence on the association between audit committee attributes and earnings quality.

Prior literature has also shown earnings quality to be associated with a number of proxies of (external) auditor quality. Earnings quality has generally been shown to be positively associated with auditor quality proxies such as Big-4 auditors (Becker et al. 1998; Francis, Maydew, and Sparks 1999; Reynolds and Francis 2000), auditor engagement office size (Choi et al. 2008; Francis and Yu 2009), and industry specialist auditors (Balsam, Krishnan, and Yang 2003) but negatively associated with initial years of audit engagement tenure (Johnson, Khurana, and Reynolds 2002) and audit firm alumni holding key executive positions in client firms (Lennox 1999; Johnson, Khurana, and Reynolds 2002; Menon and Williams 2004).

Internal audit is another corporate governance mechanism that has been generally shown in prior research to significantly influence earnings quality. Poor internal audit quality results in systematic internal control weaknesses which compared to non-systematic internal control weaknesses are more severe, pervasive at the company level, more difficult to detect and prevent, less auditable, and have a greater adverse impact on the firm's financial reporting system and earnings quality (Raghunandan and Rama 2006; Doyle, Ge, and McVay 2007a, 2007b; Ashbaugh-Skaife et al. 2008; Chan, Farrell, and Lee 2008). In an experimental study using a quantitative randomized response technique, Schneider and Wilner (1990) found internal audit to act as an effective deterrent to financial reporting irregularities when four conditions were present: material dollar amounts, irregularities involving asset overstatements, unambiguous GAAP violations, and less incentive for misstating

income. Recent studies by Davidson, Goodwin-Stewart, and Kent (2005); Prawitt, Smith, and Wood (2009); and Johl et al. (2013) examining the impact of internal audit function (IAF) on earnings management have returned mixed findings. These studies have been outlined in subsection 2.3.6.2.

2.3 EARNINGS MANAGEMENT

Earnings management is a practice which embodies a wide array of accounting techniques used by management personnel to achieve a specific earnings target (Krishnan et al. 2011). The persistent use of inappropriate earnings management has led to the collapse of several corporations and/or major scandals as outlined in section 2.2.

2.3.1 Concept and definition

Scott (1997) differentiates between ‘earnings management from an efficient contracting perspective’ and opportunistic earnings management. In a similar vein, Beneish (2001) describes two perspectives on earnings management as being information perspective and opportunistic perspective. The information perspective suggests that the practice of earnings management is designed to signal the expectations about a firm’s future cash flows to investors while the opportunistic perspective holds that managers manipulate earnings to mislead investors.

Prior literature has often referred earnings management to being an inverse measure of earnings quality (Francis et al. 2005; Krishnan et al. 2011). The concept of earnings management has several definitions cited in empirical literature. Earnings management has been defined as (1) “a purposeful intervention in the external financial reporting process, with the intent of obtaining some private gain” (Schipper 1989, p.92), (2) a practice “to either mislead some stakeholders about the underlying economic performance of the company or to influence contractual outcomes that depend on reported accounting numbers” (Healy and Wahlen 1999, p.6), (3) “non-neutral financial reporting” (Nelson et al. 2002, p.176), (4) “the manipulation of accounts and financial reports by a firm’s management in order to present a view of the company which does not accurately reflect its financial position or performance” (Fong 2006, p.81), and (5) a process which “affects the transparency of underlying economic reality and stakeholder decisions in the allocation of scarce resources” (Gay and Simnett 2012, p.298). Fields et al. (2001, p.79) document that earnings management studies “examine whether managers act as if they believe users of

financial reporting data can be misled into interpreting reported accounting earnings as equivalent to economic profitability”. The common theme underlying these definitions is that managers manage earnings to maximize their own utilities at the expense of contracting parties and stakeholders (that is, the opportunistic behaviour perspective).

2.3.2 Earnings management versus earnings manipulation

The generally accepted accounting principles provide managers with discretion and flexibility in using accounting methods and estimates for computing earnings. The earnings management behaviour exhibited in compliance with GAAP to achieve stable and predictable financial results and to sustain the firm’s value is both acceptable and lawful (Subramanyam 1996; Schipper and Vincent 2003). Agency theory suggests that permitting flexibility in reporting earnings is crucial for managers since they are in the best position to choose the method of reporting that best aligns with the interest of shareholders (Scott 1997). Earnings management can be thought of as a vehicle which conveys inside information to the market (Scott 1997) and this is likely to promote efficient decision making (Arya, Glover, and Sunder 2003; Beneish, Capkun, and Fridson 2013).

Earnings manipulation, on the other hand, has been defined by Beneish (1999b, p.24) as “an instance in which a company’s managers violate generally accepted accounting principles (GAAP) to favourably represent the company’s financial performance.” Empirical research into earnings management behaviour has generally revolved around determining whether accounting accruals differ from expectations (that is, whether they are abnormal), and whether the differences are congruent with managerial incentives (Krishnan et al. 2011; Habib, Bhuiyan, and Islam 2013).²² Hence, the focus of prior research is on the manipulation of accruals as an approximation of earnings management. Earnings management is often used as a synonym for earnings manipulation since prior research generally finds that managers use the broad discretion allowed by GAAP to deceive investors by resorting to practices such as the premature acceleration or deferral in the recognition of revenues and expenses, aggressive merger and acquisition practices, and revision

²² Accrual models used in prior literature have generally been based on aggregate accruals or specific accruals. This study uses aggregate accrual measures in determining earnings management, specifically those developed by Dechow, Sloan, and Sweeney (1995), Dechow, Richardson, and Tuna (2003), and Kothari, Leone, and Wasley (2005). Please see Chapters Six and Seven for a complete discussion on these models. Aggregate accrual measures have been documented to be the most common approach in estimating earnings management.

of estimates such as depreciation and bad debts expenses (Krishnan et al. 2011).²³ These practices materially misrepresent the financial performance/position of the firm and misguide the investors who make excessively optimistic expectations regarding the future performance of the corporate firm (Krishnan et al. 2011). Levitt (1998, p.16) describes that when flexibility within accounting standards is exploited “...abuses such as earnings management occur...(and) trickery is employed to obscure actual financial volatility...”. The definitions of earnings management in prior literature outlined in section 2.3.1 generally highlight the common features of earnings manipulation practices (Schipper 1989; Healy and Wahlen 1999; Gay and Simnett 2012).

2.3.3 Approaches in detecting earnings management

Empirical studies have documented various approaches in detecting earnings management, such as aggregate (total) accruals/discretionary accruals, specific accruals, benchmark beating (discontinuities in distribution of reported earnings or earnings distribution approach), and real transactions. This study focuses on detecting earnings management through discretionary accruals.

2.3.3.1 Aggregate (total) accruals/discretionary accruals

The aggregate accruals or total accruals approach has been documented to be the most common measure of earnings management (Stubben 2010; Simpson 2013). Aggregate accruals are composed of discretionary accruals (also commonly termed abnormal accruals) and non-discretionary accruals (also commonly termed normal accruals). The general approach for estimating discretionary accruals is to regress total accruals on variables that proxy for non-discretionary accruals. Discretionary accruals are the unexplained (residual) component of total accruals. While the discretionary component of aggregate accruals proxy for earnings management, non-discretionary component of aggregate accruals accurately reflects the impact of changes in economic circumstances on accounting accruals. The focus on discretionary accruals, as a measure of earnings manipulation by management, has the potential to reveal subtle manipulation strategies related to revenue and expense recognition (DeAngelo 1986). Since all tests are joint tests of the researcher’s models of discretionary accruals and earnings management, empirical specification of

²³ The US SEC (1999, p.84) defines abusive earnings management to involve “the use of various forms of gimmickry to distort a company’s true financial performance in order to achieve a desired result.”

models is critical for the researchers to be able to accurately estimate discretionary accruals (Fields, Lys, and Vincent 2001; Kothari, Leone, and Wasley 2005).

Formative models developed by Healy (1985) and DeAngelo (1986) used aggregate accruals from the estimation period (firm years in which no systematic earnings management is hypothesized) as a proxy for expected non-discretionary accruals and viewed non-discretionary accruals to be constant. The assumption of constant non-discretionary accruals, spelt out in both Healy and DeAngelo models, is not empirically descriptive (Dechow, Sloan, and Sweeney 1995). Specifically, the very nature of accrual accounting dictates that changes in economic circumstances should lead to changes in the level of non-discretionary accruals (Kaplan 1985; Dechow, Sloan, and Sweeney 1995). While the Healy and the DeAngelo models capture the income increasing/income-decreasing techniques that managers have incentives to employ, these models neglect the changes in non-discretionary accruals and misclassify all accruals as discretionary. Hence, both approaches tend to detect earnings management erroneously.

The seminal model for earnings management was proposed by Jones (1991) (hereafter noted as the Jones model). The Jones model relaxes the assumption of constant non-discretionary accruals (spelt out in both Healy and DeAngelo models) and uses a linear regression approach to control the effect on non-discretionary accruals brought about by changes in the firm's economic circumstances (Dechow, Sloan, and Sweeney 1995). The Jones model uses sales revenue variable to control for changes in non-discretionary accruals related to working capital accounts resulting from changes in a firm's economic environment as opposed to manipulation of accruals (DeFond and Jiambalvo 1994). Likewise, the Jones model uses property, plant and equipment variable to control for any changes in non-discretionary accruals arising from the depreciation charge resulting from the changes in a firm's business activities as opposed to manipulation of accruals (DeFond and Jiambalvo 1994). The Jones model estimates discretionary accruals, the proxy for earnings management, as residuals from regression of total accruals on non-discretionary determinants of accruals. The Jones model is scaled by lagged assets in an attempt to reduce heteroskedasticity in residuals (White 1980; Jones 1991).

In spite of the popularity of the Jones seminal model from 1991 - 1995, there were significant biases within the model. In situations where discretionary revenues were used to manage earnings, the Jones Model would extract the discretionary part of accruals and lead the estimate of earnings management to be biased towards zero. This increased the probability of a type II error (under rejection of null hypothesis of no discretionary accruals) (Dechow, Sloan, and Sweeney 1995).

The modified Jones model proposed by Dechow, Sloan, and Sweeney (1995) eliminated the conjectured tendency of the original Jones model by adjusting the change in revenues for change in receivables in the event period (firm years during which systematic earnings management is hypothesized in response to the stimulus identified by the researcher) (Dechow, Sloan, and Sweeney 1995). The implicit assumption in the Jones Model is that discretion is not exercised over revenue in either the estimation period or the event period and the implicit assumption in the modified Jones model is that all changes in the credit sales in the event period result from earnings management (Dechow, Sloan, and Sweeney 1995). The assumption underlying the modified Jones model is based on the reasoning that earnings can be managed more easily by exercising discretion over the recognition of revenues on credit sales than on cash sales (Dechow, Sloan, and Sweeney 1995). The product of the estimated coefficient of the change in sales and the change in cash sales (the change in revenues less the change in accounts receivable) rather than the change in sales is used to calculate non-discretionary accruals in the modified version of Jones Model (Dechow, Sloan, and Sweeney 1995; Ronen and Yaari 2010). The modified version of the Jones model has been shown to exhibit the most power with the lowest frequency of generating type II errors in detecting earnings management when compared with previous models such as the Healy Model, the DeAngelo Model, and the original Jones Model (Dechow, Sloan, and Sweeney 1995).

The Jones and modified Jones models were originally introduced as a time series. However, DeFond and Jiambalvo (1994) proposed a cross-sectional Jones model rather than a time series model. The cross-sectional Jones model has since been used by a number of empirical studies (Subramanyam 1996; Becker et al. 1998; DeFond and Subramanyam 1998; Teoh, Welch, and Wong 1998c; Teoh, Wong, and Rao 1998; Guidry, Leone, and Rock 1999; Peasnell, Pope, and Young 2000a; DuCharme, Malatesta, and Sefcik 2004). Scholars have found that the cross-sectional

original Jones model statistically dominates its time-series counterparts for a number of reasons (Subramanyam 1996; Bartov, Gul, and Tsui 2000; Bartov, Goldberg, and Kim 2001). First, the number of observations per model is considerably higher under the cross-sectional version, increasing the precision of the estimates. Second, the cross-sectional sample is less subject to survivorship bias and allows scholars to include firms with short histories. Third, the cross-sectional models control for effects of changing industry-wide economic conditions on total accruals. Such models estimate coefficients in a given year and this avoids the assumption of stationarity of coefficients across years.

The modified Jones model proposed by Dechow, Sloan, and Sweeney (1995) in a time series setting assumed that sales were unmanaged in the estimation period and that the entire change in accounts receivable in the event year represented earnings management. A major limitation of the time series modified Jones model is that by applying the estimated parameters from the Jones model in the pre-event period to a modified sales change variable to estimate discretionary accruals in the event period is likely to generate large estimated discretionary accruals if a firm experienced extreme growth in the test period compared to the estimation period (Kothari, Leone, and Wasley 2005). To overcome this limitation, the cross-sectional modified Jones model used by scholars such as Subramanyam (1996); DeFond and Park (1997); Dechow, Richardson, and Tuna (2003); Kothari, Leone, and Wasley (2005); and Chen, Lin, and Lin (2008) replaced the changes in revenues with the changes in cash revenues for the estimation of both normal as well as abnormal accruals.

Dechow, Sloan, and Sweeney (1995) provide a comprehensive analysis on the specification (frequency with which the null hypothesis of no earnings management is rejected when there is no earnings management) and power (frequency with which the null hypothesis of no earnings management is not rejected when earnings management may be present) of commonly used test statistics across discretionary accrual measures generated by the Healy Model, the DeAngelo Model, the Jones Model, and the modified Jones model. Dechow, Sloan, and Sweeney (1995) find that (a) all models generate well specified test statistics when applied to random samples; (b) all models generate tests of low power for management of earnings of economically plausible magnitudes (for example, one to five percent of

total assets) resulting from the poor ability of models to isolate discretionary accruals; and (c) all models are misspecified when applied to samples of firms with extreme financial performance (McNichols 2000; Kothari, Leone, and Wasley 2005). Dechow, Sloan, and Sweeney (1995, p.193) document that “all models reject the null hypothesis of no earnings management at rates exceeding the specified test levels when applied to samples of firms with extreme financial performance.” McNichols (2000) reiterates this point by showing that all models are particularly misspecified for samples with extreme forecasts of long-term earnings growth.

In Jones and modified Jones models, the omitted variables captured by extreme financial performance can generate a severely misspecified test statistic and mislead researchers (Dechow et al. 1995, McNichols 2000; Kothari et al 2005; Dechow et al 2010). The use of non-random samples in earnings management research further adds to the concern of using mechanisms for mitigating model misspecifications and reducing the likelihood of incorrect inferences (Dechow, Sloan, and Sweeney 1995; Kothari, Leone, and Wasley 2005). Scholars have shown the likelihood of a spurious indication of discretionary accruals to be extremely high in samples of firms experiencing unusual past performances (that is, non-random samples), suggesting the importance of discretionary accrual models to adequately filter out the ‘performance-related predictable component of accruals’ (Dechow, Sloan, and Sweeney 1995).²⁴ Performance matching procedures have resulted from such concerns of misspecification (Kasznik 1999; Kothari, Leone, and Wasley 2005).

Kothari, Leone, and Wasley (2005) address the empirical issue relating to the efficaciousness of a matched-firm approach versus including a performance variable in the discretionary accrual regression model. In the matched firm approach, Kothari, Leone, and Wasley (2005) calculate the performance-matched Jones model (modified Jones model) discretionary accruals by matching the firm-year observations of the treatment firm with the firm-year observations for the control firm from the same industry and year with the closest return on assets in the current year or the prior year and then subtracting the control firm’s Jones model (modified Jones model) discretionary accruals from the treatment firm’s Jones model (modified

²⁴ The inclusion of change in sales as an explanatory variable in a discretionary accrual regression model is inadequate to forecast all of the firm’s non-discretionary accruals related to sales in the presence of mean reversion, momentum, and/or deviations from a random walk property of sales (Dechow, Sloan, and Sweeney 1995; Kothari, Leone, and Wasley 2005).

Jones model) discretionary accruals.²⁵ Alternatively, Kothari, Leone, and Wasley (2005) add the current years' as well as the previous years' return on assets as an additional regressor in Jones model (and modified Jones model) to control for performance on measured discretionary accruals. Emphasizing the non-linear relationship between accruals and return on assets, Kothari, Leone, and Wasley (2005) suggest that a linear regression approach is unlikely to perform as well as matched-firm approach in estimating discretionary accruals. They find performance matching based on current year's return on assets and using the Jones model to be the best performing accrual measure (in terms of closeness of means and medians in performance-related sub-samples to zero) followed by the modified Jones model using the previous year's return on assets as an additional regressor. However, Kothari, Leone, and Wasley (2005) caution that when using performance matching scholars need to be aware that both treatment and control firms could possibly be managing earnings and that the power of the test is not sacrificed as long as the intention is to estimate the earnings management impact of the treatment event itself.²⁶ The two implicit assumptions underlying the performance matching model are (1) the incentive to manage earnings in treatment firms is absent in the control firms and (2) the control firms do not have any systematic earnings management that is not present in the treatment firms. Kothari, Leone, and Wasley (2005) posit that the firms experiencing the treatment event do not manage earnings any more or less than the matched firms that do not experience the event if the treatment firms' earnings performance in the post-event period is indistinguishable from the control firms' earnings performance, suggesting that the differences between treatment firms' discretionary accruals and control firms' discretionary accruals result in discretionary accruals associated with the event of interest.

Studies using abnormal accrual measures are often criticized based on the reasoning that abnormal accrual models lack power (Ashbaugh, LaFond, and

²⁵ Kothari, Leone, and Wasley (2005) prefer to use return on assets (instead of size, earnings growth, earnings yield, etc.) because prior research suggests that the impact of performance on measured discretionary accruals is controlled by return on assets (Dechow, Richardson, and Sloan 2008) and that matching based on an operating performance measure similar to the return on asset is likely to be better than matching based on other variables, resulting in better specified and more powerful tests (Ikenberry, Lakonishok, and Vermaelen 1995; Barber and Lyon 1996; Lyon, Barber, and Tsai 1999).

²⁶ Kothari, Leone, and Wasley (2005) strongly document that the success of the performance matching approach hinges on the effectiveness of matching. They (Kothari, Leone, and Wasley 2005) suggest that (1) the discretionary accruals not related to the treatment event and arising from other incentives such as bonus contracts and meeting analysts' forecasts must, on average, be the same for the treatment and control firms; and (2) also the correlation between accruals and performance must, on average, be the same for the treatment and control firms. Kothari, Leone, and Wasley (2005) conclude that systematically different non-event discretionary accrual items between treatment and control firms will render the performance-matched discretionary accruals approach ineffective in isolating the discretionary accruals of interest.

Mayhew 2003; Huang, Mishra, and Raghunandan 2007). Dechow, Richardson, and Tuna (2003) show that the lagged and the forward-looking models considerably increase the explanatory power of the modified Jones model. Compared to the modified Jones model, the lagged model includes two innovations: a separation of non-discretionary accruals from discretionary accruals in credit sales, and a control for lagged accruals. The first innovation of the lagged model treats some credit sales as non-discretionary in the event period as well. This is done by regressing change in accounts receivables on the change in sales (both variables deflated by lagged total assets), $\Delta AR_{it}/TA_{it-1} = a + k\Delta SALES_{it}/TA_{it-1} + \varepsilon_{it}$, where parameter, k , measures the sensitivity of the change in non-discretionary accounts receivables to sales.²⁷ The second innovation is the addition of lagged accruals to control for accrual reversals which empirical literature (Kang and Sivaramakrishnan 1995; Beneish 1997; Chambers 1999; Nwaeze 2001) has found to enhance an accrual model's ability.²⁸ The forward-looking model adds a sales growth component to the lagged model. The inclusion of growth in sales highlights the fact that some abnormal accruals arise from changes in business decisions (Healy 1996). Dechow, Richardson, and Tuna (2003) argue that an expected sales growth must be accompanied by an inventory build-up to supply an additional forthcoming demand, thereby increasing current non-discretionary accruals. In other words, accruals leading to future sales carry information about a firm's future prospects and do not evolve from "opportunistic" earnings management. Thus, a failure to recognize the demand for higher levels of inventory would misclassify non-discretionary accruals as discretionary accruals. An alternative view of sales growth is that growth is a firm characteristic (Ronen and Yaari 2010). Young firms are characterized by high growth and by high normal accruals (McNichols 2000) and a failure to take these features into account might again misclassify non-discretionary accruals as discretionary accruals.

2.3.3.2 *Specific accrual*

The approach to model a specific accrual focuses on an industry setting in which a single accrual is sizeable and requires substantial judgment. Similar to the

²⁷ k times sales separates non-discretionary accruals from discretionary accruals in the accounts receivables where $k = 1$ if 100% of the change in accounts receivables is non-discretionary and $k = 0$ if all change is discretionary.

²⁸ In a recent study, Dechow et al. (2012) introduced a refinement to the time-series earnings management models based on the inherent property of accrual accounting that any accrual-based earnings management in one period must reverse in another period. Specifically, the approach adopted by Dechow et al. (2012) involves incorporating priors concerning the timing of the accrual reversal in time-series models. This approach is shown to significantly increase test power only if the priors about the reversal year are as accurate as the priors about the earnings management year and hence would particularly be useful when dealing with working capital accruals, compared to long-term capital expenditure accruals, as such accruals can be reasonably expected to reverse in one year (Dechow et al. 2012).

aggregate/total accruals approach, the specific accrual approach models the behaviour of each specific accrual to identify its discretionary as well as non-discretionary components. The non-discretionary component of accruals in the specific accrual approach is specified by the generally accepted accounting principles. This is an important advantage in the specific accrual approach as it readily develops the understanding amongst scholars of the fundamentals that should be reflected in the non-discretionary component (absent any earnings management/manipulation). The specific accrual approach has been previously used to detect earnings management by investigating managerial discretions through specific accrual accounts such as bad debt provisions (McNichols and Wilson 1988), depreciation (Teoh, Welch, and Wong 1998c), deferred tax expenses (Teoh, Welch, and Wong 1998c; Phillips, Pincus, and Rego 2003), claim loss reserves (Petroni 1992), and residual allowance for loan losses (Beaver and Engel 1996). The specific accruals approach allows researchers to estimate the relationship between the single accrual and explanatory factors directly and this can result in lower estimation errors in parameter estimates as compared to the aggregate accruals approach.²⁹

Beneish (1999a) estimated an “M-Score” model with eight financial statement ratios to capture the effects of manipulation (and preconditions that might prompt companies to engage in such activity) through several specific accruals and applied them to firms from different industries. The ratios used by Beneish (1999a) were days’ sales in receivables index, gross margin index, asset quality index, sales growth index, depreciation index, sales, general, and administrative index, leverage index, and total accruals to total assets.³⁰ Beneish (1999a) examined US firms that were identified as GAAP violators by SEC for the purposes of obtaining a sample of known manipulators and estimating coefficients to apply to selected ratios. The identified manipulators were then matched with a sample of non-manipulating firms. In an attempt to understand if the financial ratios chosen explained earnings manipulation, Beneish (1999a) regressed the dichotomous dependent variable (coded 1 for manipulators and 0 otherwise) upon the ratios. Beneish (1999a) found five of the eight ratios in the M-score model, namely, the days’ sales in receivables index,

²⁹ McNichols (2000) argues that if different components of aggregate accruals relate differently to explanatory factors (for example, change in sales), then aggregation can possibly induce estimation errors in parameter estimates.

³⁰ Beneish (1999a) designated seven of the eight ratios used in the M-score model as indexes since they were meant to capture distortions that could possibly arise from manipulation by making comparisons between financial statement measures in the year of the first reporting violation and those in the prior year. Please refer to Beneish (1999a) for a further discussion of the different financial ratios included.

gross margin index, asset quality index, sales growth index, and total accruals to total assets to be significantly correlated with earnings manipulation. The other three ratios, namely, leverage index, depreciation index, and sales, general, and administrative expenses index were suggested by Beneish (1999a) to be more inclined towards earnings management compared to earnings manipulation. The eight variables were weighted together to calculate the M-score. A score greater than -2.22 is indicative of a strong likelihood of a firm being a manipulator. Scholars have recommended the M-score model as it provides significant insights into (1) the methods used by management to exercise discretion and (2) the extent to which management exercises discretion over reported earnings (McNichols 2000; Penman 2001).

However, McNichols (2000) highlights a number of possible disadvantages associated with the specific accrual approach. First, managers could often use more than one accrual to manage earnings and the power of a specific accrual test for earnings management is compromised if it is unclear as to which accrual management might have used to manage earnings. This suggests that it is absolutely crucial for specific accrual reliability to reflect the exercise of discretion. Second, if the research objective is to examine the magnitude of prevalent earnings management rather than to test its association with hypothesized factors, then several separate models will be required for each specific accrual likely to be manipulated by management. Third, the specific accrual approach generally requires more institutional knowledge and data which can make it costlier compared to the aggregate accruals approach. Fourth, there may be far fewer firms with a managed specific accrual compared to aggregate accruals and this limits the generalizability of the findings of specific accrual studies. The identification of earnings management behaviour may also be precluded if specific accruals are not sufficiently sensitive.

2.3.3.3 Earnings distribution

The pooled, cross-sectional distribution of reported earnings approach (hereafter noted as the earnings distribution approach) to assess evidence of earnings management behaviour was first introduced by Hayn (1995) and further developed by Burgstahler and Dichev (1997). This approach allows researchers to examine distribution of reported earnings around key earnings benchmarks to observe discontinuities in distribution. Many executives indicate that they would manage

earnings within the norms of GAAP to achieve earnings benchmarks (Graham, Harvey, and Rajgopal 2005). If managers engage in the practice of earnings management to beat earnings benchmarks, then the discontinuity in the distribution of earnings must exhibit a substantially low (high) frequency of earnings reports in a small interval just below (at/above) the threshold. A number of scholars have found the discretion exercised by managers to cause distribution of reported earnings to be discontinuous around thresholds (such as zero earnings, prior period's earnings, or analyst consensus forecasts of earnings), thereby attributing earnings discontinuities to earnings management (Hayn 1995; Burgstahler and Dichev 1997; DeGeorge, Patel, and Zeckhauser 1999; Donelson, McInnis, and Mergenthaler 2013). For instance, Burgstahler and Dichev (1997) find that for cross-sectional distributions of earnings changes and earnings there are unusually low frequencies of small decreases in earnings and small losses while unusually high frequencies of small increases in earnings and small positive income. In a similar vein, Donelson, McInnis, and Mergenthaler (2013) find evidence of a significant discontinuity in the respective distributions near earnings benchmarks (that is, analysts' consensus forecast, prior-year earnings, and the zero-profit benchmark) when earnings are plotted on a post-managed basis.

McNichols (2000) asserts the earnings distribution approach to be a powerful mechanism in detecting earnings management as it allows researchers to make strong predictions about the frequencies of earnings realizations which are unlikely to result from non-discretionary component of earnings. In other words, the earnings distribution approach can infer earnings management behaviour without being subjected to the measurement errors and model misspecification problems inherent in accrual-based earnings management studies.

However, Dechow and Skinner (2000, p.239) highlight a significant problem with the earnings distribution approach by arguing that it is "difficult absent some objective evidence of intent, to distinguish earnings management from the legitimate exercise of accounting discretion." For instance, Holland and Ramsay (2003) use the earnings distribution approach in the Australian context and find evidence indicating significantly more small earnings increases and small profits than expected and considerably fewer small earnings decreases and small losses than expected. After performing further exploratory analyses, Holland and Ramsay (2003) find that these

discontinuities represent management's legitimate signaling of inside information about the firm's future profitability rather than manipulation of financial reporting process (earnings management).

Scholars have since pointed out factors which without invoking discretionary behaviour could result in discontinuities near earnings benchmarks (Dechow, Richardson, and Tuna 2003; Durtschi and Easton 2005; Beaver, McNichols, and Nelson 2007; Durtschi and Easton 2009). For instance, Durtschi and Easton (2005, 2009) assert that the discontinuity in distribution of earnings can be possibly induced based on scaling by market value of equity as firms on either side of relevant benchmark (for example, profit versus loss firms) have different market valuation. Furthermore, Durtschi and Easton (2005, 2009) indicate that the sample selection criteria such as requiring lagged market value of equity or analyst coverage in some studies could result in the overinclusion or overexclusion of firms on either side of the relevant benchmarks, resulting in a spurious discontinuity in the distribution of earnings. Finally, Beaver, McNichols, and Nelson (2007) contend that special items and asymmetric accounting treatment of taxes brings about discontinuity at the profit/loss threshold.³¹

In a recent study, Li (2014) finds the earnings discontinuity phenomenon depends on the time-series property of firms' earnings and thus varies across firms. Li (2013) fails to observe earnings discontinuities for firms with negatively or (relatively) weakly positively autocorrelated earnings. In contrast, Li (2013) finds that earnings discontinuities are more pronounced for firms with more positively autocorrelated earnings (that is, higher autocovariance or lower variance).

2.3.3.4 Real transactions

Schipper (1989) was one of the first scholars to consider that earnings management can be done through altering real business activities. Schipper (1989, p.92) includes real earnings management in her definition of earnings management and describes earnings management as "a purposeful intervention in the external financial reporting process, with the intention of obtaining some private gain...[a] minor extension of this definition would encompass "real" earnings management,

³¹ Effective tax rates being higher for profit firms cause a disproportionate shift of profit observations to regions just above zero, while the magnitude and frequency of negative special items being higher for loss firms cause a disproportionate shift of observations from regions just below zero to larger losses.

accomplished by timing investment or financing decision to alter reported earnings or some subset of it.” More recently, Roychowdhury (2006, p.336) defined real activities manipulation as “...management actions that deviate from normal business practices, undertaken with the primary objective of meeting certain earnings thresholds.” Compared to accrual-based earnings management activities, real activities manipulations have direct cash flow consequences (in addition to affecting accounting accruals), are generally more difficult for average investors to understand³², and are normally less subjected to monitoring and scrutiny by board of directors, auditors, regulators, and other outside stakeholders. Real earnings management has been argued to impose greater long-term costs on managers and shareholders as compared to accruals-based earnings management since it results in negative consequences on future cash flows and possibly hurts firm value in the long run (Peasnell 1998; Peasnell, Pope, and Young 2000b; Roychowdhury 2006; Cohen, Dey, and Lys 2008; Cohen and Zarowin 2010). For instance, Cohen and Zarowin (2010) find firms engaging in real earnings management to be associated with overinvestment issues which have the potential to adversely affect firms’ long-term prospects.

Managers generally practice real earnings management by altering the timing and scale of real activities such as production, sales, investment, and financing activities throughout the accounting period in such a manner that a specific earnings target can be met. Earlier research in the field of real earnings management generally focused on managers’ cutting discretionary (specifically, research and development (R&D)) expenditures (Baber, Fairfield, and Haggard 1991; Dechow and Sloan 1991; Bushee 1998; Bens, Nagar, and Wong 2002; Cheng 2004) or altering the timing of asset sales (Bartov 1993; Herrmann, Inoue, and Thomas 2003) for the purpose of meeting short-term goals. Subsequently, Roychowdhury (2006) found evidence of firms engaging in multiple real earnings management methods to meet certain financial reporting benchmarks to avoid reporting annual losses. Specifically, Roychowdhury (2006) found that managers avoid reporting annual losses by offering price discounts to temporarily increase sales, overproducing to report lower cost of

³² While finding changes in the level of real activities (such as increases in inventory) may be easier than finding changes in the level of accruals, the challenge is for investors to distinguish whether the revealed change in real activities level is the result of normal business adjustments or managerial opportunism. Investors can distinguish between normal accruals and opportunistic accruals with less difficulty by referring to audit reports since external auditors have an expertise in this area. Unfortunately, auditors cannot help investors in a similar way with regards to real earnings management since real earnings management does not fall within the jurisdiction of financial statement auditing.

goods sold, and reducing discretionary expenditures (R&D expenses, advertising expenses, and selling, general, and administrative (S,G&A) expenses) to improve reported margins.³³ Roychowdhury (2006) developed empirical models to separate normal from abnormal levels of real operational activities as reflected in cash flow from operations (CFO), production costs, and discretionary expenditures. Following the work of Roychowdhury (2006), a number of scholars working on real earnings management issues have provided evidence supporting that, while the normal levels of real activities are associated with optimal operational decisions, the abnormal levels of real activities are associated with suboptimal decisions based on managerial opportunism to boost reported earnings (Cohen and Zarowin 2010; Gunny 2010; Roychowdhury, Kothari, and Mizik 2012; Kim and Sohn 2013).

A number of studies have focused on examining whether managers use real earnings management as a substitute or complement to accruals-based earnings management when forming strategic decision on timing and magnitude of earnings manipulation. Survey studies in the US (Bruns and Merchant 1990; Graham, Harvey, and Rajgopal 2005) and UK (Demirag 1995; Grinyer, Russell, and Collison 1998) have generally indicated a preference for real actions over purely accounting decisions to manipulate earnings. For instance, Graham, Harvey, and Rajgopal (2005) show that a large majority of top executives surveyed were willing to delay the timing of new investment projects to meet or beat earnings benchmarks such as zero earnings, previous period's earnings, and analyst forecasts.

There are at least two good reasons for this greater managerial willingness to manage earnings through real activities than through accruals. First, the opacity of real earnings management is less likely to draw auditor or regulatory scrutiny (Ewert and Wagenhofer 2005; Cohen, Dey, and Lys 2008; Cohen and Zarowin 2010; Chi, Lisic, and Pevzner 2011). For instance, Cohen, Dey, and Lys (2008); Cohen and Zarowin (2010); and Chi, Lisic, and Pevzner (2011) find that firms were heavily involved in accruals-based earnings management in the pre-SOX period but this involvement significantly declined after the passage of SOX with a shift towards real earnings management since SOX made accruals-based management more costly than real earnings management. These studies support the findings of Ewert and

³³ Roychowdhury (2006) find factors such as level of investor sophistication, industry membership, the stock of inventories and receivables, growth opportunities, and the presence of debt affect variation in real activities manipulation.

Wagenhofer (2005), who demonstrate that managers switch from accruals-based earnings management to real earnings management in an environment of tightened accounting standards and/or more stringent enforcement. Second, scholars have previously argued that there is a risk involved in relying on accrual manipulations alone since if after the end of the fiscal period the realized shortfall between unmanaged earnings and desired threshold exceeds the amount by which it possible to manipulate accruals, managers will be left with no choice since real activities cannot be adjusted at/after the end of the fiscal reporting period (Cohen and Zarowin 2010).

However, Peasnell, Pope, and Young (2000b) point out that the reversals from accruals are less costly than the use of sub-optimal operating strategies, and consequently a less aggressive form of earnings management and thus, a preferred resource to manage earnings to temporarily boost reported profit. On examining the earnings quality of a large sample of UK failed firms in the four years before failure, Lara, Osma, and Neophytou (2009) find that managers resort to both accruals-based manipulation and real activity manipulation, but engage in more real activities manipulation only when the failure probability is high. This finding supports the argument by Peasnell, Pope, and Young (2000b) that managers perceive real activities manipulation as more costly, and use it only under circumstances where the available accounting discretion has been used up.

On examining the sequentiality of decisions associated with engaging in real earnings management and accruals-based earnings management, Zhang (2012) finds that managers make real earnings management decision during the fiscal year before the accruals-based earnings management decisions around the year-end. Furthermore, Zhang (2012) finds that while managers engage in both accruals-based earnings management and real earnings management, the two methods are substitutes for each other. In a similar vein, Matsuura (2008) also finds accruals-based earnings management and real earnings management to be sequential but complementary in income smoothing.

Results from aforementioned studies, taken as a whole, suggest that managers consider the potential costs associated with their choice between accruals-based

earnings management and real earnings management when deciding upon earnings management strategies to be adopted.

2.3.4 Incentives to manage earnings

Empirical literature highlights four sets of incentives that incite the practice of earnings management: (1) capital markets incentives, (2) meeting or beating earnings benchmarks, (3) contractual arrangements, and (4) regulatory motivations.

2.3.4.1 Capital markets incentives

Capital market incentives to engage in earnings management practices include implementing management buyout plans, initial public offerings, seasoned equity offerings, and merger plans to meet earnings forecasts or to smooth income.

Management buyouts (MBOs) are a form of leveraged buyouts wherein the management team is a part of the investment group buying the firm.³⁴ The fiduciary role of management is to represent stockholders and perform their legal duty to seek the best possible price for the firm. However, separation between ownership and control leads management personnel to act on their own behalf and seek a favourable purchase price for the proposed buyout (DeAngelo 1986). Prior research has generally found that the personal economic stake motivates management to engage in the practice of income-decreasing earnings management to depress pre-buyout accounting earnings to portray a less favourable picture of the firm (Perry and Williams 1994; Wu 1997; Fischer and Louis 2008; Mao and Renneboog 2013). For instance, Wu (1997) found that on average, earnings manipulation prior to MBOs decreased the acquisition price by 18.6%. Ang, Hutton, and Majadillas (2014) confirm that managers tend to manipulate earnings downwards if they continue to have a strong equity tie with the targets after the buyout. Perry and Williams (1994) document that such an earnings management strategy offers two possible benefits: (1) shareholders are likely to accept a lower buyout price; and (2) in the likelihood of a legal challenge to the managers' role in the transaction, the lower reported earnings in the period(s) preceding the buyout can be used to provide support for the fairness of the buyout price.³⁵

A number of scholars have also provided evidence of accruals management when firms raise capital through either the initial public offering process (Aharony,

³⁴ Other members of the investment group could possibly comprise of buyout specialists and/or investment banks.

³⁵ In relation to the surging MBO activity of the 1980s in the US, virtually every buyout proposal was contested by shareholders claiming that they were cheated (Longstreth 1984; Mason 1984).

Lin, and Loeb 1993; Friedlan 1994; Teoh, Welch, and Wong 1998b; Morsfield and Tan 2006) or the seasoned equity offering process (Rangan 1998; Teoh, Welch, and Wong 1998a; Shivakumar 2000; DuCharme, Malatesta, and Sefcik 2004), reflecting that incentives influencing equity market valuations affect accounting choices (in particular accrual choices) of firms. Recently, Cohen and Zarowin (2010) find the presence of a high quality auditor, long auditor tenure, high-litigation industry, and high level of a firm's net operating assets to be associated with firms engaging more in real earnings management (captured by abnormal levels of cash flows from operations, discretionary expenses (advertising, R&D, and S,G&A), and production costs) than in accrual-based earnings management around seasoned equity offerings. In a similar vein, Roychowdhury, Kothari, and Mizik (2012) find overvaluation at the time of a seasoned equity offering is more likely when managers actively engage in more costly opaque channels to overstate earnings as offered by real activities manipulation.

In mergers and stock-for-stock acquisitions, it is logical to expect that acquiring firms would inflate earnings in order to transfer as little stock as possible to finance the transaction.³⁶ Ronen and Yaari (2010, p.153) assert that "Since the shareholders of the acquirer have to ratify the deal, such an earnings management strategy is consistent with their preference against diluting their ownership." A number of empirical studies provide evidence suggesting that acquirers in stock-for-stock mergers manage earnings ahead of their planned acquisitions (Erickson and Wang 1999; Louis 2004; Botsari and Meeks 2008; Gong, Louis, and Sun 2008). For instance, Erickson and Wang (1999) find evidence that acquiring firms in the US manage earnings upwards prior to stock-for-stock merger and that the degree of income-increasing earnings management is positively associated with the relative size of the merger. In another US study, Louis (2004) documents strong evidence suggesting that acquiring firms overstate their earnings in the quarter preceding a stock swap announcement. Furthermore, Gong, Louis, and Sun (2008) find a positive association between stock-for-stock pre-merger earnings announcements and post-

³⁶ Erickson and Wang (1999) elaborate on the incentive for earnings management by a merger acquirer. A stock-for-stock merger involves an exchange between the shares of an acquiring firm (acquirer) and shares of a target firm (target) with target shareholders receiving a specified number of acquirer shares for each of the target shares. One of the first steps in a merger transaction involves an agreement being reached between the acquirer and the target on the purchase price. Subsequently, the share exchange ratio or the number of acquirer shares to be issued and exchanged for each target share is determined by the price of the acquirer stock when the merger agreement is reached, given the agreed upon purchase price. Consequently, the higher the price of the acquirer stock on agreement date, the smaller will be the number of shares required by the target (that is, the share exchange ratio). This relationship between acquirer stock price and share exchange ratio provides an incentive for an acquirer to manage earnings to increase the share price pre-merger. A smaller exchange ratio minimizes earnings dilution, stock dilution, and the overall acquisition cost to the acquirer.

merger lawsuits in the US. On examining bidders in share for share mergers on the London Stock Exchange, Botsari and Meeks (2008) find that bidders manage earnings ahead of share-financial bids.

2.3.4.2 Meeting or beating earnings benchmarks

Managing earnings to achieve market expectations is one way to avoid adverse market reactions to earnings disappointment.³⁷ Survey-based studies in the US (Graham, Harvey, and Rajgopal 2005) and the UK (Choi, Young, and Walker 2006) show evidence that meeting or beating earnings benchmarks such as zero earnings, previous period's earnings, and analyst forecasts are fundamental earnings targets. Empirical literature highlights a number of capital market and managerial incentives to meet or beat earnings expectations.

First, firms receive a market premium for beating earnings expectations (Barth et al. 1999; Bartov, Givoly, and Hayn 2002; Kasznik and McNichols 2002; Lopez and Rees 2002). For instance, Barth et al. (1999) find evidence that earnings multiples (price-earnings ratio) monotonically increase with the length of increasing earnings patterns and the market penalizes firms that break such a pattern. On regressing stock prices on book values, the estimated present value of future abnormal income, and a dummy variable capturing whether expectations were met, Kasznik and McNichols (2002) find that firms which consistently (that is, over three successive years) meet earnings expectations enjoy a valuation premium. Similarly, Bartov, Givoly, and Hayn (2002) find that firms that habitually beat earnings expectations (in at least nine of the most recent twelve quarters) receive an additional premium over those firms that occasionally beat earnings expectations.

Second, firms that fail to meet earnings benchmarks/analyst consensus forecasts are penalized by investors by being subjected to negative stock price reactions and plummeting stock prices (Barth et al. 1999; DeFond and Park 2001; Skinner and Sloan 2002). Skinner and Sloan (2002) find that while growth stocks are at least as likely to announce both negative earnings surprises as positive earnings surprises, they exhibit an asymmetrically large negative price response to negative earnings surprises.

³⁷ The earnings distribution approach which reflects on the discontinuity in the distribution of reported earnings (described in section 2.3.3.3) has been widely studied to obtain evidence on benchmark beating in earnings management literature.

Third, target based incentive plans are most common incentive schemes used in determining CEO compensation (Holland and Ramsay 2003). Ke (2001) links beating profits and previous year's earnings behaviour with CEO compensation and points out that CEO compensation incentive formed one set of economic determinants of benchmark beating behaviour. Modern executive compensation plans generally include cash components (salary and bonuses) and equity-based portion (restricted stock/stock options). Matsunaga and Park (2001) find that when the firm's quarterly earnings fall short of the consensus analyst forecast there is a significant incremental adverse effect on CEO bonuses. Similarly, Mergenthaler, Rajgopal, and Srinivasan (2012) find that CEOs and CFOs who just miss the latest consensus analyst forecasts are penalized with bonus cuts. Further, Cheng and Warfield (2005) find that executives who are given more equity-based compensation are more likely to meet or just beat analysts' quarterly earnings targets.

Fourth, Richardson, Teoh, and Wysocki (2004) find that managerial incentives to sell stock on firm's behalf (through new equity issuance) or from their personal accounts (through option exercises and stock sales) guide analysts' expectations downwards before earnings announcement, and later beat the "walked-down" expectations at earnings announcement in order to obtain the highest possible share price during equity issuance or stock sale on their personal accounts.

Finally, there is a career concern motivation amongst managers to meet earnings expectations. Graham, Harvey, and Rajgopal (2005, p.13) state that "Repeatedly failing to meet earnings benchmarks can inhibit the upward or intra-industry mobility of the CFO or CEO because the manager is seen either as an incompetent executive or a poor forecaster." Dikolli, Mayew, and Nanda (2009) find the number of past quarterly performance surprises in the form of earnings decreases, negative analysts' forecast errors, and negative stock returns to be positively associated with the likelihood of CEO dismissal.³⁸ Similarly, Mergenthaler, Rajgopal, and Srinivasan (2012) find that CEOs and CFOs who just miss the latest consensus analyst forecasts are penalized through forced turnovers.

³⁸ Dikolli, Mayew, and Nanda (2009) find that the likelihood of forced CEO turnover, subsequent to the failure to meet or beat benchmarks, is negatively associated CEO tenure.

2.3.4.3 Contractual arrangements

Contractual agreements in prior earnings management research have been studied by looking at the executive compensation contracts as well as debt contracts.

The executive compensation contract has been shown in extant literature to stimulate earnings management behaviour with the executives of the firm looking to maintain and/or increase earnings-based compensation (for example, bonus plans) or equity based compensation (for example, executive stock options) (Pourciau 1993; Gaver, Gaver, and Austin 1995; Holthausen, Larcker, and Sloan 1995; Healy and Wahlen 1999; Bergstresser, Desai, and Rauh 2006; Meek, Rao, and Skousen 2007; Camara and Henderson 2009; Cheng, Warfield, and Ye 2011). For instance, Meek, Rao, and Skousen (2007) find a positive association between earnings management and CEO stock option compensation where stock options are a large part of CEO compensation and that stock options exacerbate earnings management in firms with growth opportunities. Using discretionary component of loan loss provision as a measure of earnings management in the banking industry, Cheng, Warfield, and Ye (2011) find that bank managers with high equity incentives are more likely to manage earnings, but only when capital ratios are closer to the minimum regulatory capital requirements.

On examining debt contracts, a large number of scholars find an association between earnings management and debt covenant violations (McNichols and Wilson 1988; Press and Weintrop 1990; Beneish and Press 1993; Smith 1993; DeAngelo, DeAngelo, and Skinner 1994; DeFond and Jiambalvo 1994; Sweeney 1994; Jaggi and Lee 2002; Jha 2013). For instance, Jaggi and Lee (2002) find managers of financially distressed firms use income-increasing earnings management if they are able to obtain waivers for debt covenant violations, while use income-decreasing earnings management if debt restructuring takes place or debts are renegotiated because waivers are denied. In a recent study using a large sample of quarterly data, Jha (2013) finds that managers use income-increasing earnings management in the quarters preceding a debt-covenant violation, while use income-decreasing earnings in the quarter a violation occurs and continue to manage earnings downwards until the firm remains in violation to improve bargaining power in the renegotiation that follows the violation.

2.3.4.4 Regulatory motivations

Prior literature also shows that regulatory factors motivate managers to engage in the practice of earnings management.

Empirical research in US and Australia generally finds that acute pressures from regulatory authorities regarding price controls lead managers of firms to exhibit income-decreasing earnings management practices as a manoeuvre to appear less profitable and reduce regulatory/political costs (Jones 1991; Cahan 1992; Key 1997; Han and Wang 1998; Lim and Matolcsy 1999; Monem 2003). For instance, studies in the US that examined the effect of costs due to political activity found income-decreasing earnings management practices to be prevalent around periods of import restriction hearings (Jones 1991) and antitrust investigations (Cahan 1992). Watts and Zimmerman (1986, P.362) hypothesize that “consumer product firms with rapid product price increases are more politically susceptible than other firms and therefore more likely to change accounting procedures to reduce reported profits.” Studies by Key (1997) and Han and Wang (1998) were amongst the first few US studies to test the effects of political costs arising from rapid consumer product price increases. Key (1997) finds that during periods of congressional scrutiny subjected to the cable television industry, greater income-decreasing earnings management behaviour was exhibited by firms for which proposed regulations were expected to be more harmful and firms for which cable television operations were more important. Han and Wang (1998) find that oil firms that expected to profit from the 1990 Persian Gulf crisis used accruals to reduce their reported quarterly earnings and, thus, political sensitivity during the Gulf crisis. In a similar vein, Australian studies provide evidence on income-decreasing earnings management being exercised by firms subject to product price controls instituted in early 1970’s (Lim and Matolcsy 1999) and by gold mining firms subject to intense political scrutiny in the early 1980’s (Monem 2003).

In the Chinese jurisdiction where the government has a strong control over capital markets, scholars such Chen and Yuan (2004) and Haw et al.(2005) found evidence of income-increasing accounting accruals for the period 1996 to 1998 wherein the China Securities Regulatory Commission (CSRC) required the accounting rate of return on equity to be greater than ten percent for three

consecutive years for a firm to qualify for stock right offers.³⁹ Furthermore, Chen, Wang, and Zhao (2009) find that Chinese firms employ asset reversals as a primary earnings management tool to reduce or avoid the possibility of trading suspension or de-listing because of profitability-based regulations in China. More recently, Hu et al.(2012) provide further evidence that policies issued by the CSRC can induce managers of listed firms to engage in earnings management to either meet requirements (for example, refinancing) or to avoid negative consequences (for example, delisting).

Regardless of the specific incentives which drive managers to manipulate earnings, the occurrence of earnings management implies conflicts of interest between managers and owners (Chang, Shen, and Fang 2008). In line with agency theory⁴⁰, separation between ownership and control will lead managers to exercise earnings manipulation behaviour to maximize personal interests thus influencing earnings informativeness (Koh 2003).

2.3.5 Impact on earnings quality

As discussed in subsection 2.3.2, earnings management is a practice wherein shareholders choose an accounting treatment that is either economically efficient or opportunistic to maximize their own utility. Referring to the definition by Watts and Zimmerman (1990), Fields, Lys, and Vincent (2001, p.260) assert that earnings management occurs “when managers exercise their discretion over the accounting numbers with or without restrictions. Such discretion can either be firm value maximizing or opportunistic.” Since this study captures earnings management behaviour through the manipulation of accruals, this subsection discusses the impact of opportunistic earnings management on earnings quality.

The practice of aggressive earnings management by opportunistic managers hides the underlying economic reality of a firm’s assets, transactions, or financial position and has serious implications for key stakeholders including shareholders,

³⁹ A rights issue is the only primary source for Chinese listed firms to raise additional capital after initial public offerings since these firms are unable to raise capital by issuing corporate bonds or offering seasoned shares as a result of regulatory constraints. This creates strong incentives for managers to manage earnings to meet the ten percent ROE regulatory framework.

⁴⁰ Agency theory helps predict behaviour when one individual (the principal) delegates work to another individual (the agent) with the expectation that the agent will make decisions that are in the best interest of the principal (Jensen and Meckling 1976; Eisenhardt 1989). In the case of companies, the owners or shareholders (principals) employ directors and managers (agents) to conduct the company’s business in the interests of the owners. These managers assume a stewardship function and are, therefore, expected to manage the company in the best interests of the principals. However, given the information asymmetry and differing interests (such as financial rewards and employment opportunities) between principals and agents, agents may pursue self-interest to the detriment of the company and the principals (Jensen and Meckling 1976). This concern about information asymmetries and differing motivations between agents and principals, therefore, leads to reservations about the reliability of information produced by the agents.

creditors, employees, and society as a whole (Zahra, Priem, and Rasheed 2005). Since decisions made by managers have a direct impact on all stakeholder groups, Hill and Jones (1992) view managers to be stakeholders' agents and not just shareholders' agents.

Earnings management behaviour exhibited by managers is related to agency theory since managers can create or aggravate agency costs and lead shareholders to make non-optimal investment decisions. Using three measures of earnings management, namely, earnings aggressiveness, loss avoidance, and earnings smoothing across 34 stock exchanges, Bhattacharya, Daouk, and Welker (2003) find earnings management to adversely affect the cost of equity and trading in the stock market. Scholars such as Morsfield and Tan (2006) and Chen, Lin, and Lin (2008) find that earnings management is significantly and positively related to stock overvaluation prior to the offerings.⁴¹ Furthermore, scholars also find that large discretionary accruals, subjected to managerial opportunism, used to inflate earnings to temporarily boost stock prices are negatively related to the post-issue stock performance (Friedlan 1994; Rangan 1998; Teoh, Welch, and Wong 1998c; Teoh, Wong, and Rao 1998; DuCharme, Malatesta, and Sefcik 2004; Jo and Kim 2007). Investors may overvalue new issues by misinterpreting high earnings at the time of offerings. In the event that shareholders become suspicious on the presence of earnings manipulation behaviour, a firm becomes immediately subjected to a loss in stock market value (Dechow, Sloan, and Sweeney 1996).

A loss in investor confidence and stock market value has a negative impact on a firm's credit ratings (Shen and Huang 2013).⁴² In addition to deciding on credit approval, lenders consider the credit ratings of a firm for pricing, monitoring, and risk provision purposes (Norden and Weber 2004). Bond markets (together with related derivatives and stock markets) are considered to be credit risk sensitive markets (Norden and Weber 2004). A fall in credit ratings results in lost value of issued bonds and hence affects a bondholder's wealth (Kisgen and Strahan 2009). Similarly, banks that may lend money based on inflated forecasts would face problems recovering loans (DeFond and Jiambalvo 1994).

⁴¹ The findings of Morsfield and Tan (2006) and Chen, Lin, and Lin (2008) are in line with Jensen's (2005) agency theory of overvalued equity.

⁴² Credit ratings have achieved increasing significance in debt contracts as a result of being considered efficient benchmarks of credit quality (Frost 2006).

On examining the association between earnings management and labor costs, D'Souza, Jacob, and Ramesh (2000) find that managers reduce reported earnings during labor union contract negotiations (compared to earnings released before and after the contracts are negotiated) with the intent to reduce renegotiated labor costs. Hence, lower quality and unreliable earnings resulting from earnings management practices also have adverse effects on employees as a stakeholder group.

Earnings manipulation behaviour may subject a firm to rogue employee behaviour, customer misunderstandings, partner defections, community illegitimacy, and pressures placed from investors (Baron 2001; Feddersen and Gilligan 2001; John and Klein 2003; Zahra, Priem, and Rasheed 2005). These severe threats may ultimately destroy the reputation capital of the firm (Fombrun, Gardberg, and Barnett 2000).

2.3.6 Determinants of earnings management

Prior research has identified a number of determinants influencing earnings management practices (Francis and Schipper 1999; Sánchez-Ballesta and García-Meca 2007). These determinants can be classified into three broad categories: (1) firm related factors; (2) corporate governance related factors; and (3) regulators, legislators, and key stakeholders.

2.3.6.1 Firm related factors

Prior literature has examined the variation in earnings management against a number of firm characteristics. Specifically, the influence of firm size, firm growth and investment, firm performance, firm debt, firm capital intensity, firm lagged total accruals, and firm operating volatility has been reported on earnings management behaviour. Besides firm-level characteristics, industry sectors and their contribution to a higher (lower) propensity for earnings management has also been examined in prior literature (Hall and Stammerjohan 1997; Monem 2003).

The impact of firm size on earnings management practices returns mixed results. One stream of scholars have found large firms to more likely engage in earnings management to reduce political/regulatory scrutiny (Jensen and Meckling 1976; Watts and Zimmerman 1978, 1986, 1990), to minimize income tax (Manzon 1992), to meet earning benchmarks (Das, Levine, and Sivaramakrishnan 1998), and to overstate earnings prior to seasoned equity offerings (Rangan 1998). However, another stream of scholars have found that smaller firms, being subjected to a less

strict scrutiny as opposed to larger firms, have increased level of managerial opportunism and internal control deficiencies resulting in increased intentional income-increasing or income-decreasing earnings management behavioural practices (Bathke, Lorek, and Willinger 1989; Sloan 1996; Koh 2003; Holland and Jackson 2004; Sánchez-Ballesta and García-Meca 2007; Simpson 2013).

Scholars have generally found that high-growth firms encourage earnings management behaviour. In line with contracting theory⁴³, several scholars have found managers in high-growth firms to more likely engage in opportunistic behaviour through the use of “intentionally biased accruals” since these firms generally have a weak internal control environment (Watts and Zimmerman 1986; Andersen, Francis, and Stokes 1993; Skinner 1993; Richardson et al. 2005; Doyle, Ge, and McVay 2007a, 2007b; Sun and Rath 2009; Graham and Moore 2013). Growth opportunities lead managers to smooth earnings for many reasons, such as to avoid an adverse effect on the cost of capital (Beaver, Kennelly, and Voss 1968); to abstain from reporting negative earnings surprises and meet earnings benchmarks (Skinner and Sloan 2002); and to assure availability of funds by hedging cash flows (Pincus and Rajgopal 2002).

In terms of firm performance, a large body of literature finds that poorly performing firms engage in the practice of earnings management to avoid reporting decreases in earnings or negative earnings that may adversely affect a firm’s credit rating and cost of debt (White 1970; Kinney and McDaniel 1989; Petroni 1992; Ashari et al. 1994; Balsam, Haw, and Lilien 1995; Burgstahler and Dichev 1997; Burgstahler and Eames 1999; DeGeorge, Patel, and Zeckhauser 1999; Keating and Zimmerman 1999; Dechow and Skinner 2000; Moreira and Pope 2007; Doyle, Ge, and McVay 2007a; Sun and Rath 2009). However, some scholars suggest that opportunities to manage earnings can be limited by a firm’s sustained weak performance and that managers in profit firms have greater incentives to manage earnings for obtaining job security, securing lucrative compensation contracts, meeting time series benchmarks and analyst expectations, and receiving an incremental market credibility premium (DeAngelo, DeAngelo, and Skinner 1994;

⁴³ The contracting theory suggests that an increase in the proportion of firm value represented by investment opportunities is accompanied by a decrease in the observability of managerial actions since firms with more investment opportunities and greater access to positive net present value projects are more difficult to observe and monitor (Smith and Watts 1992; Gaver and Gaver 1993; Firth, Fung, and Rui 2007).

Fudenberg and Tirole 1995; Brown and Higgins 2001; Dopuch, King, and Schwartz 2003).

Empirical literature has returned mixed results when examining the relation between debt levels and direction of earnings management. Some scholars have found that high leverage firms engage in income-increasing earnings management to avoid debt covenant violations and meet the expectations of investors and lenders (Watts and Zimmerman 1978, 1986; DeFond and Jiambalvo 1994; Dechow and Skinner 2000). However, other scholars assert that managers of financially distressed firms would use income-decreasing earnings management to reduce reported earnings and highlight the firm's financial difficulties for reasons, such as to obtain better terms in contract renegotiations (DeAngelo, DeAngelo, and Skinner 1994) and to attribute the firm's distressed financial condition to the previous management (Charitou, Louca, and Vafeas 2007). Still other scholars find no association between the magnitude of earnings management and leverage and suggest that higher leverage constrains a firm's capacity, in terms of available free cash flows, to invest in non-value maximizing projects and, hence, managers do not have to engage in the practice of upward or downward earnings management to hide poor performance (Jensen 1986).

Firm capital intensity⁴⁴ has been widely used in earnings management literature (Kinnunen, Kasanen, and Niskanen 1995; Hermann and Inoue 1996; Leuz, Nanda, and Wysocki 2003; Bergstresser and Philippon 2006; Jalil and Rahman 2010). Using US data, scholars have generally found that firms with a lower capital intensity exhibit greater earnings management through manipulating working capital and discretionary accruals (Burgstahler and Dichev 1997; Francis, Maydew, and Sparks 1999; Francis and Schipper 1999; Young 1999; Zhou and Elder 2002). However, using Australian data, Sun and Rath (2009) do not find capital intensity to determine the scope of earnings management.

The time series of a firm's discretionary accruals is mean reverting, thereby suggesting that a higher level of lagged total accruals will limit a manager's ability to manage earnings in the current year. Lagged total accruals provide a measure for a firm's prior performance (Coulton, Ruddock, and Taylor 2007). Studies have generally found a significant negative association between levels of lagged total

⁴⁴ Empirical literature on earnings management has captured a firm's capital intensity either through its capital intensity ratio which has commonly been defined to be gross property, plant and equipment scaled by total assets (Francis, Hanna, and Vincent 1996; Leuz, Nanda, and Wysocki 2003) or by calculating the ratio of depreciation over sales (Zhou and Elder 2002).

accruals and the degree of earnings management practices exhibited by client firms (Dechow 1994; Dechow, Sloan, and Sweeney 1995; Koh and Hsu 2005; Krishnan, Su, and Zhang 2011). However, some prior studies fail to find a significant relationship between lagged total accruals and earnings management behaviour (Koh 2003; Coulton, Ruddock, and Taylor 2007).

It has been argued that greater the degree of operating volatility, lower the accrual quality on the basis that highly volatile environments are characterized by large forecast errors (Dechow and Dichev 2002). Prior literature has generally examined the impact of four operating volatility metrics, namely, sales volatility, cash flow volatility, earnings volatility, and accruals volatility on earnings management practices and found a positive association (Leuz, Nanda, and Wysocki 2003; Hribar and Nichols 2007; Gopalan and Jayaraman 2012).

A significant number of scholars have found that a firm's earnings management behaviour is influenced by the industry in which it operates (McNichols and Wilson 1988; Robbins, Turpin, and Polinski 1993; Cahan, Chavis, and Elemendorf 1997; Hall and Stammerjohan 1997; Key 1997; Han and Wang 1998; Navissi 1999; Beasley et al. 2000; Nelson et al. 2002; Monem 2003; Datta, Iskandar-Datta, and Singh 2013). Different industries have different risk profiles and this is clearly the case given different inherent risks (as evidenced by, for example, market betas). Industries may vary systematically for some of the ratios discussed earlier.

2.3.6.2 Corporate governance related factors

Sloan (2001, p.336) defines corporate governance as “the mechanisms that have evolved to mitigate incentive problems created by the separation of management and financing of business entities.” Prior research has investigated the influence of corporate governance factors such as board of directors, senior management, audit committees, external auditors, and IAF on earnings management. The majority of prior research examining the impact of corporate governance related factors on the level of earnings management reported by firms has returned mixed results.

A number of scholars find board of directors to be one of the most powerful and effective corporate governance mechanisms used for monitoring managerial behaviour towards increasing a firm's fair value (Abdullah 2004; Kao and Chen 2004; Adut, Duru, and Galpin 2011). Board independence, board size, board

diligence, board competence, and board gender diversity are commonly studied board characteristics in earnings management literature.

A large number of prior studies have found board independence to be negatively related to earnings management practices (Xie, Davidson, and Dadalt 2003; Davidson, Goodwin-Stewart, and Kent 2005; Hutchinson, Percy, and Erkurtoglu 2008; Lin and Hwang 2010; Frankel, McVay, and Soliman 2011). These studies support the agency theory perspective wherein researchers such as Fama and Jensen (1983a, 1983b) and John and Senbet (1998) document that outside directors (independent non-executive directors) serve as arbitrators to resolve agency problems between managers and shareholders by ensuring no collusion of the board with top management to expropriate stockholder wealth. In contrast, some studies find board independence to be unimportant or of limited importance from the perspective of curtailing earnings management (Park and Shin 2004; Peasnell, Pope, and Young 2005). These studies support the managerial hegemony theory which questions the capability of outside directors in performing monitoring and oversight roles based on the issues of real independence, devotion of time, and access to enough information (Mace 1986; Gilson and Kraakman 1991).

Next, scholars such as Chtourou, Bedard, and Courteau (2001) find board size to be negatively associated with earnings management practices and support the view that larger boards have an improved decision making ability by representing shareholders' interests, rather than being subjected to CEO domination, since these boards have more external linkages, greater ability to procure funding, and higher expertise and experience in running the business (Chaganti, Mahajan, and Sharma 1985; Dalton et al. 1999). In contrast, scholars such as Ching, Firth, and Rui (2002) and Abdul Rahman and Mohamed Ali (2006) find that earnings management practices increase with board size and support the view that smaller boards can make timely strategic decisions, have less difficulty in coordinating efforts, provide a better control function, and are not subjected to the bureaucratic politics associated with larger boards (Jensen 1993; Beasley 1996).

When investigating earnings management behaviour, prior literature has examined board competence in terms of non-executive director's expertise and non-executive director's tenure (Xie, Davidson, and Dadalt 2003). Directors who are officers of financial intermediaries, compared to ordinary outside directors, are sophisticated financially and have been found to help the board in constraining

earnings management practices (Chtourou, Bedard, and Courteau 2001; Xie, Davidson, and Dadalt 2003; Park and Shin 2004; Lin and Hwang 2010). Also, scholars such as Chtourou, Bedard, and Courteau (2001) find average tenure of outside directors to be negatively associated with the level of earnings management. This finding supports the view that independent non-executive directors that have served the board for a certain period may have developed better governance competencies as well as provided additional knowledge and expertise to the firm. This enables independent non-executive directors to better monitor managerial performance and financial reporting processes of the firm.

Finally, earnings management practices have also generally been found to be negatively associated with board diligence (Xie, Davidson, and Dadalt 2003) and board gender diversity (Srinidhi, Gul, and Tsui 2011).

Earnings management behaviour exhibited by senior management has extensively been studied around CEO change/turnover, CEO duality (CEO who also holds the position of the chairman of the board), and CEO compensation.

To begin with, a large number of studies have generally found CEO's projecting negative unexpected accruals in the period of CEO change and positive unexpected accruals in the subsequent year (Strong and Meyer 1987; Vancil 1987; DeAngelo 1988; Elliott and Shaw 1988; Murphy and Zimmerman 1993; Pourciau 1993; Charitou, Louca, and Vafeas 2007). This enables the new management team to attribute poor performance to its predecessors and earn stakeholders' confidence by attaining an initial set of performance targets in the first year or two. In Australia, earnings management around CEO changes has been documented to be a common practice (Business Australian, 24 April 2000, p.32). Earnings management studies around CEO changes in the Australian institutional context have separately examined CEO resignations and CEO retirements (Godfrey, Mather, and Ramsay 2003; Mather and Ramsay 2006). Godfrey, Mather, and Ramsay (2003) find evidence of negative earnings management in the year of CEO change and positive earnings management in the year after a CEO change for only a subsample of CEO resignations. In contrast, Mather and Ramsay (2006) find evidence of only negative earnings management in the year of CEO change for the subsample of CEO resignations. Further, Mather and Ramsay (2006) find evidence of negative earnings management in the year of CEO change and positive earnings management in the year after CEO change for subsample of CEO retirements. The two Australian studies together

suggest evidence of earnings management in the year of CEO change and the year after CEO change where the change in CEO could be either due to retirement or resignation.

Next, a number of scholars have argued that if the posts of the chairman and CEO are held by the same person, the CEO can control the information available to other board members and impede effective monitoring (Fama and Jensen 1983b; Jensen 1993; Dechow, Sloan, and Sweeney 1996; Abbott, Parker, and Peters 2004). This view point is supported by the proponents of agency theory (Blackburn 1994). In support of the corporate governance initiatives such as the ASX Best Practice Recommendations (ASX CGC, 2003) and the Malaysian Code on Corporate governance (MCCG) that do not encourage the practice of CEO duality, Australian and Malaysian studies find CEO duality to be positively related to earnings management behaviour (Saleh, Iskandar, and Rahmat 2005; Mather and Ramsay 2006). A few studies in the US support the positive association between CEO duality and earnings management (Dechow, Sloan, and Sweeney 1996; Davidson III et al. 2004). However, prior literature in the US context generally suggests that there is no financial performance differential or share market reaction to combining or separating the roles of chairperson and CEO and that CEO duality is the norm (Daily and Dalton 1994; Balinga, Moyer, and Rao 1996; Brickley, Coles, and Jarrell 1997; Daily and Dalton 1997).

Finally, a large body of empirical literature has shown the various components of a CEO's executive remuneration package including salary, bonuses, options, shares, and long-term incentive plans to be positively associated with earnings management practices (Jensen and Meckling 1976; Watts and Zimmerman 1978; Beneish and Vargus 2002; Baker, Collins, and Reitenga 2003; Cheng and Warfield 2005; Bergstresser, Desai, and Rauh 2006; Bergstresser and Philippon 2006; McAnally, Srivastava, and Weaver 2008). In a recent study, Adut, Holder, and Robin (2013) find CEO compensation levels (measured by salary, bonus, and other forms of compensation) to be positively associated with predictive earnings management (wherein discretionary accruals relate to future cash flows) while negatively associated with opportunistic earnings management (wherein discretionary accruals do not relate to future cash flows). They (Adut, Holder, and Robin 2013) suggest that firms provide more incentives if their earnings are also more informative based on discretionary accruals.

Earnings management behaviour has also been extensively studied around audit committees. An audit committee is one of the special committees established by the board with a primary objective of ensuring credibility in financial reporting (Treadway Commission 1987). Prior research has found mixed evidence on the association between audit committee formation and earnings management. While scholars such as Dechow, Sloan, and Sweeney (1996) and Baxter and Cotter (2009) find the formation of an audit committee to be negatively associated with earnings management, other scholars including Jeon, Choi, and Park (2004) and Peasnell, Pope, and Young (2005) fail to demonstrate a direct association between audit committee formation and earnings management. Independence, size, competence, and activity (frequency of audit committee meetings) are commonly studied audit committee characteristics in earnings management literature.

A large number of scholars find audit committee independence to have a positive impact on the audit committee's oversight role in independently assessing presented matters and protecting shareholders' interests while a negative impact on the earnings management behaviour (Klein 2002a; Xie, Davidson, and Dadalt 2003; Bedard, Chtourou, and Courteau 2004; Davidson, Goodwin-Stewart, and Kent 2005; Hutchinson, Percy, and Erkurtoğlu 2008). Klein (2002a) suggests that the critical threshold for the number of independent directors on the audit committee is 50 percent rather than 100 percent for audit committee independence to be negatively associated with earnings management. In contrast, Bedard, Chtourou, and Courteau (2004) find no significant effect for a committee composed of 50 – 99 percent independent directors, but a significant reduction in the likelihood of aggressive earnings management when 100 percent of members are independent. Some scholars including Baxter and Cotter (2009) and Choi, Jeon, and Park (2004) altogether fail to find a significant association between audit committee independence and earnings management.

Next, audit committee size is viewed as another important audit committee characteristic that may have an effect on earnings management. While some scholars find audit committee size to be negatively related to earnings management (Yang and Krishnan 2005; Ghosh, Marra, and Moon 2010), others fail to find a significant association between the two (Xie, Davidson, and Dadalt 2003; Bedard, Chtourou, and Courteau 2004; Davidson, Goodwin-Stewart, and Kent 2005; Baxter and Cotter 2009).

Further, sufficient competence in finance, accounting, or auditing held by members of audit committees has been argued to be crucial in providing an effective oversight (Beasley and Petroni 2001; Davidson, Xie, and Xu 2004; DeFond, Hann, and Xu 2005). Several prior studies have found a significant association between audit committee competence and earnings management (Xie, Davidson, and Dadalt 2003; Bedard, Chtourou, and Courteau 2004; Yang and Krishnan 2005; Baxter and Cotter 2009). However, some inconsistencies exist between the results of these studies. For instance, while Xie, Davidson, and Dadalt (2003) find a negative association between audit committee competence and earnings management, Baxter and Cotter (2009) find a positive association between the two. In addition, some studies have even failed to find an association between audit committee competence and the magnitude of earnings management (Van der Zahn and Tower 2004; Ghosh, Marra, and Moon 2010).

Finally, prior research examining the association between audit committee activity and earnings management has also found mixed results. While some scholars find a negative association between audit committee activity and earnings management (Xie, Davidson, and Dadalt 2003; Vafeas 2005), others have either failed to find a significant association or even found a positive association between the two (Bedard, Chtourou, and Courteau 2004; Choi, Jeon, and Park 2004; Davidson, Goodwin-Stewart, and Kent 2005; Ghosh, Marra, and Moon 2010).

A comprehensive meta-analysis was performed by Lin and Hwang (2010) to address the rather inconsistent empirical evidence in prior literature examining the effects of various corporate governance and audit committee variables on earnings management. Lin and Hwang (2010) found audit committee independence, size, competence, and activity to have a negative relationship with earnings management.

Empirical literature has also shown client's earnings management practices to generally have some association with four of the more commonly researched external auditor attributes, namely, brand name/Big-4 auditor (Reynolds and Francis 2000), industry specialist auditor (Balsam, Krishnan, and Yang 2003), provision of non-audit services (Reynolds, Deis, and Francis 2004), and auditor tenure (Myers, Myers, and Omer 2003).⁴⁵

An internal audit function is another important corporate governance mechanism that has been documented to improve a firm's risk management, control,

⁴⁵ The external auditor's impact on earnings management has been comprehensively discussed in chapter Three.

financial reporting, and governance processes (Wallace 1984; Turpin 1990; Brody and Kaplan 1996; Scarbrough, Rama, and Raghunandan 1998; Institute of Internal Auditors (IIA) 1999; Brody and Lowe 2000; Felix, Gramling, and Maletta 2001; Goodwin 2003; Hayland and Verrault 2003; Spira and Page 2003; Carcello, Hermanson, and Raghunandan 2005; Goodwin and Kent 2006; Gray, Koh, and Tong 2009). Empirical literature examining the impact of IAF on earnings management practices returns mixed results (Davidson, Goodwin-Stewart, and Kent 2005; Prawitt, Smith, and Wood 2009; Johl et al. 2013). Using six specific components to proxy for the quality of IAF (internal auditor average experience, proportion of professionally certified (CIA/CPA) internal auditors, training time during the year, IAF's focus on financial audit work, reporting status of the head of IAF, and IAF's size relative to its industry), Prawitt, Smith, and Wood (2009) find that IAF quality is associated with a moderation in the level of earnings management as measured by two separate proxies including abnormal accruals and the propensity to meet or barely beat analyst's earnings forecasts. In contrast, using a cross-sectional analysis of 434 firms listed on the ASX for the financial year ending in 2000, Davidson, Goodwin-Stewart, and Kent (2005) do not find any evidence suggesting that IAF reduces the level of earnings management.⁴⁶ In a recent Malaysian based study, Johl et al. (2013) find that the relationship between IAF and abnormal accruals is contingent on whether firms outsource their IAF and/or whether they are politically linked.

2.3.6.3 Regulators, legislators, and key stakeholders

A number of scholars (Davidson, Goodwin-Stewart, and Kent 2005; Krishnan et al. 2011) provide evidence that pressures from regulators and legislators have generally had a significant controlling effect on managerial opportunism. However, the impact of ownership structure in earnings management literature returns mixed results (Sánchez-Ballesta and García-Meca 2007; Siregar and Utama 2008). Such studies on ownership structure mainly concentrate on managerial ownerships and blockholder⁴⁷/institutional ownerships.

A number of scholars have shown accruals-based earnings management practices to be negatively associated with the implementation of governance reforms such as SOX in the US (Cohen, Dey, and Lys 2008; Davis, Soo, and Trompeter

⁴⁶ In the year 2000 in Australia, listed firms were not required to have an internal audit function.

⁴⁷ Blockholder ownership includes both individual investors as well as institutional investors (Cronqvist and Fahlenbrach 2008).

2009; Krishnan et al. 2011; Krishnan, Su, and Zhang 2011; Verleun et al. 2011) and CLERP 9 along with the Principles of Good Corporate Governance (PGC) and Best Practice Recommendations (BRC) (released by the ASX CGC in March 2003) in Australia (Hutchinson, Percy, and Erkurtoğlu 2008; Martinov-Bennie, Cohen, and Sinmnett 2011; Clout, Chapple, and Gandhi 2013; Hossain 2013). As discussed in subsection 2.3.3.4, the passage of SOX in the US has resulted in firms shifting from accruals-based earnings management practices to more opaque channels to overstate earnings as offered by real activities manipulation (Cohen 2008; Cohen and Zarowin 2010; Chi, Lisic, and Pevzner 2011). In Australia, scholars such as Clout, Chapple, and Gandhi (2013) have found the governance reforms to be significantly and negatively associated with earnings management practices of established firms⁴⁸ but not emerging firms.⁴⁹

Next, managerial ownership has been extensively studied in earnings management literature. Advocates of incentive alignment effect argue that CEO's stock ownership can lead to convergence of interests between managers and stockholders and that the CEO's deviate from the goal of shareholder wealth-maximization by consuming perquisites when they do not have an ownership stake in the firm (Jensen 1986). This implies that lower managerial ownership is associated with greater incentives to manage/manipulate accounting numbers to relieve or relax the behavioural constraints imposed in accounting-based contracts. In support of the incentive alignment effect, a number of studies have found a negative association between managerial ownership and earnings management practices (Dhaliwal, Salamon, and Smith 1982; Warfield, Wild, and Wild 1995; Klein 2002a; Ebrahim 2007). In contrast, advocates of entrenchment effect argue that high managerial ownership, represented by a lack of discipline where interests of managers and shareholders are not fully aligned, can increase managerial opportunism by giving managers the power to pursue their own objective without fear of punishment (Fama and Jensen 1983b; Weisbach 1988; Denis and McConell 2003). In support of the entrenchment effect, scholars such as Koh (2003) and Cheng and Warfield (2005) find firms with higher managerial ownership to be associated with more earnings management. Still other scholars like Peasnell, Pope, and Young (2005) find no direct relationship between managerial ownership and earnings management.

⁴⁸ Established firms, included in ASX top 100, are characterized by adequate capitalization which is necessary to become institutionally investable (Clout, Chapple, and Gandhi 2013).

⁴⁹ Emerging firms are small firms included in the ASX Small Ordinaries index (Clout, Chapple, and Gandhi 2013).

Hutchinson and Leung (2007) find a non-monotonic association between top management ownership and earnings management with an increasing ownership from low levels decreasing earnings management while ownership at high levels increasing earnings management.

Finally, the relationship between institutional investors (INSTs)/blockholders and earnings management behaviour has also been investigated by many studies. Advocates of agency theory suggest large INSTs/blockholders to be essential monitoring mechanisms with adequate power, resources, and ability to monitor and discipline the behaviour of management personnel (Jensen and Meckling 1976; Coffee 1991; Black 1992a, 1992b; Persons 2006). In support of this view, a stream of scholars find INSTs/blockholders to be negatively associated with earnings management (DeFond and Jiambalvo 1991; Dechow, Sloan, and Sweeney 1996; Bange and De Bolt 1998; Chung, Firth, and Kim 2002; Koh 2003; Ayers, Jiang, and Yeung 2006; Ebrahim 2007; Xu, Taylor, and Dugan 2007; Cornett, Marcus, and Tehranian 2008; Siregar and Utama 2008). In contrast, some argue that INSTs/blockholders do not play an active role in monitoring management activities (Porter 1992; Duggal and Millar 1999; Claessens and Fan 2002). Duggal and Miller (1999, p.106) document that “institutional investors are passive investors who are more likely to sell their holdings in poorly performing firms than to expend their resources in monitoring and improving their performance.” In line with this argument, some previous studies have failed to find a significant association between institutional/blockholder ownership and earnings management (Beasley 1996; Kim and Yi 2006). Prior literature also documents that large INSTs/blockholders may pressurize management for vested interests to report either a favourable financial performance or diminish other shareholders’ residual claims (Drucker 1986; Barclay and Holderness 1991; Jacobs 1991; Porter 1992; Claessens, Djankov, and Lang 2000). In an Australian study, Koh (2003) finds a non-linear relationship between institutional ownership and income increasing discretionary accruals with a positive association at the lower institutional ownership levels and a negative association at the higher institutional ownership levels.

2.4 AUDIT QUALITY

Since Berle and Means (1932) raised concerns about agency costs and information asymmetry problems due to the separation of ownership and control,

various scholars (for example, Jensen and Meckling 1976; Watts 1977; Watts and Zimmerman 1980; Chow 1982; Benston 1985; Arrunada 2000; Clinch, Stokes, and Zhu 2012) working within an agency theory framework have sought to highlight the audit function as an essential monitoring mechanisms to ensure greater alignment of the interest between corporate management (the agent) and shareholders (the owner). The Treasury (2010) documents audit quality to be a broad term consisting of a number of factors including the registration system of company auditors, standards on accounting and auditing, standards on ethics subjected to members of professional accountancy bodies, professional attributes associated with auditors and auditors' staff personnel, audit regulators involved in the audit review process, internal culture of the audit firm, and audit methodology selected by the audit firms.

2.4.1 Concept and definition

The definition of audit quality proposed by DeAngelo (1981b) has become widely recognized and is generally accepted as the seminal characterization encapsulating auditor quality. DeAngelo (1981b) defined auditor quality as the probability that an auditor both discovers and reports any material misstatements and accounting system breaches that affect the contract between corporate management and investors. Based on the definition of DeAngelo (1981b), auditor-quality is perceived as a function of the auditor's competence (that is, ability to discover material misstatements and accounting system breeches) and independence (that is, ability to report material misstatements and accounting system breeches).

DeAngelo (1981b) and Palmrose (1988) argue that the quality of an audit does not reflect information available to the public and is not directly observable by an external financial statement user. The number and extent of audit procedures applied are the primary determinants of audit quality (Simunic 1980; Taffler and Ramalingam 1982; Chung and Lindsay 1988; Chan, Ezzamel, and Gwilliam 1993; Turpin 1995; Chaney, Jeter, and Shivakumar 2004; Hribar, Kravet, and Wilson 2014). Generally speaking, since these audit procedures cannot be observed explicitly when undertaken or access to auditor working papers achieved, alternative measures are needed which proxy for these audit procedures (Dechow, Ge, and Schrand 2010). Audit quality proxies used in auditor differentiation literature include analyst forecast accuracy (Behn, Choi, and Kang 2008; Lawrence, Minutti-Meza, and Zhang 2011), ex ante cost of equity capital (Khurana and Raman 2004;

Lawrence, Minutti-Meza, and Zhang 2011), discretionary accruals (Francis, Maydew, and Sparks 1999; Lawrence, Minutti-Meza, and Zhang 2011), litigation (Palmrose 1988; Feroz, Park, and Pastena 1991), and fraud frequencies (Beneish 1999b; Farber 2005).

2.4.2 Impact of auditor quality

Auditor quality is one of the most important issues affecting the auditing profession (Vanstraelen 2000). The external auditor is widely recognized as a chief corporate governance mechanism for ensuring high principal/agent alignment of interests by providing external verification of the reliability of the firm's financial statements (Leftwich 1980; Ferguson, Francis, and Stokes 2003; Clinch, Stokes, and Zhu 2012).

The external auditor plays a critical role in the information market place (Gay and Simnett 2012). Higher quality auditors affect debt-equity choices of firms with firms relying more on equity financing and having lower debt ratios (Chang, Dasgupta, and Hilary 2009). Quality auditors are highly valued by both equity market participants and debt providers and generally result in lower contracting costs and higher post-issue market value of equity for client firms (Moreland 1995; Franz, Crawford, and Johnson 1998; Vanstraelen 2000; Khurana and Raman 2004; Mansi, Maxwell, and Miller 2004; Pittman and Fortin 2004; Ahmed, Rasmussen, and Tse 2008; Chang, Dasgupta, and Hilary 2009; Hope et al. 2009).

High quality auditors are more likely to offer better monitoring capabilities (Fried and Schiff 1981; Nichols and Smith 1983; Eichenseher, Hagigi, and Shields 1989; Klock 1994; Dunn, Hillier, and Marshall 1999), assess audit risks, detect errors and misstatements, improve earnings quality, and render credibility to financial statements (Jensen 1986; Beatty 1989; Becker et al. 1998; Francis, Maydew, and Sparks 1999; Balsam, Krishnan, and Yang 2003; Krishnan 2003; Caramanis and Lennox 2008). Higher quality auditors are less likely to be associated with managerial opportunistic behaviour (Francis, Maydew, and Sparks 1999; Krishnan 2003; Sun and Liu 2013), poor disclosure quality (Dunn and Mayhew 2004; Chu, Mathieu, and Mbagwu 2013), and financial fraud⁵⁰ (Carcello and Nagy 2004; Farber 2005; Lennox and Pittman 2010). In addition to enhancing the credibility of financial information prepared by the insiders, auditors also provide additional value added

⁵⁰ In earlier studies using small samples, Dechow, Sloan, and Sweeney (1996) and Beneish (1999b) did not find a significant association between auditor quality and fraud.

services including identifying business risks, reporting on internal control weaknesses, and providing non-audit services such as tax advisory and risk management assessments (Zhang 2007; Hamilton, Li, and Stokes 2008; Gay and Simnett 2012).

2.4.3 Determinants of auditor quality

Auditor quality is a multidimensional and inherently unobservable concept (Balsam, Krishnan, and Yang 2003). Dechow, Ge, and Schrand (2010) argue that data to create proxies for auditor effort/effectiveness/incentives is often unavailable. Auditor attributes proposed in extant literature include auditor brand name (DeAngelo 1981b; Palmrose 1988; Dye 1993; Behn, Choi, and Kang 2008; Lai et al. 2013), auditor specialization (Zhou and Elder 2002; Balsam, Krishnan, and Yang 2003; Krishnan 2003), auditor independence (Craswell 1999; Chaney and Philipich 2002; Salehi 2009), auditor tenure⁵¹ (Johnson, Khurana, and Reynolds 2002; Ghosh and Moon 2005; Chen, Lin, and Lin 2008), auditor gender (Bernardi and Arnold 1997; Gold, Hunton, and Gomaa 2009), audit hours (Caramanis and Lennox 2008), auditor-to-client revolving door phenomenon (Menon and Williams 2004), auditor size (Becker et al. 1998; Francis, Maydew, and Sparks 1999; Kim, Chung, and Firth 2003), audit fees⁵² (Frankel, Johnson, and Nelson 2002; Ashbaugh, LaFond, and Mayhew 2003; Larcker and Richardson 2004; Francis and Ke 2006; Gul, Jaggi, and Krishnan 2007), auditor opinion (Carey and Simnett 2006), audit office size (Choi et al. 2008), auditor report lag (Ashton, Graul, and Newton 1989; Newton and Ashton 1989; Bamber, Bamber, and Schoderbek 1993; Schwartz and Soo 1996; Knechel and Payne 2001; Ettredge, Li, and Sun 2006), and auditor workload compression (Lopez and Peters 2011). Four factors that have gained considerable attention, and that are pertinent to this study, are: (a) auditor brand name; (b) auditor specialization; (c) provision of non-audit services; and (d) auditor tenure.

Several scholars have used a dummy variable for brand name membership⁵³ as a proxy for auditor quality and found support for this surrogate (Francis and

⁵¹ Several scholars have operationalized auditor tenure as the duration of auditor-client relationship in years (Carcello and Nagy 2004; Ghosh and Moon 2005; Manry, Mock, and Turner 2008).

⁵² Fees for audit services versus non-audit services.

⁵³ As at the time of the study by Simunic (1980), the Big-8 accounting firms were; Arthur Andersen & Co.; Arthur Young & Co.; Coopers & Lybrand; Deloitte Haskins & Sells; Ernst & Winney; Peat Marwick Mitchell; Price Waterhouse; and Touche Ross. Subsequent to two major mergers in 1989, the Big-8 firms were reduced to the Big-6. This resulted from the merger between Ernst & Winney and Arthur Young & Co. to become Ernst & Young and Deloitte Haskins & Sells with Touche Ross to become Deloitte Touche Ross. As a result of another merger in 1998 between Coopers & Lybrand and Price Waterhouse to form Price Waterhouse-Coopers, the Big-6 were reduced to the Big-5. Finally, the dissolution of Arthur Andersen & Co. in 2002 as a result of the Enron aftermath reduced the Big-5 to the Big-4.

Wilson 1988; Palmrose 1988; DeFond 1992; Davidson and Neu 1993; Behn, Choi, and Kang 2008; Lai et al. 2013). An audit firm with a highly recognized brand name may be perceived to be more willing to settle disputes to avoid damaging political costs that impair reputation capital (consistent with tenets of ‘reputation hypothesis’ perspective) and to be more successful financially with deeper resources to draw upon to settle legal action (consistent with tenets of ‘deep-pockets hypothesis’ perspective) (DeAngelo 1981b; Dye 1993; Francis, Maydew, and Sparks 1999).⁵⁴ Advocates of both the ‘reputation hypothesis’ and ‘deep-pockets hypothesis’ perspectives of audit quality suggest that audit firms recognized as major brand leaders within the industry will have increased incentives to ensure higher auditing standards (DeAngelo 1981b; Beatty 1989; Dye 1993; Lennox 1999; Chen, Martin, and Wang 2013). However, some scholars have found that both brand name and non-brand name auditors exert about the same amount of total auditor effort and that the differences in audit quality between brand name and non-brand name auditors could be a reflection of client characteristics (Blokdijsk et al. 2006; Lawrence, Minutti-Meza, and Zhang 2011).

A large stream of scholars (for example, Craswell 1999; Solomon, Shields, and Whittington 1999; Zhou and Elder 2002; Balsam, Krishnan, and Yang 2003; Krishnan 2003) suggest that specialization in a given industry serves as a hallmark of an auditor’s technical competence. Solomon, Shields, and Whittington (1999, p.9) define industry specialists as “auditors who are so designated by their firms and whose training and practice experience largely are in a particular industry.” Empirical research has generally found auditors with greater task-specific knowledge, resources, and incentives to more likely separate the information component of transactions from the background noise of business by being able to deter, detect, and question irregularities, financial misstatements, questionable accounting practices, and noncompliance with accounting standards, whether by error or fraud (Abbott and Parker 2000; Al-Basteki 2000; Healy and Palepu 2001; McDaniel, Martin, and Maines 2002; Balsam, Krishnan, and Yang 2003; Krishnan 2003). However, some scholars suggest that industry expertise advantage of an incumbent auditor is likely to diminish in light of competitive pressure from the closest (that is, most similar) competitor (Numan and Willekens 2011). Still other

⁵⁴ For a comprehensive discussion on the tenets of ‘reputation hypothesis’ and ‘deep-pockets hypothesis’, please refer to the study by Lennox (1999).

scholars fail to find evidence to support the argument that industry specialist auditors provide higher quality audits than do non-specialists (Palmrose 1986; Lys and Watts 1994).

Empirical literature has recognized auditor independence to be a vital cornerstone attribute of the audit function and routinely segregated independence into: (a) ‘independence *in fact*’; and (b) ‘independence in *appearance*’ (Mautz and Sharaf 1961; Stamp and Moonitz 1979; DeAngelo 1981b; Whittington and Pany 1995; Firth 1997a, 1997b; Ramsay 2001). Whilst an ‘*actual*’ violation of independence logically implies that it will be costly to the auditor, the mere perception that independence is impaired by ‘*appearance*’ can be just as damaging (Olazabal and Almer 2001). The proponents of ‘economic bonding’ hypothesis argue that rational agents in efficient capital markets forecast that an auditor’s independence is impaired when an economic bond is formed with clients (DeAngelo 1981b; Chaney and Philipich 2002; Salehi 2009). The joint provision of audit and non-audit services by an incumbent auditor to a client may be perceived by financial statement users as a move to enhance the auditor’s self-interest, economic dependence, and familiarity with the client or motivate the auditor to act as an advocate of corporate management (particularly in adversarial circumstances) or even result in the threat of self-review with managerial and auditing decisions being one and the same (Firth 1997a; Craswell 1999; Beattie and Fearnley 2002; Quick and Warming-Rasmussen 2005). Extant literature suggests that impaired auditor independence imposes a cost-of-capital premium for information risk associated with the inability to rely on the audit (Firth 1997a; Johnstone, Sutton, and Warfield 2001). In contrast to the proponents of ‘economic bonding’ hypothesis, the proponents of ‘knowledge spillover’ hypothesis argue that the knowledge acquired by the auditor through the provision of non-audit services to an audit client may “spill over” to the production of the audit, resulting in an increased auditor objectivity, auditor independence, audit quality, and reduced audit-related costs (Simunic 1984; Wallman 1996; Arrunada 1999; Dopuch, King, and Schwartz 2003; Knechel, Sharma, and Sharma 2012).

Extant literature also provides conflicting views on the impact of auditor tenure on audit quality (Carcello and Nagy 2004; Lyer and Rama 2004; Ghosh and Moon 2005; Manry, Mock, and Turner 2008). The advocates of ‘auditor independence hypothesis’ argue that an increase in auditor tenure compromises audit

quality with auditors becoming economically dependent and more familiar with clients, and as a result are less likely to test financial report assertions appropriately and/or use rigorous audit procedures (Hoyle 1978; DeAngelo 1981b; Simunic and Stein 1987b; Simunic and Stein 1987a; Magee and Tseng 1990; Raghunathan, Lewis, and Evans 1994; Arrunada and Paz-Ares 1997; Johnson, Khurana, and Reynolds 2002; Arel, Brody, and Pany 2005; Chu, Church, and Zhang 2012). In contrast, the advocates of ‘auditor expertise hypothesis’ contend that audit quality actually increases with tenure since auditors acquire client specific knowledge over time and achieve a comparative advantage over recently appointed auditors in detecting material financial misstatements (Hoyle 1978; Beck, Frecka, and Solomon 1988; Knapp 1991; Solomon, Shields, and Whittington 1999; Geiger and Raghunandan 2002; Gul, Fung, and Jaggi 2009).

2.4.4 Audit quality in Australia

The audit profession plays a crucial role in maintaining and promoting confidence and integrity in Australian capital markets. Activities regulating the audit profession have developed significantly in the Australian jurisdiction since the introduction of heightened regulatory requirements for auditors in July 2004, the issuance of legally enforceable Auditing standards in July 2006, and amendments enabling greater co-operation with international audit regulators in July 2007.

In response to the HIH corporate collapse, the Australian government commissioned the Ramsay Report (2001) “Independence of Australian Company Auditors” which identified key issues associated with auditor independence such as the provision of non-audit services and auditor financial and employment relationships. The recommendations by Professor Ian Ramsay in the Ramsay Report of 2001 drew on the US Securities and Exchange Commission (SEC) (2000) rulings (“Rules on Audit Independence”), the proposals contained in the International Federation of Accountants (IFAC) (2001) re-exposure draft (“Independence – Proposed changes to the Code of Ethics for Professional Accountants”), and the European Commission (2000) consultative paper (“Statutory auditors’ Independence in the EU”).

The regulatory response to the Ramsay report was made through the adoption of CLERP 9 Act 2004, which imposes statutory changes to the auditor independence requirements for promoting transparency, accountability, and auditor independence

(Ye, Carson, and Simnett 2011).⁵⁵ CLERP 9 requires a five-year rotation period followed by a two year time-out period for audit lead engagement and audit review partners.⁵⁶ The Treasury (2010) regards audit partner rotation after 5 years to be an adequate balance between ‘continuity’, ‘audit quality’, and ‘familiarity threat’. CLERP 9 does not put a legislative ban on the provision of non-audit services in Australia. However, the regulation requires extensive disclosures to be made by the financial report auditor on the type of non-audit services provided. CLERP 9 has also revised the requirements of the Commonwealth law of Australia (Corporations Act 2001) with regards to auditor independence by strengthening employment restrictions and the restrictions on financial relationships between the auditor and the client firm.

A number of regulators have a significant impact on the Australian audit environment, either directly or indirectly. They include the Financial Reporting Council (FRC), the Australian Securities Investments Commission (ASIC), the Companies Auditors and Liquidators Disciplinary Board (CALDB), the Auditing and Assurance Standards Board (AUASB), the Australian Securities Exchange (ASX), the Accounting and Professional Ethical Standards Board (APESB), the Institute of Chartered Accountants in Australia (ICAA), CPA Australia, and the Institute of Public Accountants (IPA).⁵⁷

The introduction of CLERP 9 enhanced the responsibilities of FRC and ASIC. The FRC’s function was increased from a mere oversight role over the accounting-standard setting process to having a broad oversight role over the accounting and auditing standard-setting process (for both the public and private sectors) and monitoring the effectiveness of independence requirements applying to auditors (Gay and Simnett 2012). ASIC was granted the responsibility of registering auditors; enforcing auditor independence; assessing whether auditors meet the registration requirements concerning practical experience, education and competency standards; performing post-registration supervision; and receiving annual statements

⁵⁵ Power (1999, p.132) argues CLERP 9 to have been primarily concerned with two dimension of audit independence: (1) organizational independence referring to the independence problem in terms of the relationship between the company and the auditor; and (2) operational independence focusing on the audit process rather than the auditor.

⁵⁶ It appears that most large firms in Australia may have been rotating audit partners on a voluntary basis since 1996. A recommendation for audit partner rotation every seven years was released by the Australian Commonwealth Government in 1996 [AUP 32]. However, this recommendation was not universally adopted. In 2001, two of the main professional accounting bodies, namely, the institute of Chartered Accountants in Australia (ICAA) and Certified Practising Accountants (CPA) Australia introduced the seven year audit partner rotation requirement for firms listed on the ASX (IFAC Code of Ethics, para. 2.51).

⁵⁷ Prior to 2 May 2011, the Institute of Public Accountants (IPA) was known by the title of National Institute of Accountants (NIA).

from auditors concerning the nature and complexity of audit work undertaken and the compliance with any conditions of registration (Gay and Simnett 2012). In addition, ASIC was given the power to investigate all significant contraventions of the requirements of the Corporations Act 2001 and lodge criminal prosecutions.⁵⁸ In the event that a significant requirement of the Corporations Act 2001 is contravened by an auditor, ASIC can apply to the CALDB (a body responsible for disciplining auditors) to have the license of the auditor suspended or cancelled (Arens et al. 2002).⁵⁹

CLERP 9 made another significant impact on the audit function by reconstituting the previous Australian Auditing Standards Board (AASB) and establishing the AUASB under section 227A of the ASIC Act 2001. The AUASB is an independent statutory body which was effective 1 July 2004 and its statutory functions and powers are documented under section 227B of the ASIC Act 2001. The Australian Auditing Standards (ASAs) are prepared by the AUASB and are legally enforceable under the Legislative Instruments Act 2003 (The Treasury 2010). The AUASB significantly revised and redrafted the ASAs to bring them in line with the International Standards on Auditing (ISAs) issued by International Auditing and Assurance Standards Board (IAASB). In addition to issuing ASAs, the AUASB is responsible for issuing Standards on Review Engagements (ASREs), Standards on Assurance Engagements (ASAEs), and Guidance Statements (GSs).

An important source of information for investors in firms that trade on the ASX is the detail contained in published audited financial reports. The ASX mandates the nature and form of corporate disclosures through listing rules and continuous disclosure requirements and, therefore, influences the external audit function (Leung et al. 2011). For example, in the amendments to the 2nd edition of the Corporate Governance Principles and Recommendation released on 30 June 2010, the Australian Securities Exchange Corporate Governance Council (ASX CGC) amended principle 6 to clarify the responsibility of a listed firms not required

⁵⁸ In Australia, section 311 of the Corporation Act 2001 requires auditors to inform ASIC of any requirements of the Act that have been significantly contravened or if any contravened requirements cannot be fixed by either incorporating a comment in the audit report or by getting the matter to the attention of directors. In the best interests of stakeholders, the auditor would have an obligation to whistle blow (Gay and Simnett 2012).

⁵⁹ The CALDB responds only to applications made by ASIC (concerning an auditor) or Australian Prudential Regulatory Authority (APRA) (concerning a liquidator) stating that the individual concerned has breached either the Corporations Act 2001 or the ASIC Act (Moroney, Campbell, and Hamilton 2014). Specifically, the CALDB get involved when it is believed that an auditor or liquidator fails to carry out his/her duties properly, is not a fit and proper person, is subject to disqualification or should not remain registered for some other reason (Moroney, Campbell, and Hamilton 2014). The CALDB may respond by cancelling or suspending the individual's registration, giving the individual a warning or asking the individual to make an undertaking to improve his/her conduct (Moroney, Campbell, and Hamilton 2014).

to comply with the requirements of section 250RA [Auditor required to attend listed company's annual general meeting] of the Corporations Act 2001.⁶⁰ Such firms including trusts, externally managed entities, and foreign incorporated entities are required to include in their annual reports a statement disclosing the extent to which they have achieved the aims of the provisions of section 250 RA during the reporting period and give reasons for not doing so.

CPA Australia, the ICAA, and the IPA are the three main professional accounting bodies that promote audit quality and ethical conduct of members and play an essential and valuable role within the overall audit regulatory framework of Australia (Hay, Knechel, and Ling 2008; Leung et al. 2011). The APESB was established as an independent body in February 2006 by CPA Australia and ICAA. CPA Australia, ICAA, and IPA are currently the three members of the APESB as defined in APESB's constitution. APESB has been established with objectives to issue professional and ethical standards that are integral to the Australian accounting profession and to actively advocate the professional and ethical behaviour of accountants. The APESB closely follows pronouncements issued by the International Ethics Standards Board for Accountants (IESBA) as a base for its proposed professional and ethical standards.

The 'Corporations Legislation Amendment (Audit Enhancement) Act 2012' of the federal government, aimed at improving the quality/transparency of the auditing process and ensuring that Australia's regulatory framework remains in line with international best practice, was recently granted the royal assent on 27 June 2012 as Act number 72 of 2012. The new Act includes a number of major provisions. First, individual auditors and audit firms that audit ten or more significant entities such as listed firms, listed registered schemes, authorized-deposit taking institutions, and insurance companies are required to publish annual transparency reports. Section 332 (Part 2M.4A) has been inserted in Corporations Act 2001 to require these transparency reports, which are focused at ensuring factual information about the firms who audit such entities is publicly available. Second, directors have been given the flexibility to extend the five-year audit rotation period by up to two years provided audit independence and audit quality can be maintained. The approval must be in consonance with a written recommendation of the audit committee endorsed by

⁶⁰ Section 250 RA of the Corporations Act 2001 makes it an offence for the lead auditor not to attend a listed firm's annual general meeting, or alternatively arrange to be represented by a suitably qualified member of the audit team who is in a position to answer questions about the audit.

members of the audit committee. Third, the Act intends on removing the duplication of ASIC and FRC audit inspection responsibilities. While ASIC continues its audit inspection program, the focus of FRC has been shifted from oversight of auditor independence to providing strategic policy advice and reporting on the quality of Australian audits. Finally, ASIC has been given the power to publish audit deficiency reports where ASIC believes that an audit firm has not taken an appropriate action to remedy a failure to comply with relevant auditing standards, codes of conduct, or requirements under the Corporations Act 2001. ASIC has also been allowed in some cases to communicate its concerns directly with the affected audit client.

There are four broad categories of practitioners representing the public accounting profession in Australia: international/brand name/Big-4, national, regional, and suburban/local. The international accounting/auditing firms with offices in major cities throughout the world and adequate resources needed to service multinational firms dominate the public accountancy practice. The Big-4/brand name audit firms comprise the four largest international accounting/auditing practices, namely, PricewaterhouseCoopers (PwC), KPMG, Ernst & Young (EY), and Deloitte Touche Tohmatsu (DTT) (Leung et al. 2011). According to Rusmin et al. (2007), relative to other developed economies (for example, US, UK) and particularly emerging economies, the Australian audit market is less saturated by Big-4 audit firms. Next, national firms may be characterized as those having offices in major Australian cities and mainly servicing the needs of medium-sized and small clients (Business Review Weekly 2006). It has also been documented by PwC (1997) that many national firms have some sort of associations/networks with similar sized firms in other countries to handle clients' international needs. Finally, the regional and local firms generally serve individuals and small businesses in a restricted geographical area in the city or country. The size and type of regional and local firms may vary depending upon services offered and clients' needs. Regional and local firms generally range from being individual practitioners employing no professional staff members to partnerships with five or more partners and employing 15 to 20 professional staff members (Business Review Weekly 2006).

Treasury's strategic review of audit quality in March 2010 found Australia's audit regulation framework to be 'robust', 'stable', and in line with 'international best practice' (The Treasury 2010). The head of audit policy at the ICAA, Liz Stamford FCA recently commented on Australia's current audit regulatory

framework as being strong with embedded accountability and transparency (Arena 2013).

2.5 SUMMARY OF THE CHAPTER

Chapter Two began by reviewing the concept/definitions, properties, and determinants of earnings quality. A comprehensive overview was then provided on the concept, measures, and determinants of earnings management. A general discussion followed on the concept of audit quality and the important role an auditor plays in the financial reporting system. Finally, audit quality in Australia was explored with details provided on the key regulators involved in the regulation of the auditing profession.

Given that the audit function is premised directly on agency theory, Chapter Three will provide an additional theoretical perspective to this study by outlining the five main theories underpinning corporate governance: namely, agency theory; institutional theory; stewardship theory; resource dependency theory; and stakeholder theory. Subsequently, Chapter Three will also provide a detailed rationale (by reference to prior empirical literature) for each selected auditor attributes' (that is, brand, specialization, provision of non-audit services, and tenure) expected relationship to earnings management and outline the four main hypotheses of this study.

CHAPTER THREE: THEORETICAL PERSPECTIVE AND HYPOTHESES DEVELOPMENT

3.1 OVERVIEW OF THE CHAPTER

Chapter Two began with a review of the literature on earnings quality. A comprehensive overview on the concept, measures, and determinants of earnings management was subsequently provided. Finally, the role of audit quality in financial reporting systems and capital markets was outlined generally before a more specific examination undertaken of audit quality in the Australian regulatory environment.

Chapter Three discusses the theoretical framework of this study and the empirical literature relating to the hypotheses tested. The five theories underpinning the concept of corporate governance, namely, agency theory; institutional theory; stewardship theory; resource dependency theory; and stakeholder theory are discussed and compared. The empirical literature relating to each of the four key auditor attributes examined in this study is then discussed and the justification for each auditor attributes' expected relationship to earnings quality detailed. A conceptual schema is subsequently provided outlining the key relationships examined in this study. Finally, a summary of Chapter Three is provided.

3.2 THEORETICAL PERSPECTIVE – CORPORATE GOVERNANCE

There are five principal theories underpinning the corporate governance research literature: agency theory, institutional theory, stewardship theory, resource dependency theory, and stakeholder theory. The following sub-sections discuss each theory and the theory's link with the corporate governance structures of firms.

3.2.1 Agency theory

Agency theory was introduced by Berle and Means (1932) who explained the separation of ownership and control resulting in potential conflicts between shareholders and management in modern corporations with widely held share ownerships. Agency theory has since emerged as a dominant model in the financial economics literature, and is widely discussed in organizational phenomena such as compensation contracts (Eisenhardt 1985; Conlon and Parks 1990), diversification and acquisition strategies (Amihud and Lev 1981), financing decisions and ownership structures (Jensen and Meckling 1976; Agrawal and Mandelker 1987;

Mustapha and Ahmad 2011), vertical integration strategies (Anderson 1985; Eccles 1985), and innovation initiatives (Bolton 1988; Zenger 1988).

Agency theory helps predict behaviour when one individual (the principal) delegates work to another individual (the agent) with the expectation that the agent will make decisions that are in the best interest of the principal (Jensen and Meckling 1976; Eisenhardt 1989). In the case of companies, the owners or shareholders (principals) employ directors and managers (agents) to conduct the firm's business in the interests of the owners. The managers assume a stewardship function and are, therefore, expected to manage the firm in the best interests of the shareholders. However, since managers have more information than shareholders it may be difficult or expensive for shareholders without the access to all available information to verify whether the work being performed by managers is in the best interests of the firm and this may result in an "adverse selection" (Scapens 1985).⁶¹ The shareholders and managers may also prefer different actions because of different risk preferences. These concerns about information asymmetries and differing motivations (such as financial rewards and employment opportunities) between the two parties, therefore, lead to reservations about the reliability of information produced by the agents and result in an agency loss⁶² (Berle and Means 1932; Ross 1973; Jensen and Meckling 1976; Shleifer and Vishny 1986; Ugurlu 2000). Since agency theory draws on the premise of divergent shareholders-management objectives with both parties being utility maximizers, the theory is concerned with aligning the interests of shareholders and managers and specifying mechanisms to reduce agency losses (Jensen and Meckling 1976; Stano 1976; Fama 1980; Fama and Jensen 1983a, 1983b; Pratt and Zeckhauser 1991).

Corporate governance structures such as the board of directors, audit committees, the external audit function, and the internal audit function have been shown to be important mechanisms to monitor and control management behaviour and overcome agency conflicts (Fama and Jensen 1983a, 1983b; Williamson 1984; Kosnik 1987; Adams 1994; Dalton et al. 1999; Stiles and Taylor 2001).

⁶¹ Please refer to the studies by Kanodia, Bushman, and Dickhaut (1989) and Harrison and Harrell (1993) for a comprehensive explanation of the term 'adverse selection'.

⁶² Agency loss is the difference between the returns to the residual claimants, the owners, as a consequence of delegation and the returns from the best possible consequence that would have resulted if the principals, the owners, exercised direct control over the corporation (Jensen and Meckling 1976).

3.2.2 Institutional theory

Institutional theory, originally developed by Meyer and Rowan (1977) in the corporate governance context, emphasizes that an entity is dependent on institutional factors and social pressures that lie beyond the organizational boundary in the form of industry norms, firm traditions, management fads, and so on (Zucker 1987; Hoffman 1999). Institutional theory stresses on firms to operate within a nexus of social norms, values, and culture to limit the rational choices that firms can use in demonstrating legitimacy to the public and for enhancing resources and survival capacities (Meyer and Rowan 1977; Scott 1987; Oliver 1988; DiMaggio and Powell 1991).

Scholars such as Deegan (2010) and DiMaggio and Powell (1983) find that the process of isomorphism⁶³ gets initiated with the pressures to achieve legitimacy. A firm strives to develop environmentally justifiable components of structure such as key corporate governance mechanism including audit committees and board of directors to display that its operations are aligned with communally valued principles and to avoid allegations of being neglectful, irrational or redundant and risk forfeiting stakeholder patronage as the case could be if the formal configuration had not been developed (O'Connell 2006).

Institutional theorists have identified two major types of isomorphism: competitive and institutional (DiMaggio and Powell 1983, 1991). Competitive isomorphism assumes a system of competitive markets and robustness measures, and describes the pressures subjected to organizations to copy successful organizations in light of market competition (DiMaggio and Powell 1983). Competitive isomorphism is often used to explain how firms develop bureaucracies and respond to new innovations (DiMaggio and Powell 1983). Institutional isomorphism fosters the survival and success of firms (Meyer and Rowan 1977). Institutional isomorphic change can occur through three mechanisms: coercive, mimetic, and normative (DiMaggio and Powell 1983). Coercive isomorphism refers to the fact that firms are constrained in various decisions by powerful social actors such as other firms, key institutions, and cultural expectations in society as a whole (Mizruchi and Fein 1999). For example, the state is an important powerful actor that can set important rules and influence an organization's structures and behaviours (Meyer and Rowan

⁶³ The process of isomorphism forces one unit of population to resemble other units subjected to the same set of environmental conditions (Deegan 2010).

1977; DiMaggio and Powell 1983). Mimetic isomorphism refers to the inclination of firms to model themselves on the behaviour of other firms (DiMaggio and Powell 1983). For instance, firms may poorly understand environmental transformation in an uncertain economic environment and may imitate other firms in the same economic sector. In line with ecological perspective (Hannan and Freeman 1977), less successful firms may decide to follow the path of more successful firms (Haveman 1993). DiMaggio and Powell (1983, p.52) have defined normative isomorphism as “the collective struggle of members of an occupation to define conditions and methods of their work, to control the production of procedures”. Normative isomorphism pressures result from professionalization. Professionals display a myriad of identical characteristics to the equivalents in other firms despite the differences between diverse types of professionals within a firm (DiMaggio and Powell 1983; Psaros 2009; Deegan 2010). Compared with other firms, isomorphic firms operating in a mode comparable to competitors may have a lessened risk of operating poorly (Kondra and Hinings 1998).

There has been a recent shift in the focus of institutional economics from firms and individuals to institutional environments in pursuit of a better explanation of corporate governance behaviour (Groenewegen 2004). Institutional theory is a useful paradigm in corporate governance research since it considers how environmental, institutional, and firm pressures influence a wide variety of situations including the choice of accounting methods. For example, on examining the standard setting process of the FASB, Fogarty (1992) found that institutionalization enables board of directors to achieve tolerable decisional freedom through the basis of separate procedures and formal characteristics of assessment. Scholars have argued that the most relevant and promising corporate governance research requires the understanding of the institutional context in which it occurs (Groenewegen 2004; Davis 2005). For example, the institutional convergence within the European Union (EU) has contributed to the convergence of corporate governance practices there (Deeg and Perez 2000). Finally, scholars have found that the perceived legitimacy of corporate governance practices is influenced by the interaction of multiple institutions (Aguilera and Jackson 2003).⁶⁴ For example, in a study examining the panel data for corporate governance ratings in 50 countries between 1997 and 2005,

⁶⁴ See Aguilera and Jackson (2003) for a complete discussion on the impact of multiple institutions in shaping corporate governance practices by structuring stakeholder interactions.

Judge, Douglas, and Kutan (2008) found that the three pillars of institutionalization, namely, coercive isomorphism (the extent of law and order), mimetic isomorphism (the extent of culture emphasized global competitiveness), and normative isomorphism (the prevalence of corruption) influenced the legitimacy of corporate governance at the national level.

3.2.3 Stakeholder theory

The term ‘stakeholders’ defined by Mercier (1999) includes all agents that are primarily concerned with a firm’s development and good health. Stakeholder theory explains that the decisions made by managers must take into account the interests of all stakeholders in a firm including not only financial claimants, but also employees, customers, communities, government officials, and under some interpretations the environment, terrorists, blackmailers, and society at large (Freeman 1984; Clarkson 1994; Blair 1995; Donaldson and Preston 1995; Jensen 2010). As mentioned in subsection 2.3.5, since decisions made by managers have a direct impact on all stakeholder groups, Hill and Jones (1992) view managers to be stakeholders’ agents and not just shareholders’ agents. Stakeholders are affected by and also substantially affect the welfare of firms. The continued survival and success of firms require the support or approval of stakeholders (O'Donovan 2002). Firms that ignore society or key members of society threaten the equilibrium between firms and society since a society provides the social structure and the framework within which firms can prosper (Clarkson 1994; Blair 1995; Psaros 2009).

Scholars have taken separate methodological strands in contributing to the stakeholder concept and have classified stakeholders as narrow and wide stakeholders (Evan and Freeman 1993); primary and secondary stakeholders (Chakravarthy 1986; Carroll 1989; Hill and Jones 1992; Kotter and Heskett 1992; Harrison and St. John 1994; Clarkson 1995; Donaldson and Preston 1995; Jones 1995; Greenley and Foxall 1996); active and passive stakeholders (Mahoney 1994); institutional, economic, and ethical stakeholders (Pelle-Culpin 1998); and as shareholders, internal stakeholders, operational partners, and the social community (Lépineux 2003).

Freeman (1984) was one of the original advocates of stakeholder theory whose conceptualization extended beyond the owner-manager position and

recognized the existence of numerous stakeholder groups, resulting in the focus from which stakeholder theory subsequently developed. Adjusting the original definition of stakeholder which first appeared in the internal memorandum at the Stanford Research Institute in 1963, Freeman (1984, p.2) stated it meant “any group or individual who can affect or is affected by the achievement of the firm’s objectives.” Freeman (1984) proposed that a firm needs to obtain a full and detailed understanding of the relationship it holds with different stakeholder groups in order to achieve its goals.

Subsequently, Clarkson (1995) provided a more dynamic explanation of the stakeholder theory by (1) focusing on the importance of the theory for firms to achieve desired goals; and (2) viewing firms as a set of interdependent relationships among primary stakeholders.⁶⁵ Clarkson (1995, p.110) asserted that “the survival and continuing profitability of the corporation depends upon its ability to fulfill its economic and social purpose, which is to create and distribute wealth or value sufficient to ensure that each primary stakeholder group continues as part of the corporation’s stakeholder system.”

In another detailed explanation of stakeholder theory, Donaldson and Preston (1995) defined stakeholders as having legitimate interests in an organization and viewed firms as organizational entities through which numerous and diverse participants accomplish multiple purposes. Two crucial implications arising from the explanation by Donaldson and Preston (1995) include that (1) claimants are groups or persons with legitimate interests and are known and have been identified; and (2) all stakeholder groups’ interests have at least a modicum of intrinsic value, though not necessarily equal value (Psaros 2009).

A number of scholars have considered stakeholder theory to be a more valid and morally acceptable framework in which to access corporate governance issues (Freeman 1984; Clarkson 1994; Blair 1995; Donaldson and Preston 1995). Normative stakeholder theory, for example, provides guidelines for corporate governance focusing on how firms ought to be governed and to whom managers ought to be responsible (Donaldson and Preston 1995). The stakeholder approach to

⁶⁵ Clarkson (1995, p.106) defined a primary stakeholder group as “one without whose continuing participation the corporation cannot survive as going concern. Primary stakeholder groups typically are comprised of shareholders and investors, employees, customers, and suppliers, together with what is defined as the public stakeholder group: the governments and communities that provide infrastructures and markets, whose laws and regulations must be obeyed, and to whom taxes and other obligations may be due.”

corporate governance has been suggested to be economically efficient based on the argument that firms which consider the interests of and develop trust relationships with stakeholders (suppliers, clients, employees, and communities) can build up competitive advantages leading to superior corporate performance (Svendsen 1998). The stakeholder perspective shifts the governance task from maximizing shareholder interest to pursuing long-term value of a firm (Jensen 2001).

3.2.4 Resource dependency theory

Seminal work on resource dependency theory was done by Pfeffer and Salancik (1978) in the publication '*The External Control of Organizations: A Resource Dependency Perspective*'. Resource dependency theory has since become one of the most dominant theoretical rationales in organizational theory and strategic management. The theory has been used to explain the reasons behind why firms engage in mergers and acquisitions (Haunschild 1993; Yin and Shanley 2008; Haleblan et al. 2009), provide an understanding on joint ventures and other inter-organizational relationships such as strategic alliances, R&D agreements, research consortia, and buyer-supplier relationships (Oliver 1990; Barringer and Harrison 2000), and examine the need of corporate governance mechanisms in maximizing firm performance (Dalton et al. 1999).

Pfeffer and Salancik (1978) originally asserted that firms dependent on the environment can and do enact a multitude of strategies to combat contingencies. Resource dependency theory has been broadly applied across the research domain to explain how organizations reduce environmental interdependence and uncertainty (Hillman, Canella, and Paetzold 2000). The central theme of the theory revolves around the concept of power, which is the control over vital resources (Ulrich and Barney 1984). The premise underlying the theory is that the various elements of corporate governance can act as critical resources for the firm (Psaros 2009). In an attempt to reduce the impact of the power of others, organizations try to increase power over others. Pfeffer and Salancik (1978, p.1) assert that "to understand the behaviour of an organization you must understand the context of that behaviour – that is, the ecology of the organization."

Resource dependency theory suggests that corporate governance monitoring mechanisms such as the board of directors, audit committee, and external auditors

function as an essential link between a firm and essential resources which the firm needs to maximize performance (Pfeffer 1973; Pfeffer and Salancik 1978; Sanders and Carpenters 1998). Sociologists have concentrated on links between a firm's key corporate governance mechanisms and (1) members of business elite (Useem 1984), (2) capital markets (Mizruchi and Stearns 1988; Stearns and Mizruchi 1993), and (3) competitors (Mizruchi 1992, 1996). These links have been argued by scholars to be key determinants of success (Hillman, Canella, and Paetzold 2000; Hillman and Dalziel 2003).

Resource dependency theory's greatest influence is in the area of the board of directors. Advocates of this theory propose that directors provide a number of critical resources to the firm including information in the form of advice and council, access to channels of information between the firm and environmental contingencies, preferential access to resources, enhanced reputation by virtue of personal reputation, and legitimacy (Pfeffer and Salancik 1978; Westphal and Zajack 1994; Hillman, Canella, and Paetzold 2000; Hillman and Dalziel 2003; Jacobs 2004). These resources are collectively described as board capital (Hillman and Dalziel 2003). Scholars have well documented the relationship between board capital and firm performance as an indicator of a successful resource dependence strategy (Dalton et al. 1999).

3.2.5 Stewardship theory

Stewardship theory has its roots in psychology and sociology and offers a theoretical framework for researchers to examine the situations in which executives as faithful stewards are motivated to act, perform, and make decisions in the best interests of principals (Donaldson and Davis 1989, 1991; Davis, Schoorman, and Donaldson 1997; Jacobs 2004; Deutsch 2005). Stewardship theory highlights the impact of the non-economic intrinsic motivational factors (such as altruism, beliefs, need for achievement of responsibility or even the desire to take part in satisfying work) in aligning the interests of principals and stewards, suggesting that individuals have higher-order relationship needs (Herzberg, Mausner, and Synderman 1959; McClelland 1961; Donaldson and Davis 1989, 1991).

Stewardship theorists posit that executive managers want to do a good job and be good stewards of a firm's resources rather than practice opportunistic

behaviour, thereby implying the absence of inner motivational problems among executives (Donaldson and Davis 1991; Davis, Schoorman, and Donaldson 1997). This position that stewardship theorists hold is based on a number of reasons. First, stewards can be expected to protect and maximize shareholders' wealth through firm performance to maximize personal utility functions (Donaldson and Davis 1991; Davis, Schoorman, and Donaldson 1997). Second, several senior managers have been shown to be driven by intrinsic, intangible rewards including opportunities for growth, achievement, affiliation, and self-actualization instead of extrinsic rewards with a quantifiable dollar value (Donaldson and Davis 1991; Davis, Schoorman, and Donaldson 1997). Third, there is also a strong argument that managers who define and identify themselves through membership in a particular organization by accepting an organization's objectives, mission, and vision (Kelman 1958; Ashforth and Mael 1989) have been shown to attribute organizational success to themselves (Katz and Kahn 1978; Turner 1981; Staw, McKechnie, and Puffer 1983; Salancik and Meindl 1984) and enhance self-image and self-concept (Kelman 1961; Sussman and Vecchio 1982). Finally, managers face the risk of compromising personal reputation by engaging in opportunistic behaviour (Barney 1990; Donaldson and Davis 1991; Donaldson and Preston 1995). Overall, stewardship theory proposes that performance variations amongst executives result from structural situations of organizations (Donaldson 1985) instead of inherent general problems of executive motivation (Donaldson and Davis 1991).

In the corporate governance context, stewardship theorists find that the executive chaired boards with experienced directors who strive for job satisfaction and self-actualization rather than monetary remuneration are shown to have a significantly higher corporate performance (Donaldson 1985; Donaldson and Davis 1989, 1991, 1994; Finkelstein and D'Aveni 1994). Stewardship theorists recognize the strategic role of a responsible and effective board that requires directors to integrate decision management with decision control (Donaldson and Davis 1991, 1994; Gopinath, Siciliano, and Murray 1994; Boyd 1995; Davis, Schoorman, and Donaldson 1997; Hung 1998). Overall, stewardship theorists believe that insider dominated boards/empowerment of executive directors, CEO duality/dual board leaderships, and minimal non-executive/independent director representations are crucial to maximizing shareholder wealth, suggesting that the corporate governance

structure is less important (Barney 1990; Baysinger and Hoskisson 1990; Kesner and Johnson 1990; Donaldson and Davis 1991, 1994; Finkelstein and D'Aveni 1994; Dahya, Lonie, and Power 1996; Psaros 2009).

3.2.6 A critical analysis of agency theory with other theoretical approaches

Following the overview of the literature relating to the five theoretical perspectives, this study now proceeds with a critical analysis of the five paradigms. The dominant theoretical perspective in corporate governance is agency theory and, as such, agency theory provides the bench mark against which the other four theories are considered and evaluated.

3.2.6.1 Agency theory and institutional theory

Both agency theory and institutional theory look at the principal versus agent issue which arises from the differing interests between the principal and the agent and relates to how the principal holds the agent responsible for achieving outcomes preferred by the principal. However, in contrast to the financial incentives driven agency theory (Donaldson and Davis 1991), institutional theory focuses on the non-economic motivations (for example: quest for legitimacy) that drive human behaviour (Eisenhardt and Bourgeois 1988).

The key idea within the agency theory is that much organizational action reflects efficient information and risk-bearing costs (Eisenhardt and Bourgeois 1988) while the key idea behind institutional theory is that much organizational behaviour reflects imitative forces and firm traditions that have evolved over time and become legitimated within the organization and the surrounding environment (Pfeffer 1982; Eisenhardt and Bourgeois 1988). While agency theorists view individuals as self-interested rationalists (Berle and Means 1932; Pratt and Zeckhauser 1985; Eisenhardt and Bourgeois 1988), institutional theorists view individuals as legitimacy-seeking satisficers (Meyer and Rowan 1977; Eisenhardt and Bourgeois 1988).

3.2.6.2 Agency theory and stakeholder theory

Several scholars argue that stakeholder theory is an extension of agency theory (Hill and Jones 1992; Evan and Freeman 1993; Donaldson and Preston 1995; Shankman 1999). While agency theorists focus on the shareholder model of corporate governance which suggests that shareholders are morally and legally entitled to direct a firm by virtue of ownership investment (Brickley, Smith, and

Zimmerman 2001), stakeholder theorists believe that this moral and legal entitlement should be associated with not only the firm's shareholders but all of the firm's stakeholders (including employees, creditors, clients, and the community) (Freeman 1984; Etzioni 1998). Stakeholder theorists posit that managers must make decisions and allocate resources in a manner which will protect the interest of each stakeholder group, thereby viewing managers as being stakeholders' agents and not just shareholders' (or debt holders') agents (Hill and Jones 1992). Therefore, stakeholder theory brings a multi-interest dynamic into the agency model of the firm.

However, both agency theory and stakeholder theory have different underlying perspectives. Agency theory concentrates on the economic perspective of human behaviour where human beings are considered to be utility maximizers and are motivated to work only for economic interest (Donaldson and Davis 1991; Collier and Gregory 1999; Hillman and Dalziel 2003). In contrast, stakeholder theory has a more 'morally' driven, socially oriented perspective which emphasizes on a firm's corporate social responsibility (Clarkson 1994; Blair 1995).

3.2.6.3 Agency theory and resource dependency theory

Both agency theory and resource dependency theory focus on the behavioural aspects of boards and governance in firms. However, the two theories provide different implications for the design of effective board governance. For instance, while agency theory and resource dependency theory emphasize on having outside board members, the theories differ in underlying reasonings for this recommendation. Agency theory, based on financial economics, assumes that rational actors contract for profits in efficient markets and views outside board members as mechanisms of corporate control (Dalton et al. 2007). Agency theory, therefore, focuses on how actors external to the firm can control managerial opportunism. In contrast, resource dependency theory views outside board members to be important boundary spanners who provide timely information and convey critical resources to a firm through linkages with the external environment (Zald 1967; Pfeffer 1972a, 1972b, 1972c). Resource dependency theory, therefore, focuses on how the management team can control actors external to the firm for obtaining access to critical resources.

The ongoing struggle for power and influence over an organization's resource allocation decisions among the different coalitions of stakeholders is acknowledged by resource dependency theory but largely ignored by agency theory. Thus, while undoubtedly agency theory remains relevant to the corporate governance research and has been used extensively (Zahra and Pearce 1989; Johnson, Daily, and Ellstrand 1996; Dalton et al. 2007), some scholars find that resource dependency theory provides a more successful lens for understanding corporate governance mechanisms (Zahra and Pearce 1989; Johnson, Daily, and Ellstrand 1996; Udayasankar 2008).

3.2.6.4 Agency theory and stewardship theory

Both stewardship theory and agency theory concentrate on the relationship between shareholders, directors, and management and perceive the corporate board as a mechanism to create shareholder wealth (Donaldson and Davis 1991, 1994).⁶⁶ However, stewardship theory offers a view of managerial motivation alternative to agency theory (Barney 1990; Donaldson 1990a, 1990b; Donaldson and Davis 1991). While agency theory concentrates on the principal-agent interest divergence resulting from individualistic utility motivations (Berle and Means 1932; Pratt and Zeckhauser 1985), stewardship theory adopts a psychological/sociological perspective of human behaviour where a higher utility is accorded to pro-organizational and collectivistic behaviour than individualistic and self-serving behaviour (Davis, Schoorman, and Donaldson 1997).

Stewardship theorists acknowledge the complexity of organizational life (Silverman 1971; Doucouliagos 1994; Davis, Schoorman, and Donaldson 1997) and suggest that a number of situational/cultural factors and psychological factors predispose an executive to become either a steward or an agent (Donaldson and Davis 1991, 1993; Davis, Schoorman, and Donaldson 1997).⁶⁷ Scholars such as Pastoriza and Ariño (2008) document that the parties that approach a principal manager relationship with a long term perspective may deviate from the initial

⁶⁶ Stewardship theorists have not opposed the notion underlying the agency theory that reflects on the cost efficiency of separation between ownership and control in listed firms and that defines a corporation as a nexus of contracts that specifies the principal agent relationship (Donaldson and Davis 1991).

⁶⁷ Examples of situational/cultural factors include working in an involvement oriented versus a control oriented management system, a collectivistic culture versus an individualistic culture, and/or a low power distance culture versus a high power distance culture. Examples of psychological factors include having higher order needs (growth, achievement, self-actualization) versus lower order needs (physiological, security, economic), higher value commitment versus lower value commitment, and/or greater personal power versus institutional or organizational power as a basis for influencing others. For a detailed discussion on the impact of situational/cultural factors and psychological factors on the choice of executives becoming stewards or agents, please see the study by Davis, Schoorman, and Donaldson (1997).

position – either agent or steward – as the individuals learn in the process of interaction.

3.2.7 Theory selection

As highlighted in the previous subsections there are five main competing theories underpinning corporate governance practices. While there are some similarities making the theories to some extent complementary to each other, the theories have different purposes and, therefore, different validity criteria and implications (Donaldson and Preston 1995). Each theory has an individual perspective offering respective benefits and insights. Notwithstanding the importance of the other theories in the corporate governance context, agency theory forms the underlying theoretical perspective for the purposes of this study wherein the focus is on examining the association between auditor attributes and earnings management. Agency theory provides the most relevant theoretical framework for investigating the relationship between auditor quality and earnings quality (Jensen and Meckling 1976; Chow 1982; Watts and Zimmerman 1983; Francis and Wilson 1988; Abbott and Parker 2000).

As per the agency theory perspective, agency problems arise as a result of information asymmetries and differing motivations between principals (shareholders) and agents (corporate management) (Jensen and Meckling 1976). Pursuit of self-interest may lead to reservations about the reliability of information generated by the agents, resulting in compromised corporate financial reporting which has detrimental effects on the firm and the principals (Harrison and Harrell 1993; Harrell and Harrison 1994; Tuttle, Harrell, and Harrison 1997; Rutledge and Karim 1999). The core benefit from an audit is the ability of an auditor to provide an independent assurance on the quality and credibility of a firm's financial information (Jensen and Meckling 1976; Leftwich 1980; DeFond 1992; Parkash and Venable 1993; Ferguson, Francis, and Stokes 2003; Nikkinen and Sahlström 2004; Lennox 2005). The existence of the audit function is premised on agency theory. Empirical literature shows that external auditors reduce agency problems by aligning the interests of shareholders and corporate management and by limiting the ability of managers to act opportunistically (Abbott and Parker 2000; Cohen, Krishnamoorthy, and Wright 2004; Lai et al. 2013). Given the close association of auditor quality and earnings

quality to contractual arrangements and agency conflicts, agency theory provides this study's underlying theoretical perspective.

3.3 KEY AUDITOR ATTRIBUTES AND IMPACT ON EARNINGS QUALITY

This study examines the influence of four pivotal (external) auditor attributes on contemporaneous earnings quality. The four attributes of interest are: (1) Big Firm auditor/auditor brand name (as defined by Big4 versus non-Big4 status); (2) industry specialist auditor; (3) provision of non-audit services; and (4) auditor tenure. The four attributes were selected as the attributes are frequently cited in empirical literature as having a significant influence on earnings quality (DeAngelo 1981b; Becker et al. 1998; Balsam, Krishnan, and Yang 2003; Krishnan 2003; Behn, Choi, and Kang 2008; Chen, Lin, and Lin 2008; Salehi 2009; Knechel et al. 2013; Lai et al. 2013). Hypotheses related to the four auditor attributes are individually developed in the following sub-sections.

3.3.1 Big Firm auditor/auditor brand name: Big4

Empirical literature suggests that Big Firm auditors, relative to non-Big Firm auditors, provide higher levels of audit quality as a result of having more resources, greater expertise, higher reputational capital, and higher litigation risk (DeAngelo 1981b; Lennox 1999; Khurana and Raman 2004; Weber, Willenborg, and Zhang 2008; Chen, Martin, and Wang 2013).⁶⁸ Appendix 1 A provides a table summarizing major selected studies on Big Firm auditors and earnings quality in a chronological order.

Prior US studies examining the linkage between auditor quality and earnings quality, and using discretionary accruals to capture earnings management behaviour exhibited by client firms generally find that Big Firm auditors more aggressively mitigate insiders' incentives to: (1) exploit accounting-based contractual constraints and (2) manage earnings as a result of separation of ownership and control (Becker et al. 1998; Francis and Schipper 1999; Krishnan 2003).⁶⁹ In a recent US study, Sun and Liu (2011) found that Big Firm auditors are more effective in constraining

⁶⁸ Scholars have generally used a dummy variable for auditing firms classified as being either a Big8/6/5/4 (measured by size) as a proxy for Big Firm auditors and the Big N versus non-BigN dichotomy as a surrogate measure of audit quality (Becker et al. 1998). For the purposes of this study, the Big4 dummy variable is used as a proxy for Big Firm auditors and the Big4/non-Big4 dichotomy is used to measure differential audit quality.

⁶⁹ A general presumption underlying these studies is that Big Firm auditors, relative to non-Big Firm auditors, provide higher quality audits.

earnings management for high litigation risk clients than for low litigation risk clients, suggesting that client's high litigation risk can force big auditors to perform even more effectively. However, scholars such as Chi, Lisic, and Pevzner (2011) find Big Firm auditors to be associated with higher levels of real earnings management index calculated using abnormal cash flows, abnormal inventory production, and abnormal discretionary expenditures.

Non-US studies have generally found firms operating in countries with stronger audit environments and effective investor protection regimes to engage less in earnings management as compared to firms operating in countries with flexible audit environments⁷⁰ and weak investor protection schemes, implying that the national audit environment and the investor protection system of a country drives audit quality (Vander Bauwhede, Willekens, and Gaeremynck 2003; Maijor and Vanstraelen 2006; Piot and Janin 2007; Francis and Wang 2008; Van Tendeloo and Vanstraelen 2008). Examining three European countries with clearly distinct audit environments in terms of independence rules and auditor liability for the period 1992 - 2000, Maijor and Vanstraelen (2006) found that the audit quality difference between Big Firm and non-Big Firm auditors in constraining earnings management behaviour was most significant in UK while relatively less or not significant in Germany and France. This audit quality differential can be explained by the fact that the Common Law system in UK, compared with the Civil Code system in both France and Germany, offers a stronger investor protection environment (La Porta et al. 1998) and makes large audit firms more exposed to the 'deep pockets' phenomenon as a result of a higher litigation risk. In a subsequent study, Piot and Janin (2007) confirmed that the presence of a Big Firm auditor made no difference to the earnings management activities in France. For small and emerging markets like Bangladesh with poor regulations and low investor protection regimes, Kabir et al. (2011) found that Big Firm auditor affiliates do not have a positive impact on accrual quality. Therefore, unlike most US studies which find that Big Firm auditors play a significant role in constraining earnings management behaviour and improving earning quality of client firms, non-US studies generally find audit environments and

⁷⁰ Flexibilities in audit environments arise as a result of variation in auditor independence requirements including "length of audit mandate, rotation of audit partners, number of statutory auditors, approval of appointment, disclosure of audit fees, provision of management advisory services, advertising, peer review, review by regulators, auditors moving to clients or vice versa, and audit committees." (Maijor and Vanstraelen 2006, p.37).

investor protection regimes (but not Big Firm auditors) to be responsible for influencing client firms' earnings quality.

Despite the smaller Big Firm auditor concentration and lower litigious environment in Australia as compared to the US (Rusmin et al. 2007), results from Australia have generally supported the US studies by showing that Big Firm auditors more aggressively mitigate earnings management behaviour of client firms (Gul, Lynn, and Tsui 2002; Koh 2003; Lai et al. 2013).⁷¹ However, for a cross-sectional sample of 434 listed Australian firms for the financial year ending in 2000, Davidson, Goodwin-Stewart, and Kent (2005) failed to find a significant association between Big Firm auditors and earnings management practices.

The empirical evidence on the impact of Big Firm auditors on earnings management is mixed. In a meta-analysis involving 48 studies spanning over 13 countries, Lin and Hwang (2010) addressed this mixed evidence on the linkage between auditor quality and earnings quality by showing a strong negative relationship between Big Firm auditors and earnings management practices exhibited by client firms.⁷²

Given the general support in the prior Australian and US literature and in the meta-analysis by Lin and Hwang (2010) for the association between a Big Firm auditor and earnings management (an inverse measure of earnings quality) of client firms, the following hypothesis is proposed to test the association between a Big4 auditor and earnings management:

H₁: Client firms engaging a Big4 auditor will have lower earnings management than client firms engaging a non-Big4 auditor.

3.3.2 Industry specialist auditor

Developing specialized knowledge in an industry is a product of extensive auditing experience, specialized staff training, and substantial investments in information technology, physical facilities and organizational control systems (Dopuch and Simunic 1980, 1982; Gramling, Johnson, and Khurana 1999). Industry specialists are more likely to identify industry-specific issues and discover firm-

⁷¹ Australia, like Canada, has been shown to have a lower threat of private shareholder litigation than the US (Baginski, Hassell, and Kimbrough 2002).

⁷² The countries in the meta-analysis performed by Lin and Hwang (2010) included US, UK, Belgium, Australia, Taiwan, Korea, France, China, Hong Kong, Germany, Canada, Malaysia, and Singapore.

specific errors, problems, misstatements, and frauds⁷³ (Bedard and Biggs 1991; Maletta and Wright 1996; Wright and Wright 1997; Owhoso, Messier, and Lynch 2002; Carcello and Nagy 2004; Hammersley 2006), comply more strictly with auditing standards (O'Keefe, King, and Gaver 1994), complete audits sooner with shorter audit report lags (Habib and Bhuiyan 2011), offer a higher level of assurance (Craswell, Francis, and Taylor 1995; Beasley and Petroni 2001; Balsam, Krishnan, and Yang 2003; Chen, Lin, and Zhou 2005), and positively influence a firm's market value (Knechel, Naiker, and Pacheco 2007; Almutairi, Dunn, and Skantz 2009).⁷⁴ However, Cahan, Jeter, and Naiker (2011) find audit quality to be higher (lower) based on the significant market share attained by the auditor in auditing a lower (higher) proportion of clients in the industry, suggesting that not all industry specialists are the same. Studies exploring differences in industry leadership at the national and city levels have found audit quality to be a city level phenomenon with joint city and national industry leaders and city-only industry leaders to be associated with a higher audit quality (Francis, Reichelt, and Wang 2005; Cenker and Nagy 2008; Reichelt and Wang 2010) and lower cost of debt (Li, Xie, and Zhou 2010).⁷⁵ Appendix 1 B provides a table summarizing major selected studies on industry specialist auditor and earnings quality in a chronological order.

Prior studies based on US data have generally shown that auditor industry expertise plays an effective monitoring role in constraining management's discretionary accounting choices and attenuating earnings management behaviour of client firms (Zhou and Elder 2002; Balsam, Krishnan, and Yang 2003; Krishnan 2003; Zhou and Elder 2004; Kanagaretnam, Krishnan, and Lobo 2009; DeBoskey and Jiang 2012; Bratten, Causholli, and Myers 2013; Sun and Liu 2013). These studies suggest that the structural shifts by Big4 auditors in the direction of greater industry focus (Hogan and Jeter 1999; Solomon, Shields, and Whittington 1999) are likely to have a favourable impact on the quality of financial reporting. However, Velury (2003) finds that the effectiveness of audits performed by industry specialist auditors is context-specific by showing the industry-specific client firms to be just as

⁷³ Carcello and Nagy (2004) found that a significant negative relationship exists between auditor industry specialization and client financial fraud and that this negative relationship is weaker for larger clients, implying that positive benefits of auditor industry specialization in deterring financial fraud is affected by client size.

⁷⁴ Prior literature has used a number of proxies for auditor industry specialization such as market leadership, dominance, and market shares (Pearson and Trompeter 1994; Craswell, Francis, and Taylor 1995; Hogan and Jeter 1999; DeFond, Raghunandan, and Subramanyam 2002; Balsam, Krishnan, and Yang 2003; Neal and Riley 2004).

⁷⁵ In a recent study, Nagy (2012) found partner-level auditor specialization, relative to office-level specialization, to have a more significant positive effect on audit quality.

likely to manage earnings as client firms of non-specialists when leverage is large. Other scholars such as Mascarenhas, Cahan, and Naiker (2010) fail to find evidence that industry specialists are better than non-specialists in constraining opportunistic discretionary accruals compared to informative discretionary accruals. Still other scholars such as Chi, Lisic, and Pevzner (2011) find that for firms with strong incentives to manage earnings upwards, city-level auditor industry specialists are associated with higher levels of real earnings management in the form of abnormal cash flows, abnormal inventory production, and abnormal discretionary expenditures.⁷⁶

Non-US studies have generally supported the US studies by showing evidence on the effectiveness of industry specialized audits in deterring earnings management behaviour of client firms (Chen, Wu, and Zhou 2006; Kwon, Lim, and Tan 2007; Kanagaretnam, Lim, and Lobo 2010; Rusmin 2010; Jaggi, Gul, and Lau 2012). On examining the country-level institutional mechanisms, Kwon, Lim, and Tan (2007) find that the negative impact of auditor industry specialization on earnings management increases as the legal environment weakens. In a recent study, Jaggi, Gul, and Lau (2012) confirm the findings of Kwon, Lim, and Tan (2007) but only for countries with weak investor protection while not for countries with strong investor protection. They (Jaggi, Gul, and Lau 2012) suggest that higher earnings quality (lower earnings management) of client firms audited by industry specialist auditors can especially be expected in countries with low investor protection and weak legal enforcement.

While cross-country studies using a percentage of sample firm-year observations from Australia show an overall significant negative relationship between auditor industry specialization and earnings management behaviour (Kwon, Lim, and Tan 2007; Kanagaretnam, Lim, and Lobo 2010; Jaggi, Gul, and Lau 2012), a study that partitions the pooled sample into country type finds a negative but insignificant association between auditor industry specialization and the magnitude of earnings management for Australian firms (Rusmin 2011).

⁷⁶ Large audit firms being decentralized operate as a network of semi-autonomous local practice offices (Narayanan 1995). An individual auditor having deep industry knowledge at the office level is considered be a city-level industry specialist (Francis, Stokes, and Anderson 1999; Ferguson, Francis, and Stokes 2003). For a comprehensive discussion on city-level auditor industry specialization, please refer to studies by Li, Xie, and Zhou (2010) and Xie, Zhang, and Zhou (2012).

Given the proclivity in the prior literature towards a negative association between auditor industry specialization and earnings management (an inverse measure of earnings quality) of client firms, the following hypothesis is proposed to test the association between an industry specialist auditor and earnings management:

H₂: Client firms engaging an industry specialist auditor will have lower earnings management than client firms engaging a non-industry specialist auditor.

3.3.3 Non-audit services

Regulatory and governmental enquiries have continuously addressed concerns over the provision of non-audit services since as early as the 1950s (Barr 1959; US Securities and Exchange Commission (SEC) 1977; US Senate (Metcalf Subcommittee) 1977; US Securities and Exchange Commission (SEC) 1978, 1979, 1980, 1981, 1982; US Government Accountability Office (GAO) 1996; Levitt 1998, 2000; US Public Oversight Board (POB) 2000; US Securities and Exchange Commission (SEC) 2000; 2003; CLERP 9 Act 2004). These concerns have been based on the premise that if an audit firm procures a high level of non-audit fees (and hence total fees) from its clients, then that audit firm is likely to permit higher levels of earnings manipulations (thereby, compromising the reliability and quality of financial reporting) to maximize the potential to retain clients due to the higher incremental economic bonding as well as the potential loss of lucrative revenues from non-audit services (Wallman 1996).⁷⁷ In support of the regulatory concerns, a number of scholars have found evidence suggesting that auditors receiving higher non-audit fees compromise their independence by being less inclined to modify or qualify their audit opinions (Wines 1994; Sharma and Sidhu 2001; Firth 2002; Basioudis, Evangelos, and Geiger 2008; Fargher and Jiang 2008; Ahadiat 2011; Wang and Hay 2013).⁷⁸ In addition to investigations which have focused on assessing independence in fact, Krishnan, Sami, and Zhang (2005) examine

⁷⁷ The economic theory of auditor independence suggests that the incentives of auditors to compromise their independence are associated with client importance, the ratio of quasi rents specific to the client divided by all other quasi rents (DeAngelo 1981a).

⁷⁸ The propensity to issue a modified or a qualified opinion is a common test for auditor independence. The joint provision of audit and non-audit services has the potential to impair auditor independence with the auditor being less likely to disagree with management (Simunic 1984). A modified or qualified audit opinion is usually a representation of unresolved differences between the auditor and management personnel. Since auditors are at a greater risk of being dismissed after modifying or qualifying their opinion (Craswell 1988), auditors providing sizeable amounts of non-audit services will bear greater economic losses upon dismissal.

independence in appearance and find that investors perceive the provision of non-audit services as impairing auditor independence.

In contrast to the advocates of economic bonding hypothesis, some scholars argue that providing both audit and non-audit services can in fact improve the efficiency and effectiveness of an audit through enhanced economies of scope which result from knowledge spillover benefits from an increased auditor's knowledge of the client (thereby, increasing an auditor's objectivity and independence) (Simunic 1984; Beck, Frecka, and Solomon 1988; Arrunada 1999; Beattie and Fearnley 2002). Consistent with the knowledge spillover hypothesis, scholars such as Koh, Rajgopal, and Srinivasan (2013) find a greater extent of non-audit services to be associated with improvements in earnings quality in the form of a lower likelihood of reporting a small earnings surprise and an increase in earnings informativeness.

Furthermore, a third stream of research altogether fails to find a significant association between the provision of non-audit services and auditor independence (Barkess and Simnett 1994; Pringle and Bushman 1996; DeFond, Raghunandan, and Subramanyam 2002; Geiger and Rama 2003; Quick and Warming-Rasmussen 2005). For example, DeFond, Raghunandan, and Subramanyam (2002) and Geiger and Rama (2003) posit that market-based incentives, such as possible litigation and reputational losses, may be strong factors in influencing the US auditors' reporting decisions and preventing the auditors from compromising independence in the presence of non-audit services fees. Appendix 1 C provides a table summarizing major selected studies on non-audit services and earnings quality in a chronological order.

Studies using US data from the pre-SOX period, wherein firms were required to disclose fees for non-audit services paid to auditors before most non-audit services were prohibited by SOX, return mixed evidence on the association between non-audit service purchase and earnings management behaviour.^{79,80} While some scholars such as Dee, Lulseged, and Nowlin (2002); Frankel, Johnson, and Nelson (2002);

⁷⁹ Section 201 of SOX implemented by US Securities and Exchange Commission (SEC) (2003) banned the provision of a number of non-audit services including bookkeeping, financial information systems design and implementation, appraisal services and the like, actuarial services, internal audit outsourcing services, management functions or human resources, broker or dealer (including investment adviser), legal services, and any other service that the Public Company Accounting Oversight Board (PCAOB) determines. Non-audit services also require pre-approval by audit committees.

⁸⁰ This mixed evidence results from the impact of research choices (choices on composition of sample firms, research approach, measurement of non-audit services, measurement of earnings management, and statistical methods) in examining the association between non-audit services and manager behaviour.

Ashbaugh, LaFond, and Mayhew (2003); and Causholli, Chambers, and Payne (2013) find non-audit service fees to be positively associated with earnings management and support the economic bonding hypothesis, other scholars such as Koh, Rajgopal, and Srinivasan (2013) find non-audit service fees to be negatively associated with earnings management and support the knowledge spill over hypothesis. Scholars such as Gul, Jaggi, and Krishnan (2007) find the association between non-audit fees and earnings management to be contingent upon other auditor attributes such as tenure. Still other scholars such as Chung and Kallapur (2003) altogether fail to find a significant association between non-audit service purchase and earnings management behaviour. Using audit fee data from 6,891 SEC filings in the post-SOX period, Huang, Mishra, and Raghunandan (2007) fail to find a systematic association between non-audit fees and biased financial reporting. They (Huang, Mishra, and Raghunandan 2007) find evidence suggesting that auditors in the post-SOX era may have adopted a more conservative approach. On comparing earnings management practices exhibited by sample firms for a pre-SOX period and a Post-SOX period, Lai (2007) and Krishnan, Su, and Zhang (2011) find firms with higher reduction in non-audit fees to be associated with greater declines in earnings management, suggesting that a positive association exists between the amount of non-audit fees and the level of earnings management and that the earnings management behaviour prevalent in the US firms was higher in the pre-SOX period than in the post-SOX period.

Like US studies, non-US studies have also generally provided mixed evidence on the association between non-audit service purchase and earnings management. In UK based research, while some scholars such as Ferguson, Seow, and Young (2004) find non-audit service purchase to be positively associated with earnings management, other scholars such as Antle et al. (2006) find non-audit service purchase to be negatively associated with earnings management. Still other scholars such as Gore, Pope, and Singh (2001) find that the independence impairment effect of non-audit service purchase as captured by earnings management is a function of auditor size. They (Gore, Pope, and Singh 2001) find earnings management activity to be more positively associated with non-audit service purchase when the auditor is non-Big5 (compared to Big5). In the New Zealand context, while scholars such as Sharma, Sharma, and Ananthanarayanan (2011) find

client importance (measured as non-audit fees paid to the auditor) to be significantly and positively associated with earnings management, other scholars such as Cahan et al.(2008) altogether fail to find a significant association between non-audit fee growth rates and earnings management.

Studies using Australian fee data from the pre-CLERP 9 period have generally supported the economic bonding hypothesis by showing a positive association between non-audit service purchase and earnings management behaviour (Chai and Jubb 2000; Coulton, Ruddock, and Taylor 2007). In a recent study, Hossain (2013) finds the association between auditor provided non-audit services and earnings management to be significant and positive in the pre-CLERP 9 period while statistically insignificant in the post-CLERP 9 period.

To reconcile the inconsistent results across studies examining the effect of non-audit fees on financial reporting quality, Habib (2012) conducted a meta-analysis using 42 studies (including 8 Australian studies) and found high non-audit fees to be associated with reduced financial reporting quality in the form of higher earnings management, less propensity for auditors to issue going-concern audit opinions, and negative capital market effects of reported earnings.⁸¹

Given the general support for the economic bonding hypothesis in the prior Australian literature and in the recent meta-analysis conducted by Habib (2012), the following hypothesis is proposed to test the association between non-audit fees and earnings management (an inverse measure of earnings quality):

H₃: Client firms paying higher non-audit service fees to the incumbent auditor will have higher earnings management than client firms paying lower non-audit service fees to the incumbent auditor.

3.3.4 Auditor tenure

Restrictions on auditor tenure have been examined at two levels: (a) firm level and (b) partner level (key audit personnel, such as the engagement partner most responsible for overseeing the audit). The auditing profession has largely opposed auditor rotation at the firm level by proposing that lengthier audit firm tenure

⁸¹ Of the 42 studies used in the meta-analysis, 14 studies (with sample data from US, UK, Australia and Bangladesh) examined the association between non-audit fees and earnings management (Frankel, Johnson, and Nelson 2002; Ashbaugh, LaFond, and Mayhew 2003; Chung and Kallapur 2003; Ferguson, Seow, and Young 2004; Larcker and Richardson 2004; Reynolds, Deis, and Francis 2004; Antle et al. 2006; Dee, Lulseged, and Nowlin 2006; Coulton, Ruddock, and Taylor 2007; Habib and Islam 2007; Huang, Mishra, and Raghunandan 2007; Magdy 2007; Mitra 2007; Koh, Rajgopal, and Srinivasan 2013).

improves client specific knowledge and enhances audit quality and that mandatory audit firm rotation is costly (American Institute of Certified Public Accountants (AICPA) 1992; PricewaterhouseCoopers (PwC) 2002; US Government Accountability Office (GAO) 2003). The majority of empirical research examining the relationship between audit firm tenure and audit quality has generally supported the auditing profession's argument (Arrunada and Paz-Ares 1997; Geiger and Raghunandan 2002; Johnson, Khurana, and Reynolds 2002; Myers, Myers, and Omer 2003; Carcello and Nagy 2004; Mansi, Maxwell, and Miller 2004; Ghosh and Moon 2005; Jackson, Moldrich, and Roebuck 2008; Jenkins and Velury 2008; Srinidhi, Leung, and Gul 2010). However, some scholars find lower audit quality and lower earnings quality to be associated with a longer audit firm tenure wherein auditors become complacent due to excessive familiarity with clients (Chi et al. 2005; Davis, Soo, and Trompeter 2009). Other scholars find the relationship between audit firm tenure and audit quality to be contingent upon factors such as auditor industry specialization and fee dependence (Gunny, Krishnan, and Zhang 2007; Lim and Tan 2010). Still other scholars such as Knechel and Vanstraelen (2007) altogether fail to find a significant association between audit firm tenure and audit quality.

Contrary to a change in audit firm, a change in audit partner has been argued to less likely create a steep learning curve about the client's operations for the new partner as a result of client specific knowledge and expertise within the audit firm (for example, use of same field staff personnel, hand-over of working papers, and assistance from the engagement partner previously involved with the audit of the client firm and hence familiar with the existing audit methodology and databases of the client firm) (Chi and Huang 2005; Carey and Simnett 2006). A change in audit partner has also been argued to enhance audit quality through improved auditor independence and objectivity by involving the delivery of overall direction and responsibility with "fresh eyes" (Tan 1995; Brody and Moscove 1998; Favere-Marchesi and Emby 2005; Hamilton et al. 2005). In light of above arguments it is not surprising then, that a number of legislators and regulators have focused on the imposition of mandatory audit partner rotation instead of mandatory audit firm rotation (American Institute of Certified Public Accountants (AICPA) 1992; Cadbury Report 1992; Institute of Chartered Accountants in Australia (ICAA) 2002; US

Senate 2002; American Institute of Certified Public Accountants (AICPA) 2003; International Federation of Accountants (IFAC) 2003; US Government Accountability Office (GAO) 2003; US Securities and Exchange Commission (SEC) 2003; Corporate Law Economic Reform Program (CLERP 9) 2004; European Commission (EC) 2004).⁸² Appendix 1 D provides a table summarizing major selected studies on auditor tenure and earnings quality in a chronological order.

US studies examining the impact of auditor tenure on earnings management practices exhibited by client firms have almost exclusively focused on the tenure of the audit firm, rather than the responsible partner (Johnson, Khurana, and Reynolds 2002; Myers, Myers, and Omer 2003; Gul, Jaggi, and Krishnan 2007; Davis, Soo, and Trompeter 2009).⁸³ Studies investigating the relationship between auditor tenure and aggressive earnings management behaviour in the pre-SOX period have generally found a decrease in the level of accruals-based earnings management with an increase in auditor tenure (Ebrahim 2001; Johnson, Khurana, and Reynolds 2002; Myers, Myers, and Omer 2003; Blouin, Grein, and Rountree 2007; Gul, Jaggi, and Krishnan 2007; Manry, Mock, and Turner 2008).⁸⁴ Unlike previous US studies, Davis, Soo, and Trompeter (2009) find a nonlinear relationship between audit firm tenure and earnings quality by showing both short auditor tenure (auditor client relationship lasting three years or less) and long auditor tenure (auditor client relationship extending beyond fifteen years) to be associated with greater auditor tolerance for earnings management in the pre-SOX period. They (Davis, Soo, and Trompeter 2009) also find no relationship between the length of an audit firm tenure and accruals-based earnings management behaviour following the passage of the SOX. However, Chi, Lisic, and Pevzner (2011) recently found lengthier audit firm tenure to be associated with greater real earnings management practices (in the form

⁸² Some countries such as Brazil, Italy, and Singapore have adopted mandatory rotation of audit firms. Countries including Canada, Spain, Austria, and Greece that had initially adopted mandatory audit firm rotation abandoned such requirements as a result of the lack of cost effectiveness. A number of countries such as Canada, Australia, Taiwan, France, Hong Kong, China, Japan and Mexico have adopted mandatory rotation of audit partners following the lead of SOX in the US.

⁸³ The audit partner identity has not been publicly available in the US jurisdiction up until recently. On 4 December 2013, the Public Company Accounting Oversight Board (PCAOB) reissued a proposal requiring audit firms to identify the lead partner together with any other firms that contributed to an audit report with the objective of boosting transparency for investors (Law360 2013). This plan was initially proposed by PCAOB in October 2011 but remained largely dormant (CNBC 2013).

⁸⁴ The study by Manry, Mock, and Turner (2008) is the only archival US study in the pre-SOX period that examines the relation between the audit engagement partner's tenure and post-audit discretionary accruals as a surrogate for both earnings quality and audit quality. Manry, Mock, and Turner (2008) use a sample of proprietary data and find reduced earnings management behaviour and thus increased earnings quality and audit quality to be associated with only relatively small clients having fairly lengthy audit partner tenure of greater than seven years. However, they (Manry, Mock, and Turner 2008) do not find a significant association between partner tenure and earnings management behaviour for large clients or smaller clients with shorter tenure.

of abnormal cash flows, abnormal inventory production, and abnormal discretionary expenditures) for a sample covering both the pre-SOX and the post-SOX periods.

Unlike US studies, archival research from countries such as Taiwan, Germany, and Australia with mandatory audit partner rotation requirements has generally focused on audit partner tenure when examining earnings quality and audit quality (Bamber and Bamber 2009).⁸⁵ In the Taiwanese context, studies have generally found that earnings management practices are negatively associated with length of audit partner tenure and that mandatory audit partner rotation does not enhance audit quality (Chen, Lin, and Lin 2008; Chi et al. 2009). However, Chi and Huang (2005) find some client familiarity, but not excess familiarity, to be negatively associated with earnings management practices. They (Chi and Huang 2005) show the cutoff point of the positive and negative effects of familiarity to be around five years. Using data from Germany, Gold et al. (2012) find review partner tenure but not engagement partner tenure to be associated with a lower overall magnitude of earnings management. They (Gold et al. 2012) further find rotation of engagement partners to be associated with more conservative accounting (in case of positive accruals only).

In Australia, while Fargher, Lee, and Mande (2008) find that audit partners with short tenure (two or fewer years) are better able to limit client managers' accounting discretion, Carey and Simnett (2006) find short audit partner tenure to be associated with significantly greater income-increasing earnings management.⁸⁶ However, the two studies (Carey and Simnett 2006; Fargher, Lee, and Mande 2008) fail to find a statistically significant association between long audit partner tenure (seven or more years) and earnings management practices exhibited by client firms.⁸⁷

⁸⁵ Effective from 2006, the Eighth Directive of the European Commission requires that in all 27 European Union (EU) member states an engagement partner must sign the auditor's report in one's own name on behalf of the registered audit firm (European Parliament and the Council of the European Union 2006). Prior to the Eighth Directive, a number of European countries including Germany, Luxembourg, and France required the disclosure of the engagement partner's identity through signatures for a number of years (Institute of Chartered Accountants in England and Wales (ICAEW) 2006). Moreover, in the Australian jurisdiction a similar requirement to have audit reports signed in the engagement partner's name as well as in the audit firm's name has existed since as early as the 1970s (Carey and Simnett 2006), while in Taiwan since 1983 two engagement partners from the same firm are required to certify the audit report on behalf of the audit firm and disclose their identity (Chi and Huang 2005; Chen, Lin, and Lin 2008; Chi et al. 2009; Chi and Chin 2011).

⁸⁶ Studies using Australian data have also examined the association of audit partner tenure with audit quality (as proxied by the propensity to issue qualified going concern opinions for financially distressed firms) (Carey and Simnett 2006; Monroe and Hossain 2013) and investors' perception (as proxied by the ex-ante cost of equity capital) (Azizkhani, Monroe, and Shailer 2013).

⁸⁷ Engagement partners can be identified in the Australian jurisdiction since Section 324 (10) of the Corporations Act (2001), Commonwealth of Australia, requires auditor's report to be signed by the partner-in-charge of the audit engagement.

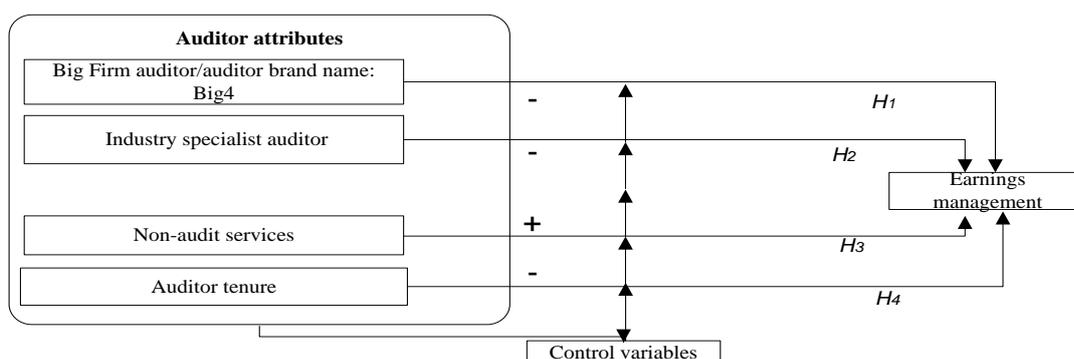
Whilst the empirical literature is mixed, consistent with the general findings that clients exploit a new auditor's information disadvantage and that some familiarity indeed helps in the auditing process and produces higher quality of earnings (that is, learning effect hypothesis), the following hypothesis is proposed to test the association between engagement partner tenure and earnings management (inverse measure of earnings quality):

H₄: Client firms with longer audit partner tenure will have lower earnings management than client firms with shorter audit partner tenure.

3.4 CONCEPTUAL SCHEMA

The conceptual schema shown in Figure 3.1 graphically illustrates a set of testable hypotheses that were formed with reference to the prior literature.

Figure 3.1: Conceptual Schema



3.5 SUMMARY OF THE CHAPTER

Chapter Three identified the main underlying theoretical perspective of this study. The empirical literature relating to each of the four key auditor attributes examined in this study was discussed and the justification for each auditor attributes' expected relationship to earnings quality detailed resulting in the formulation of a set of testable hypotheses.

Having provided the theoretical perspective to and hypotheses of this study, Chapter Four will provide details of the research method utilized in this study. Specifically, details of the sample, documentation, and time period are provided along with the measures used to operationalize earnings quality (the dependent variable), the four auditor attributes (independent variables), and control variables. Chapter Four will also describe the statistical tests and models utilized to test the hypotheses formulated in Chapter Three.

CHAPTER FOUR: RESEARCH METHOD

4.1 OVERVIEW OF THE CHAPTER

Chapter Three outlined the theoretical framework of corporate governance and discussed the five main theories underlying corporate governance including agency theory. The four key auditor attributes of this study were then detailed leading to the testable hypotheses.

Chapter Four provides details of the research method used to test the hypotheses of this study. The chapter starts with the justification of the sample selected, the source documentation, and the time period analyzed. The subsequent section documents how the dependent variable of this study, earnings management, will be measured. Measures to operationalize the auditor attributes in this study are then provided (that is, measures for Big Firm auditor, auditor industry specialization, non-audit fees, and audit partner tenure). The sensitivity tests to be undertaken are subsequently identified after the statistical tests and regression models utilized to test the hypothesis are outlined. Finally, a summary of chapter Four is provided.

4.2 SAMPLE, DOCUMENTATION AND TIME PERIOD

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

4.2.1 Selection justification

The initial sample comprises all Australian publicly listed firms registered on the ASX continuously across the observation window 2008 to 2012. ASX listed firms are chosen because listed firms provide readily available information in an appropriate useable form. Consistent with prior empirical research (Givoly and Hayn 2000; Peasnell, Pope, and Young 2000a, 2000b; Ruddock, Taylor, and Taylor 2006; Givoly, Hayn, and Natarajan 2007), financial institutions, banks, stock brokerages, trusts and investments, and insurance firms are excluded as the financial statements of such firms are subject to special accounting regulations and discretionary accrual models do not apply to them. Firms that are not continuously listed on the ASX (for example, IPO firms and firms de-listed for a period of time and re-listed) will also be excluded in order to avoid undue influences of unexpected rise in share prices. Consistent with Clifford and Evans (1997), unit trusts and foreign firms domiciled

outside Australia will be excluded because their financial statements are not always prepared in accordance with the normal disclosure requirements for other firms listed on the ASX. Firms that have an indication of missing data for the observation period will also be excluded (Klein 2002a, 2002b). Following prior research (DeFond and Jiambalvo 1994; Subramanyam 1996), Global Industry Classification Standard (GICS) industry groups with less than six (6) observations are also excluded from the sample to ensure unbiased estimation. Finally, firms with changed end of year financial dates during the observation window 2008 to 2012 will also be excluded (Hamilton et al. 2005). This study does not exclude firms with extreme values for earnings management as outliers since such representation may be reflective of managerial discretion in the form of either large negative accruals or large positive accruals and such exclusions may eliminate firms that engage in earnings management, which is the focus of this study. However, consistent with Kothari, Leone, and Wasley (2005) and Krishnan, Su, and Zhang (2011), this study winsorizes variables in the accruals model at the 1 and 99 percent levels. From the resulting sample pool, 250 firms will be selected for each year based on market capitalization. Since one of the major drivers of firm performance is the need to maximize shareholder value (Lee 1979; Gewald and Gellrich 2007), this measure is best reflected by the market capitalization of a firm (Balvers, Cosimano, and McDonald 1990).

The use of market capitalization as a criterion to select a sample has limitations in terms of generalizability. To overcome this limitation and to increase the generalizability of this study, a stratified random approach will be used. ASX listing rule 12.70 requires the top 500 listed entities to have an audit committee. The existence of an audit committee in a firm has been documented in prior literature to significantly influence a firm's financial reporting and auditing process (Public Oversight Board (POB) 1993; Wolnizer 1995; Blue Ribbon Committee (BRC) 1999; Finance Committee on Corporate Governance (FCCG) 1999; National Association of Corporate Directors (NACD) 2000; Public Oversight Board (POB) 2000; DeZoort, Hermanson, and Houston 2003; Walker 2004). Since an audit committee is shown to be a critical tool that has a significant influence on the dependent variable and the independent variables of this study, the presence of an audit committee must be considered for the purposes of sampling. The stratified-random approach will involve selecting the top 125 of the top 500 ASX listed firms by market capitalization and

randomly selecting another 125 firms from 501st firm onwards. Each calendar year (that is, January 1 to December 31) within the observation period is considered an individual firm-year for firms included in the sample. Data will be collected for each firm selected from each firm-year covered in this study. The resulting sample will provide 1250 firm-year observations for use as data points in the subsequent testing.

4.2.2 Source documentation justification

The data for this study is obtained from a number of resources.⁸⁸ The major item of focus in this study is earnings management. Earnings management will be measured based on the cross-sectional version of modified Jones model developed by Dechow, Sloan, and Sweeney (1995) and the performance adjustment model developed by Kothari, Leone, and Wasley (2005).⁸⁹ Data for the aforementioned models will be obtained from Annual Reports Collection (Connect 4 Pty Ltd), Standard & Poor's (S&P) Capital IQ, and Aspect Huntley's Financial Database, Morningstar DatAnalysis Premium which combines the capabilities of the former Morningstar DatAnalysis and FinAnalysis. DatAnalysis Premium provides comprehensive coverage of financial data for all ASX listed firms. DatAnalysis Premium reports are updated daily from ASX announcements. More than 400 data items are provided in addition to annual reports and prospectuses.

Data for independent and control variables will be collected from Annual Reports Collection (Connect 4 Pty Ltd), Sirca Corporate Governance Database, S&P Capital IQ, and Morningstar DatAnalysis Premium.

Whilst the main focus of this study is to examine the impact of auditor attributes on earnings management practices exhibited by Australian listed firms, robustness and various sensitivity tests will also be conducted.⁹⁰ Data for sensitivity analysis will also be collected from Annual Reports Collection (Connect 4 Pty Ltd), Sirca Corporate Governance Database, S&P Capital IQ, and Morningstar DatAnalysis Premium.

4.2.3 Time period selection

This study involves a pooled analysis covering 2008 to 2012 calendar years. This time-frame is selected as the time-frame revolves around key periods in the

⁸⁸ Since a number of databases will be used to collect data required for the study, a number of tests will be completed to ensure that the data is comparable in terms of accuracy.

⁸⁹ Please see section 4.3 for a detailed discussion of the cross-sectional version of modified Jones model by Dechow, Sloan, and Sweeney (1995) and the performance adjustment model by Kothari, Leone, and Wasley (2005).

⁹⁰ Please see section 4.7 for a detailed discussion of sensitivity tests.

financial accounting and corporate governance landscape in Australia involving the revisions made to the ASX CGCs corporate governance guidelines, the implementation of CLERP 9 recommendations, and the adoption of IFRS.

On 1 January 2003, ASX CGC introduced amendments to ASX listing rules to heighten compliance with corporate governance practices and released the first edition of corporate governance guidelines, Principles of Good Corporate Governance and Best Practice Recommendations, representing the most comprehensive statement of best practice in Australia affecting both audit quality and earnings quality. The second edition of corporate governance guidelines, Corporate Governance Principles and Recommendations was released by ASX CGC in August 2007. Amendments to the second edition of corporate governance guidelines were subsequently made on 30 June 2010. The current version of the ASX CGCs Corporate Governance Principles and Recommendations with 2010 amendments has been effective from 1 January 2011. Revisions to the corporate governance guidelines have been made with an intention of improving general business practices and financial reporting quality (Australian Securities Exchange Corporate Governance Council (ASX CGC) 2007, 2010) which in turn is expected to impact auditor quality/earnings quality linkage. All revisions to ASX CGCs will be captured in the sample period 2008 - 2012.

Extensive changes were made to the Australian auditing and financial reporting landscape with the enactment of CLERP 9 in July 2004. CLERP 9 changes were fully effective from financial years beginning in July 2006 (Fargher, Lee, and Mande 2008). For example, the requirement of mandatory rotation of a signing audit partner on an audit every five years or less followed by a two year cooling off period has been effective from 1 July 2006. Also from 1 July 2006 auditing standards have the force of law for audits and reviews of Corporations Act entities under sections 307A/336 of the Corporations Act 2001. The ‘Corporations Legislation Amendment (Simpler Regulatory System) Act 2007’ which was granted the royal assent on 28 June 2007 signalled the completion of the ‘bedding down’ of the major auditor regulatory reforms introduced by CLERP 9 in 2004 (The Treasury 2010). All CLERP 9 changes will be reflected in the sample period 2008 – 2012.

Effective 1 January 2005, all Australian listed firms were required to adopt the Australian equivalents to the IFRS. First annual balance date for which IFRSs were generally applicable was 30 June 2006 (Australian Accounting Standards Board

(AASB) 2009). The year 2008 is chosen to take into account the time lag effect associated with the post-harmonization stage, requiring all listed companies in Australia to change from the Australian Generally Accepted Accounting Principles (AGAAP) to the Australian equivalent of International Financial Reporting Standards (AIFRS) for financial reporting. The adoption of IFRS has been shown to have a significant impact on earnings quality in Australia (Cotter, Tarca, and Wee 2009; Chalmers, Godfrey, and Webster 2011).

Market volatility arose from the global financial crisis (GFC) in July 2007 with the sub-prime crisis and the collapse of the US housing bubble, resulting in a severe global economic recession in 2008 and 2009 (Roxburgh et al. 2009).

The time period selected for the study starts with the 2008 calendar year to compare the impact of auditor attributes on earnings management practices with the findings of other related Australian studies which were largely conducted in the pre-CLERP 9, pre-IFRS, and pre-GFC periods (Gul, Lynn, and Tsui 2002; Davidson, Goodwin-Stewart, and Kent 2005; Hamilton et al. 2005; Carey and Simnett 2006; Coulton, Ruddock, and Taylor 2007; Fargher, Lee, and Mande 2008; Rusmin et al. 2009; Rusmin 2011). The findings from the time-frame selected (2008 to 2012 calendar years), therefore, will indicate whether the recommendations related to audit quality/earnings quality in the corporate governance reforms in Australia (such as the adoption of IFRS, the implementation of CLERP 9 recommendations, and the revision of ASX CGCs corporate governance guidelines) along with the market fluctuations arising from GFC have had an impact on the auditor attributes/earnings management linkage. The time-frame is also selected to collect the timeliest information available.

In the next sections, measurements for the dependent variable (earnings management) and independent variables (auditor attributes) are outlined.

4.3 MEASUREMENT OF EARNINGS MANAGEMENT

4.3.1 Performance adjusted model

The present study uses the aggregate/total accruals approach in measuring earnings management. The first model used to estimate the magnitude of earnings management is the Kothari, Leone, and Wasley's (2005) performance adjusted model (that is, the cross-sectional version of the Dechow, Sloan, and Sweeney's (1995) modified Jones model using previous year's return on assets as an additional

regressor).^{91,92} This method has been used by a number of scholars both in US (Tucker and Zarowin 2006; Krishnan, Su, and Zhang 2011) and Australia (Hamilton et al. 2005; Coulton, Ruddock, and Taylor 2007). Kothari, Leone, and Wasley (2005) find their matched-firm approach (that is, performance matching based on current year's return on assets and using the Jones model) performs better than the performance adjusted approach.^{93,94} However, they (Kothari, Leone, and Wasley 2005) warn that the power of the performance matching test is sacrificed if the intention is not to examine the earnings management impact of a specific treatment event. The present study does not examine a specific treatment event and as a result does not use the performance matching approach. However, since the sample partitioning variable (market capitalization) is highly correlated with performance, controlling for performance related accruals is nevertheless warranted (Shih 2010).

The use of lag of return on assets as a control for firm performance in the performance adjusted model mitigates problematic heteroskedasticity and avoids severe misspecification issues associated with Jones and modified Jones models in estimating discretionary accruals (Kothari, Leone, and Wasley 2005). Following the approach adopted by Kothari, Leone, and Wasley (2005), this study also includes a constant (α_0) to address the econometric issue of a missing intercept term in the Jones model.⁹⁵ This approach has also been adopted by scholars such as Krishnan, Su, and Zhang (2011). Kothari, Leone, and Wasley (2005) find that including a constant provides an additional control for heteroskedasticity not mitigated by assets as a deflator and alleviates problems stemming from an omitted size (scale) variable. They (Kothari, Leone, and Wasley 2005) also find that including a constant yields a higher symmetry around zero discretionary accruals, enhancing the power of tests for type 1 errors (over rejection of null hypothesis of no earnings management).⁹⁶ Hence,

⁹¹ While Kothari, Leone, and Wasley (2005) use contemporaneous as well as lagged rate of return on assets, studies following the linear-performance-matching model by Kothari, Leone, and Wasley (2005) have used only lagged return on assets (Ronen and Yaari 2010).

⁹² Kothari, Leone, and Wasley's (2005) performance adjusted model has been discussed in subsection 2.3.3.1 of Chapter Two.

⁹³ In the matched firm approach, Kothari, Leone, and Wasley (2005) calculate the performance-matched Jones model (modified Jones model) discretionary accruals by matching the firm-year observations of the treatment firm with the firm-year observations for the control firm from the same industry and year with the closest return on assets in the current year or the prior year and then subtracting the control firm's Jones model (modified Jones model) discretionary accruals from the treatment firm's Jones model (modified Jones model) discretionary accruals.

⁹⁴ Kothari, Leone, and Wasley (2005) find that performance matching based on current year's return on assets and using Jones model to be the best performing accrual measure (in terms of closeness to zero of means and medians in performance-related sub-samples) followed by the modified Jones model using the previous year's return on assets as an additional regressor.

⁹⁵ The first term that has been used in the Jones model is the reciprocal of lagged assets (Ronen and Yaari 2010).

⁹⁶ Kothari, Leone, and Wasley (2005) find that rejection rates increase by more than 20% for models excluding the intercept term as opposed to models including the intercept term.

the first model used by this study to estimate discretionary accruals for the main tests reported in Chapter Six is defined by *Equation [1]* as follows:

$$TAC_{it}/TA_{it-1} = \alpha_0 + \alpha_1(1/TA_{it-1}) + \alpha_2((\Delta SALES_{it}/TA_{it-1}) - (\Delta AR_{it}/TA_{it-1})) + \alpha_3(PPE_{it}/TA_{it-1}) + \alpha_4(ROA_{it-1}) + \varepsilon_{it} \quad [1]$$

Where:

TAC_{it}	=	Total accruals of firm i for time period t .
TA_{it-1}	=	Total assets of firm i at the end of time period $t-1$.
$\Delta SALES_{it}$	=	Change in net sales of firm i between time period $t-1$ and time period t .
ΔAR_{it}	=	Change in accounts receivables of firm i from the beginning of time period t until the end of time period t .
PPE_{it}	=	Gross book value of the property plant and equipment of firm i at the end of time period t .
ROA_{it-1}	=	Rate of return on assets of firm i for time period $t-1$.
α_0	=	Constant
$\alpha_1, \alpha_2, \alpha_3, \alpha_4$	=	Estimated coefficients.
ε_{it}	=	The error term representing discretionary accruals of firm i for time period t .

4.3.2 Modified Jones model

The second model used by this study to estimate discretionary accruals using total accruals for main tests is the cross-sectional version of Dechow, Sloan, and Sweeney's (1995) modified Jones model which is defined by *Equation [2]* as follows:⁹⁷

$$TAC_{it}/TA_{it-1} = \alpha_1(1/TA_{it-1}) + \alpha_2((\Delta SALES_{it}/TA_{it-1}) - (\Delta AR_{it}/TA_{it-1})) + \alpha_3(PPE_{it}/TA_{it-1}) + \varepsilon_{it} \quad [2]$$

Where:

TAC_{it}	=	Total accruals of firm i for time period t .
TA_{it-1}	=	Total assets of firm i at the end of time period $t-1$.
$\Delta SALES_{it}$	=	Change in net sales of firm i between time period $t-1$ and time period t .
ΔAR_{it}	=	Change in accounts receivables of firm i from the beginning of time period t until the end of time period t .
PPE_{it}	=	Gross book value of the property plant and equipment of firm i at the end of time period t .
$\alpha_1, \alpha_2, \alpha_3$	=	Estimated coefficients.
ε_{it}	=	The error term representing discretionary accruals of firm i for time period t .

The cross-sectional version of Dechow, Sloan, and Sweeney's (1995) modified Jones model has been extensively used in both US (Subramanyam 1996; Becker et al. 1998; DeFond and Subramanyam 1998; Guidry, Leone, and Rock 1999; Bartov, Gul, and Tsui 2000; DuCharme, Malatesta, and Sefcik 2004; Habib, Bhuiyan, and Islam 2013) and Australia (Davidson, Goodwin-Stewart, and Kent

⁹⁷ Dechow, Sloan, and Sweeney's (1995) modified Jones model has been comprehensively discussed in subsection 2.3.3.1 of Chapter Two.

2005; Hamilton et al. 2005; Koh and Hsu 2005; Coulton, Ruddock, and Taylor 2007).

4.3.3 Approach adopted in calculating discretionary accruals

Discretionary accruals in *Equations [1] and [2]* are determined by performing separate regressions for each Global Industry Classification Standard (GICS) industry group with six (6) or more observations in a single financial period. Given nine (9) GICS industry groups and five (5) financial years (2008, 2009, 2010, 2011, and 2012) covered by this study, a maximum of 45 separate cross-sectional regressions will be performed for each model.⁹⁸

In determining the level of discretionary accruals, a pivotal initial step is to calculate total accruals. This study will use the cash-flow statement approach advocated in Collins and Hribar (2002) as defined by *Equation [3]*:

$$TAC_{it} = NI_{it} - CFO_{it} \quad [3]$$

Where:

TAC_{it}	=	Total accruals of firm i for time period t .
NI_{it}	=	Earnings before extraordinary items and discontinued operations of firm i in year t .
CFO_{it}	=	Net cash flow from operating activities (taken directly from the statement of cash flows) of firm i in year t .

Collins and Hribar (2002) find errors embedded in estimating total accruals using the balance sheet approach to be correlated with a firm's economic characteristics, suggesting the errors to reduce the discretionary accrual models' power to detect earnings management and generate incorrect inferences about earnings management.⁹⁹ They (Collins and Hribar 2002) also find empirical evidence suggesting that the balance sheet approach is less efficient than the cash flow statement approach when firms experience mergers/acquisitions or are subjected to discontinued operations.

⁹⁸ Traditionally the ASX comprises of ten (10) GICS groups. Consistent with prior Australian studies on earnings management (Koh 2003; Hamilton et al. 2005; Fargher, Lee, and Mande 2008), this study excludes all banking (ASX two-digit classification code 16), insurance (ASX two-digit classification code 17), investment (ASX two-digit classification code 19), and property management (ASX two-digit classification code 20) industry groups within the financial sector. These industry groups are subjected to different disclosure requirements that make estimating discretionary accruals problematic. The total asset base and financial structure of firms in these industry groups is not comparable to other firms. Hence, only nine (9) GICS groups are used in this study.

⁹⁹ The balance sheet approach is defined by the equation: $TAC_{it} = \Delta CA_{it} - \Delta CL_{it} - \Delta CASH_{it} + \Delta STDEBT_{it} - DEPTN_{it}$ where TAC_{it} = Total accruals of firm i for time period t ; ΔCA_{it} = Change in current assets of firm i between time period $t-1$ and time period t ; ΔCL_{it} = Change in current liabilities of firm i between time period $t-1$ and time period t ; $\Delta CASH_{it}$ = Change in cash and cash equivalents of firm i between time period $t-1$ and time period t ; $\Delta STDEBT_{it}$ = Change in current maturities of long-term debt and other short-term debt included in current liabilities of firm i between time period $t-1$ and time period t ; $DEPTN_{it}$ = Depreciation and amortization expense of firm i during time period t .

Since this study does not examine any specific event and focuses on the magnitude rather than the direction of earnings management, the absolute value of discretionary accruals (denoted as $|DAC_{it}|$) will be used as the dependent variable to formally test the proposed hypothesis.¹⁰⁰ The magnitude of unsigned discretionary accruals has been documented to be the best measure of the extent to which accruals are used to manage earnings in the absence of specific directional predictions (Warfield, Wild, and Wild 1995; Francis, Maydew, and Sparks 1999). Managers manipulate earnings both upwards and downwards (Levitt 1998). Healy and Wahlen (2000) assert that the expected frequencies of finding positive or negative unexpected accruals are 50% for each group. Absolute value of discretionary accruals proxy for the combined effect of income-increasing and income-decreasing earnings management (Warfield, Wild, and Wild 1995; Becker et al. 1998; Reynolds and Francis 2000; Frankel, Johnson, and Nelson 2002). For main tests, the absolute values of residuals from *Equation [1]* ($KOTHARI/DAC_{it}$) form the study's first measure of earnings management and the absolute values of residuals from *Equation [2]* (MJ/DAC_{it}) form the study's second measure of earnings management. For robustness and sensitivity analysis, this research partitions the earnings management sample into firms with positive (income-increasing) discretionary accruals and negative (income-decreasing) discretionary accruals. The main tests are re-run to investigate whether the external auditor variables are differentially related with positive and negative discretionary accruals.

There are at least two further popular methods for estimating discretionary accruals, namely, Dechow, Richardson, and Tuna's (2003) lagged and forward-looking models which are used for the purposes of robustness checks. Previous studies by Hamilton et al. (2005) and Coulton, Ruddock, and Taylor (2007) have provided evidence on the effective application of all four models (namely, performance adjusted model, modified Jones model, lagged model, and forward-looking model) to Australian data to measure abnormal accruals.

¹⁰⁰ Examples of studies that use the absolute value of discretionary accruals as a dependent variable include Baker and Al-Thuneibat (2011); Balsam, Krishnan, and Yang (2003); Becker et al. (1998); Benkel, Mather, and Ramsay (2006); Chai and Jubb (2000); Choi and Lee(2009);Chung and Kallapur (2003); Davidson, Goodwin-Stewart, and Kent (2005); Nagy (2012); Rusmin et al.(2009); Rusmin (2010, 2011); Sun and Liu (2011); Velury (2003) and Warfield, Wild, and Wild (1995).

4.4 MEASUREMENT OF THE INDEPENDENT VARIABLES

The independent variables of interest are a number of selected auditor attributes. Data for the independent variables will be gathered from the annual reports of 250 Australian publicly listed firms in Australia (as at the respective reporting dates) for the 2008 to 2012 calendar years. Measurement proxies for independent variables are detailed in the subsections 4.4.1 to 4.4.4.

4.4.1 Big Firm auditor/auditor brand name ($BIG4_{it}$)

Litigation exposure and brand name reputation have been shown to drive Big4 auditors to provide higher quality audits by constraining aggressive and potentially opportunistic reporting of accruals (Becker et al. 1998; Francis and Schipper 1999; Gul, Lynn, and Tsui 2002; Koh 2003; Krishnan 2003). The lower audit quality provided by non-Big4 auditors is associated with greater ‘accounting flexibility’ (Becker et al. 1998). For auditor quality, the dichotomous variable $BIG4_{it}$ is used in this study. In terms of measurement, therefore, a client firm i is scored one (1) if in the time period t the engaged auditor is a Big4 auditor. Otherwise the client firm i in time period t is scored zero (0).

4.4.2 Industry specialist auditor ($SPECIALIST_{it}$)

Prior empirical literature generally suggests that industry specialist auditors, compared with non-industry specialists, are more effective in deterring aggressive earnings management practices of client firms (Zhou and Elder 2002; Balsam, Krishnan, and Yang 2003; Krishnan 2003; Chen, Wu, and Zhou 2006; Kwon, Lim, and Tan 2007; Kanagaretnam, Krishnan, and Lobo 2009; Kanagaretnam, Lim, and Lobo 2010; Rusmin 2010; DeBoskey and Jiang 2012; Jaggi, Gul, and Lau 2012). Auditors with industry specializations have superior industry knowledge and performance compared to non-industry specialist auditors as a result of extensive auditing experience, specialized staff training, and extensive investments in information technology, physical facilities, and organizational control systems (Dopuch and Simunic 1980, 1982; Gramling, Johnson, and Khurana 1999).

Since industry specialization is not directly observable, prior studies have used several different proxies to measure this auditor attribute including market leadership, dominance, and market shares (Yardley et al. 1992; Pearson and Trompeter 1994; Craswell, Francis, and Taylor 1995; Hogan and Jeter 1999; DeFond, Raghunandan, and Subramanyam 2002; Balsam, Krishnan, and Yang 2003;

Neal and Riley 2004). Based on the assumption that industry expertise is built by repetition in similar settings, market share is the most frequently used proxy to measure auditor industry specialization (Balsam, Krishnan, and Yang 2003; Krishnan 2003; Carcello and Nagy 2004; Dunn and Mayhew 2004; Knechel, Naiker, and Pacheco 2007; Almutairi, Dunn, and Skantz 2009). According to the market share approach, an industry specialist can be defined as an audit firm that differentiates itself from other audit firms based on its market share within a specific industry (Krishnan 2003). An audit firm with a large market share within a particular industry can reflect highly sophisticated industry specific audit technology which results in a higher audit quality (Mayhew and Wilkins 2003).

Following previous scholars such as Balsam, Krishnan, and Yang (2003); Carcello and Nagy (2004); Krishnan (2003); Dunn and Mayhew (2004); and Lim and Tan (2008), this study uses client sales to estimate industry market share of the auditors. Specifically, the sum of sales of all clients of an audit firm in a particular industry forms the numerator. The denominator constitutes the sales of all clients in the particular industry summed over all audit firms (including both Big4 and non-Big4 firms auditing in the industry).¹⁰¹ Consistent with prior literature (Craswell, Francis, and Taylor 1995; Dunn and Mayhew 2004; Lim and Tan 2008), an auditor with 20% market share of a given industry is defined as an industry specialist for that industry. Therefore, for $SPECIALIST_{it}$, a client firm i in industry k is scored one (1) if in time period t an auditor defined as an industry specialist in industry k is engaged; otherwise client firm i is scored zero (0). For the purposes of sensitivity analysis, this study replaces the arbitrary applied cut off threshold of 20% with alternative benchmarks of 15%, 25%, and 30% used in prior literature (Ferguson and Stokes 2002; Jenkins, Kane, and Velury 2006; Knechel and Vanstraelen 2007). Data on client sales is downloadable from Morningstar DatAnalysis Premium.

An alternative to using the auditor's industry market share in calculating industry expertise is estimating the auditor's portfolio shares. On examining year-by-year values of portfolio shares and the industry market shares, Krishnan (2003) finds industry market shares to exhibit more variation and documents it to be a noisier measure of auditor's industry expertise. However, the portfolio share ratio is not used in this study because it is highly correlated with industry size and it tends to ignore

¹⁰¹ The variable $SPECIALIST_{it}$ is operationalized in a manner consistent with Lim and Tan (2008). In order to estimate the industry market share in a given industry for a particular year in Australia, all ten (10) main industries in the S&P July 2002 Global Industry Classification Standard will be used.

small industries (Neal and Riley 2004). Studies by scholars such as Stanley and DeZoort (2007) using portfolio share approach tend to lack variation in industry expertise when companies are matched on size and industry.

4.4.3 Non-audit services ($RNONAUDIT_{it}$, $LNONAUDIT_{it}$, and $HNONAUDIT_{it}$)

The primary concerns of regulators associated with the provision of non-audit services by auditors include (1) the financial dependence of auditors on significant clients (especially when non-audit service fees are higher than the audit fees), which could result in auditors preferring to sacrifice their independence, both in appearance and in mind, over potential costs, such as reputation loss and litigation expenses; and (2) the consulting nature of non-audit services, which could result in placing the auditors in managerial roles and potentially threatening their objectivity (Kida 1980; DeAngelo 1981b). Empirical research mainly uses two continuous measures of non-audit fees, namely, the natural logarithm of non-audit fees and the ratio of non-audit fees to total fees (Frankel, Johnson, and Nelson 2002; Ashbaugh, LaFond, and Mayhew 2003; Ferguson, Seow, and Young 2004; Reynolds, Deis, and Francis 2004; Huang, Mishra, and Raghunandan 2007; Cahan et al. 2008; Rusmin et al. 2009).

In order to comprehensively capture the extent of economic bonding between the auditor and the client firm, this study focuses on both continuous and dichotomous measures of non-audit fees. First, for the purposes of main analysis, this study focuses on the ratio of non-audit to total fees. Hence, the variable $RNONAUDIT_{it}$ represents the ratio of non-audit fees to total fees paid to the auditor j by client firm i during time period t . Second, for sensitivity purposes, two dichotomous variables $LNONAUDIT_{it}$ and $HNONAUDIT_{it}$ are used to test the association of client managers' accounting discretion when audit firms are paid low and high levels of non-audit fees, respectively. Specifically, for $LNONAUDIT_{it}$, a firm i in time period t is scored 1 if the ratio of non-audit fees to total fees ($RNONAUDIT_{it}$) is less than or equal to the sample median (Francis and Ke 2006). Otherwise, client firm i is scored zero (0). For the alternative specification $HNONAUDIT_{it}$, a client firm i in time period t is scored 1 if the ratio of non-audit fees to total fees ($RNONAUDIT_{it}$) is greater than the sample median (Francis and Ke 2006). Otherwise, client firm i is scored zero (0).

While CLERP 9 does not put a legislative ban on the provision of non-audit services in Australia, the regulation requires extensive disclosures to be made by the

financial report auditor on the type of non-audit services provided. Section 300(11)(B) of the Corporations Act 2001 requires the boards of all Australian listed companies to provide a statement in the annual report identifying all non-audit services provided by an audit firm, the fee for each service, and an explanation as to why the provision of the non-audit service did not impair auditor independence (Gay and Simnett 2012). In this study, non-audit and total fees will be collected from the Sirca Corporate Governance Database and sample firms' annual reports.¹⁰²

4.4.4 Audit partner tenure ($NTENURE_{it}$, $STENURE_{it}$, and $MTENURE_{it}$)

The audit partner tenure variable is operationalized by reference to the length of time (in years) during which the current audit partner has been the engagement partner for the client firm. As with non-audit services, in order to comprehensively capture the influence of audit engagement partner tenure on aggressive earnings management practices, this study focuses on both continuous and dichotomous measures of partner tenure. First, for the purposes of main analysis, this study focuses on the continuous measure $NTENURE_{it}$. $NTENURE_{it}$ denotes the number of consecutive years an audit partner serves as the signing partner on an engagement for client firm i at time period t (Fargher, Lee, and Mande 2008). Second, for sensitivity purposes, two dichotomous measures $STENURE_{it}$ and $MTENURE_{it}$ are used to test the association of client managers' accounting discretion with short- and medium-tenured audit partners, respectively. For $STENURE_{it}$, a client firm i in time period t is scored 1 if audit partner is an engagement partner on the client firm for a period of less than or equal to two years (Carey and Simnett 2006; Fargher, Lee, and Mande 2008). Otherwise, client firm i is scored zero (0). For $MTENURE_{it}$, a client firm i in time period t is scored 1 if audit partner is an engagement partner on the client firm for a period from three to five years (Fargher, Lee, and Mande 2008). Otherwise, client firm i is scored zero (0).

CLERP 9 requires a five-year rotation period followed by a two year time-out period for the audit lead engagement partner as well as the audit review partner. Hence, the five (5) financial years (2008, 2009, 2010, 2011, and 2012) examined in the study are subjected to mandatory audit partner rotation. Engagement partners can be identified in the Australian jurisdiction since section 324 (10) of the Corporations Act (2001), Commonwealth of Australia, requires an auditor's report to be signed by

¹⁰² Data on non-audit and total fees for firms not included in the Sirca Corporate Governance Database will be hand collected from annual reports.

the partner-in-charge of the audit engagement. Data to determine $NTENURE_{it}$, $STENURE_{it}$, and $MTENURE_{it}$ will be hand collected from annual reports.¹⁰³

4.5 MEASUREMENT AND JUSTIFICATION FOR INCLUSION OF CONTROL VARIABLES

Multivariate regression analysis will form the principal means to test the association between the selected auditor attributes and earnings management. To minimize cross-sectional influences, a number of control variables will also be incorporated into the analysis.¹⁰⁴ Some incentives to engage in earnings management behaviour such as management style, integrity, and corporate culture are problematic to measure and hence difficult to control for (Archambeault 2002). In terms of measurable incentives, this study includes a number of firm related factors including firm size, firm growth and investment, firm performance, firm leverage, firm capital intensity, firm lagged total accruals, and firm operating volatility that have shown to significantly influence earnings management practices (DeFond and Jiambalvo 1994; Huang et al. 2008; Krishnan, Su, and Zhang 2011; Gopalan and Jayaraman 2012).

Consistent with prior literature examining the linkage between auditor quality and earnings quality, the inclusion of non-corporate governance variables to control for other firm characteristics that can influence earnings management practices is considered fundamental (Becker et al. 1998; Krishnan, Su, and Zhang 2011). This is done with the purpose of ensuring that the study achieves its objective by focusing more precisely on the differences created by variations in external audit factors. Firm related factors have been shown in prior literature to be correlated with corporate governance choices including board and audit committee characteristics (Himmelberg, Hubbard, and Palia 1999; Durnev and Kim 2005; Klapper, Laeven, and Love 2006). In addition to firm related factors, this research also controls for audit partner gender which is shown to have an impact on earnings management behaviour (Ittonen, Vahamaa, and Vahamaa 2013). Finally, given the extent of earnings management practices may differ over time and across industries, this study controls for potential industry and time effects with dummy variables (Barth, Cram, and Nelson 2001; Myers, Myers, and Omer 2003). Below, these control variables are

¹⁰³ Since DatAnalysis Premium (on-line repository from the Aspect Huntley database) is maintained in text format, information on the name of the signing audit partners and the number of years the incumbent auditor has been the principal auditor of the client firm will be hand collected from the annual reports (Fargher, Lee, and Mande 2008).

¹⁰⁴ Omission of control variables could incorrectly result in the rejection of null hypothesis (Bartov, Gul, and Tsui 2000).

examined individually, along with the method of measurement for each variable and predicted coefficient sign (unless a predicted sign is unclear).

Table 4.1:
Details of Control Variables

Explanatory Variable (proxy measure)	Definition of proxy measure	Expected direction of relationship
Firm size ($LNMVE_{it}$)	Natural logarithm of market value of equity of firm i at the end of time period t .	?
Firm growth and investment ($MKTBK_{it}$)	Ratio of total market capitalization of firm i at the end of time period t to the total book value of assets of firm i at the end of time period t .	+
Firm performance (ROE_t)	Ratio of net income before extraordinary items of firm i at the end of time period t to total equity of firm i at the end of time period t .	?
Firm leverage (LEV_{it})	Ratio of total debt of firm i at the end of time period t to the total assets of firm i at the end of time period t .	+
Firm capital intensity (CIR_{it})	Ratio of gross value of property, plant and equipment of firm i at the end of time period t to the total assets of firm i at the end of time period t .	-
Lagged total accruals (TAC_{it-1})	Firm i 's total accruals from prior year ($t-1$), scaled by year $t-2$ total assets.	-
Sales volatility ($SDREV_{it}$)	Standard deviation of sales for firm i at the end of time period t (deflated by assets of firm i at the end of time period $t-1$) where standard deviations are calculated based on rolling-windows of five annual observations.	+
Cash flow volatility ($SDCFO_{it}$)	Standard deviation of cash flows for firm i at the end of time period t (deflated by assets of firm i at the end of time period $t-1$) where standard deviations are calculated based on rolling-windows of five annual observations.	+
Audit engagement partner gender ($FEMALE_{it}$)	Client firm i in time period t is scored one (1) if the signing partner of the incumbent auditor j in time period t is a female; otherwise the client firm i in time period t is scored zero (0)	?
$ENERGY_{it}$	A dichotomous variable given the score one (1) if the firm i is in the energy industry and zero (0) if otherwise.	?
$MATERIALS_{it}$	A dichotomous variable given the score one (1) if the firm i is in the materials industry and zero (0) if otherwise.	?
$INDUSTRIALS_{it}$	A dichotomous variable given the score one (1) if the firm i is in the industrials industry and zero (0) if otherwise.	?
$CONSUMER DISCRETIONARY_{it}$	A dichotomous variable given the score one (1) if the firm i is in the consumer discretionary industry and zero (0) if otherwise.	?
$CONSUMER STAPLES_{it}$	A dichotomous variable given the score one (1) if the firm i is in the consumer staples industry and zero (0) if otherwise.	?
$HEALTH CARE_{it}$	A dichotomous variable given the score one (1) if the firm i is in the health care industry and zero (0) if otherwise.	?
$INFORMATION TECHNOLOGY_{it}$	A dichotomous variable given the score one (1) if the firm i is in the information technology industry and zero (0) if otherwise.	?
$TELECOMMUNICATION SERVICES_{it}$	A dichotomous variable given the score one (1) if the firm i is in the telecommunication services industry and zero (0) if otherwise.	?
$UTILITIES_{it}$	A dichotomous variable given the score of (1) if the firm i is in the utilities industry and zero (0) if otherwise.	?
$YEAR_{it}$	Series of indicator variables corresponding to the financial year the data of firm i is obtained.	?

4.5.1 Firm size

Jensen and Meckling (1976) document that agency costs are expected to increase with an increase in firm size as a result of greater managerial discretion and opportunism. In support of the claim made by Jensen and Meckling (1976), a number of scholars have found larger firms to have stronger incentives to manage earnings as a result of being subjected to greater pressures to report more predictable earnings and reduce potential political risks (Watts and Zimmerman 1978, 1990; Manzon 1992; Das, Levine, and Sivaramakrishnan 1998; Pincus and Rajgopal 2002). Scholars such as Lobo and Zhou (2006) note that the operational complexity associated with large firm size enables managerial personnel to engage in aggressive earnings management practices. In contrast, other scholars have found smaller firms to more likely exhibit earnings management practices as a result of being potentially neglected by regulators (Bathke, Lorek, and Willinger 1989; Sloan 1996; Koh 2003; Holland and Jackson 2004; Sánchez-Ballesta and García-Meca 2007; Simpson 2013). Previous studies have also shown large size firms tend to record more stable accruals (Dechow and Dichev 2002; Lee and Mande 2003). Consistent with prior literature (Frankel, Johnson, and Nelson 2002; Ferguson, Seow, and Young 2004; Krishnan, Sami, and Zhang 2005; Coulton, Ruddock, and Taylor 2007; Gul, Jaggi, and Krishnan 2007; Huang, Mishra, and Raghunandan 2007), this study measures firm size as the natural logarithm transformation of the market value of equity at the year-end ($LNMVE_{it}$). While this study predicts that firm size is associated with earnings management, the predicted sign on size is not clear.

4.5.2 Firm growth and investment

Prior literature on earnings quality controls for a firm's pace of development based on the reasoning that in times of rapid growth, a firm may experience pressures to maintain or exceed anticipated growth rates (Beasley 1996; Abbott, Park, and Parker 2000; Matsumoto 2002; Skinner and Sloan 2002; Abbott, Parker, and Peters 2004; Abdul Rahman and Mohamed Ali 2006; Huang et al. 2008; Dimitropoulos and Asteriou 2010). Carcello and Nagy (2004) document that the pressure to achieve a targeted growth rate, or alternatively to mask downturns, may induce managerial personnel to exhibit aggressive earnings management practices. Consistent with the bulk of empirical literature (Collins and Kothari 1989; Hackenbrack and Hogan 2002; Balsam, Krishnan, and Yang 2003; Carcello and Nagy 2004; Jenkins, Kane,

and Velury 2006; Chi, Lisic, and Pevzner 2011; Jaggi, Gul, and Lau 2012), this study measures growth as the ratio of market to book value of equity ($MKTBK_{it}$). Extant literature has generally shown a firm's growth rate to be positively associated with discretionary accruals and earnings management behaviour (Dechow, Kothari, and Watts 1998; Young 1999; McNichols 2000; Pincus and Rajgopal 2002; Richardson et al. 2002; Firth, Fung, and Rui 2007; Sawicki and Shrestha 2008). Hence, this study predicts a positive sign on the variable $MKTBK_{it}$.¹⁰⁵

4.5.3 Firm performance

This study controls for firm performance by using an accounting based measure, namely, return on equity (ROE_{it}), which is the net income before extraordinary items over total equity.¹⁰⁶ Some scholars posit lower profit-making firms to be associated with greater earnings manipulation behaviour based on the reasoning that such firms require external financing to overcome the cash flow squeeze (White 1970; Ashari et al. 1994). In contrast, other scholars argue that higher profit making firms exhibit greater earnings management practices since such firms are subjected to more market pressure to meet or beat earnings targets relative to loss making firms (Hayn 1995; DeGeorge, Patel, and Zeckhauser 1999). While this study predicts that firm performance is associated with aggressive earnings management behaviour, the predicted sign is unclear.

4.5.4 Firm leverage

Leverage (LEV_{it}) represents the debt structure of a company. Consistent with prior literature (Balsam, Krishnan, and Yang 2003; Coulton, Taylor, and Taylor 2005; Gul, Jaggi, and Krishnan 2007), this study measures leverage as the ratio of total debt to total assets. Jiang, Petroni, and Wang (2008) posit leverage changes to have differing impacts on earnings management practices. Scholars have shown that high leverage firms tend to manipulate earnings either upwards in order to avoid debt covenant violations (Watts and Zimmerman 1978; Press and Weintrop 1990; DeFond and Jiambalvo 1994; Dechow and Skinner 2000; Erickson, Hanlon, and Maydew

¹⁰⁵ High market-to-book firms, having greater stock price sensitivity, engage in more aggressive earnings management practices (Subramanyam 1996; Barth et al. 1999; Beaver 2002; Skinner and Sloan 2002; Sawicki and Shrestha 2008).

¹⁰⁶ Both return on assets and return on equity are accounting based measures that have been used to measure firm performance. Return on equity is used as a control variable rather than return on assets because return on assets has been already used in controlling the impact of earnings performances on discretionary accruals (see subsection 4.3.1). Other earnings management studies using return on equity as a measure of a firm's performance include Al-Fayoumi, Abuzayed, and Alexander (2010); Liu and Lu (2007); Whelan (2004); and Barton and Simko (2002). Alternatively, prior literature has also used a cash-based measure, cash flow from operations scaled by beginning-of-year total assets for firm performance when examining earnings management practices (Dechow, Sloan, and Sweeney 1995; Guay, Kothari, and Watts 1996; Becker et al. 1998; Peasnell, Pope, and Young 2005; Lobo and Zhou 2006).

2004; Efendi, Srivastava, and Swanson 2007; Elayan, Li, and Meyer 2008) or downwards to highlight the financial difficulties of a firm with intent to obtain better terms in contract renegotiations (DeAngelo, DeAngelo, and Skinner 1994; Charitou, Louca, and Vafeas 2007). Despite the varied arguments of whether high leverage firms engage in income-increasing or income-decreasing earnings management, it is apparent that a firm's leverage affects earnings management behaviour. Hence, this study predicts firm leverage to be positively associated with earnings management, measured by the absolute value of discretionary accruals.

4.5.5 Firm capital intensity

Consistent with Sun and Rath (2009), this study measures capital intensity ratio (CIR_{it}) as gross property, plant and equipment over total assets. Prior research suggests that capital intensity indicates the ability of managers to engage in opportunistic earnings management behaviour (Burgstahler and Dichev 1997; Bradshaw, Richardson, and Sloan 1999; Francis and Schipper 1999; Young 1999). Lower capital intensity has been shown to enhance managerial ability in exercising discretion while higher capital intensity has been shown to constrain managerial ability in exercising discretion. Low capital intensity firms, having higher proportion of current assets relative to noncurrent assets, provide greater opportunities for managers to exercise discretion through the use of working capital accruals (Burgstahler and Dichev 1997). Hence, this study predicts a firm's capital intensity to be negatively associated with earnings management practices captured by the absolute value of discretionary accruals.

4.5.6 Lagged total accruals

Accruals in accounting anticipate future economic benefits and must eventually reverse. This mean reverting feature of accruals suggests that higher (lower) levels of lagged total accruals will reduce (increase) a manager's capacity to aggressively manage earnings upward in the current year. This relationship is generally supported in prior US literature (Dechow 1994; Dechow, Sloan, and Sweeney 1995; Sloan 1996; Teoh, Wong, and Rao 1998; Ashbaugh, LaFond, and Mayhew 2003; Krishnan, Su, and Zhang 2011). However, Australian studies examining the association between lagged total accruals and earnings management practices have returned mixed results. While some scholars find a negative relationship between lagged total accruals and earnings management practices (Koh

2003; Koh and Hsu 2005), others find an insignificant or even a positive relationship between the two (Hamilton et al. 2005; Coulton, Ruddock, and Taylor 2007). Consistent with prior literature (Coulton, Ruddock, and Taylor 2007; Krishnan, Su, and Zhang 2011), this study measures lagged value of total accruals (TAC_{it-1}) as firm i 's total accruals from the prior year ($t-1$) scaled by year $t-2$ total assets. Following bulk of empirical literature, the predicted sign on the variable TAC_{it-1} is negative.

4.5.7 Operating volatility – Sales volatility and Cash flow volatility

This study controls for operating volatility by controlling for sales and cash flow volatility. A high variability of sales and cash flows indicates that a firm is experiencing a large amount of economic uncertainty (Albrecht and Richardson 1990). Sales and cash flow volatility indicate a volatile operating environment with an increased used of approximations and estimations, resulting in larger errors of estimation and lower accruals quality (Dechow and Dichev 2002). Consistent with prior literature (Hribar and Nichols 2007; Srinidhi and Gul 2007; Dichev and Tang 2009; Gopalan and Jayaraman 2012), this study measures sales volatility ($SDREV_{it}$) as the standard deviation of sales (scaled by lagged total assets) and cash flow volatility as the standard deviation of cash flows (scaled by lagged total assets) where the standard deviations are calculated based on rolling-windows of five annual observations. Previous studies have generally found both sales and cash flow volatility to be positively associated with earnings management practices (Hribar and Nichols 2007; Gopalan and Jayaraman 2012). In fact Hribar and Nichols (2007) found both sales and cash flow volatility to have the highest correlation with absolute value of discretionary accruals compared with other firm characteristics such as market value of equity, total assets, sales growth, leverage, book to market ratios, and cash from operations. Consistent with prior literature, this study predicts both sales and cash flow volatility to be positively associated with earnings management, measured by absolute value of discretionary accruals.

4.5.8 Audit engagement partner gender

Behavioural differences between women and men have been extensively documented in psychology literature (Feingold 1994; Byrnes, Miller, and Schafer 1999; Costa, Terracciano, and McCrae 2001; Nettle 2007; Schmitt et al. 2008). Prior experimental studies examining the role of audit partner gender indicate female audit partners to have a significant influence on the audit process in terms cognitive

information processing, diligence, conservatism, and risk tolerance (Chung and Monroe 2001; O'Donnell and Johnson 2001; Gold, Hunton, and Gomaa 2009). Scholars such as Bernardi and Arnold (1997) find evidence showing females in Big 5 accounting firms to perform better than their male counterparts in moral development. Empirical literature examining the influence of a female audit partner on the magnitude of earnings management practices proxied by absolute value of discretionary accruals has returned mixed results (Niskanen et al. 2011; Ittonen, Vahamaa, and Vahamaa 2013). While Niskanen et al. (2011) find female auditors allow more discretion in income reporting, Ittonen, Vahamaa, and Vahamaa (2013) find female auditors to have a constraining effect on earnings management.¹⁰⁷ Consistent with prior literature (Bernardi and Arnold 1997; Gold, Hunton, and Gomaa 2009; Niskanen et al. 2011; Ittonen, Vahamaa, and Vahamaa 2013), this study captures audit engagement partner gender by a dichotomous variable, $FEMALE_{it}$, indicating audits in which the responsible audit partner is a female.¹⁰⁸ Specifically for $FEMALE_{it}$, a client firm i in time period t is scored one (1) if the signing partner of the incumbent auditor j in time period t is a female; otherwise the client firm i in time period t is scored zero (0). While this study predicts that the presence of a female audit partner is associated with earnings management, measured by absolute value of discretionary accruals, the predicted sign on the variable $FEMALE_{it}$ is unclear.

4.5.9 Industry effects

For the purposes of this study, industry effects ($INDUSTRY_{it}$) are controlled based on the reasoning that sample firms are likely to concentrate on a small number of industries. The variable $INDUSTRY_{it}$ controls differences in earnings management practices between sectors (Barth, Cram, and Nelson 2001). In terms of measurement, therefore, the variable $INDUSTRY_{it}$ is scored one (1) if the client firm i in the time period t is from GICS industry. Otherwise the variable $INDUSTRY_{it}$ is scored zero (0). This study uses nine broad industry classifications including, Energy, Materials,

¹⁰⁷ On separately examining subsamples of income increasing and income decreasing discretionary accruals, Niskanen et al. (2011) find female auditors to be significantly positively associated with only income decreasing discretionary accruals. This finding suggests a higher degree of earnings conservatism being exercised on part of female audit partners.

¹⁰⁸ The gender of the audit engagement partner can be determined by reviewing the signatory auditor's name from the audit report. Section 324 (10) of the Corporations Act (2001), Commonwealth of Australia, requires an auditor's report to be signed by the partner-in-charge of the audit engagement

Industrials, Consumer Discretionary, Consumer Staples, Health Care, Information Technology, Telecommunication Services, and Utilities.¹⁰⁹

4.5.10 Year effects

Year dummies ($YEAR_{it}$) are also used in the study to control for fixed year effects. Magnitude of accruals has been shown to vary by year (Myers, Myers, and Omer 2003). $YEAR_{it}$ represent series indicator variables controlling time temporal differences of reporting periods for firm-year observations with firm i scored one (1) if financial data corresponds to time period t ; otherwise scored zero (0). This study uses a five year observation window comprising of 2008, 2009, 2010, 2011, and 2012 calendar years.

4.6 REGRESSION MODEL

This study uses pooled OLS multiple regression to analyze the relationship between the selected auditor attributes and earnings management. The hypotheses of this study will be tested formally through this multivariate technique. The advantage of using a pooled regression analysis is that it allows for greater flexibility in modelling differences in sample specific behaviour (Greene 2007). Pooled analysis also offers a simple technique to examine the sensitivity of results to alternative specifications (Beaver 1998).

This study uses two proxies ($KOTHARI/DAC_{it}$, MJ/DAC_{it}) estimated as described in section 4.3) for measuring earnings management and models earnings management as a function of different variables representing firm characteristics and auditor attributes in the following pooled OLS regression equation:

$$EM_{it} = \beta_0 + \beta_1 AQ_{it} + \beta_2 FEMALE_{it} + \beta_3 LNMVE_{it} + \beta_4 MKTBK_{it} + \beta_5 ROE_{it} + \beta_6 LEV_{it} + \beta_7 CIR_{it} + \beta_8 TAC_{it-1} + \beta_9 SDREV_{it} + \beta_{10} SDCFO_{it} + \beta_{11} \sum INDUSTRY_{it} + \beta_{12} \sum YEAR_{it} + \varepsilon_{it} \quad [4]$$

¹⁰⁹ Consistent with prior literature, firms in the financial industry are excluded from this study (Simunic 1980; Coulton, Taylor, and Taylor 2005; Fargher, Lee, and Mande 2008).

Where:

EM_{it}	=	Earnings management measures ($KOTHARI/DAC_{it}$, MJ/DAC_{it}) estimated as described in section 4.3.
$KOTHARI/DAC_{it}$	=	Absolute value of discretionary accruals of firm i for time period t calculated using performance adjusted model introduced by Kothari, Leone, and Wasley (2005).
MJ/DAC_{it}	=	Absolute value of discretionary accruals of firm i for time period t calculated using the cross-sectional version of modified Jones model introduced by Dechow, Sloan, and Sweeney (1995).
AQ_{it}	=	Auditor attribute measures ($BIG4_{it}$, $SPECIALIST_{it}$, $RNONAUDIT_{it}$, $NTENURE_{it}$) estimated as described in section 4.4.
$BIG4_{it}$	=	Auditee i in time period t is scored one (1) if the incumbent auditor j in time period t is a Big4 audit firm; otherwise auditee i in time period t is scored zero (0).
$SPECIALIST_{it}$	=	Auditee i in time period t is scored one (1) if the incumbent auditor j in time period t is an industry specialist in industry k with 20% market share; otherwise auditee i in time period t is scored zero (0).
$RNONAUDIT_{it}$	=	The ratio of non-audit fees to total fees paid to the audit firm by the client firm i in time period t .
$NTENURE_{it}$	=	The number of consecutive years an audit partner serves as the signing partner on an engagement for the client firm i at the end of time period t .
$FEMALE_{it}$	=	Client firm i in time period t is scored one (1) if the signing partner of the incumbent auditor j in time period t is a female; otherwise the client firm i in time period t is scored zero (0).
$LN MVE_{it}$	=	Natural Logarithmic transformation of the market value of equity of client firm i at the end of time period t .
$MKT BK_{it}$	=	Ratio of total market capitalization of firm i at the end of time period t to the total book value of assets of firm i at the end of time period t .
ROE_{it}	=	Ratio of net income before extraordinary items of firm i at the end of time period t to total equity of firm i at the end of time period t .
LEV_{it}	=	Ratio of total debt of firm i at the end of time period t to the total assets of firm i at the end of time period t .
CIR_{it}	=	Ratio of gross value of property, plant and equipment of firm i at the end of time period t to the total assets of firm i at the end of time period t .
$SDREV_{it}$	=	Sales volatility, measured as the standard deviation of sales (scaled by lagged total assets) of firm i at the end of time period t where standard deviations are calculated based on rolling-windows of five annual observations.
$SDCFO_{it}$	=	Cash flow volatility, measured as the standard deviation of operating cash flows (scaled by lagged total assets) of firm i at the end of time period t where standard deviations are calculated based on rolling-windows of five annual observations.
TAC_{it-1}	=	Firm i 's total accruals from the prior year ($t-1$), scaled by year $t-2$ total assets.
$\sum INDUSTRY_{it}$	=	$ENERGY_{it} + MATERIALS_{it} + INDUSTRIALS_{it} + CONSUMER DISCRETIONARY_{it} + CONSUMER STAPLES_{it} + HEALTH CARE_{it} + INFORMATION TECHNOLOGY_{it} + TELECOMMUNICATION SERVICES_{it} + UTILITIES_{it}$
$ENERGY_{it}$	=	A dichotomous variable given the score one (1) if the firm i is in the energy industry and zero (0) if otherwise in 2008.
$MATERIALS_{it}$	=	A dichotomous variable given the score one (1) if the firm i is in the materials industry and zero (0) if otherwise in 2008.
$INDUSTRIALS_{it}$	=	A dichotomous variable given the score one (1) if the firm i is in the industrials industry and zero (0) if otherwise in 2008.
$CONSUMER DISCRETIONARY_{it}$	=	A dichotomous variable given the score one (1) if the firm i is in the consumer discretionary industry and zero (0) if otherwise in 2008.
$CONSUMER STAPLES_{it}$	=	A dichotomous variable given the score one (1) if the firm i is in the consumer staples industry and zero (0) if otherwise in 2008.
$HEALTH CARE_{it}$	=	A dichotomous variable given the score one (1) if the firm i is in the health care industry and zero (0) if otherwise in 2008.
$INFORMATION TECHNOLOGY_{it}$	=	A dichotomous variable given the score one (1) if the firm i is in the information technology industry and zero (0) if otherwise in 2008.
$TELECOMMUNICATION SERVICES_{it}$	=	A dichotomous variable given the score one (1) if the firm i is in the telecommunication services industry and zero (0) if otherwise in 2008.
$UTILITIES_{it}$	=	A dichotomous variable given the score one (1) if the firm i is in the utilities industry and zero (0) if otherwise in 2008.
$YEAR_{it}$	=	Series indicator variables controlling time temporal differences of reporting periods for firm-year observations with firm i scored one (1) if financial data corresponds to time period t ; otherwise scored zero (0).
β	=	Coefficients on independent and control variables 0 through 12.
ε_{it}	=	The error term.

The variables of interest are the four auditor attributes, namely, Big Firm auditor ($BIG4_{it}$), industry specialist auditor ($SPECIALIST_{it}$), provision of non-audit services ($RNONAUDIT_{it}$), and audit partner tenure ($NTENURE_{it}$) represented by the variable AQ_{it} in Equation [4].

The first set of regressions to test the hypotheses H_1 , H_2 , H_3 , and H_4 of this study are performed in Chapter Six by regressing independent and control variables in Equation [4] against the first earnings management proxy measure $KOTHARI/DAC_{it}$, which is the absolute value of discretionary accruals measured using the performance adjusted model. The study examines the impact of auditor attributes both in isolation and in unison on the earnings management practices (and hence, earnings quality). For examining the impact of auditor attributes in isolation, the variable AQ_{it} in Equation [4] is separately replaced with $BIG4_{it}$, $SPECIALIST_{it}$, $RNONAUDIT_{it}$, and $NTENURE_{it}$ in four regressions. For examining the impact of auditor attributes in unison, all four above mentioned auditor attribute measures representing AQ_{it} are included in a single regression. To confirm that the findings of this study are not dependent on the model used to measure discretionary accruals, a second set of regressions to test the hypotheses of this study are performed (also in Chapter Six) by regressing independent variables (both in isolation and unison) and control variables in Equation [4] against the second earnings management proxy measure MJ/DAC_{it} , which is the absolute value of discretionary accruals measured using the modified Jones model.

4.7 SENSITIVITY ANALYSIS

Sensitivity tests will be undertaken to validate the robustness of the findings. For example, for the purposes of primary analysis, this study relies on the performance adjusted model and the modified Jones model to measure discretionary accruals. There are at least two further popular methods for estimating discretionary accruals, namely, the lagged and forward-looking models of Dechow, Richardson, and Tuna (2003). Consistent with prior Australian studies by Hamilton et al. (2005) and Coulton, Ruddock, and Taylor (2007), the lagged and forward-looking models are used as a part of additional analysis to ensure that the main findings relating to auditor attributes and abnormal accruals are fairly consistent across the various popular definitions of abnormal accruals.

Next, the main regression model defined in *Equation [4]* is amended to include alternative measures of auditor attributes. Alternative measures of industry specialization are set at 15%, 25%, and 30% of industry sales audited (Ferguson and Stokes 2002; Jenkins, Kane, and Velury 2006; Knechel and Vanstraelen 2007). Provision of non-audit services is captured by two dichotomous variables based on the sample median of the ratio of non-audit fees to total fees (Francis and Ke 2006). Firms with ratios of non-audit fees to total fees less than or equal to the sample median are considered to have a low economic bonding with the auditor while firms with ratios of non-audit fees to total fees greater than sample median are considered to have a high economic bonding with the auditor. Measure of audit partner tenure is also captured by two dichotomous variables with one representing short partner tenure wherein the number of year an incumbent auditor has been engaged as the principal auditor is 2 years or less and the other representing medium partner tenure wherein the number of years an incumbent auditor has been engaged as the principal auditor is between 3 and 5 years (Carey and Simnett 2006; Fargher, Lee, and Mande 2008). The alternative measures of auditor attributes are derived to determine if the main regression results in Chapter Six are influenced by the measures used to proxy for auditor attributes.¹¹⁰

Finally, the main analysis in Chapter Six is reperformed after partitioning the sample in several alternative ways. The sample will first be partitioned based on client characteristics including firm size and growth since these have been shown in prior literature to have a significant influence on earnings management practices (Carcello and Nagy 2004; Gul, Jaggi, and Krishnan 2007). With regards to size, the pooled sample will be partitioned based on market capitalization (Chaney and Philipich 2002; Zhang 2007) while for growth, the pooled sample will be partitioned based on market-to-book ratios (Beekes, Pope, and Young 2004; Lara, Osma, and Mora 2005). These partitionings are undertaken to determine if the auditor attributes/earnings management linkage varies according to a firm's size and growth prospects. Next, following prior research (Klein 2002a; Prawitt, Smith, and Wood 2009), the final usable sample will be partitioned based on directionality of discretionary accruals (that is, positive versus negative accruals). Separate regressions will then be performed using firm-year observations and positive

¹¹⁰ It is not possible to replace the remaining dichotomous variable $BIG4_{it}$ (Auditee i in time period t is scored one (1) if the incumbent auditor j in time period t is a Big4 audit firm; otherwise auditee i in time period t is scored zero (0)) as there is no alternative measures in prior literature to operationalize the dichotomous variable.

discretionary accruals, and those with negative discretionary accruals. The sample will also be partitioned based on extreme and non-extreme earnings management where the absolute values of discretionary accruals of 75th percentile and above are considered to represent extreme earnings management (Cheng and Reitenga 2009). Furthermore, prior literature has generally found a brand name (Big8/6/5/4) auditor to be negatively associated with earnings management (Becker et al. 1998; Balsam, Krishnan, and Yang 2003). Although auditor brand (Big4 auditor) is used as an independent variable in the study, the sample will be partitioned into client firms audited by Big4 auditors and client firms audited by non-Big4 auditors. For each subsample, the association between the other three auditor attributes (that is, auditor industry specialization, provision of non-audit services, and audit partner tenure) and earnings management practices exhibited by client firms will be studied. Finally, the sample will also be partitioned based on the length of audit partner tenure to determine if the impact of the remaining three auditor attributes (that is, brand name, industry specialization, and provision of non-audit services) on earnings management varies between subsamples of short-tenured and medium-tenured audit partners.

4.8 SUMMARY OF THE CHAPTER

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

Chapter Five will provide the descriptive statistics and basic univariate analysis of the sample. Initially, details pertaining to cleaning and excluding the data are provided. Sample descriptive statistics such as the mean, standard deviation, 25 percentile, median, 75 percentile will also be provided. Finally, a correlation matrix reporting Pearson listwise coefficients for both continuous and dichotomous variables used in the study will be shown.

CHAPTER FIVE: DESCRIPTIVE STATISTICS AND UNIVARIATE ANALYSIS

5.1 OVERVIEW OF THE CHAPTER

Chapter Four outlined the sample collection and selection process. Measures for earnings management, auditor attributes, and the use of control variables were also discussed. The statistical tests and models adopted for this study were also detailed.

Chapter Five reviews the descriptive statistics for the variables used in this study. After discussing data cleaning, this chapter continues with a description of sample selection process and identifies the industry breakdowns in the final usable sample. Subsequently, a comprehensive discussion is undertaken of the descriptive statistics for the dependent variable, independent variables, and control variables. Correlation analysis is finally provided before a summary is outlined at the end of Chapter Five.

5.2 CLEANING OF THE DATA

Prior to data analysis, data screening checks are undertaken for each of the variables used in the study. Such checks include accuracy of data entry, missing values, and normality assessments. In relation to accuracy of data entry and missing values, a data authentication check is undertaken, on a sample basis, by re-visiting data already entered. In total, approximately fifteen (15) percent of the data set is examined in this manner. There were no errors noted.

Additionally, each continuous variable in this study is tested for normality by examining the variable's skewness, kurtosis, and Kolmogorov-Smirnov p-value. While some of the variables did not result in normal distributions, the continued inclusion of the variables is justified by prior research (Barton and Simko 2002; Balsam, Krishnan, and Yang 2003; Gul, Jaggi, and Krishnan 2007; Sun and Rath 2009; Chi, Lisic, and Pevzner 2011; Gopalan and Jayaraman 2012). Consistent with empirical earnings management literature, variables such as client firm size are subject to logarithmic transformation to provide a better linear fit with the dependent variable (that is, absolute value of discretionary accruals) (Frankel, Johnson, and Nelson 2002; Chung and Kallapur 2003; Krishnan 2003; Fargher, Lee, and Mande 2008). The Central Limit Theorem Principle suggests that large samples (of at least 30) can be used with confidence for subsequent multivariate testing, depending on

the number of degrees of freedom and the independent variables employed (Hair et al. 1995).

Consistent with prior earnings management studies (Teoh, Welch, and Wong 1998a; Cornett, Marcus, and Tehranian 2008; Stubben 2010; Krishnan, Su, and Zhang 2011), this study winsorizes all continuous variables at the 1 and 99 percent levels to remove the effect of influential eccentric observations.¹¹¹ These studies generally find the results obtained to be robust to the process of winsorization.

5.3 BASIC SAMPLE DESCRIPTIVE STATISTICS

5.3.1 Sample selection process and industry breakdown

Table 5.1 Panel A outlines the sample selection process. The final usable sample for this study consists of 250 firms per calendar year for 2008 to 2012. Initially, 125 of the 250 firms selected in 2008 were chosen because the firms were listed at the top of the ASX based on market capitalization.¹¹² The remaining 125 firms for 2008 are randomly selected from the 501st firm onwards on the exchange. After obtaining the final sample of 250 firms for 2008, the same firms are also selected for 2009 to 2012 resulting in a total final usable sample of 1,250 firms.¹¹³

When finalizing the initial sample of 250 firms for 2008, a number of exclusions are necessary in keeping with established prior literature. Specifically, the initial sample of 2,339 firms comprises all publicly listed firms trading on ASX as at 1 January 2008. Consistent with prior research (Ball, Kothari, and Robin 2000; Givoly and Hayn 2000; Ferguson, Seow, and Young 2004; Carey and Simnett 2006; Fargher, Lee, and Mande 2008; Krishnan, Su, and Zhang 2011), financial institutions (369) and trusts and investments (13) are excluded from the sample. In order to avoid undue influences of unexpected share price changes as a result of firms not being continuously listed on the ASX during the observation window (for example IPO firms and firms de-listed for a period of time and re-listed), 754 firms are also subsequently eliminated. These firms would eventually need to be excluded because of data requirements (Coulton, Ruddock, and Taylor 2007). Exclusion of such firms makes the potential limitations of empirical models of discretionary accruals less of

¹¹¹ Consistent with Krishnan, Su, and Zhang (2011), this study winsorizes variables capturing sales volatility ($SDREV_{it}$) and cash flow volatility ($SDCFO_{it}$) at the 99 percent level only.

¹¹² Since one of the major drivers of firm performance is the need to maximize shareholder value, this measure is best reflected by the firm's market capitalization.

¹¹³ This raises a possible independence of samples issue. However, almost all past literature (in both accounting and finance fields) using firm-year observations for multivariate testing accept the fact that independence of samples may be of concern but there is no other parsimonious way to undertake length-of-time analysis.

an issue for the selected sample. Consistent with Clifford and Evans (1997) and Carey and Simnett (2006), 30 foreign incorporated firms domiciled outside Australia are excluded since their financial statements are not always prepared in accordance with the normal disclosure requirements for other firms listed on the ASX. Finally, 18 firms are excluded that changed end of financial year date (Hamilton et al. 2005; Koh, Laplante, and Tong 2007) because their data are not comparable from year to year, leaving a final sample pool 1,155 firms. From the resulting final sample pool of 1,155 firms, top 125 firms of the top 500 firms are selected based on market capitalization and the other 125 firms are randomly selected out of the remaining firms from 501st firm onwards.¹¹⁴

Table 5.1:
Sample Selection and Industry Breakdown

Panel A: Sample Selection							
Number of Firms Listed on the ASX as at 1 January, 2008							2339
Exclusions:							
Financial Institutions							369
Trusts & Investments							13
Firms not Continuously Listed							754
Foreign Incorporated Firms							30
Firms with Changed End of Financial Year Dates							18
Sample Pool for Random Selection							1155
Top 125 Firms from Top 500 Firms by Market Capitalization							125
Random Selection of Remaining Firms from 501 st Firm Onwards							125
Final Usable Sample (2008)							250
Panel B: Sample Firm Breakdown by Industry in 2008							
ASX Industry	Top 125 Firms		Randomly Selected 125 Firms		Pooled Sample/Final Usable Sample – 250 Firms		
	No. of Firms	% of Sample	No. of Firms	% of Sample	No. of Firms	% of Sample	
Consumer Discretionary	20	8.00	10	4.00	30	12.00	
Consumer Staples	6	2.40	4	1.60	10	4.00	
Energy	16	6.40	24	9.60	40	16.00	
Health Care	11	4.40	17	6.80	28	11.20	
Industrials	27	10.80	10	4.00	37	14.80	
Information Technology	4	1.60	8	3.20	12	4.80	
Materials	35	14.00	45	18.00	80	32.00	
Telecommunication Services	2	0.80	4	1.60	6	2.40	
Utilities	4	1.60	3	1.20	7	2.80	
Total	125	50.00	125	50.00	250	100.00	

Table 5.1 Panel B presents the industry breakdown of the sample firms. Table 5.1 Panel B reveals that Materials (32%) is the most prominent industry sector in the sample followed by Energy (16%), suggesting that, Materials and Energy collectively represent the highest proportion (that is, 48%) of the final sample of 250

¹¹⁴ To identify top 500 ASX listed firms, the initial sample of 2,339 firms comprising all publicly listed firms trading on ASX as at 1 January 2008 is used.

firms in 2008. On the other hand, Telecommunication Services (2.40%) and Utilities (2.80%) are the least represented sectors in the final sample. The representation of firms within each industry is proportionally representative of the ASX market as a whole and therefore, each industry contains enough observations to control for the industry effects in the subsequent multivariate analysis.

5.3.2 Descriptive statistics

The descriptive statistics, as presented in Table 5.2 Panel A, show that the absolute values of discretionary accruals calculated using the performance adjusted model ($KOTHARI/DAC_{it}$) have a mean (median) of 0.155 (0.075) and a standard deviation of 0.294. Also, the absolute values of discretionary accruals calculated using the modified Jones model (MJ/DAC_{it}) are shown to have a mean (median) of 0.153 (0.068) and a standard deviation of 0.293. These findings represent an average magnitude of earnings management to be around 15% of total assets in Australian listed firms which is relatively significant (Sun 2009; Hall, Agrawal, and Agrawal 2013). These figures are comparable with previous Australian and US studies (Frankel, Johnson, and Nelson 2002; Davidson, Goodwin-Stewart, and Kent 2005; Sun 2009). For instance, in a US study, Frankel, Johnson, and Nelson (2002) found the absolute values of discretionary accruals to have a mean (median) and standard deviation of 0.12 (0.07) and 0.20. In an Australian study, Davidson, Goodwin-Stewart, and Kent (2005) found the absolute values of discretionary accruals to have a mean (median) and standard deviation of 0.156 (0.094) and 0.224. Panel A also reports the 1st and 3rd quartiles of $KOTHARI/DAC_{it}$ to be 0.034 and 0.168 and that of MJ/DAC_{it} to be 0.027 and 0.169, respectively. These findings are comparable with a previous Australian study by Fargher, Lee, and Mande (2008), wherein the 1st and 3rd quartiles of the absolute values of discretionary accruals were reported to be 0.0318 and 0.2020.

These values are much lower than those reported in Singapore for the fiscal year end December 31, 2003 (Rusmin et al. 2006). Rusmin et al. (2006) find that in the Singaporean context the absolute values of discretionary accruals have a mean (median), standard deviation, 1st quartile, and 3rd quartile of 0.6340 (0.5005), 0.5435, 0.2130, and 0.9059, respectively. The lower values of discretionary accruals for Australian firms is consistent with the findings of international comparative studies by Bhattacharya, Daouk, and Welker (2003) and Leuz, Nanda, and Wysocki (2003)

that report earnings management practices to be more prevalent in newly developed and emerging economies such as Singapore.

Next, Table 5.2 Panel A and Panel B show descriptive statistics for continuous independent variables and dichotomous independent variables respectively in the sample (that is, four selected auditor attributes). Panel A reports that the ratio of non-audit fees to total audit fees paid to the audit firms by the client firms in the sample ($RNONAUDIT_{it}$) has a mean (median) of 0.248 (0.211) with a standard deviation of 0.224. Panel A also shows that the ratio of non-audit fees to total fees paid to the audit firms by client firms in the sample ranges from 0.008 (at 25 percentile) to 0.446 (at 75 percentile). Further, Panel A reports that in terms of length of time in years during which the audit partner remains unchanged ($NTENURE_{it}$), firms in the sample have a mean (median) of 2.64 years (2 years) and a standard deviation of 1.354 years. Panel A also shows that in terms of the length of time in years that the auditor remains unchanged, most of the firms in the sample range from 1 year (at 25 percentile) to 4 years (at 75 percentile). In addition, Panel B shows that the Big4 audit firms ($BIG4_{it}$) audited more than half of the firms in the sample. Around 60.6% of the firms in the sample engaged PwC, KPMG, EY, and DTT. In respect to auditor specialization ($SPECIALIST_{it}$), 34.6% of the firms in the sample are shown in Panel B to employ an industry specialist auditor.

Table 5.2 Panel A and Panel B also show descriptive statistics for continuous control variables and dichotomous control variables respectively in the sample. To begin with, Panel A reports the mean (median) and the standard deviation of firm size ($LNMVE_{it}$) to be 8.216 (8.343) and 1.177. Table 5.2 Panel A also reports that firm size in the sample ranges from 7.174 (at the 25 percentile) to 9.191 (at the 75 percentile). Next, Panel A reveals that the market to book ratio ($MKTBK_{it}$) has a mean (median) and standard deviation of 2.320 (1.505) and 3.060. Panel A also reports that the market to book ratio of the sample firms ranges from 0.820 (at the 25 percentile) to 2.833 (at the 75 percentile). The average market to book ratio for Australian firms is comparable to the average market to book ratio for US firms which is near 2.5 (Penman 2009). Since the average market to book ratio for Australian and US firms is greater than 1.0, it appears that the investors in these countries are willing to pay more for stocks than their accounting book values. Panel A reports that the return on equity (ROE_{it}) has a mean (median) and standard deviation of -0.143 (0.027) and 1.149. Panel A also reports that the return on equity

of the sample firms ranges from -0.153 (at the 25 percentile) to 0.136 (at the 75 percentile). The average return on equity being negative suggests that shareholders are losing value, rather than gaining value. This underperformance might have resulted due to the volatility in the capital markets that arose from the GFC in July 2007 with the sub-prime crisis and the collapse of the US housing bubble, resulting in a severe global economic recession in 2008 and 2009 (Roxburgh et al. 2009). Panel A further reveals that leverage (LEV_{it}) has a mean (median) and standard deviation of 0.351 (0.340) and 0.309. Panel A also reports that leverage across sample firms ranges from 0.097 (at the 25 percentile) to 0.526 (at the 75 percentile). For the capital intensity ratio (CIR_{it}), Panel A reports a mean (median) and standard deviation of 0.217 (0.103) and 0.239. Panel A also reports that the capital intensity ratio of sample firms ranges from 0.015 (at the 25 percentile) to 0.381 (at the 75 percentile). Panel A reveals that sales volatility ($SDREV_{it}$) has a mean (median) and standard deviation of 18.893 (0.086) and 193.065 while cash flow volatility ($SDCFO_{it}$) has a mean (median) and standard deviation of 2.317 (0.064) and 21.953. Panel A also reports that the sales volatility of sample firms ranges from 0.009 (at the 25 percentile) to 0.198 (at the 75 percentile) while the cash flow volatility of sample firms ranges from 0.028 (at the 25 percentile) to 0.165 (at the 75 percentile). For the lagged value of total accruals (TAC_{it-1}), Panel A documents a mean (median) and standard deviation of -5.067 (-0.036) and 136.636. Panel A also documents that the lagged total accruals of sample firms range from -0.099 (at the 25 percentile) to -0.001 (at the 75 percentile). Finally, Panel B reports that female audit partners ($FEMALE_{it}$) signed off on the accounts of only 8.8% of client firms in the sample.

Table 5.2:
Descriptive Statistics – Continuous and Dichotomous Variables

Panel A: Descriptive Statistics – Continuous Variables					
Variable	Mean	Standard deviation	25 th percentile	Median (50 th percentile)	75 th percentile
<i>KOTHARI DAC_{it} </i>	0.155	0.294	0.034	0.075	0.168
<i>MJ DAC_{it} </i>	0.153	0.293	0.027	0.068	0.169
<i>RNONAUDIT_{it}</i>	0.248	0.224	0.008	0.211	0.446
<i>NTENURE_{it}</i>	2.640	1.354	1.000	2.000	4.000
<i>LNLMVE_{it}</i>	8.216	1.177	7.174	8.343	9.191
<i>MKTBK_{it}</i>	2.320	3.060	0.820	1.505	2.833
<i>ROE_{it}</i>	-0.143	1.149	-0.153	0.027	0.136
<i>LEV_{it}</i>	0.351	0.309	0.097	0.340	0.526
<i>CIR_{it}</i>	0.217	0.239	0.015	0.103	0.381
<i>SDREV_{it}</i>	18.893	193.065	0.009	0.086	0.198
<i>SDCFO_{it}</i>	2.317	21.953	0.028	0.064	0.165
<i>TAC_{it-1}</i>	-5.067	136.636	-0.099	-0.036	-0.001
Panel B: Descriptive Statistics – Dichotomous Variables					
Variable	Frequency of 1's (Yes)	Frequency of 0's (No)	Percentage of 1's (Yes)	Percentage of 0's (No)	
<i>BIG_{4it}</i>	757	493	60.6	39.4	
<i>SPECIALIST_{it}</i>	432	818	34.6	65.4	
<i>FEMALE_{it}</i>	110	1140	8.8	91.2	

Where:
KOTHARI|DAC_{it}| = Absolute value of discretionary accruals of firm *i* for time period *t* calculated using the performance adjusted model introduced by Kothari, Leone, and Wasley (2005); *MJ|DAC_{it}|* = Absolute value of discretionary accruals of firm *i* for time period *t* calculated using the cross-sectional version of the modified Jones model introduced by Dechow, Sloan, and Sweeney (1995); *RNONAUDIT_{it}* = The ratio of non-audit fees to total fees paid to the audit firm by the client firm *i* in time period *t*; *NTENURE_{it}* = The number of consecutive years an audit partner serves as the signing partner on an engagement for the client firm *i* at the end of time period *t*; *LNLMVE_{it}* = Natural Logarithmic transformation of the market value of equity of client firm *i* at the end of time period *t*; *MKTBK_{it}* = Market to book ratio, measured as the ratio of total market capitalization of firm *i* at the end of time period *t* to the total book value of assets of firm *i* at the end of time period *t*; *ROE_{it}* = Return on equity, measured as the ratio of net income before extraordinary items of firm *i* at the end of time period *t* to total equity of firm *i* at the end of time period *t*; *LEV_{it}* = Financial leverage, measured as the ratio of total debt of firm *i* at the end of time period *t* to the total assets of firm *i* at the end of time period *t*; *CIR_{it}* = Capital intensity ratio, measured as the ratio of gross value of property, plant and equipment of firm *i* at the end of time period *t* to the total assets of firm *i* at the end of time period *t*; *SDREV_{it}* = Sales volatility, measured as the standard deviation of sales (scaled by lagged total assets) of firm *i* at the end of time period *t* where standard deviations are calculated based on rolling-windows of five annual observations; *SDCFO_{it}* = Cash flow volatility, measured as the standard deviation of operating cash flows (scaled by lagged total assets) of firm *i* at the end of time period *t* where standard deviations are calculated based on rolling-windows of five annual observations; *TAC_{it-1}* = Firm *i*'s total accruals from the prior year (*t* – 1), scaled by year *t* – 2 total assets; *BIG_{4it}* = Client firm *i* in time period *t* is scored one (1) if the incumbent auditor *j* in time period *t* is a Big4 audit firm. Otherwise client firm *i* in time period *t* is scored zero (0); *SPECIALIST_{it}* = Client firm *i* in time period *t* is scored one (1) if the incumbent auditor *j* in time period *t* is an industry specialist in industry *k* with 20% market share. Otherwise client firm *i* in time period *t* is scored zero (0); *FEMALE_{it}* = Client firm *i* in time period *t* is scored one (1) if the signing partner of the incumbent auditor *j* in time period *t* is a female. Otherwise the client firm *i* in time period *t* is scored zero (0).

5.4 CORRELATION ANALYSIS

Table 5.3 presents a correlation matrix reporting Pearson listwise correlation coefficients for both the continuous and dichotomous variables used in this study. Table 5.3 includes the earnings management proxy, absolute value of discretionary accruals calculated using both the performance adjusted model ($KOTHARI/DAC_{it}$) and the modified Jones model (MJ/DAC_{it}). A review of correlation coefficients in Table 5.3 highlights a number of observations. First, both $KOTHARI/DAC_{it}$ and MJ/DAC_{it} are significantly correlated with three of the four auditor attributes of interest examined in this study (namely, the existence of a Big4 auditor ($BIG4_{it}$), the ratio of non-audit fees to total fees ($RNONAUDIT_{it}$), and the number of consecutive years an audit partner serves as the signing partner on a client firm's engagement ($NTENURE_{it}$)). Second, both $KOTHARI/DAC_{it}$ and MJ/DAC_{it} are significantly correlated with proxies that measure firm size (in this case, natural logarithmic transformation of market value of equity ($LNMVE_{it}$)) and firm performance (in this case, return on equity (ROE_{it})). This is unsurprising given that the published prior literature into earnings management determinants (detailed in Chapter Two) demonstrates firm size and firm performance to have a significant link with earnings management. Furthermore, while $KOTHARI/DAC_{it}$ is significantly associated with capital intensity ratio (CIR_{it}), MJ/DAC_{it} is not. Finally, a review of Table 5.3 also suggests that the correlation between sales volatility ($SDREV_{it}$) and cash flow volatility ($SDCFO_{it}$) is above the critical multicollinearity limit of 0.8 (Hair et al. 1995). Multivariate analysis was performed both including and excluding these variables and the results remained largely unchanged. Therefore, the high correlation between $SDREV_{it}$ and $SDCFO_{it}$ is not of substantial concern.

Table 5.3:
Pearson Correlation Coefficients

Variables	<i>KOTHARI</i> <i>/DAC_{it}</i>	<i>MJ/DAC_{it}</i> <i>/DAC_{it}</i>	<i>BIG_{4it}</i>	<i>SPECIALIST_{it}</i>	<i>RNONAUDIT_{it}</i>	<i>NTENURE_{it}</i>	<i>FEMALE_{it}</i>	<i>LNSIZE_{it}</i>	<i>MKTBK_{it}</i>	<i>ROE_{it}</i>	<i>LEV_{it}</i>	<i>CIR_{it}</i>	<i>SDREV_{it}</i>	<i>SDCFO_{it}</i>	<i>TAC_{it-1}</i>
<i>KOTHARI/DAC_{it}</i>	1.000	-													
<i>MJ/DAC_{it}</i>	-	1.000													
<i>BIG_{4it}</i>	-0.197**	-0.194**	1.000												
<i>SPECIALIST_{it}</i>	-0.020	-0.015	-0.126**	1.000											
<i>RNONAUDIT_{it}</i>	-0.105**	-0.109**	0.323**	0.015	1.000										
<i>NTENURE_{it}</i>	-0.080**	-0.087**	0.045	0.007	-0.001	1.000									
<i>FEMALE_{it}</i>	-0.034	-0.042	0.141**	-0.089**	0.033	0.006	1.000								
<i>LNMVE_{it}</i>	-0.213**	-0.198**	0.610**	0.023	0.421**	0.046	0.000	1.000							
<i>MKTBK_{it}</i>	0.033	0.028	0.057*	-0.121**	0.047	0.017	0.005	0.157**	1.000						
<i>ROE_{it}</i>	-0.140**	-0.145**	0.156**	0.029	0.096**	0.031	-0.004	0.252**	-0.258**	1.000					
<i>LEV_{it}</i>	-0.041	-0.014	0.231**	0.029	0.159**	-0.001	-0.047	0.251**	-0.007	0.041	1.000				
<i>CIR_{it}</i>	-0.069*	-0.030	0.323**	0.065*	0.229**	0.028	-0.057*	0.463**	-0.010	0.078**	0.337**	1.000			
<i>SDREV_{it}</i>	-0.024	-0.022	0.078**	0.020	0.115**	-0.024	-0.030	0.089**	-0.016	0.023	0.055	0.071*	1.000		
<i>SDCFO_{it}</i>	-0.021	-0.019	0.073*	0.013	0.113**	-0.024	-0.031	0.081**	-0.013	0.021	0.050	0.068*	0.994**	1.000	
<i>TAC_{it-1}</i>	0.008	0.007	-0.028	0.009	-0.089**	0.039	0.011	-0.042	0.009	-0.007	-0.016	-0.007	-0.452**	-0.451**	1.000

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

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

Where:

KOTHARI/DAC_{it} = Absolute value of discretionary accruals of firm *i* for time period *t* calculated using the performance adjusted model introduced by Kothari, Leone, and Wasley (2005); *MJ/DAC_{it}* = Absolute value of discretionary accruals of firm *i* for time period *t* calculated using the cross-sectional version of the modified Jones model introduced by Dechow, Sloan, and Sweeney (1995); *BIG_{4it}* = Client firm *i* in time period *t* is scored one (1) if the incumbent auditor *j* in time period *t* is a Big4 audit firm. Otherwise client firm *i* in time period *t* is scored zero (0); *SPECIALIST_{it}* = Client firm *i* in time period *t* is scored one (1) if the incumbent auditor *j* in time period *t* is an industry specialist in industry *k* with 20% market share. Otherwise client firm *i* in time period *t* is scored zero (0); *RNONAUDIT_{it}* = The ratio of non-audit fees to total fees paid to the audit firm by the client firm *i* in time period *t*; *NTENURE_{it}* = The number of consecutive years an audit partner serves as the signing partner on an engagement for the client firm *i* at the end of time period *t*; *FEMALE_{it}* = Client firm *i* in time period *t* is scored one (1) if the signing partner of the incumbent auditor *j* in time period *t* is a female. Otherwise the client firm *i* in time period *t* is scored zero (0); *LNMVE_{it}* = Natural Logarithmic transformation of the market value of equity of client firm *i* at the end of time period *t*; *MKTBK_{it}* = Market to book ratio, measured as the ratio of total market capitalization of firm *i* at the end of time period *t* to the total book value of assets of firm *i* at the end of time period *t*; *ROE_{it}* = Return on equity, measured as the ratio of net income before extraordinary items of firm *i* at the end of time period *t* to total equity of firm *i* at the end of time period *t*; *LEV_{it}* = Financial leverage, measured as the ratio of total debt of firm *i* at the end of time period *t* to the total assets of firm *i* at the end of time period *t*; *CIR_{it}* = Capital intensity ratio, measured as the ratio of gross value of property, plant and equipment of firm *i* at the end of time period *t* to the total assets of firm *i* at the end of time period *t*; *SDREV_{it}* = Sales volatility, measured as the standard deviation of sales (scaled by lagged total assets) of firm *i* at the end of time period *t* where standard deviations are calculated based on rolling-windows of five annual observations; *SDCFO_{it}* = Cash flow volatility, measured as the standard deviation of operating cash flows (scaled by lagged total assets) of firm *i* at the end of time period *t* where standard deviations are calculated based on rolling-windows of five annual observations; *TAC_{it-1}* = Firm *i*'s total accruals from the prior year (*t* - 1), scaled by year *t* - 2 total assets.

5.5 SUMMARY OF THE CHAPTER

Chapter Five provided the descriptive statistics for the data examined in this study. The sample selection process was detailed. An industry breakdown of the final usable sample is provided before a comprehensive review undertaken of the descriptive statistics of variables. Subsequently, results from correlations were reported and discussed.

Chapter Six discusses the main empirical results obtained in this study. Regression results examining the impact of auditor attributes (both in isolation and in unison) on the absolute value of discretionary accruals calculated using both the performance adjusted model as well as the modified Jones model will be reported and discussed. The analysis will be completed for a pooled sample of firm-year observations from 2008 to 2012.

CHAPTER SIX: MULTIVARIATE ANALYSIS – MULTIPLE REGRESSIONS

6.1 OVERVIEW OF THE CHAPTER

Chapter Five reported the descriptive statistics and univariate results of this study. Steps to ensure the normality of data and the validity of assumptions for multiple regressions were outlined. Subsequently, Pearson's correlation analysis was also provided.

Chapter Six reports and discusses the main empirical results of this study. Initially, the results of regressions examining the impact of auditor attributes (both in isolation and in unison) on the absolute value of discretionary accruals measured using the performance adjusted model are reported and discussed. Subsequently, the results of regressions examining the impact of auditor attributes (both in isolation and in unison) on the absolute value of discretionary accruals measured using the modified Jones model are reported and discussed. The analysis is completed for a pooled sample of firm-year observations from 2008 to 2012. Finally, a comparison of results is provided followed by a summary of Chapter Six.

6.2 REGRESSION RESULTS

A multiple regression analysis is considered to be suitable in this study since the focus is on examining the effect of multi variables on earnings management as a dependent variable. OLS regression is considered to be a powerful technique when the model contains both dichotomous and continuous variables (Hutcheson and Sofroniou 1999), as is the case in this study. Results of multivariate analysis testing the impact of the four pivotal auditor attributes (namely, auditor brand, auditor specialization, provision of non-audit services, and audit partner tenure) in isolation and in unison on earnings management, proxied by the absolute value of discretionary accruals (calculated using the performance adjusted model and the modified Jones model) for a pooled sample of firm-year observations across the observation window 2008 to 2012 (that is, $n = 1250$) are presented and discussed in the following subsections.

6.2.1 Impact of auditor attributes on the magnitude of earnings management calculated using the performance adjusted model

Table 6.1 documents the results of OLS regressions wherein the four key auditor attributes (auditor brand ($BIG4_{it}$), auditor specialization ($SPECIALIST_{it}$), provision of non-audit services ($RNONAUDIT_{it}$), and audit partner tenure ($NTENURE_{it}$)) are

regressed, both in isolation and in unison, against the absolute value of discretionary accruals, calculated using the performance adjusted model.

Column 1 reports the results of OLS regression when only the control variables are regressed against the absolute value of discretionary accruals. The coefficient on client firm size ($LNMVE_{it}$) is found to be negative and highly significant ($\beta = -0.05$, $p < 0.01$). Consistent with prior Australian and US literature (Fargher, Lee, and Mande 2008; Krishnan, Su, and Zhang 2011), this finding suggests that a larger degree of earnings management takes place in smaller sized firms. Also, in line with the findings of a previous Australian study (Sun 2009), the coefficient on client performance (ROE_{it}) is reported to be negative and significant ($\beta = -0.019$, $p < 0.05$), implying that lower profit-making Australian listed firms are associated with greater earnings management practices. Finally, also consistent with prior Australian literature (Coulton, Ruddock, and Taylor 2007; Fargher, Lee, and Mande 2008), the coefficient on leverage (LEV_{it}) is found to be positive and significant ($\beta = 0.071$, $p < 0.05$), suggesting that higher levels of leverage encourage earnings management behaviour. The other control variables in the study, namely, market to book ratio ($MKTBK_{it}$), capital intensity ratio (CIR_{it}), sales volatility ($SDREV_{it}$), cash flow volatility ($SDCFO_{it}$), lagged value of total accruals (TAC_{it-1}), and the engagement of a female audit partner ($FEMALE_{it}$) are not found to have a statistically significant relationship with absolute value of discretionary accruals. The industry ($INDUSTRY_{it}$) and year ($YEAR_{it}$) dummies are included in the regression model to control for industry effects and time temporal differences of reporting periods for firm-year observations, respectively. The F -statistic is found to be significant at the 1% level. The goodness-of-fit (that is, adjusted R^2) is 0.093, implying that the control variables in the regression model explain 9.3% of the variation in the dependent variable (that is, absolute value of discretionary accruals).

Column 2 documents the results of OLS regression using an auditor attribute measure (that is, $BIG4_{it}$) as an explanatory variable in analyzing the variation of absolute value of discretionary accruals for the pooled sample across the observation window 2008 to 2012. As expected, the results show the coefficient on $BIG4_{it}$ (the independent variable) to be negative and statistically significant ($\beta = -0.043$, $p < 0.05$), suggesting that a client firm engaging a Big4 auditor will have lower earnings management than a client firm engaging a non-Big4 auditor. This finding consistent with previous Australian and US studies (Becker et al. 1998; Gul, Lynn, and Tsui 2002; Koh 2003; Krishnan 2003) supports the acceptance of hypothesis H_1 . A further review of Column 2 indicates that control variables such as firm size ($LNMVE_{it}$), performance

(ROE_{it}), and leverage (LEV_{it}) continue to remain significant predictors of the absolute value of discretionary accruals. The F -statistic continues to remain significant at the 1% level. The goodness-of-fit (that is, adjusted R^2) improves marginally with the introduction of $BIG4_{it}$ as an explanatory variable in analyzing the variation of the absolute value of discretionary accruals in the regression model. Specifically, the adjusted R^2 in Column 2 is 0.096, suggesting that the variables entered into the regression model explain 9.6% of the variation in the dependent variable, absolute value of discretionary accruals.

Column 3 reports the results of OLS regression using an auditor attribute measure (that is, $SPECIALIST_{it}$) as an explanatory variable in analyzing the variation of absolute value of discretionary accruals for the pooled sample across the observation window 2008 to 2012. The results from Column 3 suggest that the coefficient on $SPECIALIST_{it}$ (the independent variable) is negative and statistically insignificant. This finding does not support the acceptance of hypothesis H_2 . A further review of Column 3 indicates that control variables such as firm size ($LNMVE_{it}$), performance (ROE_{it}), and leverage (LEV_{it}) continue to remain significant predictors of the absolute value of discretionary accruals. The F -statistic continues to remain significant at the 1% level. The introduction of $SPECIALIST_{it}$ as an explanatory variable in analyzing the variation of the absolute value of discretionary accruals in the regression model does not alter the goodness-of-fit (that is, adjusted R^2), which remains the same as that shown in Column 1. Specifically, the adjusted R^2 in Column 3 is 0.093, suggesting that the variables entered into the regression model explain 9.3% of the variation in the dependent variable, absolute value of discretionary accruals.

Column 4 documents the results of OLS regression using an auditor attribute measure (that is, $RNONAUDIT_{it}$) as an explanatory variable in analyzing the variation of absolute value of discretionary accruals for the pooled sample across the observation window 2008 to 2012. The results from Column 4 suggest that the coefficient on $RNONAUDIT_{it}$ (the independent variable) is positive and statistically insignificant. The positive sign on $RNONAUDIT_{it}$ implies that larger the portion of non-audit fees that auditors receive from audit clients the more likely they compromise their independence. However, since the coefficient on $RNONAUDIT_{it}$ is statistically insignificant, the results do not support the acceptance of hypothesis H_3 . A further review of Column 4 indicates that control variables such as firm size ($LNMVE_{it}$), performance (ROE_{it}), and leverage (LEV_{it}) continue to remain significant predictors of the absolute value of discretionary accruals. The F -statistic remains significant at the 1% level. The introduction of

$RNONAUDIT_{it}$ as an explanatory variable in analyzing the variation of the absolute value of discretionary accruals in the regression model very marginally alters the goodness-of-fit (that is, adjusted R^2), which remains approximately the same as that shown in Column 1. Specifically, the adjusted R^2 in Column 4 is 0.094, suggesting that the variables entered into the regression model explain 9.4% of the variation in the dependent variable, absolute value of discretionary accruals.

Column 5 reports the results of OLS regression using an auditor attribute measure (that is, $NTENURE_{it}$) as an explanatory variable in analyzing the variation of absolute value of discretionary accruals for the pooled sample across the observation window 2008 to 2012. As expected, the results from Column 5 show the coefficient on $NTENURE_{it}$ (the independent variable) to be negative and statistically significant ($\beta = -0.013$, $p < 0.05$), suggesting that a client firm with longer audit partner tenure (up to a maximum of five years) on an engagement will have lower earnings management than a client firm with shorter audit partner tenure on an engagement. This finding proposes that client's tend to exploit a new auditor's information disadvantage (Carey and Simnett 2006) and supports the acceptance of hypothesis H_4 . A further review of Column 5 indicates that control variables such as firm size ($LNMVE_{it}$), performance (ROE_{it}), and leverage (LEV_{it}) continue to remain significant predictors of the absolute value of discretionary accruals. The F -statistic remains significant at the 1% level. The goodness-of-fit (that is, adjusted R^2) improves marginally with the introduction of $NTENURE_{it}$ as an explanatory variable in analyzing the variation of the absolute value of discretionary accruals in the regression model. Specifically, the adjusted R^2 in Column 5 is 0.096, suggesting that the variables entered into the regression model explain 9.6% of the variation in the dependent variable, absolute value of discretionary accruals.

Column 6 documents the results of OLS regression including all four auditor attribute measures used in the study (that is, $BIG4_{it}$, $SPECIALIST_{it}$, $RNONAUDIT_{it}$, and $NTENURE_{it}$) as explanatory variables in analyzing the variation of absolute value of discretionary accruals for the pooled sample across the observation window 2008 to 2012. Consistent with the results reported in Columns 2 and 5, the coefficients on $BIG4_{it}$ and $NTENURE_{it}$ continue to remain negative and statistically significant. Also, consistent with the results reported in Columns 3 and 4, the coefficient on $SPECIALIST_{it}$ continues to be negative and statistically insignificant while the coefficient on $RNONAUDIT_{it}$ continues to be positive and statistically insignificant. A further review of Column 6 indicates that control variables such as firm size ($LNMVE_{it}$), performance

(ROE_{it}), and leverage (LEV_{it}) continue to remain significant predictors of the absolute value of discretionary accruals. The F -statistic continues to be significant at the 1% level. The goodness-of-fit (that is, adjusted R^2) improves marginally with the introduction of $BIG4_{it}$, $SPECIALIST_{it}$, $RNONAUDIT_{it}$, and $NTENURE_{it}$ as explanatory variables in analyzing the variation of the absolute value of discretionary accruals in the regression model. Specifically, the adjusted R^2 in Column 6 is 0.099, suggesting that the variables entered into the regression model explain 9.9% of the variation in the dependent variable, absolute value of discretionary accruals.

In summary, the results from Columns 2 to 6 fully support the acceptance of hypotheses H_1 and H_4 by showing that out of the four variables of interest (that is, $BIG4_{it}$, $SPECIALIST_{it}$, $RNONAUDIT_{it}$, and $NTENURE_{it}$), $BIG4_{it}$ and $NTENURE_{it}$ are the only auditor attribute measures that significantly influence (constrain) earnings management practices, both in isolation and in unison. Columns 1 to 6 report relatively low adjusted R^2 values for the six regression specifications, varying between 9.3% and 9.9%. Nevertheless, it should be noted that low R^2 values are typical in this type of accrual regressions (Becker et al. 1998; Xie, Davidson, and Dadalt 2003; Geiger and North 2006; Coulton, Ruddock, and Taylor 2007; Davidson et al. 2007; Meek, Rao, and Skousen 2007; Jenkins and Velury 2008; Peni and Vahamaa 2010).

Table 6.1:

OLS Regression Results – Impact of Auditor Attributes on the Absolute Value of Discretionary Accruals Calculated Using the Performance Adjusted Model

Variables	Expected Sign.	Column 1		Column 2		Column 3		Column 4		Column 5		Column 6	
		Coefficient	t-statistic										
<i>Intercept</i>		0.529	8.085***	0.597	8.171***	0.665	9.900***	0.604	8.669***	0.683	10.119***	0.520	7.051***
<i>BIG4_{it}</i>	-			-0.043	-1.996**							-0.049	-2.244**
<i>SPECIALIST_{it}</i>	-					-0.016	-0.864					-0.025	-1.332
<i>RNONAUDIT_{it}</i>	+							0.056	1.265			0.063	1.423
<i>NTENURE_{it}</i>	-									-0.013	-2.170**	-0.013	-2.129**
<i>FEMALE_{it}</i>	?	-0.024	-0.842	-0.013	-0.465	-0.026	-0.896	-0.025	-0.879	-0.024	-0.826	-0.015	-0.523
<i>LN MVE_{it}</i>	?	-0.050	-5.944***	-0.040	-4.122***	-0.050	-5.947***	-0.054	-5.973***	-0.049	-5.895***	-0.043	-4.215***
<i>MKT BK_{it}</i>	+	0.002	0.732	0.002	0.612	0.002	0.669	0.002	0.732	0.002	0.792	0.002	0.556
<i>ROE_{it}</i>	?	-0.019	-2.467**	-0.019	-2.539**	-0.019	-2.459**	-0.019	-2.473**	-0.018	-2.416**	-0.019	-2.495**
<i>LEV_{it}</i>	+	0.071	2.357**	0.071	2.349**	0.073	2.410**	0.071	2.344**	0.071	2.355**	0.073	2.416**
<i>CIR_{it}</i>	-	0.034	0.848	0.041	1.019	0.035	0.871	0.033	0.816	0.035	0.870	0.043	1.068
<i>SDREV_{it}</i>	+	0.000	-0.266	0.000	-0.263	0.000	-0.215	0.000	-0.239	0.000	-0.254	0.000	-0.139
<i>SDCFO_{it}</i>	+	0.001	0.285	0.001	0.283	0.001	0.234	0.001	0.250	0.001	0.269	0.000	0.148
<i>TAC_{it-1}</i>	-	0.000	0.191	0.000	0.209	0.000	0.191	0.000	0.256	0.000	0.246	0.000	0.338
<i>INDUSTRY_{it}</i>	?	Included											
<i>YEAR_{it}</i>	?	Included											
Adjusted R ²			0.093		0.096		0.093		0.094		0.096		0.099
F statistic (sig.)			7.126***		7.000***		6.835***		6.878***		7.037***		6.514***
Observations			1250		1250		1250		1250		1250		1250

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

Column 1 based on Equation [5], Column 2 based on Equation [6], Column 3 based on Equation [7], Column 4 based on Equation [8], Column 5 based on Equation [9], and Column 6 based on Equation [10].

$$KOTHARI|DAC_{it}| = \beta_0 + \beta_1 FEMALE_{it} + \beta_2 LNMVE_{it} + \beta_3 MKTBK_{it} + \beta_4 ROE_{it} + \beta_5 LEV_{it} + \beta_6 CIR_{it} + \beta_7 SDREV_{it} + \beta_8 SDCFO_{it} + \beta_9 TAC_{it-1} + \beta_{10} \sum INDUSTRY_{it} + \beta_{11} \sum YEAR_{it} + \varepsilon_{it} \quad [5]$$

$$KOTHARI|DAC_{it}| = \beta_0 + \beta_1 BIG4_{it} + \beta_2 FEMALE_{it} + \beta_3 LNMVE_{it} + \beta_4 MKTBK_{it} + \beta_5 ROE_{it} + \beta_6 LEV_{it} + \beta_7 CIR_{it} + \beta_8 SDREV_{it} + \beta_9 SDCFO_{it} + \beta_{10} TAC_{it-1} + \beta_{11} \sum INDUSTRY_{it} + \beta_{12} \sum YEAR_{it} + \varepsilon_{it} \quad [6]$$

$$KOTHARI|DAC_{it}| = \beta_0 + \beta_1 SPECIALIST_{it} + \beta_2 FEMALE_{it} + \beta_3 LNMVE_{it} + \beta_4 MKTBK_{it} + \beta_5 ROE_{it} + \beta_6 LEV_{it} + \beta_7 CIR_{it} + \beta_8 SDREV_{it} + \beta_9 SDCFO_{it} + \beta_{10} TAC_{it-1} + \beta_{11} \sum INDUSTRY_{it} + \beta_{12} \sum YEAR_{it} + \varepsilon_{it} \quad [7]$$

$$KOTHARI|DAC_{it}| = \beta_0 + \beta_1 RNONAUDIT_{it} + \beta_2 FEMALE_{it} + \beta_3 LNMVE_{it} + \beta_4 MKTBK_{it} + \beta_5 ROE_{it} + \beta_6 LEV_{it} + \beta_7 CIR_{it} + \beta_8 SDREV_{it} + \beta_9 SDCFO_{it} + \beta_{10} TAC_{it-1} + \beta_{11} \sum INDUSTRY_{it} + \beta_{12} \sum YEAR_{it} + \varepsilon_{it} \quad [8]$$

$$KOTHARI|DAC_{it}| = \beta_0 + \beta_1 NTENURE_{it} + \beta_2 FEMALE_{it} + \beta_3 LNMVE_{it} + \beta_4 MKTBK_{it} + \beta_5 ROE_{it} + \beta_6 LEV_{it} + \beta_7 CIR_{it} + \beta_8 SDREV_{it} + \beta_9 SDCFO_{it} + \beta_{10} TAC_{it-1} + \beta_{11} \sum INDUSTRY_{it} + \beta_{12} \sum YEAR_{it} + \varepsilon_{it} \quad [9]$$

$$KOTHARI|DAC_{it}| = \beta_0 + \beta_1 BIG4_{it} + \beta_2 SPECIALIST_{it} + \beta_3 RNONAUDIT_{it} + \beta_4 NTENURE_{it} + \beta_5 FEMALE_{it} + \beta_6 LNMVE_{it} + \beta_7 MKTBK_{it} + \beta_8 ROE_{it} + \beta_9 LEV_{it} + \beta_{10} CIR_{it} + \beta_{11} SDREV_{it} + \beta_{12} SDCFO_{it} + \beta_{13} TAC_{it-1} + \beta_{14} \sum INDUSTRY_{it} + \beta_{15} \sum YEAR_{it} + \varepsilon_{it} \quad [10]$$

Where:

$KOTHARI|DAC_{it}|$ = Absolute value of discretionary accruals of firm i for time period t calculated using the performance adjusted model introduced by Kothari, Leone, and Wasley (2005); $BIG4_{it}$ = Client firm i in time period t is scored one (1) if the incumbent auditor j in time period t is a Big4 audit firm. Otherwise client firm i in time period t is scored zero (0); $SPECIALIST_{it}$ = Client firm i in time period t is scored one (1) if the incumbent auditor j in time period t is an industry specialist in industry k with 20% market share. Otherwise client firm i in time period t is scored zero (0); $RNONAUDIT_{it}$ = The ratio of non-audit fees to total fees paid to the audit firm by the client firm i in time period t ; $NTENURE_{it}$ = The number of consecutive years an audit partner serves as the signing partner on an engagement for the client firm i at the end of time period t ; $FEMALE_{it}$ = Client firm i in time period t is scored one (1) if the signing partner of the incumbent auditor j in time period t is a female. Otherwise the client firm i in time period t is scored zero (0); $LNMVE_{it}$ = Natural Logarithmic transformation of the market value of equity of client firm i at the end of time period t ; $MKTBK_{it}$ = Market to book ratio, measured as the ratio of total market capitalization of firm i at the end of time period t to the total book value of assets of firm i at the end of time period t ; ROE_{it} = Return on equity, measured as the ratio of net income before extraordinary items of firm i at the end of time period t to total equity of firm i at the end of time period t ; LEV_{it} = Financial leverage, measured as the ratio of total debt of firm i at the end of time period t to the total assets of firm i at the end of time period t ; CIR_{it} = Capital intensity ratio, measured as the ratio of gross value of property, plant and equipment of firm i at the end of time period t to the total assets of firm i at the end of time period t ; $SDREV_{it}$ = Sales volatility, measured as the standard deviation of sales (scaled by lagged total assets) of firm i at the end of time period t where standard deviations are calculated based on rolling-windows of five annual observations; $SDCFO_{it}$ = Cash flow volatility, measured as the standard deviation of operating cash flows (scaled by lagged total assets) of firm i at the end of time period t where standard deviations are calculated based on rolling-windows of five annual observations; TAC_{it-1} = Firm i 's total accruals from the prior year ($t - 1$), scaled by year $t - 2$ total assets; $INDUSTRY_{it}$ = Industry indicator variable to control for industry effects; $YEAR_{it}$ = Series indicator variables controlling time temporal differences of reporting periods for firm-year observations with firm i scored one (1) if financial data corresponds to time period t . Otherwise client firm i is scored zero (0); β = Coefficients on variables; ε_{it} = The error term.

6.2.2 Impact of auditor attributes on the magnitude of earnings management calculated using the modified Jones model

Table 6.2 documents the results of OLS regressions wherein the four key auditor attributes (auditor brand ($BIG4_{it}$), auditor specialization ($SPECIALIST_{it}$), provision of non-audit services ($RNONAUDIT_{it}$), and audit partner tenure ($NTENURE_{it}$)) are regressed, both in isolation and in unison, against the absolute value of discretionary accruals, calculated using the modified Jones model.

Column 1 reports the results of OLS regression when only the control variables are regressed against the absolute value of discretionary accruals. The coefficient on firm size ($LNMVE_{it}$) is shown to be negative and highly significant ($\beta = -0.05$, $p < 0.01$). This finding is consistent with that of Table 6.1. Next, the coefficient on client performance (ROE_{it}) is also reported to be negative and highly significant ($\beta = -0.021$, $p < 0.01$) compared to being negative and only marginally significant in Table 6.1. Similarly, the coefficient on leverage (LEV_{it}) is reported to be positive and highly significant ($\beta = 0.090$, $p < 0.01$) compared to being positive and only marginally significant in Table 6.1. Previous Australian and US studies that have found the coefficient on leverage to be positive and highly significant when examining the magnitude of earnings management include Davidson, Goodwin-Stewart, and Kent (2005) and Krishnan, Su, and Zhang (2011). In addition to the control variables shown to be significant predictors of absolute value of discretionary accruals in Table 6.1, the coefficient on capital intensity ratio (CIR_{it}) is also found to be positive and significant ($\beta = 0.082$, $p < 0.05$), suggesting that firms with high capital intensity engage in higher levels of earnings management. While this finding is consistent with a recent Australian study (Sun and Rath 2009), it is inconsistent with prior US literature (Burgstahler and Dichev 1997; Bradshaw, Richardson, and Sloan 1999; Francis and Schipper 1999; Young 1999) which suggests that higher capital intensity constrains a manager's ability in exercising discretion. The other control variables in the study, namely, market to book ratio ($MKTBK_{it}$), sales volatility ($SDREV_{it}$), cash flow volatility ($SDCFO_{it}$), lagged value of total accruals (TAC_{it-1}), and the engagement of a female audit partner ($FEMALE_{it}$) continue to be statistically insignificant when regressed against absolute value of discretionary accruals. The F -statistic is found to be significant at the 1% level. The adjusted R^2 is 0.099, suggesting that the control variables in the regression model explain 9.9% of the variation in the dependent variable (that is, absolute value of discretionary accruals).

Column 2 documents the results of OLS regression using an auditor attribute measure (that is, $BIG4_{it}$) as an explanatory variable in analyzing the variation of absolute value of discretionary accruals for the pooled sample across the observation window 2008 to 2012. Consistent with the finding documented in Table 6.1, the coefficient on $BIG4_{it}$ (the independent variable) is reported to be negative and statistically significant ($\beta = -0.050$, $p < 0.05$), thereby supporting the acceptance of hypothesis H_1 . A further review Column 2 indicates that control variables such as firm size ($LN MVE_{it}$), performance (ROE_{it}), leverage (LEV_{it}), and capital intensity (CIR_{it}) continue to remain significant predictors of the absolute value of discretionary accruals. The F -statistic continues to remain significant at the 1% level. The goodness-of-fit (that is, adjusted R^2) improves marginally with the introduction of $BIG4_{it}$ as an explanatory variable in analyzing the variation of the absolute value of discretionary accruals in the regression model. Specifically, the adjusted R^2 in Column 2 is 0.103, suggesting that the variables entered into the regression model explain 10.3% of the variation in the dependent variable, absolute value of discretionary accruals.

Column 3 reports the results of OLS regression using an auditor attribute measure (that is, $SPECIALIST_{it}$) as an explanatory variable in analyzing the variation of absolute value of discretionary accruals for the pooled sample across the observation window 2008 to 2012. Consistent with the finding documented in Table 6.1, the coefficient on $SPECIALIST_{it}$ (the independent variable) is reported to be negative and statistically insignificant, thereby failing to support the acceptance of hypothesis H_2 . A further review of Column 3 indicates that control variables such as firm size ($LN MVE_{it}$), performance (ROE_{it}), leverage (LEV_{it}), and capital intensity (CIR_{it}) continue to remain significant predictors of the absolute value of discretionary accruals. The F -statistic continues to remain significant at the 1% level. The introduction of $SPECIALIST_{it}$ as an explanatory variable in analyzing the variation of the absolute value of discretionary accruals in the regression model does not alter the goodness-of-fit (that is, adjusted R^2), which remains the same as that shown in Column 1. Specifically, the adjusted R^2 in Column 3 is 0.099, suggesting that the variables entered into the regression model explain 9.9% of the variation in the dependent variable, absolute value of discretionary accruals.

Column 4 documents the results of OLS regression using an auditor attribute measure (that is, $RNONAUDIT_{it}$) as an explanatory variable in analyzing the variation of absolute value of discretionary accruals for the pooled sample across the observation window 2008 to 2012. Consistent with the finding documented in Table 6.1, the

coefficient on $RNONAUDIT_{it}$ (the independent variable) is found to be positive and statistically insignificant, thereby failing to support the acceptance of hypothesis H_3 . A further review of Column 4 indicates that control variables such as firm size ($LNMVE_{it}$), performance (ROE_{it}), leverage (LEV_{it}), and capital intensity (CIR_{it}) continue to remain significant predictors of the absolute value of discretionary accruals. The F -statistic remains significant at the 1% level. The introduction of $RNONAUDIT_{it}$ as an explanatory variable in analyzing the variation of the absolute value of discretionary accruals in the regression model does not alter the goodness-of-fit (that is, adjusted R^2), which remains the same as that shown in Column 1. Specifically, the adjusted R^2 in Column 4 is 0.099, suggesting that the variables entered into the regression model explain 9.9% of the variation in the dependent variable, absolute value of discretionary accruals.

Column 5 reports the results of OLS regression using an auditor attribute measure (that is, $NTENURE_{it}$) as an explanatory variable in analyzing the variation of absolute value of discretionary accruals for the pooled sample across the observation window 2008 to 2012. Consistent with the finding documented in Table 6.1, the coefficient on $NTENURE_{it}$ (the independent variable) is found to be negative and statistically significant ($\beta = -0.015$, $p < 0.05$), thereby supporting the acceptance of hypothesis H_4 . A further review Column 5 indicates that control variables such as firm size ($LNMVE_{it}$), performance (ROE_{it}), leverage (LEV_{it}), and capital intensity (CIR_{it}) continue to remain significant predictors of the absolute value of discretionary accruals. The F -statistic continues to be significant at the 1% level. The goodness-of-fit (that is, adjusted R^2) improves marginally with the introduction of $NTENURE_{it}$ as an explanatory variable in analyzing the variation of the absolute value of discretionary accruals in the regression model. Specifically, the adjusted R^2 in Column 5 is 0.103, suggesting that the variables entered into the regression model explain 10.3% of the variation in the dependent variable, absolute value of discretionary accruals.

Column 6 documents the results of OLS regression when all four auditor attribute measures used in the study (that is, $BIG4_{it}$, $SPECIALIST_{it}$, $RNONAUDIT_{it}$, and $NTENURE_{it}$) are included as explanatory variables in analyzing the variation of absolute value of discretionary accruals for the pooled sample across the observation window 2008 to 2012. Consistent with the findings reported in Table 6.1, the coefficients on $BIG4_{it}$ and $NTENURE_{it}$ are found to be negative and statistically significant. The coefficient on $SPECIALIST_{it}$ continues to be negative and statistically insignificant while the coefficient on $RNONAUDIT_{it}$ continues to be positive and statistically

insignificant. A further review of Column 6 indicates that control variables such as firm size ($LNMVE_{it}$), performance (ROE_{it}), leverage (LEV_{it}), and capital intensity (CIR_{it}) continue to remain significant predictors of the absolute value of discretionary accruals. The F -statistic continues to be significant at the 1% level. The goodness-of-fit (that is, adjusted R^2) improves marginally with the introduction of $BIG4_{it}$, $SPECIALIST_{it}$, $RNONAUDIT_{it}$, and $NTENURE_{it}$ as explanatory variables in analyzing the variation of the absolute value of discretionary accruals in the regression model. Specifically, the adjusted R^2 in Column 6 is 0.107, suggesting that the variables entered into the regression model explain 10.7% of the variation in the dependent variable, absolute value of discretionary accruals.

In summary, the results from Columns 2 to 6 fully support the acceptance of hypotheses H_1 and H_4 by showing that out of the four variables of interest selected for this study (that is, $BIG4_{it}$, $SPECIALIST_{it}$, $RNONAUDIT_{it}$, and $NTENURE_{it}$), $BIG4_{it}$ and $NTENURE_{it}$ are the only auditor attribute measures that significantly influence (constrain) earnings management practices, both in isolation and in unison.

Table 6.2:
OLS Regression Results – Impact of Auditor Attributes on the Absolute Value of Discretionary Accruals Calculated Using the Modified Jones Model

Variables	Expected Sign.	Column 1		Column 2		Column 3		Column 4		Column 5		Column 6	
		Coefficient	t-statistic										
<i>Intercept</i>		0.509	7.826***	0.436	6.031***	0.513	7.669***	0.583	8.414***	0.539	8.007***	0.557	7.297***
<i>BIG4_{it}</i>	-			-0.050	-2.352**							-0.056	-2.557**
<i>SPECIALIST_{it}</i>	-					-0.014	-0.737					-0.024	-1.262
<i>RNONAUDIT_{it}</i>	+							0.041	0.948			0.049	1.123
<i>NTENURE_{it}</i>	-									-0.015	-2.479**	-0.014	-2.432**
<i>FEMALE_{it}</i>	?	-0.030	-1.047	-0.017	-0.602	-0.031	-1.092	-0.030	-1.074	-0.029	-1.030	-0.019	-0.652
<i>LNMVE_{it}</i>	?	-0.050	-5.978***	-0.038	-3.975***	-0.050	-5.980***	-0.053	-5.881***	-0.049	-5.925***	-0.041	-3.985***
<i>MKTBK_{it}</i>	+	0.001	0.388	0.001	0.247	0.001	0.335	0.001	0.388	0.001	0.456	0.001	0.208
<i>ROE_{it}</i>	?	-0.021	-2.773***	-0.022	-2.860***	-0.021	-2.766***	-0.021	-2.777***	-0.021	-2.717***	-0.021	-2.808***
<i>LEV_{it}</i>	+	0.090	2.994***	0.090	2.986***	0.092	3.036***	0.090	2.983***	0.090	2.994***	0.092	3.052***
<i>CIR_{it}</i>	-	0.082	2.029**	0.090	2.230**	0.083	2.048**	0.081	2.005**	0.083	2.058**	0.092	2.286**
<i>SDREV_{it}</i>	+	0.000	-0.357	0.000	-0.353	0.000	-0.312	0.000	-0.336	0.000	-0.343	0.000	-0.239
<i>SDCFO_{it}</i>	+	0.001	0.373	0.001	0.371	0.001	0.329	0.001	0.346	0.001	0.355	0.001	0.246
<i>TAC_{it-1}</i>	-	0.000	0.195	0.000	0.216	0.000	0.195	0.000	0.244	0.000	0.258	0.000	0.336
<i>INDUSTRY_{it}</i>	?	Included											
<i>YEAR_{it}</i>	?	Included											
Adjusted R ²			0.099		0.103		0.099		0.099		0.103		0.107
F statistic (sig.)			7.556***		7.491***		7.235***		7.253***		7.522***		6.969***
Observations			1250		1250		1250		1250		1250		1250

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

Column 1 based on Equation [11], Column 2 based on Equation [12], Column 3 based on Equation[13], Column 4 based on Equation [14], Column 5 based on Equation [15], and Column 6 based on Equation [16].

$$MJ|DAC_{it} = \beta_0 + \beta_1 FEMALE_{it} + \beta_2 LNMVE_{it} + \beta_3 MKTBK_{it} + \beta_4 ROE_{it} + \beta_5 LEV_{it} + \beta_6 CIR_{it} + \beta_7 SDREV_{it} + \beta_8 SDCFO_{it} + \beta_9 TAC_{it-1} + \beta_{10} \sum INDUSTRY_{it} + \beta_{11} \sum YEAR_{it} + \epsilon_{it} \quad [11]$$

$$MJ|DAC_{it} = \beta_0 + \beta_1 BIG4_{it} + \beta_2 FEMALE_{it} + \beta_3 LNMVE_{it} + \beta_4 MKTBK_{it} + \beta_5 ROE_{it} + \beta_6 LEV_{it} + \beta_7 CIR_{it} + \beta_8 SDREV_{it} + \beta_9 SDCFO_{it} + \beta_{10} TAC_{it-1} + \beta_{11} \sum INDUSTRY_{it} + \beta_{12} \sum YEAR_{it} + \epsilon_{it} \quad [12]$$

$$MJ|DAC_{it} = \beta_0 + \beta_1 SPECIALIST_{it} + \beta_2 FEMALE_{it} + \beta_3 LNMVE_{it} + \beta_4 MKTBK_{it} + \beta_5 ROE_{it} + \beta_6 LEV_{it} + \beta_7 CIR_{it} + \beta_8 SDREV_{it} + \beta_9 SDCFO_{it} + \beta_{10} TAC_{it-1} + \beta_{11} \sum INDUSTRY_{it} + \beta_{12} \sum YEAR_{it} + \epsilon_{it} \quad [13]$$

$$MJ|DAC_{it} = \beta_0 + \beta_1 RNONAUDIT_{it} + \beta_2 FEMALE_{it} + \beta_3 LNMVE_{it} + \beta_4 MKTBK_{it} + \beta_5 ROE_{it} + \beta_6 LEV_{it} + \beta_7 CIR_{it} + \beta_8 SDREV_{it} + \beta_9 SDCFO_{it} + \beta_{10} TAC_{it-1} + \beta_{11} \sum INDUSTRY_{it} + \beta_{12} \sum YEAR_{it} + \epsilon_{it} \quad [14]$$

$$MJ|DAC_{it} = \beta_0 + \beta_1 NTENURE_{it} + \beta_2 FEMALE_{it} + \beta_3 LNMVE_{it} + \beta_4 MKTBK_{it} + \beta_5 ROE_{it} + \beta_6 LEV_{it} + \beta_7 CIR_{it} + \beta_8 SDREV_{it} + \beta_9 SDCFO_{it} + \beta_{10} TAC_{it-1} + \beta_{11} \sum INDUSTRY_{it} + \beta_{12} \sum YEAR_{it} + \epsilon_{it} \quad [15]$$

$$MJ|DAC_{it} = \beta_0 + \beta_1 BIG4_{it} + \beta_2 SPECIALIST_{it} + \beta_3 RNONAUDIT_{it} + \beta_4 NTENURE_{it} + \beta_5 FEMALE_{it} + \beta_6 LNMVE_{it} + \beta_7 MKTBK_{it} + \beta_8 ROE_{it} + \beta_9 LEV_{it} + \beta_{10} CIR_{it} + \beta_{11} SDREV_{it} + \beta_{12} SDCFO_{it} + \beta_{13} TAC_{it-1} + \beta_{14} \sum INDUSTRY_{it} + \beta_{15} \sum YEAR_{it} + \epsilon_{it} \quad [16]$$

Where:

$MJ|DAC_{it}$ = Absolute value of discretionary accruals of firm i for time period t calculated using the cross-sectional version of the modified Jones model introduced by Dechow, Sloan, and Sweeney (1995); $BIG4_{it}$ = Client firm i in time period t is scored one (1) if the incumbent auditor j in time period t is a Big4 audit firm. Otherwise client firm i in time period t is scored zero (0); $SPECIALIST_{it}$ = Client firm i in time period t is scored one (1) if the incumbent auditor j in time period t is an industry specialist in industry k with 20% market share. Otherwise client firm i in time period t is scored zero (0); $RNONAUDIT_{it}$ = The ratio of non-audit fees to total fees paid to the audit firm by the client firm i in time period t ; $NTENURE_{it}$ = The number of consecutive years an audit partner serves as the signing partner on an engagement for the client firm i at the end of time period t ; $FEMALE_{it}$ = Client firm i in time period t is scored one (1) if the signing partner of the incumbent auditor j in time period t is a female. Otherwise the client firm i in time period t is scored zero (0); $LNMVE_{it}$ = Natural Logarithmic transformation of the market value of equity of client firm i at the end of time period t ; $MKTBK_{it}$ = Market to book ratio, measured as the ratio of total market capitalization of firm i at the end of time period t to the total book value of assets of firm i at the end of time period t ; ROE_{it} = Return on equity, measured as the ratio of net income before extraordinary items of firm i at the end of time period t to total equity of firm i at the end of time period t ; LEV_{it} = Financial leverage, measured as the ratio of total debt of firm i at the end of time period t to the total assets of firm i at the end of time period t ; CIR_{it} = Capital intensity ratio, measured as the ratio of gross value of property, plant and equipment of firm i at the end of time period t to the total assets of firm i at the end of time period t ; $SDREV_{it}$ = Sales volatility, measured as the standard deviation of sales (scaled by lagged total assets) of firm i at the end of time period t where standard deviations are calculated based on rolling-windows of five annual observations; $SDCFO_{it}$ = Cash flow volatility, measured as the standard deviation of operating cash flows (scaled by lagged total assets) of firm i at the end of time period t where standard deviations are calculated based on rolling-windows of five annual observations; TAC_{it-1} = Firm i 's total accruals from the prior year ($t - 1$), scaled by year $t - 2$ total assets; $INDUSTRY_{it}$ = Industry indicator variable to control for industry effects; $YEAR_{it}$ = Series indicator variables controlling time temporal differences of reporting periods for firm-year observations with firm i scored one (1) if financial data corresponds to time period t . Otherwise client firm i is scored zero (0); β = Coefficients on variables; ϵ_{it} = The error term.

6.2.3 Comparison of results

The estimation results of regressions are reported in two tables: Table 6.1 reports the results for the regressions where the discretionary accruals are determined using the performance adjusted model, while the estimates in Table 6.2 are based on the modified Jones model.

The variables of interest in the regressions are the four key auditor attributes (auditor brand ($BIG4_{it}$), auditor specialization ($SPECIALIST_{it}$), auditor independence ($RNONAUDIT_{it}$), and audit partner tenure ($NTENURE_{it}$)). As can be seen from Table 6.1 and Table 6.2, the coefficients on $BIG4_{it}$ and $NTENURE_{it}$ are consistently negative and statistically significant at the 5% level, suggesting that BIG4 auditors and longer audit partner tenure (up to a maximum of five years) reduce earnings management practices exhibited by client firms. Table 6.1 and Table 6.2 also report the coefficients on $SPECIALIST_{it}$ to be negative and statistically insignificant while the coefficients on $RNONAUDIT_{it}$ to be positive and statistically insignificant. In summary, the findings reported in Table 6.1 and Table 6.2 fully support the acceptance of hypotheses H_1 and H_4 while fail to fully support the acceptance of hypotheses H_2 and H_3 .

Control variables such as firm size ($LNMVE_{it}$), performance (ROE_{it}), and leverage (LEV_{it}) continue to remain statistically significant throughout Table 6.1 and Table 6.2. While capital intensity ratio (CIR_{it}) remains statistically insignificant in Table 6.1, it becomes a significant predictor of absolute value of discretionary accruals in Table 6.2.

Table 6.1 and Table 6.2 also report that the F -statistic continues to be significant at the 1% level in each of the twelve regression specifications. The adjusted R^2 of the estimated models are relatively low, varying between 9.3% and 9.9% for the performance adjusted model regressions and between 9.9% and 10.7% for the modified Jones model regressions.

In general, regression results in Table 6.1 are largely consistent with the ones reported in Table 6.2, and thereby indicate that the findings of this study are not dependent on the model used to measure discretionary accruals.

6.3 SUMMARY OF THE CHAPTER

Chapter Six reported the empirical results of this study. Initially, regression results examining the relationship between auditor attributes (both in isolation and in unison) against absolute value of discretionary accruals estimated using the performance adjusted model are examined for a pooled sample of all firm-year observations from

2008 to 2012. Subsequently, regression results are re-performed with the four auditor attributes regressed (in isolation and in unison) against absolute value of discretionary accruals estimated using the modified Jones model; once again, for a pooled sample of all firm-year observations from 2008 to 2012. Finally, a comparison of results is provided.

Chapter Seven will discuss the results of robustness tests and sensitivity analysis completed. Specifically, alternative measures of both earnings management and auditor attributes will be utilized to assess robustness of this study's main results. Subsequently, the sample in this study will be partitioned by client characteristics, earnings management, and auditor attributes and multivariate analyses will be performed again.

CHAPTER SEVEN: ROBUSTNESS AND SENSITIVITY ANALYSIS

7.1 OVERVIEW OF THE CHAPTER

Chapter Six presented the results of OLS regressions examining the relationship between auditor attributes (both in isolation and in unison) and earnings management proxied by absolute value of discretionary accruals estimated using the performance adjusted model as well as the modified Jones model for a pooled sample of all firm-year observations from 2008 to 2012.

Chapter Seven discusses the robustness and sensitivity of the main results in Chapter Six. Initially, alternative measures of earnings management and auditor attributes are utilized. Subsequently, the sample is partitioned by client characteristics, earnings management, and auditor attributes and the main analysis in Chapter Six is performed again. Finally, a summary of Chapter Seven is provided.

7.2 ALTERNATIVE MEASURES OF EARNINGS MANAGEMENT

In the primary analysis documented in Chapter Six, this study relies on discretionary accruals measured using the performance adjusted model (defined by *Equation [1]* in subsection 4.3.1 of Chapter Four) and the modified Jones model (defined by *Equation [2]* in subsection 4.3.2 of Chapter Four). There are at least two further popular methods for estimating discretionary accruals, namely, the lagged model and the forward-looking model outlined in Dechow, Richardson, and Tuna (2003).¹¹⁵

The lagged model used to estimate discretionary accruals is defined by *Equation [17]* as follows:

$$TAC_{it}/TA_{it-1} = \alpha_1(1/TA_{it-1}) + \alpha_2(((1+k)\Delta SALES_{it}/TA_{it-1}) - (\Delta AR_{it}/TA_{it-1})) + \alpha_3(PPE_{it}/TA_{it-1}) + \alpha_4(TAC_{it-1}/TA_{it-2}) + \varepsilon_{it} \quad [17]$$

Where:

TAC_{it}	=	Total accruals of firm i for time period t .
TA_{it-1}	=	Total assets of firm i at the end of time period $t-1$.
k	=	The slope coefficient from a regression of ΔAR_{it} on $\Delta SALES_{it}$
$\Delta SALES_{it}$	=	Change in net sales of firm i between time period $t-1$ and time period t .
ΔAR_{it}	=	Change in accounts receivables of firm i from the beginning of time period t until the end of time period t .
PPE_{it}	=	Gross book value of the property plant and equipment of firm i at the end of time period t .
TAC_{it-1}	=	Total accruals of firm i at the end of time period $t-1$.
TA_{it-2}	=	Total assets of firm i at the end of time period $t-2$.
$\alpha_1, \alpha_2, \alpha_3, \alpha_4$	=	Estimated coefficients.
ε_{it}	=	The error term representing discretionary accruals of firm i for time period t .

¹¹⁵ The lagged and forward-looking models have been discussed in subsection 2.3.3.1 of Chapter Two.

The forward-looking model used to estimate discretionary accruals is defined by Equation [18] as follows:

$$\begin{aligned}
TAC_{it}/TA_{it-1} = & \alpha_1(1/TA_{it-1}) + \alpha_2(((1 + k) \Delta SALES_{it}/TA_{it-1}) - (\Delta AR_{it}/TA_{it-1})) \\
& + \alpha_3(PPE_{it}/TA_{it-1}) + \alpha_4(TAC_{it-1}/TA_{it-2}) + \alpha_5(GROWTH_SALES_{it+1}/SALES_{it}) \\
& + \varepsilon_{it}
\end{aligned}
\tag{18}$$

Where:

TAC_{it}	=	Total accruals of firm i for time period t .
TA_{it-1}	=	Total assets of firm i at the end of time period $t-1$.
k	=	The slope coefficient from a regression of ΔAR_{it} on $\Delta SALES_{it}$
$\Delta SALES_{it}$	=	Change in net sales of firm i between time period $t-1$ and time period t .
ΔAR_{it}	=	Change in accounts receivables of firm i from the beginning of time period t until the end of time period t .
PPE_{it}	=	Gross book value of the property plant and equipment of firm i at the end of time period t .
TAC_{it-1}	=	Total accruals of firm i at the end of time period $t-1$.
TA_{it-2}	=	Total assets of firm i at the end of time period $t-2$.
$GROWTH_SALES_{it+1}$	=	Change in sales of firm i between time period t and time period $t+1$.
$SALES_{it}$	=	Total sales of firm i at the end of time period t .
$\alpha_1, \alpha_2, \alpha_3, \alpha_4, \alpha_5$	=	Estimated coefficients.
ε_{it}	=	The error term representing discretionary accruals of firm i for time period t .

7.2.1 Impact of auditor attributes on the magnitude of earnings management calculated using the lagged model

Table 7.1 documents the results of OLS regressions wherein the four key auditor attributes (auditor brand ($BIG4_{it}$), auditor specialization ($SPECIALIST_{it}$), provision of non-audit services ($RNONAUDIT_{it}$), and audit partner tenure ($NTENURE_{it}$)) are regressed, both in isolation and in unison, against the absolute value of discretionary accruals, calculated using the lagged model.

The coefficients on $BIG4_{it}$ (Columns 2 and 6) and $NTENURE_{it}$ (Columns 5 and 6) are consistently reported to be negative and statistically significant, suggesting that the engagement of a BIG4 auditor and longer audit partner tenure (up to a maximum of five years) effectively constrain earnings management practices exhibited by client firms. Furthermore, the coefficients on $SPECIALIST_{it}$ (Columns 3 and 6) are reported to be negative and statistically insignificant while the coefficients on $RNONAUDIT_{it}$ (Columns 4 and 6) are shown to be positive and statistically insignificant. These findings fully support the acceptance of hypotheses H_1 and H_4 while fail to fully support the acceptance of hypotheses H_2 and H_3 . Control variables such as firm size ($LNMVE_{it}$), performance (ROE_{it}), leverage (LEV_{it}), and capital intensity ratio (CIR_{it}) continue to remain statistically significant across Columns 1 to 6, suggesting that these variables are significant predictors of absolute value of discretionary accruals. The F -statistic is also

found to be significant at the 1% level in each of the six regression specifications. Finally, the adjusted R^2 is shown to vary between 9.9% and 10.5%. In summary, the results reported in Table 7.1 are largely consistent with the main findings reported in Table 6.1 and Table 6.2.

Table 7.1:
OLS Regression Results – Impact of Auditor Attributes on the Absolute Value of Discretionary Accruals Calculated Using the Lagged Model

Variables	Expected Sign.	Column 1		Column 2		Column 3		Column 4		Column 5		Column 6	
		Coefficient	t-statistic										
<i>Intercept</i>		0.666	10.012***	0.458	6.288***	0.527	7.827***	0.532	7.989***	0.555	8.181***	0.562	7.300***
<i>BIG4_{it}</i>	-			-0.047	-2.182**							-0.050	-2.290**
<i>SPECIALIST_{it}</i>	-					-0.008	-0.439					-0.017	-0.903
<i>RNONAUDIT_{it}</i>	+							0.017	0.395			0.024	0.544
<i>NTENURE_{it}</i>	-									-0.014	-2.344**	-0.014	-2.299**
<i>FEMALE_{it}</i>	?	-0.024	-0.852	-0.013	-0.441	-0.025	-0.878	-0.025	-0.863	-0.024	-0.835	-0.014	-0.470
<i>LN MVE_{it}</i>	?	-0.052	-6.222***	-0.042	-4.270***	-0.052	-6.221***	-0.054	-5.891***	-0.052	-6.171***	-0.042	-4.113***
<i>MKTBK_{it}</i>	+	0.001	0.502	0.001	0.371	0.001	0.470	0.001	0.502	0.002	0.567	0.001	0.359
<i>ROE_{it}</i>	?	-0.022	-2.854***	-0.022	-2.934***	-0.022	-2.849***	-0.022	-2.855***	-0.021	-2.800***	-0.022	-2.879***
<i>LEV_{it}</i>	+	0.079	2.599***	0.078	2.590***	0.080	2.621***	0.079	2.593***	0.079	2.597***	0.080	2.636***
<i>CIR_{it}</i>	-	0.087	2.156**	0.095	2.341**	0.088	2.167**	0.087	2.145**	0.088	2.183**	0.097	2.389**
<i>SDREV_{it}</i>	+	0.000	-0.308	0.000	-0.304	0.000	-0.281	0.000	-0.299	0.000	-0.295	0.000	-0.225
<i>SDCFO_{it}</i>	+	0.001	0.323	0.001	0.321	0.001	0.297	0.001	0.312	0.001	0.306	0.001	0.235
<i>TAC_{it-1}</i>	-	0.000	0.463	0.000	0.483	0.000	0.463	0.000	0.483	0.000	0.523	0.000	0.569
<i>INDUSTRY_{it}</i>	?	Included											
<i>YEAR_{it}</i>	?	Included											
Adjusted R ²		0.100		0.103		0.099		0.099		0.103		0.105	
F statistic (sig.)		7.608***		7.500***		7.266***		7.264***		7.538***		6.872***	
Observations		1250		1250		1250		1250		1250		1250	

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

Column 1 based on Equation [19], Column 2 based on Equation [20], Column 3 based on Equation [21], Column 4 based on Equation [22], Column 5 based on Equation [23], and Column 6 based on Equation [24].

$$LAGGED/DAC_{it} = \beta_0 + \beta_1 FEMALE_{it} + \beta_2 LNMVE_{it} + \beta_3 MKTBK_{it} + \beta_4 ROE_{it} + \beta_5 LEV_{it} + \beta_6 CIR_{it} + \beta_7 SDREV_{it} + \beta_8 SDCFO_{it} + \beta_9 TAC_{it-1} + \beta_{10} \sum INDUSTRY_{it} + \beta_{11} \sum YEAR_{it} + \varepsilon_{it} \quad [19]$$

$$LAGGED/DAC_{it} = \beta_0 + \beta_1 BIG4_{it} + \beta_2 FEMALE_{it} + \beta_3 LNMVE_{it} + \beta_4 MKTBK_{it} + \beta_5 ROE_{it} + \beta_6 LEV_{it} + \beta_7 CIR_{it} + \beta_8 SDREV_{it} + \beta_9 SDCFO_{it} + \beta_{10} TAC_{it-1} + \beta_{11} \sum INDUSTRY_{it} + \beta_{12} \sum YEAR_{it} + \varepsilon_{it} \quad [20]$$

$$LAGGED/DAC_{it} = \beta_0 + \beta_1 SPECIALIST_{it} + \beta_2 FEMALE_{it} + \beta_3 LNMVE_{it} + \beta_4 MKTBK_{it} + \beta_5 ROE_{it} + \beta_6 LEV_{it} + \beta_7 CIR_{it} + \beta_8 SDREV_{it} + \beta_9 SDCFO_{it} + \beta_{10} TAC_{it-1} + \beta_{11} \sum INDUSTRY_{it} + \beta_{12} \sum YEAR_{it} + \varepsilon_{it} \quad [21]$$

$$LAGGED/DAC_{it} = \beta_0 + \beta_1 RNONAUDIT_{it} + \beta_2 FEMALE_{it} + \beta_3 LNMVE_{it} + \beta_4 MKTBK_{it} + \beta_5 ROE_{it} + \beta_6 LEV_{it} + \beta_7 CIR_{it} + \beta_8 SDREV_{it} + \beta_9 SDCFO_{it} + \beta_{10} TAC_{it-1} + \beta_{11} \sum INDUSTRY_{it} + \beta_{12} \sum YEAR_{it} + \varepsilon_{it} \quad [22]$$

$$LAGGED/DAC_{it} = \beta_0 + \beta_1 NTENURE_{it} + \beta_2 FEMALE_{it} + \beta_3 LNMVE_{it} + \beta_4 MKTBK_{it} + \beta_5 ROE_{it} + \beta_6 LEV_{it} + \beta_7 CIR_{it} + \beta_8 SDREV_{it} + \beta_9 SDCFO_{it} + \beta_{10} TAC_{it-1} + \beta_{11} \sum INDUSTRY_{it} + \beta_{12} \sum YEAR_{it} + \varepsilon_{it} \quad [23]$$

$$LAGGED/DAC_{it} = \beta_0 + \beta_1 BIG4_{it} + \beta_2 SPECIALIST_{it} + \beta_3 RNONAUDIT_{it} + \beta_4 NTENURE_{it} + \beta_5 FEMALE_{it} + \beta_6 LNMVE_{it} + \beta_7 MKTBK_{it} + \beta_8 ROE_{it} + \beta_9 LEV_{it} + \beta_{10} CIR_{it} + \beta_{11} SDREV_{it} + \beta_{12} SDCFO_{it} + \beta_{13} TAC_{it-1} + \beta_{14} \sum INDUSTRY_{it} + \beta_{15} \sum YEAR_{it} + \varepsilon_{it} \quad [24]$$

Where:

$LAGGED/DAC_{it}$ = Absolute value of discretionary accruals of firm i for time period t calculated using the lagged model introduced by Dechow, Richardson, and Tuna (2003); $BIG4_{it}$ = Client firm i in time period t is scored one (1) if the incumbent auditor j in time period t is a Big4 audit firm. Otherwise client firm i in time period t is scored zero (0); $SPECIALIST_{it}$ = Client firm i in time period t is scored one (1) if the incumbent auditor j in time period t is an industry specialist in industry k with 20% market share. Otherwise client firm i in time period t is scored zero (0); $RNONAUDIT_{it}$ = The ratio of non-audit fees to total fees paid to the audit firm by the client firm i in time period t ; $NTENURE_{it}$ = The number of consecutive years an audit partner serves as the signing partner on an engagement for the client firm i at the end of time period t ; $FEMALE_{it}$ = Client firm i in time period t is scored one (1) if the signing partner of the incumbent auditor j in time period t is a female. Otherwise the client firm i in time period t is scored zero (0); $LNMVE_{it}$ = Natural Logarithmic transformation of the market value of equity of client firm i at the end of time period t ; $MKTBK_{it}$ = Market to book ratio, measured as the ratio of total market capitalization of firm i at the end of time period t to the total book value of assets of firm i at the end of time period t ; ROE_{it} = Return on equity, measured as the ratio of net income before extraordinary items of firm i at the end of time period t to total equity of firm i at the end of time period t ; LEV_{it} = Financial leverage, measured as the ratio of total debt of firm i at the end of time period t to the total assets of firm i at the end of time period t ; CIR_{it} = Capital intensity ratio, measured as the ratio of gross value of property, plant and equipment of firm i at the end of time period t to the total assets of firm i at the end of time period t ; $SDREV_{it}$ = Sales volatility, measured as the standard deviation of sales (scaled by lagged total assets) of firm i at the end of time period t where standard deviations are calculated based on rolling-windows of five annual observations; $SDCFO_{it}$ = Cash flow volatility, measured as the standard deviation of operating cash flows (scaled by lagged total assets) of firm i at the end of time period t where standard deviations are calculated based on rolling-windows of five annual observations; TAC_{it-1} = Firm i 's total accruals from the prior year ($t - 1$), scaled by year $t - 2$ total assets; $INDUSTRY_{it}$ = Industry indicator variable to control for industry effects; $YEAR_{it}$ = Series indicator variables controlling time temporal differences of reporting periods for firm-year observations with firm i scored one (1) if financial data corresponds to time period t . Otherwise client firm i is scored zero (0); β = Coefficients on variables; ε_{it} = The error term.

7.2.2 Impact of auditor attributes on the magnitude of earnings management calculated using the forward-looking model

Table 7.2 documents the results of OLS regressions wherein the four key auditor attributes (auditor brand ($BIG4_{it}$), auditor specialization ($SPECIALIST_{it}$), provision of non-audit services ($RNONAUDIT_{it}$), and audit partner tenure ($NTENURE_{it}$)) are regressed, both in isolation and in unison, against the absolute value of discretionary accruals, calculated using the forward-looking model.

Consistent with the findings reported in Table 7.1, the coefficients on $BIG4_{it}$ (Columns 2 and 6) and $NTENURE_{it}$ (Columns 5 and 6) are found to be negative and statistically significant. The coefficients on $SPECIALIST_{it}$ (Columns 3 and 6) continue to be negative and statistically insignificant while the coefficients on $RNONAUDIT_{it}$ (Columns 4 and 6) continue to be positive and statistically insignificant. Hence, once again, the reported findings fully support the acceptance of hypotheses H_1 and H_4 while fail to fully support the acceptance of hypotheses H_2 and H_3 . Furthermore, control variables such as firm size ($LNMVE_{it}$), performance (ROE_{it}), leverage (LEV_{it}), and capital intensity ratio (CIR_{it}) continue to remain statistically significant across Columns 1 to 6. The F -statistic is again found to be significant at the 1% level in each of the six regression specifications. Finally, the adjusted R^2 is shown to vary between 10.7% and 11.3%. Hence, the results reported in Table 7.2 are also largely consistent with the main findings reported in Table 6.1 and Table 6.2. In summary, the main findings relating to auditor attributes and abnormal accruals in this study are fairly consistent across the various popular definitions of abnormal accruals.

Table 7.2:
OLS Regression Results – Impact of Auditor Attributes on the Absolute Value of Discretionary Accruals Calculated Using the Forward-Looking Model

Variables	Expected Sign.	Column 1		Column 2		Column 3		Column 4		Column 5		Column 6	
		Coefficient	t-statistic										
<i>Intercept</i>		1.258	9.684***	1.102	7.765***	0.527	7.827***	1.390	10.711***	1.311	9.903***	1.268	8.443***
<i>BIG4_{it}</i>	-			-0.113	-2.699***							-0.115	-2.686***
<i>SPECIALIST_{it}</i>	-					-0.005	-0.139					-0.015	-0.396
<i>RNONAUDIT_{it}</i>	+							0.001	0.014			0.015	0.175
<i>NTENURE_{it}</i>	-									-0.023	-1.977**	-0.022	-1.920*
<i>FEMALE_{it}</i>	?	-0.078	-1.410	-0.051	-0.898	-0.078	-1.398	-0.079	-1.410	-0.078	-1.397	-0.051	-0.906
<i>LNMVE_{it}</i>	?	-0.138	-8.390***	-0.112	-5.889***	-0.138	-8.386***	-0.138	-7.743***	-0.137	-8.346***	-0.112	-5.574***
<i>MKTBK_{it}</i>	+	0.002	0.306	0.001	0.145	0.002	0.315	0.002	0.306	0.002	0.360	0.001	0.166
<i>ROE_{it}</i>	?	-0.060	-4.004***	-0.061	-4.108***	-0.060	-4.004***	-0.060	-4.003***	-0.059	-3.959***	-0.060	-4.059***
<i>LEV_{it}</i>	+	0.274	4.644***	0.274	4.641***	0.274	4.623***	0.274	4.642***	0.274	4.644***	0.275	4.651***
<i>CIR_{it}</i>	-	0.197	2.487**	0.215	2.718***	0.196	2.481**	0.197	2.484**	0.198	2.509**	0.218	2.745***
<i>SDREV_{it}</i>	+	0.000	-0.395	0.000	-0.392	0.000	-0.403	0.000	-0.395	0.000	-0.384	0.000	-0.352
<i>SDCFO_{it}</i>	+	0.002	0.367	0.002	0.365	0.002	0.374	0.002	0.366	0.002	0.352	0.002	0.321
<i>TAC_{it-1}</i>	-	0.000	0.222	0.000	0.245	0.000	0.221	0.000	0.222	0.000	0.271	0.000	0.302
<i>INDUSTRY_{it}</i>	?	Included											
<i>YEAR_{it}</i>	?	Included											
Adjusted R ²			0.108		0.113		0.107		0.107		0.110		0.113
F statistic (sig.)			8.207***		8.205***		7.828***		7.827***		8.030***		7.380***
Observations			1250		1250		1250		1250		1250		1250

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

Column 1 based on Equation [25], Column 2 based on Equation [26], Column 3 based on Equation [27], Column 4 based on Equation [28], Column 5 based on Equation [29], and Column 6 based on Equation [30].

$$FORWARD|DAC_{it}| = \beta_0 + \beta_1 FEMALE_{it} + \beta_2 LNMVE_{it} + \beta_3 MKTBK_{it} + \beta_4 ROE_{it} + \beta_5 LEV_{it} + \beta_6 CIR_{it} + \beta_7 SDREV_{it} + \beta_8 SDCFO_{it} + \beta_9 TAC_{it-1} + \beta_{10} \sum INDUSTRY_{it} + \beta_{11} \sum YEAR_{it} + \varepsilon_{it} \quad [25]$$

$$FORWARD|DAC_{it}| = \beta_0 + \beta_1 BIG4_{it} + \beta_2 FEMALE_{it} + \beta_3 LNMVE_{it} + \beta_4 MKTBK_{it} + \beta_5 ROE_{it} + \beta_6 LEV_{it} + \beta_7 CIR_{it} + \beta_8 SDREV_{it} + \beta_9 SDCFO_{it} + \beta_{10} TAC_{it-1} + \beta_{11} \sum INDUSTRY_{it} + \beta_{12} \sum YEAR_{it} + \varepsilon_{it} \quad [26]$$

$$FORWARD|DAC_{it}| = \beta_0 + \beta_1 SPECIALIST_{it} + \beta_2 FEMALE_{it} + \beta_3 LNMVE_{it} + \beta_4 MKTBK_{it} + \beta_5 ROE_{it} + \beta_6 LEV_{it} + \beta_7 CIR_{it} + \beta_8 SDREV_{it} + \beta_9 SDCFO_{it} + \beta_{10} TAC_{it-1} + \beta_{11} \sum INDUSTRY_{it} + \beta_{12} \sum YEAR_{it} + \varepsilon_{it} \quad [27]$$

$$FORWARD|DAC_{it}| = \beta_0 + \beta_1 RNONAUDIT_{it} + \beta_2 FEMALE_{it} + \beta_3 LNMVE_{it} + \beta_4 MKTBK_{it} + \beta_5 ROE_{it} + \beta_6 LEV_{it} + \beta_7 CIR_{it} + \beta_8 SDREV_{it} + \beta_9 SDCFO_{it} + \beta_{10} TAC_{it-1} + \beta_{11} \sum INDUSTRY_{it} + \beta_{12} \sum YEAR_{it} + \varepsilon_{it} \quad [28]$$

$$FORWARD|DAC_{it}| = \beta_0 + \beta_1 NTENURE_{it} + \beta_2 FEMALE_{it} + \beta_3 LNMVE_{it} + \beta_4 MKTBK_{it} + \beta_5 ROE_{it} + \beta_6 LEV_{it} + \beta_7 CIR_{it} + \beta_8 SDREV_{it} + \beta_9 SDCFO_{it} + \beta_{10} TAC_{it-1} + \beta_{11} \sum INDUSTRY_{it} + \beta_{12} \sum YEAR_{it} + \varepsilon_{it} \quad [29]$$

$$FORWARD|DAC_{it}| = \beta_0 + \beta_1 BIG4_{it} + \beta_2 SPECIALIST_{it} + \beta_3 RNONAUDIT_{it} + \beta_4 NTENURE_{it} + \beta_5 FEMALE_{it} + \beta_6 LNMVE_{it} + \beta_7 MKTBK_{it} + \beta_8 ROE_{it} + \beta_9 LEV_{it} + \beta_{10} CIR_{it} + \beta_{11} SDREV_{it} + \beta_{12} SDCFO_{it} + \beta_{13} TAC_{it-1} + \beta_{14} \sum INDUSTRY_{it} + \beta_{15} \sum YEAR_{it} + \varepsilon_{it} \quad [30]$$

Where:

$FORWARD|DAC_{it}|$ = Absolute value of discretionary accruals of firm i for time period t calculated using the forward-looking model introduced by Dechow, Richardson, and Tuna (2003); $BIG4_{it}$ = Client firm i in time period t is scored one (1) if the incumbent auditor j in time period t is a Big4 audit firm. Otherwise client firm i in time period t is scored zero (0); $SPECIALIST_{it}$ = Client firm i in time period t is scored one (1) if the incumbent auditor j in time period t is an industry specialist in industry k with 20% market share. Otherwise client firm i in time period t is scored zero (0); $RNONAUDIT_{it}$ = The ratio of non-audit fees to total fees paid to the audit firm by the client firm i in time period t ; $NTENURE_{it}$ = The number of consecutive years an audit partner serves as the signing partner on an engagement for the client firm i at the end of time period t ; $FEMALE_{it}$ = Client firm i in time period t is scored one (1) if the signing partner of the incumbent auditor j in time period t is a female. Otherwise the client firm i in time period t is scored zero (0); $LNMVE_{it}$ = Natural Logarithmic transformation of the market value of equity of client firm i at the end of time period t ; $MKTBK_{it}$ = Market to book ratio, measured as the ratio of total market capitalization of firm i at the end of time period t to the total book value of assets of firm i at the end of time period t ; ROE_{it} = Return on equity, measured as the ratio of net income before extraordinary items of firm i at the end of time period t to total equity of firm i at the end of time period t ; LEV_{it} = Financial leverage, measured as the ratio of total debt of firm i at the end of time period t to the total assets of firm i at the end of time period t ; CIR_{it} = Capital intensity ratio, measured as the ratio of gross value of property, plant and equipment of firm i at the end of time period t to the total assets of firm i at the end of time period t ; $SDREV_{it}$ = Sales volatility, measured as the standard deviation of sales (scaled by lagged total assets) of firm i at the end of time period t where standard deviations are calculated based on rolling-windows of five annual observations; $SDCFO_{it}$ = Cash flow volatility, measured as the standard deviation of operating cash flows (scaled by lagged total assets) of firm i at the end of time period t where standard deviations are calculated based on rolling-windows of five annual observations; TAC_{it-1} = Firm i 's total accruals from the prior year ($t-1$), scaled by year $t-2$ total assets; $INDUSTRY_{it}$ = Industry indicator variable to control for industry effects; $YEAR_{it}$ = Series indicator variables controlling time temporal differences of reporting periods for firm-year observations with firm i scored one (1) if financial data corresponds to time period t . Otherwise client firm i is scored zero (0); β = Coefficients on variables; ε_{it} = The error term.

7.3 ALTERNATIVE MEASURES OF AUDITOR ATTRIBUTES

Table 7.3 and Table 7.4 show the regression results when alternative measures of auditor attributes are utilized and main multivariate regression results in Chapter Six are re-performed. The analysis in Table 6.1 and Table 6.2 is repeated by determining auditor industry specialization based on alternative thresholds and by replacing the continuous proxy measures for provision of non-audit services and audit partner tenure with dichotomous variables.¹¹⁶ The alternative measures of auditor attributes (tabulated in Table 7.3 and Table 7.4) are derived to determine if the main regression results in Chapter Six are influenced by the measures used to proxy for auditor attributes and seek to increase the level of confidence in the study's results.

Whilst this study follows prior literature (Pearson and Trompeter 1994; Craswell, Francis, and Taylor 1995; DeFond, Francis, and Wong 2000) in using an arbitrary threshold to denote market share and subsequently industry specialization this approach is not free of criticism. To determine if the auditor specialization finding in this study is not driven by the arbitrarily applied cut-off threshold of 20% (Dunn and Mayhew 2004), alternative benchmarks of 15% (*SPECIALIST15%_{it}*) (Ferguson and Stokes 2002), 25% (*SPECIALIST25%_{it}*) (Jenkins, Kane, and Velury 2006), and 30% (*SPECIALIST30%_{it}*) (Knechel, Naiker, and Pacheco 2007; Kwon, Lim, and Tan 2007) are used. Regardless of whether the cut off threshold is tightened or loosened, the coefficients on *SPECIALIST15%_{it}*, *SPECIALIST25%_{it}*, and *SPECIALIST30%_{it}* in additional sensitivity tests reported in Panel A of Table 7.3 and Table 7.4 are consistent with coefficients on *SPECIALIST_{it}* in the main results reported in Table 6.1 and Table 6.2. Hence, irrespective of the arbitrary cut off threshold applied, results suggest that engaging an industry specialist auditor does not seem to have a significant impact on earnings management practices exhibited by the Australian client firms in the sample.

Panel B of Table 7.3 and Table 7.4 replaces the continuous measure *NTENURE_{it}* (operationalized by reference to the number of consecutive years an audit partner serves as the signing partner on an engagement for the client firm *i* at the end of time period *t*) with two dichotomous variables, *STENURE_{it}* and *MTENURE_{it}*, which are intended to test the association of client managers' accounting discretion with short- and medium-tenured audit partners, respectively. For *STENURE_{it}*, a client firm *i* in time period *t* is scored one (1) if audit partner is an engagement partner on the client firm for a period of

¹¹⁶ It is not possible to use an alternative measure for the dichotomous variable *BIG4_{it}* (Client firm *i* in time period *t* is scored one (1) if the incumbent auditor *j* in time period *t* is a Big4 audit firm; otherwise client firm *i* in time period *t* is scored zero (0)), since there is no other measure in prior literature to operationalize the dichotomous variable.

less than or equal to two years (Carey and Simnett 2006; Fargher, Lee, and Mande 2008). Otherwise, client firm i is scored zero (0). For $MTENURE_{it}$, a client firm i in time period t is scored one (1) if audit partner is an engagement partner on the client firm for a period from three to five years (Fargher, Lee, and Mande 2008). Otherwise, client firm i is scored zero (0). In line with the learning effect hypothesis, this study anticipates that there may be an initial period of familiarization for the audit partner (that is, first two years of partner tenure). This approach means that the basis of comparison for the later partner tenure is the period where the audit quality and earnings quality is expected to be at its maximum (for this paper, from years three to five of partner tenure). The results reported in Panel B of Table 7.3 and Table 7.4 show the coefficients on $MTENURE_{it}$ to be negative and statistically significant at the 1% level of testing while the coefficients on $STENURE_{it}$ to be statistically insignificant. This suggests that compared to audit partners with short tenure (less than three years), audit partners with medium tenure (from three to five years) are better able to limit their client managers' accounting discretion. These findings are consistent with the main findings reported in Table 6.1 and Table 6.2, suggesting that a client firm with longer audit partner tenure (up to a maximum of five years) on an engagement will have higher earnings quality than a client firm with shorter audit partner tenure on an engagement.

Panel C of Table 7.3 and Table 7.4 replaces the continuous measure $RNONAUDIT_{it}$ (operationalized by reference to the ratio of non-audit fees to total fees paid to the audit firm by the client firm i in time period t) with two dichotomous variables, $LNONAUDIT_{it}$ and $HNONAUDIT_{it}$, which are intended to test the association of client managers' accounting discretion when audit firms are paid low and high levels of non-audit fees, respectively. These different measures of non-audit fees would capture the extent of economic bonding between the auditor and the client firm. Prior literature has defined high level of non-audit fees using a cut-off based on the median value for the relative magnitude of non-audit fees (Francis and Ke 2006). For the alternative specification $LNONAUDIT_{it}$, a client firm i in time period t is scored one (1) if the ratio of non-audit fees to total fees ($RNONAUDIT_{it}$) is less than or equal to the sample median (in this case, 0.211). Otherwise, client firm i is scored zero (0). For the alternative specification $HNONAUDIT_{it}$, a client firm i in time period t is scored one (1) if the ratio of non-audit fees to total fees ($RNONAUDIT_{it}$) is greater than the sample median (0.211). Otherwise, client firm i is scored zero (0). The results tabulated in Panel C of Table 7.3 and Table 7.4 show the coefficients on $LNONAUDIT_{it}$ to negative while

the coefficients on $HNONAUDIT_{it}$ to be positive, suggesting that larger the portion of non-audit fees that auditors receive from audit clients the more likely they compromise their independence. However, the coefficients on both $LNONAUDIT_{it}$ and $HNONAUDIT_{it}$ are statistically insignificant. These findings are consistent with the main results reported in Table 6.1 and Table 6.2.

In summary, the findings contained in Table 7.3 and Table 7.4 using alternative measures of auditor attributes are consistent with the main results tabulated in Table 6.1 and Table 6.2, thereby increasing the level of confidence in the study's results.

Table 7.3:

OLS Regression Results – Impact of the Alternative Specifications of Auditor Attributes on the Absolute Value of Discretionary Accruals Calculated Using the Performance Adjusted Model

PANEL A: Alternative Measures of Auditor Industry Specialization

Variables	Expected Sign.	Column 1		Column 2		Column 3		Column 4		Column 5		Column 6	
		Coefficient	t-statistic										
<i>Intercept</i>		0.662	9.788***	0.658	9.853***	0.657	9.840***	0.520	7.025***	0.651	8.516***	0.651	8.509***
<i>BIG4_{it}</i>	-							-0.047	-2.145**	-0.046	-2.115**	-0.045	-2.061**
<i>SPECIALIST15%_{it}</i>	-	-0.007	-0.385					-0.016	-0.814				
<i>SPECIALIST25%_{it}</i>	-			-0.005	-0.238					-0.013	-0.684		
<i>SPECIALIST30%_{it}</i>	-					-0.001	-0.075					-0.008	-0.387
<i>RNONAUDIT_{it}</i>	+							0.061	1.395	0.062	1.406	0.062	1.396
<i>NTENURE_{it}</i>	-							-0.013	-2.119**	-0.013	-2.128**	-0.013	-2.121**
CONTROL VARIABLES	?	Included											
<i>INDUSTRY_{it}</i>	?	Included											
<i>YEAR_{it}</i>	?	Included											
Adjusted R ²			0.093		0.093		0.093		0.099		0.098		0.098
F statistic (sig.)			6.804***		6.800***		6.797***		6.464***		6.455***		6.441***
Observations			1250		1250		1250		1250		1250		1250

PANEL B: Alternative Measures of Audit Partner Tenure

Variables	Expected Sign.	Column 1		Column 2		Column 3		Column 4	
		Coefficient	t-statistic	Coefficient	t-statistic	Coefficient	t-statistic	Coefficient	t-statistic
<i>Intercept</i>		0.566	8.482***	0.554	8.252***	0.478	6.366***	0.522	6.956***
<i>BIG4_{it}</i>	-					-0.050	-2.262**	-0.050	-2.269**
<i>SPECIALIST_{it}</i>	-					-0.025	-1.327	-0.025	-1.320
<i>RNONAUDIT_{it}</i>	+					0.063	1.429	0.060	1.358
<i>STENURE_{it}</i>	+	0.018	1.110			0.017	1.069		
<i>MTENURE_{it}</i>	-			-0.056	-3.119***			-0.055	-3.075***
CONTROL VARIABLES	?	Included							
<i>INDUSTRY_{it}</i>	?	Included							

$YEAR_{it}$?	Included							
Adjusted R ²			0.094		0.100		0.097		0.103
F statistic (sig.)			6.860***		7.293***		6.361***		6.736***
Observations			1250		1250		1250		1250

PANEL C: Alternative Measures of Non-Audit Services

Variables	Expected Sign.	Column 1		Column 2		Column 3		Column 4	
		Coefficient	t-statistic	Coefficient	t-statistic	Coefficient	t-statistic	Coefficient	t-statistic
<i>Intercept</i>		0.613	8.061***	0.595	8.650***	0.665	8.105***	0.516	6.995***
$BIG4_{it}$	-					-0.048	-2.201**	-0.048	-2.201**
$SPECIALIST_{it}$	-					-0.025	-1.315	-0.025	-1.315
$LNONAUDIT_{it}$	-	-0.019	-0.992			-0.019	-1.037		
$HNONAUDIT_{it}$	+			0.019	0.992			0.019	1.037
$NTENURE_{it}$	-					-0.012	-2.096**	-0.012	-2.096**
CONTROL VARIABLES	?	Included							
$INDUSTRY_{it}$?	Included							
$YEAR_{it}$?	Included							
Adjusted R ²			0.093		0.093		0.099		0.099
F statistic (sig.)			6.847***		6.847***		6.471***		6.471***
Observations			1250		1250		1250		1250

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

Panel A Equations: Column 1 based on Equation [31], Column 2 based on Equation [32], Column 3 based on Equation [33], Column 4 based on Equation [34], Column 5 based on Equation [35] and Column 6 based on Equation [36].

$$KOTHARI|DAC_{it}| = \beta_0 + \beta_1 SPECIALIST15\%_{it} + \beta_2 FEMALE_{it} + \beta_3 LNMVE_{it} + \beta_4 MKTBK_{it} + \beta_5 ROE_{it} + \beta_6 LEV_{it} + \beta_7 CIR_{it} + \beta_8 SDREV_{it} + \beta_9 SDCFO_{it} + \beta_{10} TAC_{it-1} + \beta_{11} \sum INDUSTRY_{it} + \beta_{12} \sum YEAR_{it} + \varepsilon_{it} \quad [31]$$

$$KOTHARI|DAC_{it}| = \beta_0 + \beta_1 SPECIALIST25\%_{it} + \beta_2 FEMALE_{it} + \beta_3 LNMVE_{it} + \beta_4 MKTBK_{it} + \beta_5 ROE_{it} + \beta_6 LEV_{it} + \beta_7 CIR_{it} + \beta_8 SDREV_{it} + \beta_9 SDCFO_{it} + \beta_{10} TAC_{it-1} + \beta_{11} \sum INDUSTRY_{it} + \beta_{12} \sum YEAR_{it} + \varepsilon_{it} \quad [32]$$

$$KOTHARI|DAC_{it}| = \beta_0 + \beta_1 SPECIALIST30\%_{it} + \beta_2 FEMALE_{it} + \beta_3 LNMVE_{it} + \beta_4 MKTBK_{it} + \beta_5 ROE_{it} + \beta_6 LEV_{it} + \beta_7 CIR_{it} + \beta_8 SDREV_{it} + \beta_9 SDCFO_{it} + \beta_{10} TAC_{it-1} + \beta_{11} \sum INDUSTRY_{it} + \beta_{12} \sum YEAR_{it} + \varepsilon_{it} \quad [33]$$

$$KOTHARI|DAC_{it}| = \beta_0 + \beta_1 BIG4_{it} + \beta_2 SPECIALIST15\%_{it} + \beta_3 RNONAUDIT_{it} + \beta_4 NTENURE_{it} + \beta_5 FEMALE_{it} + \beta_6 LNMVE_{it} + \beta_7 MKTBK_{it} + \beta_8 ROE_{it} + \beta_9 LEV_{it} + \beta_{10} CIR_{it} + \beta_{11} SDREV_{it} + \beta_{12} SDCFO_{it} + \beta_{13} TAC_{it-1} + \beta_{14} \sum INDUSTRY_{it} + \beta_{15} \sum YEAR_{it} + \varepsilon_{it} \quad [34]$$

$$KOTHARI|DAC_{it}| = \beta_0 + \beta_1 BIG4_{it} + \beta_2 SPECIALIST25\%_{it} + \beta_3 RNONAUDIT_{it} + \beta_4 NTENURE_{it} + \beta_5 FEMALE_{it} + \beta_6 LNMVE_{it} + \beta_7 MKTBK_{it} + \beta_8 ROE_{it} + \beta_9 LEV_{it} + \beta_{10} CIR_{it} + \beta_{11} SDREV_{it} + \beta_{12} SDCFO_{it} + \beta_{13} TAC_{it-1} + \beta_{14} \sum INDUSTRY_{it} + \beta_{15} \sum YEAR_{it} + \varepsilon_{it} \quad [35]$$

$$KOTHARI|DAC_{it}| = \beta_0 + \beta_1 BIG4_{it} + \beta_2 SPECIALIST30\%_{it} + \beta_3 RNONAUDIT_{it} + \beta_4 NTENURE_{it} + \beta_5 FEMALE_{it} + \beta_6 LNMVE_{it} + \beta_7 MKTBK_{it} + \beta_8 ROE_{it} + \beta_9 LEV_{it} + \beta_{10} CIR_{it} + \beta_{11} SDREV_{it} + \beta_{12} SDCFO_{it} + \beta_{13} TAC_{it-1} + \beta_{14} \sum INDUSTRY_{it} + \beta_{15} \sum YEAR_{it} + \varepsilon_{it} \quad [36]$$

Panel B Equations: Column 1 based on Equation [37], Column 2 based on Equation [38], Column 3 based on Equation [39], Column 4 based on Equation [40].

$$KOTHARI|DAC_{it}| = \beta_0 + \beta_1 STENURE_{it} + \beta_2 FEMALE_{it} + \beta_3 LNMVE_{it} + \beta_4 MKTBK_{it} + \beta_5 ROE_{it} + \beta_6 LEV_{it} + \beta_7 CIR_{it} + \beta_8 SDREV_{it} + \beta_9 SDCFO_{it} + \beta_{10} TAC_{it-1} + \beta_{11} \sum INDUSTRY_{it} + \beta_{12} \sum YEAR_{it} + \varepsilon_{it} \quad [37]$$

$$KOTHARI|DAC_{it}| = \beta_0 + \beta_1 MTENURE_{it} + \beta_2 FEMALE_{it} + \beta_3 LNMVE_{it} + \beta_4 MKTBK_{it} + \beta_5 ROE_{it} + \beta_6 LEV_{it} + \beta_7 CIR_{it} + \beta_8 SDREV_{it} + \beta_9 SDCFO_{it} + \beta_{10} TAC_{it-1} + \beta_{11} \sum INDUSTRY_{it} + \beta_{12} \sum YEAR_{it} + \varepsilon_{it} \quad [38]$$

$$KOTHARI|DAC_{it}| = \beta_0 + \beta_1 BIG4_{it} + \beta_2 SPECIALIST_{it} + \beta_3 RNONAUDIT_{it} + \beta_4 STENURE_{it} + \beta_5 FEMALE_{it} + \beta_6 LNMVE_{it} + \beta_7 MKTBK_{it} + \beta_8 ROE_{it} + \beta_9 LEV_{it} + \beta_{10} CIR_{it} + \beta_{11} SDREV_{it} + \beta_{12} SDCFO_{it} + \beta_{13} TAC_{it-1} + \beta_{14} \sum INDUSTRY_{it} + \beta_{15} \sum YEAR_{it} + \varepsilon_{it} \quad [39]$$

$$KOTHARI|DAC_{it}| = \beta_0 + \beta_1 BIG4_{it} + \beta_2 SPECIALIST_{it} + \beta_3 RNONAUDIT_{it} + \beta_4 MTENURE_{it} + \beta_5 FEMALE_{it} + \beta_6 LNMVE_{it} + \beta_7 MKTBK_{it} + \beta_8 ROE_{it} + \beta_9 LEV_{it} + \beta_{10} CIR_{it} + \beta_{11} SDREV_{it} + \beta_{12} SDCFO_{it} + \beta_{13} TAC_{it-1} + \beta_{14} \sum INDUSTRY_{it} + \beta_{15} \sum YEAR_{it} + \varepsilon_{it} \quad [40]$$

Panel C Equations: Column 1 based on Equation [41], Column 2 based on Equation [42], Column 3 based on Equation [43], Column 4 based on Equation [44].

$$KOTHARI|DAC_{it}| = \beta_0 + \beta_1 LNONAUDIT_{it} + \beta_2 FEMALE_{it} + \beta_3 LNMVE_{it} + \beta_4 MKTBK_{it} + \beta_5 ROE_{it} + \beta_6 LEV_{it} + \beta_7 CIR_{it} + \beta_8 SDREV_{it} + \beta_9 SDCFO_{it} + \beta_{10} TAC_{it-1} + \beta_{11} \sum INDUSTRY_{it} + \beta_{12} \sum YEAR_{it} + \varepsilon_{it} \quad [41]$$

$$KOTHARI|DAC_{it}| = \beta_0 + \beta_1 HNONAUDIT_{it} + \beta_2 FEMALE_{it} + \beta_3 LNMVE_{it} + \beta_4 MKTBK_{it} + \beta_5 ROE_{it} + \beta_6 LEV_{it} + \beta_7 CIR_{it} + \beta_8 SDREV_{it} + \beta_9 SDCFO_{it} + \beta_{10} TAC_{it-1} + \beta_{11} \sum INDUSTRY_{it} + \beta_{12} \sum YEAR_{it} + \varepsilon_{it} \quad [42]$$

$$KOTHARI|DAC_{it}| = \beta_0 + \beta_1 BIG4_{it} + \beta_2 SPECIALIST_{it} + \beta_3 LNONAUDIT_{it} + \beta_4 NTENURE_{it} + \beta_5 FEMALE_{it} + \beta_6 LNMVE_{it} + \beta_7 MKTBK_{it} + \beta_8 ROE_{it} + \beta_9 LEV_{it} + \beta_{10} CIR_{it} + \beta_{11} SDREV_{it} + \beta_{12} SDCFO_{it} + \beta_{13} TAC_{it-1} + \beta_{14} \sum INDUSTRY_{it} + \beta_{15} \sum YEAR_{it} + \varepsilon_{it} \quad [43]$$

$$KOTHARI|DAC_{it}| = \beta_0 + \beta_1 BIG4_{it} + \beta_2 SPECIALIST_{it} + \beta_3 HNONAUDIT_{it} + \beta_4 NTENURE_{it} + \beta_5 FEMALE_{it} + \beta_6 LNMVE_{it} + \beta_7 MKTBK_{it} + \beta_8 ROE_{it} + \beta_9 LEV_{it} + \beta_{10} CIR_{it} + \beta_{11} SDREV_{it} + \beta_{12} SDCFO_{it} + \beta_{13} TAC_{it-1} + \beta_{14} \sum INDUSTRY_{it} + \beta_{15} \sum YEAR_{it} + \varepsilon_{it} \quad [44]$$

Where:

$KOTHARI|DAC_{it}|$ = Absolute value of discretionary accruals of firm i for time period t calculated using the performance adjusted model introduced by Kothari, Leone, and Wasley (2005); $BIG4_{it}$ = Client firm i in time period t is scored one (1) if the incumbent auditor j in time period t is a Big4 audit firm; otherwise client firm i in time period t is scored zero (0); $SPECIALIST_{it}$ = Client firm i in time period t is scored one (1) if the incumbent auditor j in time period t is an industry specialist in industry k with 20% market share. Otherwise client firm i in time period t is scored zero (0); $SPECIALIST15\%_{it}$ = Client firm i in time period t is scored one (1) if the incumbent auditor j in time period t is an industry specialist in industry k with 15% market share. Otherwise client firm i in time period t is scored zero (0); $SPECIALIST25\%_{it}$ = Client firm i in time period t is scored one (1) if the incumbent auditor j in time period t is an industry specialist in industry k with 25% market share. Otherwise client firm i in time period t is scored zero (0); $SPECIALIST30\%_{it}$ = Client firm i in time period t is scored one (1) if the incumbent auditor j in time period t is an industry specialist in industry k with 30% market share. Otherwise client firm i in time period t is scored zero (0); $RNONAUDIT_{it}$ = The ratio of non-audit fees to total fees paid to the audit firm by the client firm i in time period t ; $LNONAUDIT_{it}$ = Client firm i in time period t is scored one (1) if the ratio of non-audit fees to total fees ($RNONAUDIT_{it}$) is less than or equal to sample median (0.211). Otherwise, client firm i is scored zero (0); $HNONAUDIT_{it}$ = Client firm i in time period t is scored one (1) if the ratio of non-audit fees to total fees ($RNONAUDIT_{it}$) is greater than sample median (0.211). Otherwise, client firm i is scored zero (0); $NTENURE_{it}$ = The number of consecutive years an audit partner serves as the signing partner on an engagement for the client firm i at the end of time period t ; $STENURE_{it}$ = Client firm i in time period t is scored one (1) if audit partner is an engagement partner on the client firm for a period of less than or equal to two years. Otherwise, client firm i is scored zero (0); $MTENURE_{it}$ = Client firm i in time period t is scored one (1) if audit partner is an engagement partner on the client firm for a period from three to five years. Otherwise, client firm i is scored zero (0); $FEMALE_{it}$ = Client firm i in time period t is scored one (1) if the signing partner of the incumbent auditor j in time period t is a female. Otherwise the client firm i in time period t is scored zero (0); $LNMVE_{it}$ = Natural Logarithmic transformation of the market value of equity of client firm i at the end of time period t ; $MKTBK_{it}$ = Market to book ratio, measured as the ratio of total market capitalization of firm i at the end of time period t to the total book value of assets of firm i at the end of time period t ; ROE_{it} = Return on equity, measured as the ratio of net income before extraordinary items of firm i at the end of time period t to total equity of firm i at the end of time period t ; LEV_{it} = Financial leverage, measured as the ratio of total debt of firm i at the end of time period t to the total assets of firm i at the end of time period t ; CIR_{it} = Capital intensity ratio, measured as the ratio of gross value of property, plant and equipment of firm i at the end of time period t to the total assets of firm i at the end of time period t ; $SDREV_{it}$ = Sales volatility, measured as the standard deviation of sales (scaled by lagged total assets) of firm i at the end of time period t where standard deviations are calculated based on rolling-windows of five annual observations; $SDCFO_{it}$ = Cash flow volatility, measured as the standard deviation of operating cash flows (scaled by lagged total assets) of firm i at the end of time period t where standard deviations are calculated based on rolling-windows of five annual observations; TAC_{it-1} = Firm i 's total accruals from the prior year ($t - 1$), scaled by year $t - 2$ total assets; $INDUSTRY_{it}$ = Industry indicator variable to control for industry effects; $YEAR_{it}$ = Series indicator variables controlling time temporal differences of reporting periods for firm-year observations with firm i scored one (1) if financial data corresponds to time period t . Otherwise client firm i is scored zero (0); β = Coefficients on variables; ε_{it} = The error term.

Table 7.4:

OLS Regression Results – Impact of the Alternative Specifications of Auditor Attributes on the Absolute Value of Discretionary Accruals Calculated Using the Modified Jones Model

PANEL A: Alternative Measures of Auditor Industry Specialization

Variables	Expected Sign.	Column 1		Column 2		Column 3		Column 4		Column 5		Column 6	
		Coefficient	t-statistic										
<i>Intercept</i>		0.507	7.510***	0.507	7.617***	0.506	7.602***	0.556	7.250***	0.489	6.509***	0.488	6.498***
<i>BIG4_{it}</i>	-							-0.053	-2.428**	-0.053	-2.443**	-0.052	-2.398**
<i>SPECIALIST15%_{it}</i>	-	-0.002	-0.107					-0.011	-0.592				
<i>SPECIALIST25%_{it}</i>	-			-0.004	-0.190					-0.013	-0.687		
<i>SPECIALIST30%_{it}</i>	-					-0.001	-0.042					-0.009	-0.442
<i>RNONAUDIT_{it}</i>	+							0.048	1.091	0.048	1.109	0.048	1.102
<i>NTENURE_{it}</i>	-							-0.014	-2.422**	-0.014	-2.431**	-0.014	-2.424**
CONTROL VARIABLES	?	Included											
<i>INDUSTRY_{it}</i>	?	Included											
<i>YEAR_{it}</i>	?	Included											
Adjusted R ²			0.099		0.099		0.099		0.106		0.106		0.106
F statistic (sig.)			7.207***		7.209***		7.207***		6.912***		6.918***		6.905***
Observations			1250		1250		1250		1250		1250		1250

PANEL B: Alternative Measures of Audit Partner Tenure

Variables	Expected Sign.	Column 1		Column 2		Column 3		Column 4	
		Coefficient	t-statistic	Coefficient	t-statistic	Coefficient	t-statistic	Coefficient	t-statistic
<i>Intercept</i>		0.550	8.300***	0.540	8.094***	0.590	7.771***	0.639	8.449***
<i>BIG4_{it}</i>	-					-0.056	-2.576**	-0.056	-2.588***
<i>SPECIALIST_{it}</i>	-					-0.024	-1.257	-0.024	-1.248
<i>RNONAUDIT_{it}</i>	+					0.049	1.129	0.046	1.055
<i>STENURE_{it}</i>	+	0.020	1.287			0.020	1.237		
<i>MTENURE_{it}</i>	-			-0.057	-3.203***			-0.056	-3.165***
CONTROL VARIABLES	?	Included							
<i>INDUSTRY_{it}</i>	?	Included							
<i>YEAR_{it}</i>	?	Included							

Adjusted R ²		0.100	0.106	0.104	0.110
F statistic (sig.)		7.292***	7.733***	6.769***	7.155***
Observations		1250	1250	1250	1250

PANEL C: Alternative Measures of Non-Audit Services

Variables	Expected Sign.	Column 1		Column 2		Column 3		Column 4	
		Coefficient	t-statistics	Coefficient	t-statistics	Coefficient	t-statistics	Coefficient	t-statistics
<i>Intercept</i>		0.528	7.397***	0.516	7.825***	0.497	6.252***	0.547	7.224***
<i>BIG4_{it}</i>	-					-0.055	-2.519**	-0.055	-2.519**
<i>SPECIALIST_{it}</i>	-					-0.024	-1.245	-0.024	-1.245
<i>LNNAUDIT_{it}</i>	-	-0.012	-0.654			-0.013	-0.699		
<i>HNAUDIT_{it}</i>	+			0.012	0.654			0.013	0.699
<i>NTENURE_{it}</i>	-					-0.014	-2.409**	-0.014	-2.409**
CONTROL VARIABLES	?	Included	Included	Included	Included	Included	Included	Included	Included
<i>INDUSTRY_{it}</i>	?	Included	Included	Included	Included	Included	Included	Included	Included
<i>YEAR_{it}</i>	?	Included	Included	Included	Included	Included	Included	Included	Included
Adjusted R ²		0.099		0.099		0.106		0.106	
F statistic (sig.)		7.229***		7.229***		6.934***		6.934***	
Observations		1250		1250		1250		1250	

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

Panel A Equations: Column 1 based on Equation [45], Column 2 based on Equation [46], Column 3 based on Equation [47], Column 4 based on Equation [48], Column 5 based on Equation [49] and Column 6 based on Equation [50].

$$MJ|DAC_{it} = \beta_0 + \beta_1 SPECIALIST15\%_{it} + \beta_2 FEMALE_{it} + \beta_3 LNMVE_{it} + \beta_4 MKTBK_{it} + \beta_5 ROE_{it} + \beta_6 LEV_{it} + \beta_7 CIR_{it} + \beta_8 SDREV_{it} + \beta_9 SDCFO_{it} + \beta_{10} TAC_{it-1} + \beta_{11} \sum INDUSTRY_{it} + \beta_{12} \sum YEAR_{it} + \varepsilon_{it} \quad [45]$$

$$MJ|DAC_{it} = \beta_0 + \beta_1 SPECIALIST25\%_{it} + \beta_2 FEMALE_{it} + \beta_3 LNMVE_{it} + \beta_4 MKTBK_{it} + \beta_5 ROE_{it} + \beta_6 LEV_{it} + \beta_7 CIR_{it} + \beta_8 SDREV_{it} + \beta_9 SDCFO_{it} + \beta_{10} TAC_{it-1} + \beta_{11} \sum INDUSTRY_{it} + \beta_{12} \sum YEAR_{it} + \varepsilon_{it} \quad [46]$$

$$MJ|DAC_{it} = \beta_0 + \beta_1 SPECIALIST30\%_{it} + \beta_2 FEMALE_{it} + \beta_3 LNMVE_{it} + \beta_4 MKTBK_{it} + \beta_5 ROE_{it} + \beta_6 LEV_{it} + \beta_7 CIR_{it} + \beta_8 SDREV_{it} + \beta_9 SDCFO_{it} + \beta_{10} TAC_{it-1} + \beta_{11} \sum INDUSTRY_{it} + \beta_{12} \sum YEAR_{it} + \varepsilon_{it} \quad [47]$$

$$MJ|DAC_{it} = \beta_0 + \beta_1 BIG4_{it} + \beta_2 SPECIALIST15\%_{it} + \beta_3 RNNAUDIT_{it} + \beta_4 NTENURE_{it} + \beta_5 FEMALE_{it} + \beta_6 LNMVE_{it} + \beta_7 MKTBK_{it} + \beta_8 ROE_{it} + \beta_9 LEV_{it} + \beta_{10} CIR_{it} + \beta_{11} SDREV_{it} + \beta_{12} SDCFO_{it} + \beta_{13} TAC_{it-1} + \beta_{14} \sum INDUSTRY_{it} + \beta_{15} \sum YEAR_{it} + \varepsilon_{it} \quad [48]$$

$$MJ|DAC_{it} = \beta_0 + \beta_1 BIG4_{it} + \beta_2 SPECIALIST25\%_{it} + \beta_3 RNNAUDIT_{it} + \beta_4 NTENURE_{it} + \beta_5 FEMALE_{it} + \beta_6 LNMVE_{it} + \beta_7 MKTBK_{it} + \beta_8 ROE_{it} + \beta_9 LEV_{it} + \beta_{10} CIR_{it} + \beta_{11} SDREV_{it} + \beta_{12} SDCFO_{it} + \beta_{13} TAC_{it-1} + \beta_{14} \sum INDUSTRY_{it} + \beta_{15} \sum YEAR_{it} + \varepsilon_{it} \quad [49]$$

$$MJ|DAC_{it} = \beta_0 + \beta_1 BIG4_{it} + \beta_2 SPECIALIST30\%_{it} + \beta_3 RNNAUDIT_{it} + \beta_4 NTENURE_{it} + \beta_5 FEMALE_{it} + \beta_6 LNMVE_{it} + \beta_7 MKTBK_{it} + \beta_8 ROE_{it} + \beta_9 LEV_{it} + \beta_{10} CIR_{it} + \beta_{11} SDREV_{it} + \beta_{12} SDCFO_{it} + \beta_{13} TAC_{it-1} + \beta_{14} \sum INDUSTRY_{it} + \beta_{15} \sum YEAR_{it} + \varepsilon_{it} \quad [50]$$

Panel B Equations: Column 1 based on Equation [51], Column 2 based on Equation [52], Column 3 based on Equation [53], Column 4 based on Equation [54].

$$MJ|DAC_{it} = \beta_0 + \beta_1 STENURE_{it} + \beta_2 FEMALE_{it} + \beta_3 LNMVE_{it} + \beta_4 MKTBK_{it} + \beta_5 ROE_{it} + \beta_6 LEV_{it} + \beta_7 CIR_{it} + \beta_8 SDREV_{it} + \beta_9 SDCFO_{it} + \beta_{10} TAC_{it-1} + \beta_{11} \sum INDUSTRY_{it} + \beta_{12} \sum YEAR_{it} + \varepsilon_{it} \quad [51]$$

$$MJ|DAC_{it} = \beta_0 + \beta_1 MTENURE_{it} + \beta_2 FEMALE_{it} + \beta_3 LNMVE_{it} + \beta_4 MKTBK_{it} + \beta_5 ROE_{it} + \beta_6 LEV_{it} + \beta_7 CIR_{it} + \beta_8 SDREV_{it} + \beta_9 SDCFO_{it} + \beta_{10} TAC_{it-1} + \beta_{11} \sum INDUSTRY_{it} + \beta_{12} \sum YEAR_{it} + \varepsilon_{it} \quad [52]$$

$$MJ|DAC_{it} = \beta_0 + \beta_1 BIG4_{it} + \beta_2 SPECIALIST_{it} + \beta_3 RNONAUDIT_{it} + \beta_4 STENURE_{it} + \beta_5 FEMALE_{it} + \beta_6 LNMVE_{it} + \beta_7 MKTBK_{it} + \beta_8 ROE_{it} + \beta_9 LEV_{it} + \beta_{10} CIR_{it} + \beta_{11} SDREV_{it} + \beta_{12} SDCFO_{it} + \beta_{13} TAC_{it-1} + \beta_{14} \sum INDUSTRY_{it} + \beta_{15} \sum YEAR_{it} + \varepsilon_{it} \quad [53]$$

$$MJ|DAC_{it} = \beta_0 + \beta_1 BIG4_{it} + \beta_2 SPECIALIST_{it} + \beta_3 RNONAUDIT_{it} + \beta_4 MTENURE_{it} + \beta_5 FEMALE_{it} + \beta_6 LNMVE_{it} + \beta_7 MKTBK_{it} + \beta_8 ROE_{it} + \beta_9 LEV_{it} + \beta_{10} CIR_{it} + \beta_{11} SDREV_{it} + \beta_{12} SDCFO_{it} + \beta_{13} TAC_{it-1} + \beta_{14} \sum INDUSTRY_{it} + \beta_{15} \sum YEAR_{it} + \varepsilon_{it} \quad [54]$$

Panel C Equations: Column 1 based on Equation [55], Column 2 based on Equation [56], Column 3 based on Equation [57], Column 4 based on Equation [58].

$$MJ|DAC_{it} = \beta_0 + \beta_1 LNONAUDIT_{it} + \beta_2 FEMALE_{it} + \beta_3 LNMVE_{it} + \beta_4 MKTBK_{it} + \beta_5 ROE_{it} + \beta_6 LEV_{it} + \beta_7 CIR_{it} + \beta_8 SDREV_{it} + \beta_9 SDCFO_{it} + \beta_{10} TAC_{it-1} + \beta_{11} \sum INDUSTRY_{it} + \beta_{12} \sum YEAR_{it} + \varepsilon_{it} \quad [55]$$

$$MJ|DAC_{it} = \beta_0 + \beta_1 HNNAUDIT_{it} + \beta_2 FEMALE_{it} + \beta_3 LNMVE_{it} + \beta_4 MKTBK_{it} + \beta_5 ROE_{it} + \beta_6 LEV_{it} + \beta_7 CIR_{it} + \beta_8 SDREV_{it} + \beta_9 SDCFO_{it} + \beta_{10} TAC_{it-1} + \beta_{11} \sum INDUSTRY_{it} + \beta_{12} \sum YEAR_{it} + \varepsilon_{it} \quad [56]$$

$$MJ|DAC_{it} = \beta_0 + \beta_1 BIG4_{it} + \beta_2 SPECIALIST_{it} + \beta_3 LNONAUDIT_{it} + \beta_4 NTENURE_{it} + \beta_5 FEMALE_{it} + \beta_6 LNMVE_{it} + \beta_7 MKTBK_{it} + \beta_8 ROE_{it} + \beta_9 LEV_{it} + \beta_{10} CIR_{it} + \beta_{11} SDREV_{it} + \beta_{12} SDCFO_{it} + \beta_{13} TAC_{it-1} + \beta_{14} \sum INDUSTRY_{it} + \beta_{15} \sum YEAR_{it} + \varepsilon_{it} \quad [57]$$

$$MJ|DAC_{it} = \beta_0 + \beta_1 BIG4_{it} + \beta_2 SPECIALIST_{it} + \beta_3 HNNAUDIT_{it} + \beta_4 NTENURE_{it} + \beta_5 FEMALE_{it} + \beta_6 LNMVE_{it} + \beta_7 MKTBK_{it} + \beta_8 ROE_{it} + \beta_9 LEV_{it} + \beta_{10} CIR_{it} + \beta_{11} SDREV_{it} + \beta_{12} SDCFO_{it} + \beta_{13} TAC_{it-1} + \beta_{14} \sum INDUSTRY_{it} + \beta_{15} \sum YEAR_{it} + \varepsilon_{it} \quad [58]$$

Where:

$MJ|DAC_{it}$ = Absolute value of discretionary accruals of firm i for time period t calculated using the cross-sectional version of the modified Jones model introduced by Dechow, Sloan, and Sweeney (1995); $BIG4_{it}$ = Client firm i in time period t is scored one (1) if the incumbent auditor j in time period t is a Big4 audit firm; otherwise client firm i in time period t is scored zero (0); $SPECIALIST_{it}$ = Client firm i in time period t is scored one (1) if the incumbent auditor j in time period t is an industry specialist in industry k with 20% market share. Otherwise client firm i in time period t is scored zero (0); $SPECIALIST15\%_{it}$ = Client firm i in time period t is scored one (1) if the incumbent auditor j in time period t is an industry specialist in industry k with 15% market share. Otherwise client firm i in time period t is scored zero (0); $SPECIALIST25\%_{it}$ = Client firm i in time period t is scored one (1) if the incumbent auditor j in time period t is an industry specialist in industry k with 25% market share. Otherwise client firm i in time period t is scored zero (0); $SPECIALIST30\%_{it}$ = Client firm i in time period t is scored one (1) if the incumbent auditor j in time period t is an industry specialist in industry k with 30% market share. Otherwise client firm i in time period t is scored zero (0); $RNONAUDIT_{it}$ = The ratio of non-audit fees to total fees paid to the audit firm by the client firm i in time period t ; $LNONAUDIT_{it}$ = Client firm i in time period t is scored one (1) if the ratio of non-audit fees to total fees ($RNONAUDIT_{it}$) is less than or equal to sample median (0.211). Otherwise, client firm i is scored zero (0); $HNNAUDIT_{it}$ = Client firm i in time period t is scored one (1) if the ratio of non-audit fees to total fees ($RNONAUDIT_{it}$) is greater than sample median (0.211). Otherwise, client firm i is scored zero (0); $NTENURE_{it}$ = The number of consecutive years an audit partner serves as the signing partner on an engagement for the client firm i at the end of time period t ; $STENURE_{it}$ = Client firm i in time period t is scored one (1) if audit partner is an engagement partner on the client firm for a period of less than or equal to two years. Otherwise, client firm i is scored zero (0); $MTENURE_{it}$ = Client firm i in time period t is scored one (1) if audit partner is an engagement partner on the client firm for a period from three to five years. Otherwise, client firm i is scored zero (0); $FEMALE_{it}$ = Client firm i in time period t is scored one (1) if the signing partner of the incumbent auditor j in time period t is a female. Otherwise the client firm i in time period t is scored zero (0); $LNMVE_{it}$ = Natural Logarithmic transformation of the market value of equity of client firm i at the end of time period t ; $MKTBK_{it}$ = Market to book ratio, measured as the ratio of total market capitalization of firm i at the end of time period t to the total book value of assets of firm i at the end of time period t ; ROE_{it} = Return on equity, measured as the ratio of net income before extraordinary items of firm i at the end of time period t to total equity of firm i at the end of time period t ; LEV_{it} = Financial leverage, measured as the ratio of total debt of firm i at the end of time period t to the total assets of firm i at the end of time period t ; CIR_{it} = Capital intensity ratio, measured as the ratio of gross value of property, plant and equipment of firm i at the end of time period t to the total assets of firm i at the end of time period t ; $SDREV_{it}$ = Sales volatility, measured as the standard deviation of sales (scaled by lagged total assets) of firm i at the end of time period t where standard deviations are calculated based on rolling-windows of five annual observations; $SDCFO_{it}$ = Cash flow volatility, measured as the standard deviation of operating cash flows (scaled by lagged total assets) of firm i at the end of time period t where standard deviations are calculated based on rolling-windows of five annual observations; TAC_{it-1} = Firm i 's total accruals from the prior year ($t - 1$), scaled by year $t - 2$ total assets; $INDUSTRY_{it}$ = Industry indicator variable to control for industry effects; $YEAR_{it}$ = Series indicator variables controlling time temporal differences of reporting periods for firm-year observations with firm i scored one (1) if financial data corresponds to time period t . Otherwise client firm i is scored zero (0); β = Coefficients on variables; ε_{it} = The error term.

7.4 PARTITIONING OF SAMPLE BY CLIENT CHARACTERISTICS

Prior literature argues that impaired audit quality and earnings quality may be more of a concern for clients with certain characteristics (Chung and Kallapur 2003). Following Krishnan, Sami, and Zhang (2005), this study partitions the sample data based on two client characteristics, namely, firm size ($LNMVE_{it}$, measured as the natural Logarithmic transformation of the market value of equity of client firm i at the end of time period t) and firm growth ($MKTBK_{it}$, measured as the ratio of total market capitalization of firm i at the end of time period t to the total book value of assets of firm i at the end of time period t).

7.4.1 Partitioning by client firm size

Prior literature (Krishnan 2003; Gul, Jaggi, and Krishnan 2007) indicates that it is important to control for differences in client firm size when measuring earnings management. To ensure that this study's results on the linkage between auditor attributes and the magnitude of earnings management are not driven by differences in client firm size, the sample is partitioned into large and small client firms based on market capitalization and the main multivariate tests in Chapter Six are re-performed.¹¹⁷ Results from the main regressions performed (using large and small firms) are reported in Table 7.5 with Panel A results associated with Table 6.1 Column 6 findings (that is, absolute value of discretionary accruals based on the performance adjusted model) and Panel B results associated with Table 6.2 Column 6 findings (that is, absolute value of discretionary accruals based on the modified Jones model).

With regards to both the performance adjusted model and the modified Jones model, all coefficients on variables listed in Table 7.5 Panels A and B are of the same directionality as the corresponding variables in the regressions reported in Table 6.1 and Table 6.2. Consistent with the main findings reported in Table 6.1 and Table 6.2, Table 7.5 shows that for both large and small client firms the coefficients on $BIG4_{it}$ and $NTENURE_{it}$ are consistently negative and statistically significant. Also, consistent with the main findings, Table 7.5 reports the coefficients on $SPECIALIST_{it}$ to be negative and statistically insignificant while the coefficients on $RNONAUDIT_{it}$ to be positive and statistically insignificant. For the performance adjusted model, relative to Table 6.1 Column 6 results (pooled sample), the explanatory power of the regressions (see

¹¹⁷ The sample of large firms comprises of the top 125 firms of the top 500 firms listed on the ASX by market capitalization based on base year 2008 (after necessary exclusions) across the observation window (that is, year 2008 to year 2012). The sample of small firms comprises of the remaining 125 firms randomly selected from the 501st firm onwards listed on the ASX by market capitalization based on base year 2008 (after necessary exclusions) across the observation window (that is, year 2008 to year 2012). Please see subsection 4.2.1 (Chapter Four) and subsection 5.3.1 (Chapter Five) for a complete discussion.

adjusted-R²) reported in both Table 7.5 Panel A Column 1 (subsample of large firms) and Table 7.5 Panel A Column 2 (subsample of small firms) is lower (that is, 8.6% versus 9.9% and 5.7% versus 9.9%). Similarly, for the modified Jones model, relative to Table 6.2 Column 6 results (pooled sample), the explanatory power of regressions (see adjusted-R²) reported in both Table 7.5 Panel B Column 1 (subsample of large firms) and Table 7.5 Panel B Column 2 (subsample of small firms) is lower (that is, 9.4% versus 10.7% and 6.2% versus 10.7%).

Panels A and B of Table 7.5 show that for large clients the coefficients on $BIG4_{it}$ are negative and highly significant ($p < 0.01$) while for small clients the coefficients on $BIG4_{it}$ are negative and only weakly significant ($p < 0.10$). These findings suggest that Big4 auditors mitigate earnings management practices more extensively for larger clients compared to smaller clients. These results support prior empirical literature which generally finds reputation protection motivation to be a dominant driving force for Big4 auditors so far as auditor behaviour for large clients is concerned. For instance, Reynolds and Francis (2000) find that Big 5 auditors report more conservatively for large clients compared to small clients. Barton (2005) argues that client visibility is the most important concern with respect to an auditor's reputation. The likelihood of litigation, which is also expected to be higher for large clients, provides an additional incentive for auditors to be more independent (Lys and Watts 1994).

Overall, the additional tests reported in Table 7.5 clearly support the main results reported in Table 6.1 and Table 6.2, thereby suggesting that the study's main results are not driven by client firm size.

Table 7.5:

Regression Results Partitioning Sample Based on Client Firm Size

Panel A: OLS Regression Results – Absolute Value of Discretionary Accruals Calculated Using the Performance Adjusted Model

Variables	Expected Sign.	Column 1: Large Firms		Column 2: Small Firms	
		Coefficient	t-statistics	Coefficient	t-statistics
<i>Intercept</i>		0.353	7.486***	0.298	5.371**
<i>BIG4_{it}</i>	-	-0.167	-5.319***	-0.063	-1.739*
<i>SPECIALIST_{it}</i>	-	-0.042	-1.443	-0.047	-1.367
<i>RNONAUDIT_{it}</i>	+	0.051	0.884	0.101	1.163
<i>NTENURE_{it}</i>	-	-0.015	-1.863*	-0.023	-2.041**
CONTROL VARIABLES	?	Included	Included	Included	Included
<i>INDUSTRY_{it}</i>	?	Included	Included	Included	Included
<i>YEAR_{it}</i>	?	Included	Included	Included	Included
Adjusted R ²			0.086		0.057
F statistic (sig.)			3.937***		2.569***
Observations			625		625

Panel B: OLS Regression Results – Absolute Value of Discretionary Accruals Calculated Using the Modified Jones Model

Variables	Expected Sign.	Column 1: Large Firms		Column 2: Small Firms	
		Coefficient	t-statistics	Coefficient	t-statistics
<i>Intercept</i>		0.334	7.319***	0.312	5.730***
<i>BIG4_{it}</i>	-	-0.165	-5.425***	-0.058	-1.649*
<i>SPECIALIST_{it}</i>	-	-0.040	-1.410	-0.046	-1.363
<i>RNONAUDIT_{it}</i>	+	0.047	0.850	0.079	0.923
<i>NTENURE_{it}</i>	-	-0.016	-2.002**	-0.026	-2.362**
CONTROL VARIABLES	?	Included	Included	Included	Included
<i>INDUSTRY_{it}</i>	?	Included	Included	Included	Included
<i>YEAR_{it}</i>	?	Included	Included	Included	Included
Adjusted R ²			0.094		0.062
F statistic (sig.)			4.256***		2.713***
Observations			625		625

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

$$\begin{aligned}
 \text{Panel A Equation } KOTHARI/DAC_{it} &= \beta_0 + \beta_1 BIG4_{it} + \beta_2 SPECIALIST_{it} + \beta_3 RNONAUDIT_{it} + \beta_4 NTENURE_{it} + \\
 &\beta_5 FEMALE_{it} + \beta_6 MKTBK_{it} + \beta_7 ROE_{it} + \beta_8 LEV_{it} + \beta_9 CIR_{it} + \beta_{10} SDREV_{it} + \\
 &\beta_{11} SDCFO_{it} + \beta_{12} TAC_{it-1} + \beta_{13} \sum INDUSTRY_{it} + \beta_{14} \sum YEAR_{it} + \varepsilon_{it} \quad [59]
 \end{aligned}$$

$$\begin{aligned}
 \text{Panel B Equation } MJ/DAC_{it} &= \beta_0 + \beta_1 BIG4_{it} + \beta_2 SPECIALIST_{it} + \beta_3 RNONAUDIT_{it} + \beta_4 NTENURE_{it} + \\
 &\beta_5 FEMALE_{it} + \beta_6 MKTBK_{it} + \beta_7 ROE_{it} + \beta_8 LEV_{it} + \beta_9 CIR_{it} + \beta_{10} SDREV_{it} + \\
 &\beta_{11} SDCFO_{it} + \beta_{12} TAC_{it-1} + \beta_{13} \sum INDUSTRY_{it} + \beta_{14} \sum YEAR_{it} + \varepsilon_{it} \quad [60]
 \end{aligned}$$

Where:

KOTHARI/DAC_{it} = Absolute value of discretionary accruals of firm *i* for time period *t* calculated using the performance adjusted model introduced by Kothari, Leone, and Wasley (2005); *MJ/DAC_{it}* = Absolute value of discretionary accruals of firm *i* for time period *t* calculated using the cross-sectional version of the modified Jones model introduced by Dechow, Sloan, and Sweeney (1995); *BIG4_{it}* = Client firm *i* in time period *t* is scored one (1) if the incumbent auditor *j* in time period *t* is a Big4 audit firm. Otherwise client firm *i* in time period *t* is scored zero (0); *SPECIALIST_{it}* = Client firm *i* in time period *t* is scored one (1) if the incumbent auditor *j* in time period *t* is an industry specialist in industry *k*. Otherwise client firm *i* in time period *t* is scored zero (0); *RNONAUDIT_{it}* = The ratio of non-audit fees to total fees paid to the audit firm by the client firm *i* in time period *t*; *NTENURE_{it}* = The number of consecutive years an audit partner serves as the signing partner on an engagement for the client firm *i* at the end of time period *t*; *FEMALE_{it}* = Client firm *i* in time period *t* is scored one (1) if the signing partner of the incumbent auditor *j* in time period *t* is a female. Otherwise the client firm *i* in time period *t* is scored zero (0); *MKTBK_{it}* = Market to book ratio, measured as the ratio of total market capitalization of firm *i* at the end of time period *t* to the total book value of assets of firm *i* at the end of time period *t*; *ROE_{it}* = Return on equity, measured as the ratio of net income before extraordinary items of firm *i* at the end of time period *t* to total equity of firm *i* at the end of time period *t*; *LEV_{it}* = Financial leverage, measured as the ratio of total debt of firm *i* at the end of time period *t* to the total assets of firm *i* at the end of time period *t*; *CIR_{it}* = Capital intensity ratio, measured as the ratio of gross value of property, plant and equipment of firm *i* at the end of time period *t* to the total assets of firm *i* at the end of time period *t*; *SDREV_{it}* = Sales volatility, measured as the standard deviation of sales (scaled by lagged total assets) of firm *i* at the end of time period *t* where standard deviations are calculated based on rolling-windows of five annual observations; *SDCFO_{it}* = Cash flow volatility, measured as the standard deviation of operating cash flows (scaled by lagged total assets) of firm *i* at the end of time period *t* where standard deviations are calculated based on rolling-windows of five annual observations; *TAC_{it-1}* = Firm *i*'s total accruals from the prior year (*t* - 1), scaled by year *t* - 2 total assets; *INDUSTRY_{it}* = Industry indicator variable to control for industry effects; *YEAR_{it}* = Series indicator variables controlling time temporal differences of reporting periods for firm-year observations with firm *i* scored one (1) if financial data corresponds to time period *t*. Otherwise client firm *i* is scored zero (0); β = Coefficients on variables; ε_{it} = The error term.

7.4.2 Partitioning by client firm growth

Prior literature generally suggests that high-growth firms tend to exhibit greater earnings management practices (Watts and Zimmerman 1986; Skinner 1993). To ensure that this study's results on the linkage between auditor attributes and the magnitude of management are not driven by differences in client firm growth, the sample is partitioned into high-growth and low-growth client firms and the main multivariate tests in Chapter Six are re-performed.¹¹⁸ Results from the main regressions performed (using high-growth and low-growth firms) are reported in Table 7.6 with Panel A results associated with Table 6.1 Column 6 findings (that is, absolute value of discretionary accruals based on the performance adjusted model) and Panel B results associated with Table 6.2 Column 6 findings (that is, absolute value of discretionary accruals based on the modified Jones model).

With regards to both the performance adjusted model and the modified Jones model, all coefficients on variables listed in Table 7.6 Panels A and B are of the same directionality as the corresponding variables in the regressions reported in Table 6.1 and Table 6.2. Consistent with the main findings reported in Table 6.1 and Table 6.2, Table 7.6 shows that for both high-growth and low-growth client firms the coefficients on $BIG4_{it}$ and $NTENURE_{it}$ are consistently negative and statistically significant. Also, consistent with the main findings, Table 7.6 reports the coefficients on $SPECIALIST_{it}$ to be negative and statistically insignificant while the coefficients on $RNONAUDIT_{it}$ to be positive and statistically insignificant. For the performance adjusted model, relative to Table 6.1 Column 6 results (pooled sample), the explanatory power of the regression (see adjusted- R^2) reported in Table 7.6 Panel A Column 1 (subsample of high-growth firms) is lower (that is, 9.8% versus 9.9%) whereas the explanatory power of the regression (see adjusted- R^2) reported in Table 7.6 Panel A Column 2 (subsample of low-growth firms) is higher (that is, 15.2% versus 9.9%). Similarly, for the modified Jones model, relative to Table 6.2 Column 6 results (pooled sample), the explanatory power of the regression (see adjusted- R^2) reported in Table 7.6 Panel B Column 1 (subsample of high-growth firms) is lower (that is, 10.3% versus 10.7%) whereas the explanatory power of the regression (see adjusted- R^2) reported in Table 7.6 Panel B Column 2 (subsample of low-growth firms) is higher (that is, 17.0% versus 10.7%).

¹¹⁸ Client firms below sample median market-to-book ratio (in this case, 1.505) are considered as low growth firms whereas client firms above the sample median market-to-book ratio are considered as high growth firms (Wang, Wong, and Xia 2008).

Panels A and B of Table 7.6 show that for low-growth client firms the coefficients on $BIG4_{it}$ are negative and moderately significant ($p < 0.05$) while for high-growth client firms the coefficients on $BIG4_{it}$ are negative and only weakly significant ($p < 0.10$). These findings suggest that Big4 auditors are less effective in mitigating earnings management practices for high-growth client firms compared to low-growth client firms. This reduced effectiveness of auditors in constraining earnings management practices of high-growth client firms can be explained with the help of prior empirical literature. First, the contracting theory suggests that firms experiencing high-growth are more difficult to observe and manage since these firms generally have lower assets-in-place and higher future discretionary investment expenditures by management personnel (Myers 1977; Gaver and Gaver 1993). Second, scholars such as Andersen, Francis, and Stokes (1993) find controls in high-growth firms to be less effective. A weak internal control environment has been associated with complex operations, higher accounting risk, financial stress, and poorer quality of accruals (Ashbaugh-Skaife, Collins, and Kinney 2007; Doyle, Ge, and McVay 2007a, 2007b). Ineffective internal controls necessitate increased audit work and increased business risk to the auditor (Raghunandan and Rama 2006; Hogan and Wilkins 2008; Krishnan, Rama, and Zhang 2008). Krishnan and Visvanathan (2007) show that client firms with weak internal controls experience more auditor changes. These findings largely suggest that deficiencies in the internal controls systems of client firms make the work of an auditor more difficult.

Overall, the additional tests reported in Table 7.6 clearly support the main results reported in Table 6.1 and Table 6.2, thereby suggesting that the study's main results are not driven by client firm growth.

Table 7.6:

Regression Results Partitioning Sample Based on Client Firm Growth

Panel A: OLS Regression Results – Absolute Value of Discretionary Accruals Calculated Using the Performance Adjusted Model

Variables	Expected Sign.	Column 1: High Growth Firms		Column 2: Low Growth Firms	
		Coefficient	t-statistics	Coefficient	t-statistics
<i>Intercept</i>		0.726	6.615***	0.460	7.228***
<i>BIG4_{it}</i>	-	-0.111	-1.726*	-0.036	-2.004**
<i>SPECIALIST_{it}</i>	-	-0.014	-0.483	-0.004	-0.779
<i>RNONAUDIT_{it}</i>	+	0.050	1.549	0.007	0.195
<i>NTENURE_{it}</i>	-	-0.017	-1.963**	-0.033	-2.141**
CONTROL VARIABLES	?	Included	Included	Included	Included
<i>INDUSTRY_{it}</i>	?	Included	Included	Included	Included
<i>YEAR_{it}</i>	?	Included	Included	Included	Included
Adjusted R ²			0.098		0.152
F statistic (sig.)			4.623***		5.646***
Observations			625		625

Panel B: OLS Regression Results – Absolute Value of Discretionary Accruals Calculated Using the Modified Jones Model

Variables	Expected Sign.	Column 1: High Growth Firms		Column 2: Low Growth Firms	
		Coefficient	t-statistics	Coefficient	t-statistics
<i>Intercept</i>		0.691	6.335***	0.460	7.327***
<i>BIG4_{it}</i>	-	-0.059	-1.829*	-0.035	-1.973**
<i>SPECIALIST_{it}</i>	-	-0.011	-0.403	-0.006	-1.254
<i>RNONAUDIT_{it}</i>	+	0.089	1.390	0.004	0.103
<i>NTENURE_{it}</i>	-	-0.017	-2.017**	-0.034	-2.266**
CONTROL VARIABLES	?	Included	Included	Included	Included
<i>INDUSTRY_{it}</i>	?	Included	Included	Included	Included
<i>YEAR_{it}</i>	?	Included	Included	Included	Included
Adjusted R ²			0.103		0.170
F statistic (sig.)			4.818***		6.314***
Observations			625		625

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

$$\begin{aligned}
 \text{Panel A Equation: } KOTHARI|DAC_{it}| &= \beta_0 + \beta_1 BIG4_{it} + \beta_2 SPECIALIST_{it} + \beta_3 RNONAUDIT_{it} + \beta_4 NTENURE_{it} + \\
 &\beta_5 FEMALE_{it} + \beta_6 LNMVE_{it} + \beta_7 ROE_{it} + \beta_8 LEV_{it} + \beta_9 CIR_{it} + \beta_{10} SDREV_{it} + \\
 &\beta_{11} SDCFO_{it} + \beta_{12} TAC_{it-1} + \beta_{13} \sum INDUSTRY_{it} + \beta_{14} \sum YEAR_{it} + \varepsilon_{it} \quad [61]
 \end{aligned}$$

$$\begin{aligned}
 \text{Panel B Equation: } MJ|DAC_{it}| &= \beta_0 + \beta_1 BIG4_{it} + \beta_2 SPECIALIST_{it} + \beta_3 RNONAUDIT_{it} + \beta_4 NTENURE_{it} + \\
 &\beta_5 FEMALE_{it} + \beta_6 LNMVE_{it} + \beta_7 ROE_{it} + \beta_8 LEV_{it} + \beta_9 CIR_{it} + \beta_{10} SDREV_{it} + \\
 &\beta_{11} SDCFO_{it} + \beta_{12} TAC_{it-1} + \beta_{13} \sum INDUSTRY_{it} + \beta_{14} \sum YEAR_{it} + \varepsilon_{it} \quad [62]
 \end{aligned}$$

Where:

$KOTHARI|DAC_{it}|$ = Absolute value of discretionary accruals of firm i for time period t calculated using the performance adjusted model introduced by Kothari, Leone, and Wasley (2005); $MJ|DAC_{it}|$ = Absolute value of discretionary accruals of firm i for time period t calculated using the cross-sectional version of the modified Jones model introduced by Dechow, Sloan, and Sweeney (1995); $BIG4_{it}$ = Client firm i in time period t is scored one (1) if the incumbent auditor j in time period t is a Big4 audit firm. Otherwise client firm i in time period t is scored zero (0); $SPECIALIST_{it}$ = Client firm i in time period t is scored one (1) if the incumbent auditor j in time period t is an industry specialist in industry k . Otherwise client firm i in time period t is scored zero (0); $RNONAUDIT_{it}$ = The ratio of non-audit fees to total fees paid to the audit firm by the client firm i in time period t ; $NTENURE_{it}$ = The number of consecutive years an audit partner serves as the signing partner on an engagement for the client firm i at the end of time period t ; $FEMALE_{it}$ = Client firm i in time period t is scored one (1) if the signing partner of the incumbent auditor j in time period t is a female. Otherwise the client firm i in time period t is scored zero (0); $LNMVE_{it}$ = Natural Logarithmic transformation of the market value of equity of client firm i at the end of time period t ; ROE_{it} = Return on equity, measured as the ratio of net income before extraordinary items of firm i at the end of time period t to total equity of firm i at the end of time period t ; LEV_{it} = Financial leverage, measured as the ratio of total debt of firm i at the end of time period t to the total assets of firm i at the end of time period t ; CIR_{it} = Capital intensity ratio, measured as the ratio of gross value of property, plant and equipment of firm i at the end of time period t to the total assets of firm i at the end of time period t ; $SDREV_{it}$ = Sales volatility, measured as the standard deviation of sales (scaled by lagged total assets) of firm i at the end of time period t where standard deviations are calculated based on rolling-windows of five annual observations; $SDCFO_{it}$ = Cash flow volatility, measured as the standard deviation of operating cash flows (scaled by lagged total assets) of firm i at the end of time period t where standard deviations are calculated based on rolling-windows of five annual observations; TAC_{it-1} = Firm i 's total accruals from the prior year ($t - 1$), scaled by year $t - 2$ total assets; $INDUSTRY_{it}$ = Industry indicator variable to control for industry effects; $YEAR_{it}$ = Series indicator variables controlling time temporal differences of reporting periods for firm-year observations with firm i scored one (1) if financial data corresponds to time period t . Otherwise client firm i is scored zero (0); β = Coefficients on variables; ε_{it} = The error term.

7.5 PARTITIONING OF SAMPLE BY EARNINGS MANAGEMENT

7.5.1 Partitioning by signed discretionary accruals

In the main analysis this study uses the absolute value of discretionary accruals as a measure of earnings quality, which captures the combined effect of income-increasing and income-decreasing earnings management decisions (Warfield, Wild, and Wild 1995; Becker et al. 1998; Reynolds and Francis 2000; Frankel, Johnson, and Nelson 2002; Myers, Myers, and Omer 2003). However, some scholars such as Ashbaugh, LaFond, and Mayhew (2003) argue that since earnings overstatements are likely to be associated with aggressive and opportunistic earnings management, income-increasing discretionary accruals are more frequent and of greater concern to auditors. Ashbaugh, LaFond, and Mayhew (2003) further posit that the use of income-decreasing discretionary accruals for the downward adjustment of reported earnings could be opportunistic but may also be considered as a form of conservative accounting. Hence, this study conducts separate tests on observations with positive or income-increasing discretionary accruals and negative or income-decreasing discretionary accruals to examine the impact of auditor attributes on earnings management practices. Results from regressions performed using income-increasing and income-decreasing discretionary accruals are reported in Table 7.7 with Panel A results based on the performance adjusted model and Panel B results based on the modified Jones model.

With regards to both the performance adjusted model and the modified Jones model, all coefficients on variables listed in Table 7.7 Panels A and B are of the same directionality as the corresponding variables in the regressions reported in Table 6.1 and Table 6.2. The results for the subsample of income-increasing discretionary accruals reported in Table 7.7 Panel A Column 1 and Table 7.7 Panel B Column 1 are similar to main findings reported in Table 6.1 and Table 6.2, that is, the coefficients on $BIG4_{it}$ and $NTENURE_{it}$ are consistently negative and statistically significant at the 5% level, the coefficients on $SPECIALIST_{it}$ are negative and statistically insignificant, and the coefficients on $RNONAUDIT_{it}$ are positive and statistically insignificant. The results for the subsample of income-decreasing discretionary accruals reported in Table 7.7 Panel A Column 2 and Table 7.7 Panel B Column 2, however, show that none of the coefficients on the selected auditor attributes ($BIG4_{it}$, $SPECIALIST_{it}$, $RNONAUDIT_{it}$, and $NTENURE_{it}$) are statistically significant. For the performance adjusted model, relative to Table 6.1 Column 6 results (pooled sample), the explanatory power of the

regression (see adjusted- R^2) reported in Table 7.7 Panel A Column 1 (subsample of firms with income-increasing discretionary accruals) is higher (that is, 13.0% versus 9.9%) whereas the explanatory power of the regression (see adjusted- R^2) reported in Table 7.7 Panel A Column 2 (subsample of firms with income-decreasing discretionary accruals) is lower (that is, 7.0% versus 9.9%). Similarly, for the modified Jones model, relative to Table 6.2 Column 6 results (pooled sample), the explanatory power of the regression (see adjusted- R^2) reported in Table 7.7 Panel B Column 1 (subsample of firms with income-increasing discretionary accruals) is higher (that is, 17.8% versus 10.7%) whereas the explanatory power of the regression (see adjusted- R^2) reported in Table 7.7 Panel B Column 2 (subsample of firms with income-decreasing discretionary accruals) is lower (that is, 4.7% versus 10.7%).

Overall, the additional tests reported in Table 7.7 suggest that the engagement of a Big4 auditor and the length of audit partner tenure are more effective in constraining the income-increasing type of earnings management. This finding can be explained on the basis of prior literature which suggests that auditors tend to be conservative (Chung and Pruitt 1996; Chung and Kallapur 2003; Basu, Hwang, and Jan 2005), and so they may not agree with income-increasing discretionary accruals. In fact, scholars such as Becker et al. (1998); Francis, Maydew, and Sparks (1999); and Kim, Chung, and Firth (2003) find Big Firm auditors to more likely restrict income-increasing discretionary accruals. Also, auditors are more likely to be sued if reported profits of client firms are alleged to exceed the 'true' earnings (St. Pierre and Anderson 1984; Palmrose 1988). In contrast, prior literature provides little or no evidence of auditors being sued if reported profits of client firms are less than 'true' earnings.

Table 7.7:

Regression Results Partitioning Sample Based on Signed Discretionary Accruals

Panel A: OLS Regression Results – Signed Discretionary Accruals Calculated Using the Performance Adjusted Model

Variables	Expected Sign.	Column 1: Positive (Income-Increasing) Earnings Management – DAC+		Column 2: Negative (Income-Decreasing) Earnings Management – DAC-	
		Coefficient	t-statistics	Coefficient	t-statistics
<i>Intercept</i>		0.646	5.761***	-0.501	-4.130***
<i>BIG4_{it}</i>	-	-0.073	-2.304**	-0.018	-0.513
<i>SPECIALIST_{it}</i>	-	-0.024	-0.854	-0.012	-0.411
<i>RNONAUDIT_{it}</i>	+	0.034	0.557	0.083	1.217
<i>NTENURE_{it}</i>	-	-0.018	-2.185**	-0.004	-0.492
CONTROL VARIABLES	?	Included	Included	Included	Included
<i>INDUSTRY_{it}</i>	?	Included	Included	Included	Included
<i>YEAR_{it}</i>	?	Included	Included	Included	Included
Adjusted R ²			0.130		0.070
F statistic (sig.)			4.851***		2.820***
Observations			765		485

Panel B: OLS Regression Results – Signed Discretionary Accruals Calculated Using the Modified Jones Model

Variables	Expected Sign.	Column 1: Positive (Income-Increasing) Earnings Management – DAC+		Column 2: Negative (Income-Decreasing) Earnings Management – DAC-	
		Coefficient	t-statistics	Coefficient	t-statistics
<i>Intercept</i>		0.733	6.921***	-0.511	-4.327***
<i>BIG4_{it}</i>	-	-0.065	-2.175**	-0.022	-0.660
<i>SPECIALIST_{it}</i>	-	-0.033	-1.246	-0.006	-0.235
<i>RNONAUDIT_{it}</i>	+	0.033	0.566	0.072	1.077
<i>NTENURE_{it}</i>	-	-0.018	-2.236**	-0.009	-1.052
CONTROL VARIABLES	?	Included	Included	Included	Included
<i>INDUSTRY_{it}</i>	?	Included	Included	Included	Included
<i>YEAR_{it}</i>	?	Included	Included	Included	Included
Adjusted R ²			0.178		0.047
F statistic (sig.)			6.558***		2.191***
Observations			607		643

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

Panel A Equations: Column 1 based on Equation [63] and Column 2 based on Equation [64]

$$KOTHARI DAC_{it}^+ = \beta_0 + \beta_1 BIG4_{it} + \beta_2 SPECIALIST_{it} + \beta_3 RNONAUDIT_{it} + \beta_4 NTENURE_{it} + \beta_5 FEMALE_{it} + \beta_6 LNMVE_{it} + \beta_7 MKTBK_{it} + \beta_8 ROE_{it} + \beta_9 LEV_{it} + \beta_{10} CIR_{it} + \beta_{11} SDREV_{it} + \beta_{12} SDCFO_{it} + \beta_{13} TAC_{it-1} + \beta_{14} \sum INDUSTRY_{it} + \beta_{15} \sum YEAR_{it} + \varepsilon_{it} \quad [63]$$

$$KOTHARI DAC_{it}^- = \beta_0 + \beta_1 BIG4_{it} + \beta_2 SPECIALIST_{it} + \beta_3 RNONAUDIT_{it} + \beta_4 NTENURE_{it} + \beta_5 FEMALE_{it} + \beta_6 LNMVE_{it} + \beta_7 MKTBK_{it} + \beta_8 ROE_{it} + \beta_9 LEV_{it} + \beta_{10} CIR_{it} + \beta_{11} SDREV_{it} + \beta_{12} SDCFO_{it} + \beta_{13} TAC_{it-1} + \beta_{14} \sum INDUSTRY_{it} + \beta_{15} \sum YEAR_{it} + \varepsilon_{it} \quad [64]$$

Panel B Equations: Column 1 based on Equation [65] and Column 2 based on Equation [66]

$$MJ DAC_{it}^+ = \beta_0 + \beta_1 BIG4_{it} + \beta_2 SPECIALIST_{it} + \beta_3 RNONAUDIT_{it} + \beta_4 NTENURE_{it} + \beta_5 FEMALE_{it} + \beta_6 LNMVE_{it} + \beta_7 MKTBK_{it} + \beta_8 ROE_{it} + \beta_9 LEV_{it} + \beta_{10} CIR_{it} + \beta_{11} SDREV_{it} + \beta_{12} SDCFO_{it} + \beta_{13} TAC_{it-1} + \beta_{14} \sum INDUSTRY_{it} + \beta_{15} \sum YEAR_{it} + \varepsilon_{it} \quad [65]$$

$$MJ DAC_{it}^- = \beta_0 + \beta_1 BIG4_{it} + \beta_2 SPECIALIST_{it} + \beta_3 RNONAUDIT_{it} + \beta_4 NTENURE_{it} + \beta_5 FEMALE_{it} + \beta_6 LNMVE_{it} + \beta_7 MKTBK_{it} + \beta_8 ROE_{it} + \beta_9 LEV_{it} + \beta_{10} CIR_{it} + \beta_{11} SDREV_{it} + \beta_{12} SDCFO_{it} + \beta_{13} TAC_{it-1} + \beta_{14} \sum INDUSTRY_{it} + \beta_{15} \sum YEAR_{it} + \varepsilon_{it} \quad [66]$$

Where:

$KOTHARI\ DAC_{it}^+$ = positive (income-increasing) discretionary accruals calculated using the performance adjusted model introduced by Kothari, Leone, and Wasley (2005); $KOTHARI\ DAC_{it}^-$ = negative (income-decreasing) discretionary accruals calculated using the performance adjusted model introduced by Kothari, Leone, and Wasley (2005); $MJ\ DAC_{it}^+$ = positive (income-increasing) discretionary accruals calculated using the cross-sectional version of the modified Jones model introduced by Dechow, Sloan, and Sweeney (1995); $MJ\ DAC_{it}^-$ = negative (income-decreasing) discretionary accruals calculated using the cross-sectional version of the modified Jones model introduced by Dechow, Sloan, and Sweeney (1995); $BIG4_{it}$ = Client firm i in time period t is scored one (1) if the incumbent auditor j in time period t is a Big4 audit firm. Otherwise client firm i in time period t is scored zero (0); $SPECIALIST_{it}$ = Client firm i in time period t is scored one (1) if the incumbent auditor j in time period t is an industry specialist in industry k . Otherwise client firm i in time period t is scored zero (0); $RNONAUDIT_{it}$ = The ratio of non-audit fees to total fees paid to the audit firm by the client firm i in time period t ; $NTENURE_{it}$ = The number of consecutive years an audit partner serves as the signing partner on an engagement for the client firm i at the end of time period t ; $FEMALE_{it}$ = Client firm i in time period t is scored one (1) if the signing partner of the incumbent auditor j in time period t is a female. Otherwise the client firm i in time period t is scored zero (0); $LN MVE_{it}$ = Natural Logarithmic transformation of the market value of equity of client firm i at the end of time period t ; $MKTBK_{it}$ = Market to book ratio, measured as the ratio of total market capitalization of firm i at the end of time period t to the total book value of assets of firm i at the end of time period t ; ROE_{it} = Return on equity, measured as the ratio of net income before extraordinary items of firm i at the end of time period t to total equity of firm i at the end of time period t ; LEV_{it} = Financial leverage, measured as the ratio of total debt of firm i at the end of time period t to the total assets of firm i at the end of time period t ; CIR_{it} = Capital intensity ratio, measured as the ratio of gross value of property, plant and equipment of firm i at the end of time period t to the total assets of firm i at the end of time period t ; $SDREV_{it}$ = Sales volatility, measured as the standard deviation of sales (scaled by lagged total assets) of firm i at the end of time period t where standard deviations are calculated based on rolling-windows of five annual observations; $SDCFO_{it}$ = Cash flow volatility, measured as the standard deviation of operating cash flows (scaled by lagged total assets) of firm i at the end of time period t where standard deviations are calculated based on rolling-windows of five annual observations; TAC_{it-1} = Firm i 's total accruals from the prior year ($t - 1$), scaled by year $t - 2$ total assets; $INDUSTRY_{it}$ = Industry indicator variable to control for industry effects; $YEAR_{it}$ = Series indicator variables controlling time temporal differences of reporting periods for firm-year observations with firm i scored one (1) if financial data corresponds to time period t . Otherwise client firm i is scored zero (0); β = Coefficients on variables; ε_{it} = The error term.

7.5.2 Partitioning by extreme earnings management

Prior research using signed discretionary accruals has considered discretionary accruals of 25th percentile and below to be large income-decreasing accruals while discretionary accruals of 75th percentile and above to be large income-increasing accruals (Cheng and Reitenga 2009). Since this study uses the absolute value of discretionary accruals for its main analysis, discretionary accruals of 75th percentile and above are considered to represent extreme earnings management. In this section, the sample is partitioned into extreme and non-extreme earnings management based on the magnitude of discretionary accruals and the main multivariate tests in Chapter Six are re-performed. Results from the regressions performed (using extreme and non-extreme earnings management) are reported in Table 7.8 with Panel A results associated with Table 6.1 Column 6 findings (that is, absolute value of discretionary accruals based on the performance adjusted model) and Panel B results associated with Table 6.2 Column 6 findings (that is, absolute value of discretionary accruals based on the modified Jones model).

With regards to both the performance adjusted model and the modified Jones model, all coefficients on variables listed in Table 7.8 Panels A and B are of the same directionality as the corresponding variables in the main regressions reported in Table 6.1 and Table 6.2. The results for the subsample of firms with extreme earnings management reported in Table 7.8 Panel A Column 1 and Table 7.8 Panel B Column 1 show only the coefficients on $NTENURE_{it}$ to be negative and statistically significant (at

the 5% level). The coefficients on $BIG4_{it}$ and $SPECIALIST_{it}$ are found to be negative and statistically insignificant while the coefficients on $RNONAUDIT_{it}$ are found to be positive and statistically insignificant. In contrast, the results for the subsample of firms with non-extreme earnings management reported in Table 7.8 Panel A Column 2 and Table 7.8 Panel B Column 2 show only the coefficients on $BIG4_{it}$ to be negative and statistically significant (at the 5% level). The coefficients on $SPECIALIST_{it}$ and $NTENURE_{it}$ are found to be negative and statistically insignificant while the coefficients on $RNONAUDIT_{it}$ are found to be positive and statistically insignificant. For the performance adjusted model, relative to Table 6.1 Column 6 results (pooled sample), the explanatory power of the regressions (see adjusted- R^2) reported in both Table 7.8 Panel A Column 1 (subsample of firms with extreme earnings management) and Table 7.8 Panel A column 2 (subsample of firms with non-extreme earnings management) is lower (that is, 2.0% versus 9.9% and 5.0% versus 9.9%). Similarly, for the modified Jones model, relative to Table 6.2 Column 6 results (pooled sample), the explanatory power of the regressions (see adjusted- R^2) reported in both Table 7.8 Panel B Column 1 (subsample of firms with extreme earnings management) and Table 7.8 Panel B Column 2 (subsample of firms with non-extreme earnings management) is lower (that is, 5.6% versus 10.7% and 6.7% versus 10.7%).

Overall, the additional tests reported in Table 7.8 suggest that longer audit partner tenure is more effective in constraining extreme earnings management while the engagement of a Big4 auditor is more effective in constraining non-extreme earnings management. The Big4 effect can be explained by prior empirical literature which suggests that Big Firm auditors have a tendency to select less risky clients to reduce litigation risk (Raghunandan and Rama 1999; Johnstone 2000). Also, Big Firm auditors have generally been shown to attract high quality client firms (characterized by strong internal controls, high earnings quality, and low audit and business risks) while non-Big Firm auditors have been shown to attract low quality client firms (characterized by weak internal controls, low earnings quality, and high audit and business risks) (Titman and Trueman 1986; Datar, Feltham, and Hughes 1991; Thornton and Moore 1993; Sahay, ZviDavis, and Peikes 2012).¹¹⁹ For instance, Sahay, ZviDavis, and Peikes (2012) examine the relationship between a client firm's demand for different quality auditors and the opportunities to exhibit earnings management practices by incorporating a model in which the firm simultaneously chooses the bias it introduces into its pre-

¹¹⁹ Prior empirical literature on auditor choice starts from the premise that client firms choose whether to hire large or small audit firms (Francis and Wilson 1988; Johnson and Lys 1990; DeFond 1992; Firth and Smith 1992).

audited earnings and the quality of its auditor. They (Sahay, ZviDavis, and Peikes 2012) find that firms that choose a high level of bias choose a low quality auditor (inspite of the correction made by the market-maker for the level of residual bias in audited reports) while firms that choose a low level of bias choose a high-quality auditor, suggesting Big4 auditors to have a significant constraining effect on non-extreme earnings management rather than extreme earnings management.

Table 7.8:

Regression Results Partitioning Sample Based on Extreme Earnings Management

Panel A: OLS Regression Results – Absolute Value of Discretionary Accruals Calculated Using the Performance Adjusted Model

Variables	Expected Sign.	Column 1: Extreme Earnings Management		Column 2: Non-Extreme Earnings Management	
		Coefficient	t-statistics	Coefficient	t-statistics
<i>Intercept</i>		1.037	3.697***	0.084	6.689***
<i>BIG4_{it}</i>	-	-0.041	-0.557	-0.007	-2.018**
<i>SPECIALIST_{it}</i>	-	-0.009	-0.131	-0.001	-0.138
<i>RNONAUDIT_{it}</i>	+	0.097	0.646	0.002	0.207
<i>NTENURE_{it}</i>	-	-0.047	-2.129**	-0.001	-0.116
CONTROL VARIABLES	?	Included	Included	Included	Included
<i>INDUSTRY_{it}</i>	?	Included	Included	Included	Included
<i>YEAR_{it}</i>	?	Included	Included	Included	Included
Adjusted R ²			0.020		0.050
F statistic (sig.)			1.261*		2.840***
Observations			312		938

Panel B: OLS Regression Results – Absolute Value of Discretionary Accruals Calculated Using the Modified Jones Model

Variables	Expected Sign.	Column 1: Extreme Earnings Management		Column 2: Non-Extreme Earnings Management	
		Coefficient	t-statistics	Coefficient	t-statistics
<i>Intercept</i>		1.292	4.862***	0.107	8.019***
<i>BIG4_{it}</i>	-	-0.51	-0.745	-0.010	-2.491**
<i>SPECIALIST_{it}</i>	-	-0.065	-1.056	-0.002	-0.577
<i>RNONAUDIT_{it}</i>	+	0.237	1.590	0.001	0.188
<i>NTENURE_{it}</i>	-	-0.044	-2.140**	-0.001	-0.558
CONTROL VARIABLES	?	Included	Included	Included	Included
<i>INDUSTRY_{it}</i>	?	Included	Included	Included	Included
<i>YEAR_{it}</i>	?	Included	Included	Included	Included
Adjusted R ²			0.056		0.067
F statistic (sig.)			1.768**		3.704***
Observations			312		938

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

Panel A Equations: Column 1 based on Equation [67] and Column 2 based on Equation [68]

$$EXKOTHARI/DAC_{it} = \beta_0 + \beta_1 BIG4_{it} + \beta_2 SPECIALIST_{it} + \beta_3 RNONAUDIT_{it} + \beta_4 NTENURE_{it} + \beta_5 FEMALE_{it} + \beta_6 LNMVE_{it} + \beta_7 MKTBK_{it} + \beta_8 ROE_{it} + \beta_9 LEV_{it} + \beta_{10} CIR_{it} + \beta_{11} SDREV_{it} + \beta_{12} SDCFO_{it} + \beta_{13} TAC_{it-1} + \beta_{14} \sum INDUSTRY_{it} + \beta_{15} \sum YEAR_{it} + \varepsilon_{it} \quad [67]$$

$$NEXKOTHARI/DAC_{it} = \beta_0 + \beta_1 BIG4_{it} + \beta_2 SPECIALIST_{it} + \beta_3 RNONAUDIT_{it} + \beta_4 NTENURE_{it} + \beta_5 FEMALE_{it} + \beta_6 LNMVE_{it} + \beta_7 MKTBK_{it} + \beta_8 ROE_{it} + \beta_9 LEV_{it} + \beta_{10} CIR_{it} + \beta_{11} SDREV_{it} + \beta_{12} SDCFO_{it} + \beta_{13} TAC_{it-1} + \beta_{14} \sum INDUSTRY_{it} + \beta_{15} \sum YEAR_{it} + \varepsilon_{it} \quad [68]$$

Panel B Equations: Column 1 based on Equation [69] and Column 2 based on Equation [70]

$$EXMJ/DAC_{it} = \beta_0 + \beta_1 BIG4_{it} + \beta_2 SPECIALIST_{it} + \beta_3 RNONAUDIT_{it} + \beta_4 NTENURE_{it} + \beta_5 FEMALE_{it} + \beta_6 LNMVE_{it} + \beta_7 MKTBK_{it} + \beta_8 ROE_{it} + \beta_9 LEV_{it} + \beta_{10} CIR_{it} + \beta_{11} SDREV_{it} + \beta_{12} SDCFO_{it} + \beta_{13} TAC_{it-1} + \beta_{14} \sum INDUSTRY_{it} + \beta_{15} \sum YEAR_{it} + \varepsilon_{it} \quad [69]$$

$$NEXMJ/DAC_{it} = \beta_0 + \beta_1 BIG4_{it} + \beta_2 SPECIALIST_{it} + \beta_3 RNONAUDIT_{it} + \beta_4 NTENURE_{it} + \beta_5 FEMALE_{it} + \beta_6 LNMVE_{it} + \beta_7 MKTBK_{it} + \beta_8 ROE_{it} + \beta_9 LEV_{it} + \beta_{10} CIR_{it} + \beta_{11} SDREV_{it} + \beta_{12} SDCFO_{it} + \beta_{13} TAC_{it-1} + \beta_{14} \sum INDUSTRY_{it} + \beta_{15} \sum YEAR_{it} + \varepsilon_{it} \quad [70]$$

Where:

$EXKOTHARI/DAC_{it}$ = Absolute value of discretionary accruals of 75th percentile and above calculated using the performance adjusted model introduced by Kothari, Leone, and Wasley (2005); $NEXKOTHARI/DAC_{it}$ = Absolute value of discretionary accruals below 75th percentile calculated using the performance adjusted model introduced by Kothari, Leone, and Wasley (2005); $EXMJ/DAC_{it}$ = Absolute value of discretionary accruals of 75th percentile and above calculated using the cross-sectional version of the modified Jones model introduced by Dechow, Sloan, and Sweeney (1995); $NEXMJ/DAC_{it}$ = Absolute value of discretionary accruals below 75th percentile calculated using the cross-sectional version of the modified Jones model introduced by Dechow, Sloan, and Sweeney (1995); $BIG4_{it}$ = Client firm i in time period t is scored one (1) if the incumbent auditor j in time period t is a Big4 audit firm. Otherwise client firm i in time period t is scored zero (0); $SPECIALIST_{it}$ = Client firm i in time period t is scored one (1) if the incumbent auditor j in time period t is an industry specialist in industry k . Otherwise client firm i in time period t is scored zero (0); $RNONAUDIT_{it}$ = The ratio of non-audit fees to total fees paid to the audit firm by the client firm i in time period t ; $NTENURE_{it}$ = The number of consecutive years an audit partner serves as the signing partner on an engagement for the client firm i at the end of time period t ; $FEMALE_{it}$ = Client firm i in time period t is scored one (1) if the signing partner of the incumbent auditor j in time period t is a female. Otherwise the client firm i in time period t is scored zero (0); $LNLMVE_{it}$ = Natural Logarithmic transformation of the market value of equity of client firm i at the end of time period t ; $MKTBK_{it}$ = Market to book ratio, measured as the ratio of total market capitalization of firm i at the end of time period t to the total book value of assets of firm i at the end of time period t ; ROE_{it} = Return on equity, measured as the ratio of net income before extraordinary items of firm i at the end of time period t to total equity of firm i at the end of time period t ; LEV_{it} = Financial leverage, measured as the ratio of total debt of firm i at the end of time period t to the total assets of firm i at the end of time period t ; CIR_{it} = Capital intensity ratio, measured as the ratio of gross value of property, plant and equipment of firm i at the end of time period t to the total assets of firm i at the end of time period t ; $SDREV_{it}$ = Sales volatility, measured as the standard deviation of sales (scaled by lagged total assets) of firm i at the end of time period t where standard deviations are calculated based on rolling-windows of five annual observations; $SDCFO_{it}$ = Cash flow volatility, measured as the standard deviation of operating cash flows (scaled by lagged total assets) of firm i at the end of time period t where standard deviations are calculated based on rolling-windows of five annual observations; TAC_{it-1} = Firm i 's total accruals from the prior year ($t - 1$), scaled by year $t - 2$ total assets; $INDUSTRY_{it}$ = Industry indicator variable to control for industry effects; $YEAR_{it}$ = Series indicator variables controlling time temporal differences of reporting periods for firm-year observations with firm i scored one (1) if financial data corresponds to time period t . Otherwise client firm i is scored zero (0); β = Coefficients on variables; ε_{it} = The error term.

7.6 PARTITIONING OF SAMPLE BY AUDITOR ATTRIBUTES

7.6.1 Partitioning by auditor brand

Prior literature has generally found the presence of a brand name (Big 8/6/5/4) auditor to be negatively associated with earnings management practices exhibited by client firms (Becker et al. 1998; Francis, Maydew, and Sparks 1999; Balsam, Krishnan, and Yang 2003; Krishnan 2003). Although auditor brand (Big4 auditor) is used as an independent variable in this study, the sample is partitioned into client firms audited by Big4 auditors and client firms audited by non-Big4 auditors and the main multivariate tests in Chapter Six are re-performed. This analysis is conducted to determine if the associations between the other three pivotal auditor attributes (namely, auditor industry specialization, provision of non-audit services, and audit partner tenure) and the magnitude of earnings management (proxied by the absolute value of discretionary accruals) vary between firms audited by a Big4 auditor and firms audited by a non-Big4 auditor. Results from the regressions performed (using Big4 versus non-Big4 dichotomy) are reported in Table 7.9 with Panel A results associated with Table 6.1 Column 6 findings (that is, absolute value of discretionary accruals based on the performance adjusted model) and Panel B results associated with Table 6.2 Column 6 findings (that is, absolute value of discretionary accruals based on the modified Jones model).

With regards to both the performance adjusted model and the modified Jones model, all coefficients on variables listed in Table 7.9 Panels A and B are of the same directionality as the corresponding variables in the main regressions reported in Table 6.1 and Table 6.2. The results for the subsample of Big4 auditors reported in Table 7.9 Panel A Column 1 and Table 7.9 Panel B Column 1 show none of the coefficients on *SPECIALIST_{it}*, *RNONAUDIT_{it}*, and *NTENURE_{it}* to be statistically significant. The results for the subsample of non-Big4 auditors reported in Table 7.9 Panel A Column 2 and Table 7.9 Panel B Column 2 show only the coefficients on *NTENURE_{it}* to be negative and statistically significant at the 1% and 5% levels, respectively. The coefficients on *SPECIALIST_{it}* and *RNONAUDIT_{it}* continue to remain statistically insignificant for the subsample of non-Big4 auditors. For the performance adjusted model, relative to Table 6.1 Column 6 results (pooled sample), the explanatory power of the regression (see adjusted-R²) reported in Table 7.9 Panel A Column 1 (subsample of client firms audited by Big4 auditors) is higher (that is, 12.8% versus 9.9%) while the explanatory power of the regression (see adjusted-R²) reported in Table 7.9 Panel A Column 2 (subsample of client firms audited by non-Big4 auditors) is lower (that is, 5.0% versus 9.9%). Similarly, for the modified Jones model, relative to Table 6.2 Column 6 results (pooled sample), the explanatory power of the regression (see adjusted-R²) reported in Table 7.9 Panel B Column 1 (subsample of client firms audited by Big4 auditors) is higher (that is, 16.1% versus 10.7%) while the explanatory power of the regression (see adjusted-R²) reported in Table 7.9 Panel B Column 2 (subsample of client firms audited by non-Big4 auditors) is lower (that is, 4.5% versus 10.7%).

Separate tests are also conducted on observations with positive or income-increasing discretionary accruals and negative or income-decreasing discretionary accruals within the subsamples of Big4 clients (Table 7.10) and non-Big4 clients (Table 7.11) to further examine if the associations between the other three auditor attributes and signed earnings management vary between the two groups. Again, with regards to both the performance adjusted model and the modified Jones model, all coefficients on variables listed in Panels A and B of both Table 7.10 and Table 7.11 are of the same directionality as the corresponding variables in the main regressions reported in Table 6.1 and Table 6.2. For the subsample of Big4 auditors, the coefficients on *SPECIALIST_{it}*, *RNONAUDIT_{it}*, and *NTENURE_{it}* remain statistically insignificant in the case of both income-increasing discretionary accruals (Table 7.10 Panel A Column 1 and Table 7.10 Panel B Column 1) and income-decreasing discretionary accruals (Table

7.10 Panel A Column 2 and Table 7.10 Panel B Column 2). For the subsample of non-Big4 auditors, the coefficients on $NTENURE_{it}$ are reported to be negative and significant in the case of only income-increasing discretionary accruals (Table 7.11 Panel A Column 1 and Table 7.11 Panel B Column 1) but insignificant in the case of income-decreasing discretionary accruals (Table 7.11 Panel A Column 2 and Table 7.11 Panel B Column 2). Also, for the subsample of non-Big4 auditors, the coefficients on $SPECIALIST_{it}$ and $RNONAUDIT_{it}$ continue to remain statistically insignificant across both income-increasing as well as income-decreasing discretionary accruals.

In summary, the results suggest that longer audit partner tenure is effective in constraining the magnitude of earnings management adopted by client firms in case of non-Big4 auditors only. When this relationship is estimated separately for instances of income-increasing and income-decreasing discretionary accruals, it is found that while positive discretionary accruals are significantly lower with longer partner tenure of non-Big4 auditors, there is no discernible effect for instances where discretionary accruals are negative. The presence of industry specialists and the provision of non-audit services are consistently found to be insignificantly associated with earnings management practices.

The observed negative association of longer audit partner tenure with earnings management practices of client firms in case of only non-Big4 auditors reflects on the learning differentiation between Big4 and non-Big4 auditors. Scholars such as Chi and Huang (2005) and Hamilton et al. (2005) have previously provided evidence in support of such learning differentiation by showing that Big5 (now Big4) auditors (compared to non-Big5 auditors) are significantly more proficient during the initial period of an audit engagement in constraining earnings management and improving earning quality as a result of their quickness and greater expertise in acquiring the requisite knowledge and obtaining the necessary acquaintance. When this study's sample is partitioned based on the length of partner tenure in the following subsection (subsection 7.6.2), Big4 auditors are found to be more effective in constraining the magnitude of earnings management practices when partners have short tenure (two years or less) compared to medium tenure (three to five years). Hence, this study confirms previous findings by showing that the learning experience obtained through longer partner tenure is crucial for non-Big4 auditors in improving audit quality and earnings quality since these auditors are less specialized in building client specific knowledge as compared to their Big4 counterparts.

Table 7.9:

Regression Results Partitioning Sample Based on Auditor Brand

Panel A: OLS Regression Results – Absolute Value of Discretionary Accruals Calculated Using the Performance Adjusted Model

Variables	Expected Sign.	Column 1: Big4 Auditor		Column 2: Non-Big4 Auditor	
		Coefficient	t-statistics	Coefficient	t-statistics
<i>Intercept</i>		0.439	6.941***	0.835	3.993***
<i>SPECIALIST_{it}</i>	-	-0.021	-1.321	-0.058	-1.437
<i>RNONAUDIT_{it}</i>	+	0.048	1.510	0.065	0.613
<i>NTENURE_{it}</i>	-	-0.004	-0.996	-0.026	-1.944*
CONTROL VARIABLES	?	Included	Included	Included	Included
<i>INDUSTRY_{it}</i>	?	Included	Included	Included	Included
<i>YEAR_{it}</i>	?	Included	Included	Included	Included
Adjusted R ²			0.128		0.050
F statistic (sig.)			5.638***		2.119***
Observations			757		493

Panel B: OLS Regression Results – Absolute Value of Discretionary Accruals Calculated Using the Modified Jones Model

Variables	Expected Sign.	Column 1: Big4 Auditor		Column 2: Non-Big4 Auditor	
		Coefficient	t-statistics	Coefficient	t-statistics
<i>Intercept</i>		0.444	6.851***	0.743	3.601***
<i>SPECIALIST_{it}</i>	-	-0.017	-1.014	-0.047	-1.176
<i>RNONAUDIT_{it}</i>	+	0.051	1.563	0.019	0.180
<i>NTENURE_{it}</i>	-	-0.006	-1.325	-0.027	-2.049**
CONTROL VARIABLES	?	Included	Included	Included	Included
<i>INDUSTRY_{it}</i>	?	Included	Included	Included	Included
<i>YEAR_{it}</i>	?	Included	Included	Included	Included
Adjusted R ²			0.161		0.045
F statistic (sig.)			7.037***		2.015***
Observations			757		493

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

$$\begin{aligned}
 \text{Panel A Equation: } KOTHARI/DAC_{it} &= \beta_0 + \beta_1 SPECIALIST_{it} + \beta_2 RNONAUDIT_{it} + \beta_3 NTENURE_{it} + \\
 &\beta_4 FEMALE_{it} + \beta_5 LNMVE_{it} + \beta_6 MKTBK_{it} + \beta_7 ROE_{it} + \beta_8 LEV_{it} + \beta_9 CIR_{it} \\
 &+ \beta_{10} SDREV_{it} + \beta_{11} SDCFO_{it} + \beta_{12} TAC_{it-1} + \beta_{13} \sum INDUSTRY_{it} + \\
 &\beta_{14} \sum YEAR_{it} + \varepsilon_{it} \quad [71] \\
 \text{Panel B Equation: } MJ/DAC_{it} &= \beta_0 + \beta_1 SPECIALIST_{it} + \beta_2 RNONAUDIT_{it} + \beta_3 NTENURE_{it} + \\
 &\beta_4 FEMALE_{it} + \beta_5 LNMVE_{it} + \beta_6 MKTBK_{it} + \beta_7 ROE_{it} + \beta_8 LEV_{it} + \beta_9 CIR_{it} \\
 &+ \beta_{10} SDREV_{it} + \beta_{11} SDCFO_{it} + \beta_{12} TAC_{it-1} + \beta_{13} \sum INDUSTRY_{it} + \\
 &\beta_{14} \sum YEAR_{it} + \varepsilon_{it} \quad [72]
 \end{aligned}$$

Where:

KOTHARI/DAC_{it} = Absolute value of discretionary accruals of firm *i* for time period *t* calculated using the performance adjusted model introduced by Kothari, Leone, and Wasley (2005); *MJ/DAC_{it}* = Absolute value of discretionary accruals of firm *i* for time period *t* calculated using the cross-sectional version of the modified Jones model introduced by Dechow, Sloan, and Sweeney (1995); *SPECIALIST_{it}* = Client firm *i* in time period *t* is scored one (1) if the incumbent auditor *j* in time period *t* is an industry specialist in industry *k*. Otherwise client firm *i* in time period *t* is scored zero (0); *RNONAUDIT_{it}* = The ratio of non-audit fees to total fees paid to the audit firm by the client firm *i* in time period *t*; *NTENURE_{it}* = The number of consecutive years an audit partner serves as the signing partner on an engagement for the client firm *i* at the end of time period *t*; *FEMALE_{it}* = Client firm *i* in time period *t* is scored one (1) if the signing partner of the incumbent auditor *j* in time period *t* is a female. Otherwise the client firm *i* in time period *t* is scored zero (0); *LNMVE_{it}* = Natural Logarithmic transformation of the market value of equity of client firm *i* at the end of time period *t*; *MKTBK_{it}* = Market to book ratio, measured as the ratio of total market capitalization of firm *i* at the end of time period *t* to the total book value of assets of firm *i* at the end of time period *t*; *ROE_{it}* = Return on equity, measured as the ratio of net income before extraordinary items of firm *i* at the end of time period *t* to total equity of firm *i* at the end of time period *t*; *LEV_{it}* = Financial leverage, measured as the ratio of total debt of firm *i* at the end of time period *t* to the total assets of firm *i* at the end of time period *t*; *CIR_{it}* = Capital intensity ratio, measured as the ratio of gross value of property, plant and equipment of firm *i* at the end of time period *t* to the total assets of firm *i* at the end of time period *t*; *SDREV_{it}* = Sales volatility, measured as the standard deviation of sales (scaled by lagged total assets) of firm *i* at the end of time period *t* where standard deviations are calculated based on rolling-windows of five annual observations; *SDCFO_{it}* = Cash flow volatility, measured as the standard deviation of operating cash flows (scaled by lagged total assets) of firm *i* at the end of time period *t* where standard deviations are calculated based on rolling-windows of five annual observations; *TAC_{it-1}* = Firm *i*'s total accruals from the prior year (*t* - 1), scaled by year *t* - 2 total assets; *INDUSTRY_{it}* = Industry indicator variable to control for industry effects; *YEAR_{it}* = Series indicator variables controlling time temporal differences of reporting periods for firm-year observations with firm *i* scored one (1) if financial data corresponds to time period *t*. Otherwise client firm *i* is scored zero (0); β = Coefficients on variables; ε_{it} = The error term.

Table 7.10:

Regression Results Partitioning Sample of Big4 Clients Based on Signed Discretionary Accruals

Panel A: OLS Regression Results – Signed Discretionary Accruals Calculated Using the Performance Adjusted Model

Variables	Expected Sign.	Column 1: Positive (Income-Increasing) Earnings Management – DAC+		Column 2: Negative (Income-Decreasing) Earnings Management – DAC-	
		Coefficient	t-statistics	Coefficient	t-statistics
<i>Intercept</i>		0.283	4.113***	-0.539	-4.608***
<i>SPECIALIST_{it}</i>	-	-0.010	-0.550	-0.038	-1.205
<i>RNONAUDIT_{it}</i>	+	0.045	1.201	0.069	1.228
<i>NTENURE_{it}</i>	-	-0.001	-0.280	-0.011	-1.288
CONTROL VARIABLES	?	Included	Included	Included	Included
<i>INDUSTRY_{it}</i>	?	Included	Included	Included	Included
<i>YEAR_{it}</i>	?	Included	Included	Included	Included
Adjusted R ²			0.084		0.227
F statistic (sig.)			2.782***		4.877***
Observations			465		292

Panel B: OLS Regression Results – Signed Discretionary Accruals Calculated Using the Modified Jones Model

Variables	Expected Sign.	Column 1: Positive (Income-Increasing) Earnings Management – DAC+		Column 2: Negative (Income-Decreasing) Earnings Management – DAC-	
		Coefficient	t-statistics	Coefficient	t-statistics
<i>Intercept</i>		0.448	5.094***	-0.582	-5.980***
<i>SPECIALIST_{it}</i>	-	-0.015	-0.729	-0.019	-0.761
<i>RNONAUDIT_{it}</i>	+	0.028	0.662	0.068	1.451
<i>NTENURE_{it}</i>	-	-0.002	-0.264	-0.008	-1.200
CONTROL VARIABLES	?	Included	Included	Included	Included
<i>INDUSTRY_{it}</i>	?	Included	Included	Included	Included
<i>YEAR_{it}</i>	?	Included	Included	Included	Included
Adjusted R ²			0.159		0.230
F statistic (sig.)			3.812***		6.156***
Observations			358		399

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

Panel A Equations: Column 1 based on Equation [73] and Column 2 based on Equation [74]

$$KOTHARI\ DAC_{it}^+ = \beta_0 + \beta_1 SPECIALIST_{it} + \beta_2 RNONAUDIT_{it} + \beta_3 NTENURE_{it} + \beta_4 FEMALE_{it} + \beta_5 LNMVE_{it} + \beta_6 MKTBK_{it} + \beta_7 ROE_{it} + \beta_8 LEV_{it} + \beta_9 CIR_{it} + \beta_{10} SDREV_{it} + \beta_{11} SDCFO_{it} + \beta_{12} TAC_{it-1} + \beta_{13} \sum INDUSTRY_{it} + \beta_{14} \sum YEAR_{it} + \epsilon_{it} \quad [73]$$

$$KOTHARI\ DAC_{it}^- = \beta_0 + \beta_1 SPECIALIST_{it} + \beta_2 RNONAUDIT_{it} + \beta_3 NTENURE_{it} + \beta_4 FEMALE_{it} + \beta_5 LNMVE_{it} + \beta_6 MKTBK_{it} + \beta_7 ROE_{it} + \beta_8 LEV_{it} + \beta_9 CIR_{it} + \beta_{10} SDREV_{it} + \beta_{11} SDCFO_{it} + \beta_{12} TAC_{it-1} + \beta_{13} \sum INDUSTRY_{it} + \beta_{14} \sum YEAR_{it} + \epsilon_{it} \quad [74]$$

Panel B Equations: Column 1 based on Equation [75] and Column 2 based on Equation [76]

$$MJ\ DAC_{it}^+ = \beta_0 + \beta_1 SPECIALIST_{it} + \beta_2 RNONAUDIT_{it} + \beta_3 NTENURE_{it} + \beta_4 FEMALE_{it} + \beta_5 LNMVE_{it} + \beta_6 MKTBK_{it} + \beta_7 ROE_{it} + \beta_8 LEV_{it} + \beta_9 CIR_{it} + \beta_{10} SDREV_{it} + \beta_{11} SDCFO_{it} + \beta_{12} TAC_{it-1} + \beta_{13} \sum INDUSTRY_{it} + \beta_{14} \sum YEAR_{it} + \epsilon_{it} \quad [75]$$

$$MJ\ DAC_{it}^- = \beta_0 + \beta_1 SPECIALIST_{it} + \beta_2 RNONAUDIT_{it} + \beta_3 NTENURE_{it} + \beta_4 FEMALE_{it} + \beta_5 LNMVE_{it} + \beta_6 MKTBK_{it} + \beta_7 ROE_{it} + \beta_8 LEV_{it} + \beta_9 CIR_{it} + \beta_{10} SDREV_{it} + \beta_{11} SDCFO_{it} + \beta_{12} TAC_{it-1} + \beta_{13} \sum INDUSTRY_{it} + \beta_{14} \sum YEAR_{it} + \epsilon_{it} \quad [76]$$

Where:

$KOTHARI\ DAC_{it}^+$ = positive (income-increasing) discretionary accruals calculated using the performance adjusted model introduced by Kothari, Leone, and Wasley (2005); $KOTHARI\ DAC_{it}^-$ = negative (income-decreasing) discretionary accruals calculated using the performance adjusted model introduced by Kothari, Leone, and Wasley (2005); $MJ\ DAC_{it}^+$ = positive (income-increasing) discretionary accruals calculated using the cross-sectional version of the modified Jones model introduced by Dechow, Sloan, and Sweeney (1995); $MJ\ DAC_{it}^-$ = negative (income-decreasing) discretionary accruals calculated using the cross-sectional version of the modified Jones model introduced by Dechow, Sloan, and Sweeney (1995); $SPECIALIST_{it}$ = Client firm i in time period t is scored one (1) if the incumbent auditor j in time period t is an industry specialist in industry k . Otherwise client firm i in time period t is scored zero (0); $RNONAUDIT_{it}$ = The ratio of non-audit fees to total fees paid to the audit firm by the client firm i in time period t ; $NTENURE_{it}$ = The number of consecutive years an audit partner serves as the signing partner on an engagement for the client firm i at the end of time period t ; $FEMALE_{it}$ = Client firm i in time period t is scored one (1) if the signing partner of the incumbent auditor j in time period t is a female. Otherwise the client firm i in time period t is scored zero (0); $LN\ MV_{it}$ = Natural Logarithmic transformation of the market value of equity of client firm i at the end of time period t ; $MKTBK_{it}$ = Market to book ratio, measured as the ratio of total market capitalization of firm i at the end of time period t to the total book value of assets of firm i at the end of time period t ; ROE_{it} = Return on equity, measured as the ratio of net income before extraordinary items of firm i at the end of time period t to total equity of firm i at the end of time period t ; LEV_{it} = Financial leverage, measured as the ratio of total debt of firm i at the end of time period t to the total assets of firm i at the end of time period t ; CIR_{it} = Capital intensity ratio, measured as the ratio of gross value of property, plant and equipment of firm i at the end of time period t to the total assets of firm i at the end of time period t ; $SDREV_{it}$ = Sales volatility, measured as the standard deviation of sales (scaled by lagged total assets) of firm i at the end of time period t where standard deviations are calculated based on rolling-windows of five annual observations; $SDCFO_{it}$ = Cash flow volatility, measured as the standard deviation of operating cash flows (scaled by lagged total assets) of firm i at the end of time period t where standard deviations are calculated based on rolling-windows of five annual observations; TAC_{it-1} = Firm i 's total accruals from the prior year ($t - 1$), scaled by year $t - 2$ total assets; $INDUSTRY_{it}$ = Industry indicator variable to control for industry effects; $YEAR_{it}$ = Series indicator variables controlling time temporal differences of reporting periods for firm-year observations with firm i scored one (1) if financial data corresponds to time period t . Otherwise client firm i is scored zero (0); β = Coefficients on variables; ε_{it} = The error term.

Table 7.11:

Regression Results Partitioning Sample of Non-Big4 Clients Based on Signed Discretionary Accruals

Panel A: OLS Regression Results – Signed Discretionary Accruals Calculated Using the Performance Adjusted Model

Variables	Expected Sign.	Column 1: Positive (Income-Increasing) Earnings Management – DAC+		Column 2: Negative (Income-Decreasing) Earnings Management – DAC-	
		Coefficient	t-statistics	Coefficient	t-statistics
<i>Intercept</i>		1.553	4.258***	-0.727	-2.691***
<i>SPECIALIST_{it}</i>	-	-0.096	-1.477	-0.029	-0.567
<i>RNONAUDIT_{it}</i>	+	0.035	0.188	0.126	0.964
<i>NTENURE_{it}</i>	-	-0.056	-2.542**	-0.012	-0.694
CONTROL VARIABLES	?	Included	Included	Included	Included
<i>INDUSTRY_{it}</i>	?	Included	Included	Included	Included
<i>YEAR_{it}</i>	?	Included	Included	Included	Included
Adjusted R ²			0.153		0.002
F statistic (sig.)			2.513***		0.968
Observations			300		193

Panel B: OLS Regression Results – Signed Discretionary Accruals Calculated Using the Modified Jones Model

Variables	Expected Sign.	Column 1: Positive (Income-Increasing) Earnings Management – DAC+		Column 2: Negative (Income-Decreasing) Earnings Management – DAC-	
		Coefficient	t-statistics	Coefficient	t-statistics
<i>Intercept</i>		0.778	2.737***	-0.549	-1.775*
<i>SPECIALIST_{it}</i>	-	-0.041	-0.744	-0.030	-0.513
<i>RNONAUDIT_{it}</i>	+	0.073	0.513	0.155	0.965
<i>NTENURE_{it}</i>	-	-0.033	-1.853*	-0.018	-0.920
CONTROL VARIABLES	?	Included	Included	Included	Included
<i>INDUSTRY_{it}</i>	?	Included	Included	Included	Included
<i>YEAR_{it}</i>	?	Included	Included	Included	Included
Adjusted R ²			0.097		0.011
F statistic (sig.)			2.133***		0.883
Observations			249		244

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

Panel A Equations: Column 1 based on Equation [77] and Column 2 based on Equation [78]

$$KOTHARI DAC_{it}^+ = \beta_0 + \beta_1 SPECIALIST_{it} + \beta_2 RNONAUDIT_{it} + \beta_3 NTENURE_{it} + \beta_4 FEMALE_{it} + \beta_5 LNMVE_{it} + \beta_6 MKTBK_{it} + \beta_7 ROE_{it} + \beta_8 LEV_{it} + \beta_9 CIR_{it} + \beta_{10} SDREV_{it} + \beta_{11} SDCFO_{it} + \beta_{12} TAC_{it-1} + \beta_{13} \sum INDUSTRY_{it} + \beta_{14} \sum YEAR_{it} + \varepsilon_{it} \quad [77]$$

$$KOTHARI DAC_{it}^- = \beta_0 + \beta_1 SPECIALIST_{it} + \beta_2 RNONAUDIT_{it} + \beta_3 NTENURE_{it} + \beta_4 FEMALE_{it} + \beta_5 LNMVE_{it} + \beta_6 MKTBK_{it} + \beta_7 ROE_{it} + \beta_8 LEV_{it} + \beta_9 CIR_{it} + \beta_{10} SDREV_{it} + \beta_{11} SDCFO_{it} + \beta_{12} TAC_{it-1} + \beta_{13} \sum INDUSTRY_{it} + \beta_{14} \sum YEAR_{it} + \varepsilon_{it} \quad [78]$$

Panel B Equations: Column 1 based on Equation [79] and Column 2 based on Equation [80]

$$MJ DAC_{it}^+ = \beta_0 + \beta_1 SPECIALIST_{it} + \beta_2 RNONAUDIT_{it} + \beta_3 NTENURE_{it} + \beta_4 FEMALE_{it} + \beta_5 LNMVE_{it} + \beta_6 MKTBK_{it} + \beta_7 ROE_{it} + \beta_8 LEV_{it} + \beta_9 CIR_{it} + \beta_{10} SDREV_{it} + \beta_{11} SDCFO_{it} + \beta_{12} TAC_{it-1} + \beta_{13} \sum INDUSTRY_{it} + \beta_{14} \sum YEAR_{it} + \varepsilon_{it} \quad [79]$$

$$MJ DAC_{it}^- = \beta_0 + \beta_1 SPECIALIST_{it} + \beta_2 RNONAUDIT_{it} + \beta_3 NTENURE_{it} + \beta_4 FEMALE_{it} + \beta_5 LNMVE_{it} + \beta_6 MKTBK_{it} + \beta_7 ROE_{it} + \beta_8 LEV_{it} + \beta_9 CIR_{it} + \beta_{10} SDREV_{it} + \beta_{11} SDCFO_{it} + \beta_{12} TAC_{it-1} + \beta_{13} \sum INDUSTRY_{it} + \beta_{14} \sum YEAR_{it} + \varepsilon_{it} \quad [80]$$

Where:

$KOTHARI\ DAC_{it}^+$ = positive (income-increasing) discretionary accruals calculated using the performance adjusted model introduced by Kothari, Leone, and Wasley (2005); $KOTHARI\ DAC_{it}^-$ = negative (income-decreasing) discretionary accruals calculated using the performance adjusted model introduced by Kothari, Leone, and Wasley (2005); $MJ\ DAC_{it}^+$ = positive (income-increasing) discretionary accruals calculated using the cross-sectional version of the modified Jones model introduced by Dechow, Sloan, and Sweeney (1995); $MJ\ DAC_{it}^-$ = negative (income-decreasing) discretionary accruals calculated using the cross-sectional version of the modified Jones model introduced by Dechow, Sloan, and Sweeney (1995); $SPECIALIST_{it}$ = Client firm i in time period t is scored one (1) if the incumbent auditor j in time period t is an industry specialist in industry k . Otherwise client firm i in time period t is scored zero (0); $RNONAUDIT_{it}$ = The ratio of non-audit fees to total fees paid to the audit firm by the client firm i in time period t ; $NTENURE_{it}$ = The number of consecutive years an audit partner serves as the signing partner on an engagement for the client firm i at the end of time period t ; $FEMALE_{it}$ = Client firm i in time period t is scored one (1) if the signing partner of the incumbent auditor j in time period t is a female. Otherwise the client firm i in time period t is scored zero (0); $LN\ MVE_{it}$ = Natural Logarithmic transformation of the market value of equity of client firm i at the end of time period t ; $MKT\ BK_{it}$ = Market to book ratio, measured as the ratio of total market capitalization of firm i at the end of time period t to the total book value of assets of firm i at the end of time period t ; ROE_{it} = Return on equity, measured as the ratio of net income before extraordinary items of firm i at the end of time period t to total equity of firm i at the end of time period t ; LEV_{it} = Financial leverage, measured as the ratio of total debt of firm i at the end of time period t to the total assets of firm i at the end of time period t ; CIR_{it} = Capital intensity ratio, measured as the ratio of gross value of property, plant and equipment of firm i at the end of time period t to the total assets of firm i at the end of time period t ; $SDREV_{it}$ = Sales volatility, measured as the standard deviation of sales (scaled by lagged total assets) of firm i at the end of time period t where standard deviations are calculated based on rolling-windows of five annual observations; $SDCFO_{it}$ = Cash flow volatility, measured as the standard deviation of operating cash flows (scaled by lagged total assets) of firm i at the end of time period t where standard deviations are calculated based on rolling-windows of five annual observations; TAC_{it-1} = Firm i 's total accruals from the prior year ($t - 1$), scaled by year $t - 2$ total assets; $INDUSTRY_{it}$ = Industry indicator variable to control for industry effects; $YEAR_{it}$ = Series indicator variables controlling time temporal differences of reporting periods for firm-year observations with firm i scored one (1) if financial data corresponds to time period t . Otherwise client firm i is scored zero (0); β = Coefficients on variables; ε_{it} = The error term.

7.6.2 Partitioning by length of audit partner tenure

The sample is finally partitioned into client firms with short audit partner tenure (where the audit partner has been the engagement partner on the client firm for a period of less than or equal to two years) and client firms with medium audit partner tenure (where the audit partner has been the engagement partner on the client firm for a period from three to five years) and the main multivariate tests in Chapter Six are re-performed.¹²⁰ This analysis is conducted to determine if the associations between the other three auditor attributes (namely, auditor brand/Big4 auditor, auditor industry specialization, and provision of non-audit services) and the magnitude earnings management practices (proxied by absolute value of discretionary accruals) vary between client firms with short-tenured and medium-tenured audit partners. Results from the regressions performed (using client firms with short and medium audit partner tenure) are reported in Table 7.12 with Panel A results associated with Table 6.1 Column 6 findings (that is, absolute value of discretionary accruals based on the performance adjusted model) and Panel B results associated with Table 6.2 Column 6 findings (that is, absolute value of discretionary accruals based on the modified Jones model).

With regards to both the performance adjusted model and the modified Jones model, all coefficients on variables listed in Table 7.12 Panels A and B are of the same directionality as the corresponding variables in the regressions reported in Table 6.1 and

¹²⁰ The cut-off point of two years for splitting the sample into client firms with short and medium audit partner tenure is well documented in prior Australian Literature (Carey and Simnett 2006; Fargher, Lee, and Mande 2008).

Table 6.2. Consistent with the main findings (Table 6.1 and Table 6.2), the results for the subsample of short-tenured audit partners (Table 7.12 Panel A Column 1 and Table 7.12 Panel B Column 1) show the coefficients on *BIG4_{it}* to be negative and statistically significant while the coefficients on *SPECIALIST_{it}* to be statistically insignificant. However, in contrast to the main findings, the results for the subsample of short-tenured audit partners show the coefficients on *RNONAUDIT_{it}* to also be statistically significant. For the subsample of medium-tenured audit partners, none of the coefficients on *BIG4_{it}*, *SPECIALIST_{it}*, and *RNONAUDIT_{it}* are found to be statistically significant (Table 7.12 Panel A Column 2 and Table 7.12 Panel B Column 2). In case of the performance adjusted model, relative to Table 6.1 Column 6 results (pooled sample), the explanatory power of the regression (see adjusted-R²) reported in Table 7.12 Panel A Column 1 (subsample with short-tenured audit partners) is higher (that is, 10.5% versus 9.9%) whereas the explanatory power of the regression (see adjusted-R²) reported in Table 7.12 Panel A Column 2 (subsample with medium-tenured audit partners) remains the same (that is, 9.9% versus 9.9%). In case of the modified Jones model, relative to Table 6.2 Column 6 results (pooled sample), the explanatory power of regressions (see adjusted-R²) reported in both Table 7.12 Panel B Column 1 (subsample with short-tenured audit partners) and Table 7.12 Panel B Column 2 (subsample with medium-tenured audit partners) is higher (that is, 11.2% versus 10.7% and 10.9% versus 10.7%).

Since the coefficients on *BIG4_{it}* are negative and significant for the subsample with short-tenured audit partners while statistically insignificant for subsample with medium-tenured audit partners, it appears that Big4 auditors are more proficient during the initial period of an audit engagement in constraining earnings management and improving earning quality. This result can be attributed to their quickness and expertise in acquiring the requisite knowledge and obtaining the necessary acquaintance. This partitioning test also finds the provision for non-audit services to have a significant positive association with earnings management but only when partner tenure is short. This result may be driven by the relative unfamiliarity of short-tenured non-Big4 audit partners with the clients' accounting and control systems which may make it easier for clients to manage their reported earnings. Scholars such as Gul, Jaggi, and Krishnan (2007) have previously reported a similar result but for audit firm tenure. For a sample of 4,720 US firms for the years 2000 and 2001, Gul, Jaggi, and Krishnan (2007) showed a positive association between non-audit fees and earnings management for clients with short audit firm tenure of not more than three years.

Table 7.12:

Regression Results Partitioning Sample Based on the Length of Audit Partner Tenure

Panel A: OLS Regression Results – Absolute Value of Discretionary Accruals Calculated Using the Performance Adjusted Model

Variables	Expected Sign.	Column 1: Short Audit Partner Tenure		Column 2: Medium Audit Partner Tenure	
		Coefficient	t-statistics	Coefficient	t-statistics
<i>Intercept</i>		0.780	6.251***	0.423	5.336***
<i>BIG4_{it}</i>	-	-0.069	-1.895*	-0.035	-1.474
<i>SPECIALIST_{it}</i>	-	-0.043	-1.309	-0.005	-0.255
<i>RNONAUDIT_{it}</i>	+	0.163	2.148**	0.044	0.975
CONTROL VARIABLES	?	Included	Included	Included	Included
<i>INDUSTRY_{it}</i>	?	Included	Included	Included	Included
<i>YEAR_{it}</i>	?	Included	Included	Included	Included
Adjusted R ²			0.105		0.099
F statistic (sig.)			4.077***		3.827***
Observations			633		617

Panel B: OLS Regression Results – Absolute Value of Discretionary Accruals Calculated Using the Modified Jones Model

Variables	Expected Sign.	Column 1: Short Audit Partner Tenure		Column 2: Medium Audit Partner Tenure	
		Coefficient	t-statistics	Coefficient	t-statistics
<i>Intercept</i>		0.736	5.994***	0.414	5.134***
<i>BIG4_{it}</i>	-	-0.078	-2.199**	-0.036	-1.501
<i>SPECIALIST_{it}</i>	-	-0.050	-1.552	-0.016	-0.795
<i>RNONAUDIT_{it}</i>	+	0.133	1.779*	0.040	0.874
CONTROL VARIABLES	?	Included	Included	Included	Included
<i>INDUSTRY_{it}</i>	?	Included	Included	Included	Included
<i>YEAR_{it}</i>	?	Included	Included	Included	Included
Adjusted R ²			0.112		0.109
F statistic (sig.)			4.318***		4.143***
Observations			633		617

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

$$\begin{aligned}
 \text{Panel A Equation: } KOTHARI/DAC_{it} &= \beta_0 + \beta_1 BIG4_{it} + \beta_2 SPECIALIST_{it} + \beta_3 RNONAUDIT_{it} + \beta_4 FEMALE_{it} + \\
 &\beta_5 LNMVE_{it} + \beta_6 MKTBK_{it} + \beta_7 ROE_{it} + \beta_8 LEV_{it} + \beta_9 CIR_{it} + \beta_{10} SDREV_{it} + \\
 &\beta_{11} SDCFO_{it} + \beta_{12} TAC_{it-1} + \beta_{13} \sum INDUSTRY_{it} + \beta_{14} \sum YEAR_{it} + \varepsilon_{it} \quad [81]
 \end{aligned}$$

$$\begin{aligned}
 \text{Panel B Equation: } MJ/DAC_{it} &= \beta_0 + \beta_1 BIG4_{it} + \beta_2 SPECIALIST_{it} + \beta_3 RNONAUDIT_{it} + \beta_4 FEMALE_{it} + \\
 &\beta_5 LNMVE_{it} + \beta_6 MKTBK_{it} + \beta_7 ROE_{it} + \beta_8 LEV_{it} + \beta_9 CIR_{it} + \beta_{10} SDREV_{it} + \\
 &\beta_{11} SDCFO_{it} + \beta_{12} TAC_{it-1} + \beta_{13} \sum INDUSTRY_{it} + \beta_{14} \sum YEAR_{it} + \varepsilon_{it} \quad [82]
 \end{aligned}$$

Where:

KOTHARI/DAC_{it} = Absolute value of discretionary accruals of firm *i* for time period *t* calculated using the performance adjusted model introduced by Kothari, Leone, and Wasley (2005); *MJ/DAC_{it}* = Absolute value of discretionary accruals of firm *i* for time period *t* calculated using the cross-sectional version of the modified Jones model introduced by Dechow, Sloan, and Sweeney (1995); *BIG4_{it}* = Client firm *i* in time period *t* is scored one (1) if the incumbent auditor *j* in time period *t* is a Big4 audit firm. Otherwise client firm *i* in time period *t* is scored zero (0); *SPECIALIST_{it}* = Client firm *i* in time period *t* is scored one (1) if the incumbent auditor *j* in time period *t* is an industry specialist in industry *k*. Otherwise client firm *i* in time period *t* is scored zero (0); *RNONAUDIT_{it}* = The ratio of non-audit fees to total fees paid to the audit firm by the client firm *i* in time period *t*; *FEMALE_{it}* = Client firm *i* in time period *t* is scored one (1) if the signing partner of the incumbent auditor *j* in time period *t* is a female. Otherwise the client firm *i* in time period *t* is scored zero (0); *LNMVE_{it}* = Natural Logarithmic transformation of the market value of equity of client firm *i* at the end of time period *t*; *MKTBK_{it}* = Market to book ratio, measured as the ratio of total market capitalization of firm *i* at the end of time period *t* to the total book value of assets of firm *i* at the end of time period *t*; *ROE_{it}* = Return on equity, measured as the ratio of net income before extraordinary items of firm *i* at the end of time period *t* to total equity of firm *i* at the end of time period *t*; *LEV_{it}* = Financial leverage, measured as the ratio of total debt of firm *i* at the end of time period *t* to the total assets of firm *i* at the end of time period *t*; *CIR_{it}* = Capital intensity ratio, measured as the ratio of gross value of property, plant and equipment of firm *i* at the end of time period *t* to the total assets of firm *i* at the end of time period *t*; *SDREV_{it}* = Sales volatility, measured as the standard deviation of sales (scaled by lagged total assets) of firm *i* at the end of time period *t* where standard deviations are calculated based on rolling-windows of five annual observations; *SDCFO_{it}* = Cash flow volatility, measured as the standard deviation of operating cash flows (scaled by lagged total assets) of firm *i* at the end of time period *t* where standard deviations are calculated based on rolling-windows of five annual observations; *TAC_{it-1}* = Firm *i*'s total accruals from the prior year (*t* - 1), scaled by year *t* - 2 total assets; *INDUSTRY_{it}* = Industry indicator variable to control for industry effects; *YEAR_{it}* = Series indicator variables controlling time temporal differences of reporting periods for firm-year observations with firm *i* scored one (1) if financial data corresponds to time period *t*. Otherwise client firm *i* is scored zero (0); β = Coefficients on variables; ε_{it} = The error term.

7.7 KEY FINDINGS FROM PARTITIONING TESTS

Panels A and B of Table 7.13 summarize the results of the various partitioning tests conducted in Chapter Seven. The key findings from the partitioning tests can be summarized as follows.

First, Big4 auditors are found to be more effective in mitigating the magnitude of earnings management practices of larger clients as well as low growth clients.

Second, longer audit partner tenure is found to be more effective in constraining extreme earnings management while the engagement of a Big4 auditor is shown to be more effective in constraining non-extreme earnings management.

Third, on partitioning the sample based on auditor brand, this study finds that longer audit partner tenure is effective in constraining earnings management practices for only non-Big4 auditors.

Fourth, on partitioning the sample based on length of partner tenure, Big4 auditors are found to be significantly more proficient during the initial period of an audit engagement. Specifically, Big4 auditors are shown to be more effective in constraining the magnitude of earnings management practices when partners have short tenure (two years or less) compared to medium tenure (three to five years).

Fifth, the partitioning test based on length of audit partner tenure also reports a significant positive association between the provision of non-audit services and the magnitude of earnings management but only when partner tenure is short. This result is an exception since provision of non-audit services is reported to be insignificantly associated with earnings management across all other partitioning tests.

Finally, the results obtained by conducting separate tests on observations with income-increasing and income-decreasing discretionary accruals suggest that the engagement of a Big4 auditor and the length of audit partner tenure are more effective in constraining the income-increasing type of earnings management.

Overall, the partitioning tests support main findings by consistently showing the engagement of a Big4 auditor and the length of audit partner tenure to have a significant negative association with earnings management practices.

Table 7.13:
Summary of Results of Partitioning Tests

Panel A: OLS Regression Results – Absolute Value of Discretionary Accruals Calculated Using the Performance Adjusted and Modified Jones Models

Variables	Performance Adjusted Model				Modified Jones Model			
	Coefficient	t-value	Coefficient	t-value	Coefficient	t-value	Coefficient	t-value
	Large Firms		Small Firms		Large Firms		Small Firms	
<i>BIG4_{it}</i>	-0.167	-5.319***	-0.063	-1.739*	-0.165	-5.425***	-0.058	-1.649*
<i>SPECIALIST_{it}</i>	-0.042	-1.443	-0.047	-1.367	-0.040	-1.410	-0.046	-1.363
<i>RNONAUDIT_{it}</i>	0.051	0.884	0.101	1.163	0.047	0.850	0.079	0.923
<i>NTENURE_{it}</i>	-0.015	-1.863*	-0.023	-2.041**	-0.016	-2.002**	-0.026	-2.362**
	High Growth Firms		Low Growth Firms		High Growth Firms		Low Growth Firms	
<i>BIG4_{it}</i>	-0.111	-1.726*	-0.036	-2.004**	-0.059	-1.829*	-0.035	-1.973**
<i>SPECIALIST_{it}</i>	-0.014	-0.483	-0.004	-0.779	-0.011	-0.403	-0.006	-1.254
<i>RNONAUDIT_{it}</i>	0.050	1.549	0.007	0.195	0.089	1.390	0.004	0.103
<i>NTENURE_{it}</i>	-0.017	-1.963**	-0.033	-2.141**	-0.017	-2.017**	-0.034	-2.266**
	Extreme Earnings Management		Non-Extreme Earnings Management		Extreme Earnings Management		Non-Extreme Earnings Management	
<i>BIG4_{it}</i>	-0.041	-0.557	-0.007	-2.018**	-0.510	-0.745	-0.010	-2.491**
<i>SPECIALIST_{it}</i>	-0.009	-0.131	-0.001	-0.138	-0.065	-1.056	-0.002	-0.577
<i>RNONAUDIT_{it}</i>	0.097	0.646	0.002	0.207	0.237	1.590	0.001	0.188
<i>NTENURE_{it}</i>	-0.047	-2.129**	-0.001	-0.116	-0.044	-2.140**	-0.001	-0.558
	Big4 Auditor		Non-Big4 Auditor		Big4 Auditor		Non-Big4 Auditor	
<i>SPECIALIST_{it}</i>	-0.021	-1.321	-0.058	-1.437	-0.017	-1.014	-0.047	-1.176
<i>RNONAUDIT_{it}</i>	0.048	1.510	0.065	0.613	0.051	1.563	0.019	0.180
<i>NTENURE_{it}</i>	-0.004	-0.996	-0.026	-1.944*	-0.006	-1.325	-0.027	-2.049**
	Short Audit Partner Tenure		Medium Audit Partner Tenure		Short Audit Partner Tenure		Medium Audit Partner Tenure	
<i>BIG4_{it}</i>	-0.069	-1.895*	-0.035	-1.474	-0.078	-2.199**	-0.036	-1.501
<i>SPECIALIST_{it}</i>	-0.043	-1.309	-0.005	-0.255	-0.050	-1.552	-0.016	-0.795
<i>RNONAUDIT_{it}</i>	0.163	2.148**	0.044	0.975	0.133	1.779*	0.040	0.874

Panel B: OLS Regression Results – Signed Discretionary Accruals Calculated Using the Performance Adjusted and Modified Jones Models

Variables	Performance Adjusted Model				Modified Jones Model			
	Coefficient	t-value	Coefficient	t-value	Coefficient	t-value	Coefficient	t-value
	Positive (Income-Increasing) Earnings Management		Negative (Income – Decreasing) Earnings Management		Positive (Income-Increasing) Earnings Management		Negative (Income – Decreasing) Earnings Management	
<i>BIG4_{it}</i>	-0.073	-2.304**	-0.018	-0.513	-0.065	-2.175**	-0.022	-0.660
<i>SPECIALIST_{it}</i>	-0.024	-0.854	-0.012	-0.411	-0.033	-1.246	-0.006	-0.235
<i>RNONAUDIT_{it}</i>	0.034	0.557	0.083	1.217	0.033	0.566	0.072	1.077
<i>NTENURE_{it}</i>	-0.018	-2.185**	-0.004	-0.492	-0.018	-2.236**	-0.009	-1.052
	Positive (Income-Increasing) Earnings Management – Big4 Clients		Negative (Income – Decreasing) Earnings Management – Big4 Clients		Positive (Income-Increasing) Earnings Management – Big4 Clients		Negative (Income – Decreasing) Earnings Management – Big4 Clients	
<i>SPECIALIST_{it}</i>	-0.010	-0.550	-0.038	-1.205	-0.015	-0.729	-0.019	-0.761
<i>RNONAUDIT_{it}</i>	0.045	1.201	0.069	1.228	0.028	0.662	0.068	1.451
<i>NTENURE_{it}</i>	-0.001	-0.280	-0.011	-1.288	-0.002	-0.264	-0.008	-1.200
	Positive (Income-Increasing) Earnings Management – Non-Big4 Clients		Negative (Income – Decreasing) Earnings Management – Non-Big4 Clients		Positive (Income-Increasing) Earnings Management – Non-Big4 Clients		Negative (Income – Decreasing) Earnings Management – Non-Big4 Clients	
<i>SPECIALIST_{it}</i>	-0.096	-1.477	-0.029	-0.567	-0.041	-0.744	-0.030	-0.513
<i>RNONAUDIT_{it}</i>	0.035	0.188	0.126	0.964	0.073	0.513	0.155	0.965
<i>NTENURE_{it}</i>	-0.056	-2.542**	-0.012	-0.694	-0.033	-1.853*	-0.018	-0.920

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

Where: *BIG4_{it}* = Client firm *i* in time period *t* is scored one (1) if the incumbent auditor *j* in time period *t* is a Big4 audit firm. Otherwise client firm *i* in time period *t* is scored zero (0); *SPECIALIST_{it}* = Client firm *i* in time period *t* is scored one (1) if the incumbent auditor *j* in time period *t* is an industry specialist in industry *k*. Otherwise client firm *i* in time period *t* is scored zero (0); *RNONAUDIT_{it}* = The ratio of non-audit fees to total fees paid to the audit firm by the client firm *i* in time period *t*; *NTENURE_{it}* = The number of consecutive years an audit partner serves as the signing partner on an engagement for the client firm *i* at the end of time period *t*.

7.8 SUMMARY OF THE CHAPTER

This chapter discussed the robustness and sensitivity of the main results in Chapter Six. Initially, alternative measures of earnings management and auditor attributes were utilized. Subsequently, the sample was partitioned by client characteristics (specifically, firm size and firm growth), earnings management (specifically, signed discretionary accruals and extreme earnings management), and auditor attributes (specifically, auditor brand and length of partner tenure) and the main tests in Chapter Six were performed again.

Chapter Eight will outline the implications of the results and an overall conclusion to this study. In this respect, the major hypotheses of this study will be answered. Subsequently, the overall implications, contributions, and limitations of this study will be detailed. Finally, a summary of this study will be provided.

CHAPTER EIGHT: IMPLICATIONS AND CONCLUSIONS

8.1 OVERVIEW OF THE CHAPTER

Chapter Seven detailed the main findings from the comprehensive robustness and sensitivity tests completed. Specifically, the results of regressions using alternative specifications/proxy measures for both earnings management and auditor attributes were reported and discussed. In addition, results of regressions – based on Chapter Six analysis – were shown following partitioning of the sample by client characteristics, earnings management, and auditor attributes.

Chapter Eight summarizes the major conclusions and implications of this study. Justification for the acceptance or rejection of the major hypotheses based on empirical results is detailed together with elucidating this study's key findings. Implications and contributions are then drawn with limitations and future research opportunities also highlighted. Finally, an overarching summary of the entire study is provided at the end of the chapter.

8.2 STUDY OVERVIEW

This study's primary objective is to provide a comprehensive analysis of the association between four pivotal auditor attributes, namely, auditor brand name/Big4 auditor, auditor specialization, provision of non-audit services, and audit partner tenure and the earnings management practices prevalent in Australian publicly listed firms. The theoretical perspective offered by agency theory best serves the analytical approach of this study, and is most relevant given its close affinity with corporate governance and earnings quality issues.¹²¹

Drawing on the fundamental tenets of the underlying theoretical perspective and the findings of related prior research, a number of directional hypotheses postulating the associations between the four selected auditor attributes and earnings management were developed. A negative association with earnings management was postulated with the engagement of a Big4 auditor, the engagement of an industry specialist auditor, and the length of audit partner tenure while a positive association with earnings management was postulated with the provision of non-audit services. For purposes of empirical

¹²¹ It has been argued by agency theorists (for example, Fama 1980; Eisenhardt 1989; Hill and Jones 1992; Collier and Gregory 1999) that corporate governance structures (such as the board of directors, the audit committees, and the external audit function) are essential mechanisms to lessen agency conflicts. Such mechanisms have been posited to play an important role in monitoring managers to attenuate agency costs and, consequently, safeguard shareholder wealth (Stiles and Taylor 2001; Gay and Simnett 2012).

analysis to formally test the derived hypothesis, the auditor attributes were regressed both in isolation and in unison against discretionary accruals (a common proxy for earnings management). This study used a range of discretionary accruals models to detect earnings management. The modified Jones and the performance adjusted models were used for main tests while the lagged and forward looking models were used for robustness checks. Data to construct the independent and dependent variables was obtained from Annual Reports Collection, S&P Capital IQ, Sirca Corporate Governance Database, and Morningstar DatAnalysis Premium.

For the purposes of main statistical analysis, an initial pool of all Australian publicly listed and incorporated firms continuously registered on the ASX across the observation window comprising the 2008 to 2012 calendar years was established.¹²² From this pool and after necessary exclusions, a stratified-random approach was adopted which involved selecting the top 125 of the top 500 ASX listed firms by market capitalization based on base year 2008. To enhance the ability to generalize results, a further 125 firms were randomly selected from the 501st firm onwards. Each calendar year within the observation period was considered an individual firm-year for firms included in the sample. Data was collected for each firm selected from each firm-year covered in this study. The main statistical analysis was performed using 1,250 firm-year observations (250 observations for each of the 2008 to 2012 calendar years). Conclusions of the statistical analysis on the testable hypotheses are summarized in the next section.

8.3 MAJOR CONCLUSIONS OF THE STUDY

Table 8.1 summarizes each testable hypothesis formulated and examined in this study, and the respective acceptance or rejection of that hypothesis. The main empirical results of this study have been documented in Table 6.1 and Table 6.2 of Chapter Six. Specifically, Table 6.1 reports the regression results examining the impact of four pivotal auditor attributes, both in isolation and in unison, on absolute value of discretionary accruals measured using the performance adjusted model while Table 6.2 reports the regression results examining the impact of four pivotal auditor attributes, again both in isolation and in unison, on absolute value of discretionary accruals calculated using the modified Jones model.

¹²² This time-frame is selected as the time-frame revolves around key periods in the financial accounting and corporate governance landscape in Australia involving the revisions made to the ASX CGCs corporate governance guidelines, the implementation of CLERP 9 recommendations, and the adoption of IFRS.

Table 8.1:
Acceptance/Rejection of All Hypotheses

Hypothesis	Description	Accept/Reject
H_1	Client firms engaging a Big4 auditor will have lower earnings management than client firms engaging a non-Big4 auditor.	Accept
H_2	Client firms engaging an industry specialist auditor will have lower earnings management than client firms engaging a non-industry specialist auditor.	Reject
H_3	Client firms paying higher non-audit service fees to the incumbent auditor will have higher earnings management than client firms paying lower non-audit service fees to the incumbent auditor.	Reject
H_4	Client firms with longer audit partner tenure will have lower earnings management than client firms with shorter audit partner tenure.	Accept

It was postulated in hypothesis H_1 that client firms engaging a Big4 auditor will exhibit a lower level of earnings management. The main results fully support the acceptance of H_1 by consistently showing a significant negative association between the engagement of a Big4 auditor and absolute value of clients' discretionary accruals.

The premise of hypothesis H_2 was that client firms engaging an industry specialist auditor will have lower earnings management. The findings demonstrate a negative but a statistically insignificant association between the engagement of an industry specialist auditor and absolute value of discretionary accruals of client firms. Given the lack of empirical support for this association, H_2 is rejected.

With regards to hypothesis H_3 , it was postulated that client firms paying a higher non-audit service fees to the incumbent auditor will have higher earnings management. The main regression results report a positive but a statistically insignificant association between non-audit service fees and absolute value of discretionary accruals of client firms. Again, the lack of empirical support for this association results in the rejection of H_3 .

Finally, for hypothesis H_4 it was argued that client firms with longer audit partner tenure will have lower earnings management. The main findings fully support the acceptance of H_4 by consistently showing a significant negative association between the length of audit partner tenure and absolute value of clients' discretionary accruals.

The robustness and sensitivity tests conducted in Chapter Seven using alternative specifications of auditor attributes and discretionary accrual models to estimate earnings management support main findings by showing that only the engagement of a Big4 auditor and the length of audit partner tenure continue to have a

significant negative association with earnings management practices. The other auditor attributes of industry specialization and provision of non-audit services remain statistically insignificant with the magnitude of earnings management.

8.4 IMPLICATIONS OF THE STUDY

Findings from this study provide a number of important insights into understanding the determinants of earnings management, and the influence of a range of external auditor attributes on key financial accounting issues. In addition, results provide important inferences with implications for key stakeholders, namely, regulators, investors, scholars, and client firms/corporate management. The implications for the respective key stakeholders are discussed in the following subsections.

8.4.1 Regulators

In response to public concerns surrounding alleged accounting and audit failures, regulatory initiatives such as SOX in the US and CLERP 9 in Australia were introduced to promulgate rules relating to aspects of the auditor-client engagement (particularly the amount of auditor provided non-audit services and the length of audit partner tenure) with the objective of enhancing auditor independence and thereby the quality of reported earnings. Whilst the effectiveness of SOX on the auditor attributes/earnings management linkage is well researched (Hoitash, Markelevich, and Barragato 2007; Li 2009), similar research on CLERP 9 is lacking. This study has implications for regulators by shedding some new light and understanding on the debate surrounding the effectiveness and true impact of the CLERP 9 legislation.

While not banning non-audit services in Australia, CLERP 9 imposed extensive disclosure requirements on non-audit services provided by a financial report auditor in the firm's annual report for reporting periods commencing on or after 1 July 2004.¹²³ The association between the provision of non-audit services and earnings management has generally been found to be significant and positive in the pre-CLERP 9 period (Chai and Jubb 2000; Coulton, Ruddock, and Taylor 2007; Hossain 2013) while statistically insignificant in the post-CLERP 9 period (Hossain 2013). This study, conducted in the post-CLERP 9 period, also fails to find a statistically significant association between non-audit services and earnings management and provides additional evidence in

¹²³ CLERP 9 requires the director's report to include the details of fees paid or payable to the auditor for each of the non-audit services provided by, or on behalf of, the auditor during the year, together with a statement by the audit committee (or board in its absence) that the non-audit services provided during the year were compatible with the general standard of independence of auditors imposed by the Corporations Act 2001 and that the non-audit services provided have not compromised auditor independence (Behan Legal 2004).

support of the finding by Hossain (2013). Hence, it may be inferred that the statically significant association between the provision of non-audit services and earnings management behaviour has been mitigated with the passage of the CLERP 9 legislation which has involved additional auditing pronouncements and disclosures of types of non-audit services and the prospects of greater regulatory reporting requirements by firms subjected to the legislative reforms. This finding will be useful for regulators in providing evidence on the effectiveness of regulatory changes, specifically CLERP 9, on the improvement of auditor independence and by association the quality of financial reporting by client firms.

CLERP 9 also requires that the lead and review partners in the audit of an Australian listed firm must rotate off that audit after five successive years and not return for a further two years. Using pre-CLERP data, Hamilton et al. (2005) found Big5 (now Big4) auditors (compared to non-Big5 auditors) to be more proficient in mitigating aggressive earnings management following a partner switch. This study supports the finding of Hamilton et al. (2005) and provides further evidence on the learning differentiation between Big4 and non-Big4 auditors by showing that in comparison to Big4 auditors who are found to be more effective in constraining earnings management when partners have short tenure (two years or less) compared to medium tenure (three to five years), non-Big4 auditors continue to improve their effectiveness in attenuating earnings management (specifically, income increasing earnings management) as the length of partner tenure extends to five years. These findings suggest that the learning experience obtained through longer partner tenure is crucial for non-Big4 auditors in improving the earnings quality of client firms and thereby lend some support to the concerns that have been expressed about “one size fits all” requirements for audit partner rotation. Therefore, regulators must pay closer attention to the expected negative effect on the audit quality of non-Big4 auditors imposed by the current mandatory partner rotation requirements. Based on the study’s findings, it is proposed that the partner rotation requirements should be applied differentially to clients of large and small audit firms.

Regulators attempting to influence audit quality through factors within the purview of an audit engagement can also put policies in place to reduce the workload compression of external auditors (that is, increase the duration of the busy season), increase audit report lag (that is, allow a greater lag between balance sheet date and the date of the audit report with the objective of reducing the time pressure on the external

auditor), and require the external auditor to actively utilize work already completed by internal auditors¹²⁴ within firms (as is the case in the US). Such factors have the potential of further enhancing the earnings quality of client firms.

8.4.2 Investors

Empirical literature widely recognizes a significant asymmetrical information gap between corporate management and investors as a result of the separation between ownership and control (Klein 1998; Vafeas and Theodorou 1998; Vafeas 1999; Hillman and Dalziel 2003; Udayasankar and Das 2007; Fernando 2012; Gay and Simnett 2012; Moroney, Campbell, and Hamilton 2014). This asymmetrical information gap subjects investors to enormous difficulties in establishing the true value of a firm. Investors rely heavily on earnings and associated accounting information reported in financial reports to make economic decision on whether they should invest in, or buy, hold, or sell shares (Dechow 1994; Klein 1998; Vafeas and Theodorou 1998; Ahmed and Curtis 1999; Vafeas 1999; Hillman and Dalziel 2003; Agrawal and Chadha 2005; Udayasankar and Das 2007; Moroney, Campbell, and Hamilton 2014). The critical role of an external auditor is to provide assurance to outside investors on the credibility of the reported financial information (Leung et al. 2011; Gay and Simnett 2012; Moroney, Campbell, and Hamilton 2014). The external auditor is hired with an expectation to limit managerial expropriations and provide an independent verification of the reliability of the clients' financial statements (Jensen and Meckling 1976; La Porta et al. 2000). It has been suggested in prior literature that audit quality can be used by investors as a mechanism for differentiating between investment choices (Firth and Liao-Tan 1998; Copley and Douthett 2002; Lee et al. 2003).

One avenue available to investors to form an opinion on the quality of an audit is to gather details on identifiable auditor attributes (such as the four examined in this study, namely, auditor brand, auditor specialization, provision of non-audit services, and audit partner tenure) from publicly available sources for example, annual reports (Bushman and Smith 2001). Prior research has generally shown that investors associate BigN auditors and industry specialist auditors with high quality audits by rewarding firms that employ such auditors in the form lower costs of equity (Khurana and Raman 2004; Azizkhani, Monroe, and Shailer 2010) and higher earnings response coefficients

¹²⁴ Given that internal auditors spend significant time, effort, and resources in evaluating the design and monitoring the operating effectiveness of a firm's internal control structure, it is reasonable to expect external auditors to utilize such work already completed by the internal auditors in verifying the effectiveness of internal controls within the financial reporting process in client firms (Gay and Simnett 2012).

(Balsam, Krishnan, and Yang 2003; Ghosh and Moon 2005). Investors also perceive mandatory audit partner rotation as enhancing audit quality (Chi et al. 2009). However, several surveys, experiments, and archival studies report that investors perceive the auditor's provision of non-audit services as potentially damaging to auditor independence, thereby compromising audit quality (Krishnan, Sami, and Zhang 2005; Francis and Ke 2006; Khurana and Raman 2006; Cripe and McAllister 2009; Dart 2011; Schmidt 2012). The four selected auditor attributes for the purposes of this study, therefore, may provide investors with a signal as to the underlying quality of the audit and reported earnings and, by association, the firm's share value.

Earnings management has frequently been cited in empirical literature as an inverse measure of both earnings quality and audit quality (Francis, Maydew, and Sparks 1999; Lawrence, Minutti-Meza, and Zhang 2011). Consistent with the expectations of investors, this study finds that Big4 auditors improve the quality of reported earnings by providing effective audits as a result of their ability to significantly constrain earnings management practices. This finding implies Australian capital market investors may use the engagement of a Big4 auditor as a signal of a firm with a higher likelihood of a strong underlying value (as evidenced by lesser earnings management). This study also finds a longer partner tenure (extending to five years) to have a significant negative association with earnings management. Additional partitioning tests conducted provide evidence on the learning differentiation between Big4 and non-Big4 auditors and suggest that the threats of mandatory audit partner rotation to impair learning experience in auditing expertise is more serious in non-Big4 auditors. Hence, if investors perceive mandatory partner rotation as a viable signaling mechanism to enhance audit quality and earnings quality, results of this study imply Australian investors need to further lobby regulators to apply partner rotation requirements differently to clients of Big4 and non-Big4 audit firms. Finally, based on the findings of this study auditor industry specialization and provision of non-audit services are not found to significantly influence earnings management and, therefore, fail as influential predictors of both audit quality and earnings quality. Thus, the results of this study also imply Australian capital market investors need to exercise caution when attempting to discern audit quality and earnings quality based on the auditor attributes of industry specialization and provision of non-audit services as results of this study indicate such attributes may not yield differences between auditors and the subsequent quality of the audit. Overall, the study finds that the engagement of a Big4 auditor and the length of

audit partner tenure may aid Australian investors in: (a) determining the expected quality of an audit as well as the expected quality of reported earnings; and (b) differentiating between alternative equity investment opportunities based on drawing a distinction between credibility of financial information and/or quality of the audit.

8.4.3 Scholars

Given the significant role that financial reporting plays in ensuring the efficient operation of the capital markets, a number of scholars have worked prodigiously in: (a) investigating the quality of financial reporting by firms; and (b) determining the effectiveness of corporate governance mechanisms such as the external auditor in improving the credibility of reported financial information. Different scandals around the globe since the beginning of the new millennium resulting from misrepresented financial statements have intrigued stakeholders to question the role of auditors and this has heightened academic interest in conducting investigations surrounding the highly contentious auditor quality/earnings quality linkage.

Results of this study indicate that scholars can generally use auditor attributes of brand name and partner tenure with some confidence when conducting earnings management research in the Australian context since both the engagement of a Big4 auditor and the length of partner tenure (extending to five years) are found to significantly constrain earnings management (specifically, income increasing earnings management) and therefore enhance earnings quality for the entire sample. However, if the objective of scholars is to specifically examine the subsample of extreme earnings management, then as per the partitioning tests conducted in the study the attribute of auditor brand name may become an insignificant determinant of earnings management. Similarly, if the objective of scholars is to specifically examine the subsample of Big4 auditors, then again as per partitioning tests the attribute of partner tenure may become an insignificant determinant of earnings management. Results from this study also suggest that scholars undertaking future research need to exercise caution when using auditor attributes of industry specialization and provision of non-audit services in earnings management research surrounding Australian listed firms since these attributes in the study continue to remain statistically insignificant across the different variations (that is, the modified Jones model, the performance adjusted model, the lagged model, and forward-looking model) used to calculate discretionary accruals as proxy for earnings management.

Results and implications of this study will be of great interest to scholars working on various aspects of the auditor attributes/earnings management linkage on the following fronts: First, scholars examining the auditor attributes/earnings management linkage have in the past generally concentrated on a single auditor attribute in spite of acknowledging that external auditor quality is composed of a range of underlying properties. In adopting a narrow lens such research potentially ignores complementary and/or supplementary influences of omitted attributes thereby masking or biasing findings. This study undertakes a broader holistic examination of the auditor attributes/earnings management linkage using a more comprehensive range of attributes and assists to consolidate and link prior empirical research findings. Such a comprehensive examination of the auditor attributes/earnings management linkage contributes to the ongoing debate and controversy amongst scholars that surrounds such a linkage in prior Australian and overseas research.¹²⁵ Second, previous studies examining the auditor attributes/earnings management linkage in Australia have focused on time periods prior to CLERP 9's final passage into law on 1 July 2004 (Gul, Lynn, and Tsui 2002; Davidson, Goodwin-Stewart, and Kent 2005; Hamilton et al. 2005; Carey and Simnett 2006; Coulton, Ruddock, and Taylor 2007; Fargher, Lee, and Mande 2008; Rusmin et al. 2009; Rusmin 2011). CLERP 9 introduced significant reforms to auditor independence and financial reporting requirements. This study offers valuable insights to scholars on the auditor attributes/earnings management linkage in the post-CLERP 9 period. For instance, this study suggests that the association between earnings management and specific governance guideline defined auditor attributes such as the provision of non-audit services appears to have become insignificant with the passage of the CLERP 9 legislation (as outlined in subsection 8.4.1) and hence a continued scholarly focus on this aspect could hamper development of more constructive and effective policies and regulations. Finally, the findings from this study also provide scholars with contemporaneous update on auditor quality and earnings quality in the Australian context.

Prior research examining the auditor attributes/earnings management linkage has relied predominantly on US data. In contrast, this study is conducted within the Australian domestic setting. An international research implication from findings of this study, therefore, is that scholars in different domestic settings need to specifically control for the underlying institutional and social factors pertinent to that domestic

¹²⁵ Please refer to section 3.3 which outlines the mixed findings in both Australian and overseas literature on the association between the four attributes examined in this study and earnings management.

setting rather than blindly assuming that presumptions of factors affecting the auditor attributes/earnings management linkage can be automatically transferred.

8.4.4 Client firms/corporate management

A central principle underpinning agency theory (that forms the theoretical framework of this thesis and major corporate governance studies) is that the separation between ownership and control may result in the agent (that is, corporate management) not being inclined to act in the best interests of the principal (that is, shareholders) (Cohen, Krishnamoorthy, and Wright 2004; Ahmed and Duellman 2007; Udayasankar and Das 2007; Gay and Simnett 2012; Moroney, Campbell, and Hamilton 2014). To prevent agents from behaving opportunistically in pursuit of furthering their (agents) own self-interests, principals often depend on monitoring controls (Abbott and Parker 2000, 2001; Willekens and Sercu 2005; Gay and Simnett 2012). Such monitoring controls are expected to align the interests of agents and shareholders, and to reduce agency costs (Fama and Jensen 1983a, 1983b; Williamson 1984; Kosnik 1987; Adams 1994; Dalton et al. 1999; Stiles and Taylor 2001; Cohen, Krishnamoorthy, and Wright 2004; Gay and Simnett 2012). As noted in this thesis, the external auditor is one monitoring mechanism widely debated in prior literature as a potential effective means of reducing the opportunistic behaviour by corporate management and improving the quality of reported earnings (Knechel et al. 2013).¹²⁶

In the context of earnings management, corporate management seeking to engage in opportunistic behaviour to further their self-interests may choose accounting policies that inflate or misrepresent the true underlying economic position of the firm (Krishnan et al. 2011). Whilst monitoring mechanisms like the external auditor can be put in place, such monitoring mechanisms must have the necessary explicit and implicit fortitude, and perception of enforcement, to discourage corporate management from seeking to demonstrate the form of a firm's financial reality rather than the substance (Beasley et al. 2009).

Prior research finds that corporate management not interested in increasing firm value (by increasing the quality of reported earnings), but instead choosing a high level of bias in the pre-audited earnings (by manipulating accounting policies) tends to select lower quality (non-Big4) auditors with an expectation to preserve their self-interest

¹²⁶ Please refer to section 3.3 which highlights the enormous debate that surrounds the effectiveness of the external auditor (encapsulated by the auditor attributes of brand name, industry specialization, provision of non-audit services, and partner tenure) in attenuating managerial opportunism and enhancing the quality of financial reporting by client firms.

activities (Sahay, ZviDavis, and Peikes 2012).^{127,128} The results from this study caution corporate management with such intentions in Australian listed firms by showing that non-Big4 auditors actively seek to enforce the adoption of less aggressive accounting policies. Whilst non-Big4 auditors are shown to be less proficient in the initial periods (up to two years) following a partner switch, such auditors significantly constrain earnings management as their tenure extends from three to five years. Given that this study finds the engagement of Big4 as well as non-Big4 auditors significantly constrain earnings management (specifically, the aggressive income increasing earnings management), it can be said that the external auditor as a corporate governance mechanism is effective in reducing agency costs and enhancing earnings quality for firms in the Australian corporate sector.

A key firm-level corporate governance mechanism widely touted in prior literature as a potential effective means of reducing managerial opportunism is the audit committee (Carcello and Neal 2000; Beasley and Salterio 2001; Goodwin 2003; Abbott, Parker, and Peters 2004; Chen and Zhou 2007; Dhaliwal, Naiker, and Navissi 2009). Audit committees are increasingly required to oversee the financial reporting process by firms and, therefore, actively liaise with and monitor external auditors (Mohamed and Hussain 2005; Munro and Buckby 2008). Based on the approach adopted for sample selection in this study, the sample of larger firms is not only subjected to the ASX's mandatory requirement of having an audit committee but also required to comply with ASX CGC's recommendations as regards composition, operation, and responsibility of the audit committee.¹²⁹ Since this study finds that larger firms exhibit significantly lesser earnings management practices, it is possible that the audit committees in larger firms have contributed towards attenuating earnings management. In pursuit to limit earnings management practices across both large and small publicly listed firms in Australia, regulators such as ASX could consider (1) mandating audit committees for all

¹²⁷ Prior literature has generally used the Big N versus non-BigN dichotomy as a surrogate measure of audit quality (Becker et al. 1998).

¹²⁸ A number of prior studies have found that smaller audit firms (non-Big8/6/5/4) attract low quality client firms (characterized by weak internal controls, low earnings quality, and high audit and business risks) (Titman and Trueman 1986; Datar, Feltham, and Hughes 1991; Thornton and Moore 1993).

¹²⁹ The sample of large firms in the study comprises of the top 125 firms of the top 500 firms listed on the ASX by market capitalization based on base year 2008 (after necessary exclusions) across the observation window (that is, year 2008 to year 2012). The sample of small firms in the study comprises of the remaining 125 firms randomly selected from the 501st firm onwards listed on the ASX by market capitalization based on base year 2008 (after necessary exclusions) across the observation window (that is, year 2008 to year 2012). Please see section 4.2.1 (Chapter Four) and section 5.3.1 (Chapter Five) for a complete discussion. ASX introduced Listing Rule 12.70 effective 1 January 2003, mandating audit committees for the top 500 companies (ASX recommendation 4.2). Top 300 firms in addition to having audit committees must comply with the requirements of ASX recommendation 4.3. The ASX recommendation 4.3 requires an audit committee to be structured in manner so that it comprises of (1) only non-executive directors, (2) a majority of independent directors, (3) an independent chair, who is not also the chair of the board, and (4) at least three members (Australian Securities Exchange Corporate Governance Council (ASX CGC) 2003). Non-top 500 firms are not subjected to the Listing Rule 12.70 and therefore do not have to have audit committees. However, these non-top 500 firms are subjected to Listing Rule 4.10.3 and therefore, either must have an audit committee or explain why not.

publicly listed firms; and (2) making ASX CGC's recommendations compulsory for all publicly listed firms.¹³⁰

8.4.5 The auditing profession

The results from this study also have important implications for the auditing profession based on both the client features as well as the auditor features examined.

Given that this study indicates certain client features are significantly associated with earnings management, auditors can utilize this information to their advantage and increase audit effectiveness. Specifically, the results from this study indicate that firm size and performance have a significant negative association with earnings management while firm leverage and capital intensity have a significant positive association with earnings management. Moreover, the partitioning test based on client firm size shows that Big4 auditors mitigate earnings management practices more extensively for larger clients as compared to smaller clients. These findings imply that auditors need to increase their focus when auditing high earnings management firms which include small firms, low performing firms, highly leveraged firms, and high capital intensity firms. In the audit of such firms, auditors could adopt strategies such as increasing applied levels of professional skepticism (Chen, Kelly, and Salterio 2009), assigning more experienced staff to the audit team (Reichelt and Wang 2010), and increasing the planned extent or hours of testing (Caramanis and Lennox 2008) to improve the quality of reported earnings.

This study also finds that the learning experience obtained through longer partner tenure is crucial for non-Big4 auditors in reducing managerial opportunism and enhancing earnings quality. The current mandatory partner rotation requirement under CLERP 9 requiring the lead and review partners in the audit of an Australian listed firm to rotate off that audit after five successive years has a strong possibility of jeopardizing the learning experience for non-Big4 auditors. Hence, an implication for non-Big4 auditors is to urge regulators to modify the current mandatory partner rotation requirement under CLERP 9 by increasing the five-year rotation period for clients of non-Big4 auditors (that is, the mandatory partner rotation requirement needs to be applied differentially for clients of Big4 and non-Big4 auditors).

¹³⁰ On 1 January 2003, ASX CGC introduced amendments to ASX listing rules to heighten compliance with corporate governance practices and released the first edition of corporate governance guidelines, Principles of Good Corporate Governance and Best Practice Recommendations, representing the most comprehensive statement of best practice in Australia. The second edition of corporate governance guidelines, Corporate Governance Principles and Recommendation was released by ASX CGC in August 2007. Amendments to the second edition of corporate governance guidelines were subsequently made on 30 June 2010. The current version of the ASX CGCs Corporate Governance Principals and Recommendations with 2010 amendments has been effective from 1 January 2011.

8.5 MAJOR CONTRIBUTIONS OF THE STUDY

This Australian study provides a broad, holistic examination of the auditor attributes/earnings management linkage using a comprehensive range of pivotal auditor attributes both in isolation and in unison. To the researcher's best knowledge, this is the first study to provide such a comprehensive examination on the auditor attributes/earnings management linkage in the Australian capital market setting. This investigation undertaken helps to (a) provide a much deeper understanding of an important monitoring mechanism (that is, the external auditor) and the extent to which it enhances the credibility of financial reporting by Australian listed firms; and (b) contribute to the limited and controversial evidence on the auditor attributes/earnings management linkage in prior Australian literature. The consistent results found across the different variations of the aggregate accruals approach strengthen the conclusions drawn from this study's statistical analysis.

This study provides updated evidence on the existence and extent of earnings management in Australian listed firms by showing the prevalence of such practices to be around 15% of total assets which is considered to be relatively significant (Sun 2009; Hall, Agrawal, and Agrawal 2013). From amongst the pivotal auditor attributes selected, the engagement of a Big4 auditor and the length of partner tenure are found to be effective deterrents of earnings management (specifically, income increasing earnings management). When partitioning tests are undertaken this study finds the learning experience obtained through longer partner tenure to be critical for non-Big4 auditors in reducing managerial opportunism and enhancing earnings quality. Big4 auditors are found to be more proficient following a partner switch. Hence, this study suggests that the current mandatory partner rotation requirements under CLERP 9 are expected to hinder the learning experience of non-Big4 auditors and thereby adversely affect their ability in enhancing the earnings quality of client firms.

In contrast to the pre-CLERP 9 studies which have generally found that the provision of non-audit services compromises auditor independence by showing a significant positive association between the provision of such services and earnings management (Chai and Jubb 2000; Coulton, Ruddock, and Taylor 2007; Hossain 2013), this study in the post-CLERP 9 period finds the provision of non-audit services to be an ineffectual determinant of earnings management and confirms the (post-CLERP 9) finding by Hossain (2013). Hence, it appears that the regulatory changes (particularly, the requirement of extensive disclosures) imposed by CLERP 9 on non-audit services

have mitigated the statistically significant association between the provision of non-audit services and earnings management. This finding reflects on the effectiveness of the CLERP 9 legislation in improving auditor independence and by association the earnings quality of client firms.

This study also contributes to the paucity of existing research examining the association between auditor industry specialization and earnings management in the Australian context. Whilst prior studies using US data have generally shown that industry specialist auditors significantly attenuate earnings management (Zhou and Elder 2002; Balsam, Krishnan, and Yang 2003; Krishnan 2003; Zhou and Elder 2004; Kanagaretnam, Krishnan, and Lobo 2009; DeBoskey and Jiang 2012; Bratten, Causholli, and Myers 2013; Sun and Liu 2013), this study using Australian data fails to find a statistically significant association between the engagement of industry specialists and earnings management. This study, therefore, suggests that industry specialist auditors are unable to significantly constrain earnings management behaviour in Australian listed firms.

In summary, this study will benefit a number of key stakeholders. Policy makers and regulators are able to determine the effectiveness and true impact of legislation to improve the quality of financial reporting by firms. This benefits the capital market participants by having a flow on effect of minimizing poor corporate reporting and, potentially, subsequent corporate failure. The auditors are able to determine which of the four attributes significantly influence earnings management and hence earnings quality. The auditors can also utilize information on which client features are most significantly associated with earnings management to their advantage and enhance audit effectiveness. Findings from this study will also help scholars to identify which specific auditor traits to examine/include in future research.

8.6 LIMITATIONS OF THE STUDY

Whilst this study has a number of strengths, it is not without limitations. For instance, this study uses aggregate accruals approach to estimate earnings management. The aggregate accruals approach has often been criticized as creating biased and noisy estimates of discretionary accruals (Guay, Kothari, and Watts 1996; Teoh, Wong, and Rao 1998). Whilst these criticisms occur repeatedly, nevertheless a great deal of earnings management literature continues to employ the aggregate accruals approach to estimate discretionary accruals due to the lack of a suitable alternative approach (Graham and Moore 2013; Hossain 2013). Since this study focuses on the association

between auditor attributes and earnings management, the use of discretionary accruals as a proxy of earnings management is essential since it reflects a maintained assumption that the quality of audited data is a joint product of underlying attributes of management representations and audit quality. In an attempt to mitigate misspecification issues and enhance the validity and reliability of this study's results, four different variations of the aggregate accruals approach are used to calculate discretionary accruals.

This study focuses on four specific auditor traits. While the auditor attributes selected are most commonly used and cited in prior empirical literature (Ashbaugh, LaFond, and Mayhew 2003; Balsam, Krishnan, and Yang 2003; Carcello and Nagy 2004; Hossain 2013) as being pivotal factors underpinning audit quality and by association the quality of financial reporting by client firms, other attributes may be associated with earnings management.

Although a range of control variables have been included in tests to control for further potential influencers (in addition to external auditor attributes) of earnings management, it is highly probable that other factors which have not been controlled for could possibly affect the quality of financial reporting. For example, some motives to engage in earnings management behaviour such as management style, integrity, and corporate culture are problematic to measure and hence difficult to control for (Archambeault 2002). Nevertheless, this issue can be considered to be of minor consequence since the study does not focus on causality but instead on the association between external auditor attributes and earnings management.

Using data from only a single nation, namely Australia, potentially limits the ability to generalize this study's empirical results to other domestic and institutional settings. However, Australia comprises of a mature and well developed capital market with the active participation of regulators, investors, and audit firms alike (Francis 1984; Francis and Stokes 1986; Gerrard, Houghton, and Woodliff 1994; Goodwin and Kent 2006). Moreover, the existing institutional structures in Australia have been established based on principles and values entrenched in many other developed economies, especially those with a historical linkage to the UK. Consequently, this gives confidence that results from this study can be utilized as guidance for research based on alternative domestic settings.

In order to test the hypotheses, data for all of the variables used in this study were collected from annual reports. This focus on annual reports is characterized as a further limitation of the study as it limits the amount and type of data that can be

collected. For instance, while other alternative (firm-specific) proxy measures for the auditor attributes used in this study may exist, such measures were excluded given their proprietary nature. While the limitations are acknowledged, these caveats do not outweigh the study's strengths nor insights highlighted.¹³¹

8.7 SUGGESTIONS FOR FUTURE RESEARCH

There are a several possible avenues for future research. First, the 'opportunistic hypothesis' interprets earnings management as a means for managers to mislead shareholders (Healy 1985; DeFond and Jiambalvo 1994; Krishnan et al. 2011), while the 'signaling hypothesis' claims that earnings management reveals managers' private information and therefore provides a more timely measure of a firm's future performance and promotes efficient decision making (Arya, Glover, and Sunder 2003; Beneish, Capkun, and Fridson 2013). Discretionary accruals may reflect either management's opportunistic behaviour or management discretion in signaling relevant information. Although this research identifies that opportunistic earnings management exists in the Australian context, it does not distinguish between opportunistic and signaling forms of earnings management. Therefore, future research could consider differentiating the two forms of earnings management and then performing a comprehensive examination of the auditor attributes/earnings management linkage.

Second, research based on US data has generally found higher quality auditors to be associated with lower accruals-based earnings management while higher real earnings management in the post-SOX period compared to the pre-SOX period (Chi, Lisic, and Pevzner 2011; Sohn 2011). In a similar vein, future research in Australia can examine whether higher quality auditors are associated with a shift from accruals-based to real earnings management in post-CLERP 9 period.

Third, this study only examines the influence of a single corporate governance mechanism (the external auditor) on earnings management. Future research may seek to consider the joint influence of the external auditor attributes and other corporate governance mechanisms (for example, remuneration committee, audit committee, internal audit function) on earnings management.

Fourth, to assess the external validity of this study which has a single nation focus (that is, Australia), future research on such a comprehensive analysis of the

¹³¹ The limitations listed and discussed in this section do not constitute an exhaustive list but instead are used as examples to highlight the study's boundaries and the scope to which the results may be applied without application of caution. Providing a full exhaustive list of limitations is of little incremental value, and is beyond the scope of this study.

auditor attributes/earnings management linkage can be undertaken in another domestic, regional, or broader international setting. For instance, scholars could conduct related research to this study by choosing countries with different regulatory and institutional settings (for example, jurisdictions with differing levels of legal and investor protection and the degree of institutional ownership in corporate entities).

8.8 SUMMARY OF THE STUDY

The effectiveness of external auditors in constraining earnings management and enhancing earnings quality has been continuously questioned by stakeholders in light of the spate of corporate collapses around the globe since the beginning of the new millennium. Previously scholars, particularly in Australia, have generally adopted a narrow focus in examining the auditor attributes/earnings management linkage by investigating the impact of only a specific auditor trait on earnings management, thereby potentially masking or biasing findings by ignoring the complementary and/or supplementary influences of other key pivotal auditor attributes. This study formally conducts a comprehensive analysis on the auditor attributes/earnings management linkage using a range of pivotal auditor attributes both in isolation and in unison within the Australian capital market setting. To address the misspecification issues associated with earnings management models and enhance the validity and reliability of results, this study uses four different variations of the aggregate accruals approach, namely, the modified Jones model, the performance adjusted model, the lagged model, and the forward-looking model. This comprehensive analysis on the auditor attributes/earnings management linkage involved extensive statistical tests based on a sample of 1250 firm-year observations spanning the 2008 to 2012 calendar years.

The empirical tests yield insightful results. This study finds the engagement of a Big4 auditor and longer audit partner tenure to effectively constrain earnings management (specifically, income increasing earnings management) of client firms. Further analysis suggests that Big4 auditors are more effective in constraining earnings management of larger clients and low-growth clients. Further analysis also suggests that longer partner tenure significantly constrains earnings management of client firms in case of non-Big4 auditors only, thereby reflecting on the learnings differentiation between Big4 and non-Big4 auditors. This study also finds industry specialist auditors and provision of non-audit services to be ineffectual determinants of earnings management. Aside from the auditor traits such as brand name and partner tenure, certain client features such as size, performance, leverage, and capital intensity are also

found to be significant determinants of earnings management. Overall, findings from this study provide valuable insights and understanding not only in respect to the auditor attributes/earnings management linkage, but the individual dynamics and significance of the external auditor and earnings management/quality concepts.

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**APPENDIX 1 – SUMMARY OF MAJOR SELECTED STUDIES ON AUDITOR QUALITY AND EARNINGS QUALITY:
CHRONOLOGICAL ORDER**

Appendix 1 A – Summary of major selected studies on Big Firm auditor and earnings quality: chronological order

No.	Author/s (year)	Country	Sample	Period of study	Earnings quality proxy	Audit firm characteristics	Main results
1	DeAngelo, L. (1981)	US	Theoretical accounting research	N/A	N/A	Auditor size	Larger audit firms provide better quality audits than smaller audit firms, suggesting that audit quality is not independent of audit firm size. Incumbent auditors earn client-specific quasi-rents which when subjected to a loss from discovery of lower than promised audit quality serve as collateral against such type of opportunistic behaviour. Hence, holding other things constant, the larger the audit firm (measured by the number of current clients) and smaller the client firm (as a fraction in terms of the auditor's total quasi-rents), the lesser the incentive for the audit firm to behave opportunistically by having 'more to lose' in case of failing to report a discovered breach in the particular client's records, and higher the perceived audit quality.
2	Becker, C., DeFond, M., Jiambalvo, J. and Subramanyam, K. (1998)	US	12,576 firm-year observations	1989-1992	Discretionary accruals, absolute value of discretionary accruals	Big6 auditor	Clients of non-Big6 auditors report discretionary accruals that are, on average, 1.5-2.1 percent of total assets higher than the discretionary accruals reported by clients of Big6 auditors. Further, the mean and median of the absolute value of discretionary accruals are greater for firms with non-Big6 auditors. These results indicate that lower quality audits by non-Big6 auditors are associated with more "accounting flexibility" while higher quality audits by Big6 auditors are associated with higher earnings quality.

Appendix 1 A – Summary of major selected studies on Big Firm auditor and earnings quality: chronological order

No.	Author/s (year)	Country	Sample	Period of study	Earnings quality proxy	Audit firm characteristics	Main results
3	Lennox, C. (1999)	UK	1,036 firms ¹³²	1987-1994	N/A	Auditor size	Superior accuracy of large auditors results from the threat of litigation rather than the loss of client-specific rents. Evidence provides stronger support for deep pockets hypothesis compared to reputation hypothesis for two reasons: (1) Large auditors are more vulnerable to litigation despite superior accuracy; and (2) Criticized auditors, compared to similar uncriticized auditors, do not suffer a reduction in demand or fees. While reputation hypothesis considers litigation to be a reliable signal of auditor accuracy, deep pockets model considers litigation to be an unreliable signal of auditor accuracy for two reasons: (1) Litigation does not signal auditors' type II error rates since auditors are only sued for issuing reports that are insufficiently conservative (type I errors) but never sued for being too conservative (type II errors); and (2) Litigation is a noisy signal of the auditors' type I error rates since large auditors, being more prone to deep pockets court actions, are more likely to be sued when a type I errors occurs, irrespective of being more accurate than small auditors.
4	Francis, J., Maydew, E., and Sparks, H. (1999)	NASDAQ firms	74, 390 firm-year observations ¹³³	1975-1994	Discretionary accruals, absolute value of discretionary accruals	Big6 auditor	The likelihood of using a Big6 auditor is increasing in firm's endogenous propensity for accruals. In spite of higher levels of total accruals, Big6 audited firms are shown to have lower amounts of estimated discretionary accruals. These findings provide evidence that big6 auditors constrain aggressive and potentially opportunistic reporting of accruals and are associated with improving the quality of earnings of client firms.
5	Gul, F., Lynn, S., and Tsui, J. (2002)	Australia	468 firm-year observations	1992-1993	Earnings per share, absolute value of discretionary accruals	Big6 auditor	Firms with Big6 auditors show a significantly weaker positive relationship between returns-earnings association and management ownership. Firms with Big6 auditors also show a weaker negative association between management ownership and earnings management through the use of discretionary accruals. These results suggest that Big6 auditors provide higher quality audits and can more effectively mitigate insiders' incentives to exploit accounting-based contractual incentives and manage earnings. Hence, this study finds that firms with Big6 auditors report higher quality earnings.

¹³² This sample of 1036 firms included 123 firms that entered administration, liquidation receivership.

¹³³ The actual numbers of observations used were smaller and varied from test to test due to specific data requirements and missing values for variables.

Appendix 1 A – Summary of major selected studies on Big Firm auditor and earnings quality: chronological order

No.	Author/s (year)	Country	Sample	Period of study	Earnings quality proxy	Audit firm characteristics	Main results
6	Koh, P. (2003)	Australia	107 firm-year observations	1993-1997	Income increasing discretionary accruals	Big6 auditor	A non-linear association is found between institutional ownership and income-increasing discretionary accruals. A positive association is found at the lower institutional ownership levels while a negative association is found at the higher institutional ownership levels. These results suggest that institutional investors can act as a complementary corporate governance mechanism in mitigating myopic aggressive earnings management in firms with sufficiently high ownership levels. This study also finds the engagement of a Big6 auditor to be negatively associated with income increasing discretionary accruals, suggesting that firms employing brand name auditors are associated with higher earnings quality.
7	Krishnan, G. (2003)	US	18,658 firm-year observations	1989-1998	Cash flows from operations, nondiscretionary accruals, discretionary accruals, income-increasing discretionary accruals, income-decreasing discretionary accruals, absolute value of discretionary accruals	Big6 auditor	The association between stock returns and discretionary accruals is greater for firms audited by Big6 auditors than for firms audited by non-Big6 auditors, suggesting that Big6 auditors enhance the credibility of reported accruals by minimizing noise and improving information value in reported discretionary accruals. The pricing of nondiscretionary accruals and operating cash flows is not conditioned by audit quality. Further, the association between discretionary accruals and future profitability, operationalized by one-year ahead and two-year ahead earnings and cash flows, is greater for Big6 clients than for non-Big6 clients. Hence, this study finds that higher quality audits associated with Big6 auditors improve the quality of earnings reported by clients.
8	Vander Bauwhede, H., Willekens, M., and Gaeremynck, A. (2003)	Belgium	136 firm-year observations	1991-1997	Discretionary accruals	Big6 auditor	Belgian companies (both public and private) are found to engage in income smoothing and manage earnings opportunistically to meet benchmark targets of prior-year earnings. Big6 and non-Big6 auditors are generally found to be equally competent at detecting earnings management behaviour exhibited by below target client firms that are faced with incentives to smooth earnings upwards. However, non-Big6 auditors are shown to be 'less independent' than Big6 auditors when confronted with income-decreasing earnings management by above target client firms. Finally, public ownership is found to be associated with earnings management behaviour, but only for above target client firms with incentives to smooth earnings downwards. Overall, the study finds the institutional environment of Belgium to be responsible for the differential impact of auditor size and ownership type for above and below target client firms.
9	Khurana, I. and Raman, K. (2004)	US, Australia, Canada and UK	19,517 firm-year observations	1990-1999	Ex-ante cost of equity capital	Big4 auditor	An audit by a Big4 firm is associated with lower ex-ante cost of equity capital for clients in the US but not in Australia, Canada, or the UK which have similar institutional details and economic environments as the US but are far less litigious. Hence, the finding of this study suggests that it is the litigation exposure rather than the brand name reputation protection that drives perceived audit quality.

Appendix 1 A – Summary of major selected studies on Big Firm auditor and earnings quality: chronological order

No.	Author/s (year)	Country	Sample	Period of study	Earnings quality proxy	Audit firm characteristics	Main results
10	Davidson, R., Goodwin-Stewart, J., and Kent, P. (2005)	Australia	434 firms	2000	Absolute value of discretionary accruals	Big5 auditor	Firms with a majority of non-executive directors on the board and audit committee are significantly associated with a lower likelihood of earnings management. The voluntary establishment of an internal audit function and the choice of an external auditor are not significantly related to reduction in the level of earnings management. This study fails to find an association between the presence of a Big5 auditor and the quality of reported earnings.
11	Maijor, S. and Vanstraelen, A. (2006)	France, Germany and UK	17,394 firm-year observations	1992-2000	Abnormal working capital accruals	Big4 auditor	The prevalence of earnings management behaviour across countries in the European Union appears to be a function of differences in the national audit environments. Firms in countries with a strict audit quality regime engage less in earnings management compared to firms in countries with a more flexible audit regime, irrespective of the type of auditor (Big4 audit firm or non-Big4 audit firm). This study fails to find evidence of an international Big4 audit quality effect in Europe, suggesting that the national audit environment and stricter auditor independence regulation rather than the appointment of a Big4 auditor impacts a firm's earnings quality. Finally, this study finds that a firm's reliance on international capital markets does not limit its earnings management behaviour but instead is associated with a higher level of abnormal working capital accruals.
12	Piot, C. and Janin, R. (2007)	France	102 firms	1999-2001	Signed discretionary accruals, absolute value of discretionary accruals	Big5 auditor	Audit committee existence causes a decrease in signed discretionary accruals (curbs upward earnings management), but audit committee's independence does not have a significant effect on accruals measurement. Hence, the presence of an audit committee constrains the more egregious (income-increasing) forms of earnings management but the role of independent audit committees does not emerge in the French corporate governance. Further, the presence of a Big5 auditor makes no difference in terms of earnings management behaviour as captured by absolute and signed discretionary accruals. There is a lack of differentiation among Big5 auditors in terms of accounting conservatism. This study, therefore, suggests that under the specificities of the French auditing and governance settings in the Continental European environment, the type of auditor (Big5 audit firm or non-Big5 audit firm) does not influence earnings quality.

Appendix 1 A – Summary of major selected studies on Big Firm auditor and earnings quality: chronological order

No.	Author/s (year)	Country	Sample	Period of study	Earnings quality proxy	Audit firm characteristics	Main results
13	Francis, J. and Wang, D. (2008)	42 countries	57, 966 firm-year observations (abnormal accrual analysis), 85,193 firm-year observations (loss avoidance analysis), 68, 167 firm-year observations (earnings conservatism analysis)	1994-2004	Signed discretionary accruals, likelihood of reporting a loss, earnings conservatism	Big4 auditor	Stricter investor protection regimes do not necessarily lead to an increased earnings quality just on the basis of underlying accounting standards, policies and earnings attributes but instead result in a higher quality of reported earnings only for client firms of Big4 auditors, indicating that the effect of investor protection is mediated through the incentives of auditors. While clients of Big4 auditors experience smaller signed abnormal accruals (income-decreasing), greater likelihood of a loss and an increase in earnings conservatism as the investor protection environment becomes stronger, the clients of non-Big4 auditors remain unaffected. This evidence also suggests that if the incentives to enforce higher quality earnings and risk dismissal by clients created by stricter investor protection regimes are absent, then no differences are observed between the earnings quality of Big4 and non-Big4 clients. Overall, the study suggests that Big4 auditor incentives together with a stricter investor protection regime improve the quality of financial reporting by client firms.
14	Weber, J., Willenborg, M., and Zhang, J. (2008)	Germany	92 firms (stock market reaction) 669 firms (KPMG's German audit market share analysis – before, during and after ComROAD AG)	2001-2002 1998-2003	N/A	Big5/4 auditor	Clients of KPMG are shown to sustain cumulative negative abnormal returns of 3% at events pertaining to ComROAD AG (especially on KPMG's resignation, and at ComROAD's announcement of majority of its revenues being false even for the years 1998 and 1999, followed by KPMG's announcement to re-audit Neuer Markt-traded clients). The returns are shown to be more negative for firms that are likely to have greater demands for audit quality (including distressed firms, firms following US generally accepted accounting principles (GAAP) or International Accounting Standards (IAS), newer client firms of KPMG, smaller firms and firms with more subsidiaries). Evidence is also obtained showing an increase in the number of client firms that drop KPMG in the year of ComROAD AG scandal (mostly smaller, recently public firms that are similar to ComROAD AG). Overall, the study finds support for the reputation rationale for audit quality.
15	Van Tendeloo, B. and Vanstraelen, A. (2008)	Belgium, Finland, France, Netherlands, Spain, and UK	64,353 firm-year observations	1998-2002	Aggregate earnings management measure based on the magnitude of total accruals relative to operational cash flow, the tendency of firms to avoid small losses, the smoothness of earnings relative to cash flows, and the correlation of accounting accruals and operating cash flows.	Big4 auditor	Big4 audit firms, compared to non-Big4 audit firms, are shown to constrain earnings management behaviour in private (that is, non-listed) firms more in high tax alignment countries such as Belgium, Finland, France and Spain than low tax alignment countries such as the Netherlands and the UK. Further, private firms domiciled in countries with strong legal systems are shown to engage less in earnings management practices. Also, evidence obtained by this study suggests that the audit quality differentiation in private firms appears unlikely in strong legal environments. Finally, on subdividing non-Big4 audit firms into second-tier audit firms and small audit firms, evidence is not obtained supporting an audit quality differentiation between second-tier audit firms and small audit firms with regards to the exhibited earnings management behaviour. Overall, the study finds that audit environments and investor protection regimes are more crucial than Big4 auditor quality in significantly influencing the earnings quality of clients.

Appendix 1 A – Summary of major selected studies on Big Firm auditor and earnings quality: chronological order

No.	Author/s (year)	Country	Sample	Period of study	Earnings quality proxy	Audit firm characteristics	Main results
16	Jordan, C., Clark, S., and Hames, C. (2010)	US	1,251 firms	2007	Earnings per share	Big4 auditor	On investigating the entire sample of 1,251 US firms, the study finds significant evidence of earnings management behaviour exhibited in the earnings per share figures as reflected by unusually low frequencies of high numbers (that is, eights and nines) and abnormally high rates of small numbers (that is, zeroes, ones, and twos) in the first digital position right of the decimal point in earnings per share. This finding shows a classic pattern of earnings manipulation behaviour wherein the first digital position to the immediate right of the decimal point is rounded up to increase the digit immediately left of the decimal point by one. On segregating the sample based on audit quality, as proxied by auditor size (Big4 versus non-Big4 dichotomy), the study finds the same pattern of such cosmetic earnings management behaviour exhibited by non-Big4 client firms but not for Big4 client firms. Hence, audit quality is shown to significantly restrict the earnings management behaviour exhibited by client firms to effect user reference points in earnings per share.
17	Lin, J. and Hwang, M. (2010)	48 studies spanning over 13 countries	Meta-analysis	Meta-analysis	Discretionary/abnormal accruals, earnings restatement, financial reporting fraud	Audit fees, non-audit fees, auditor industry specialization, auditor size, and auditor tenure	Examining the effectiveness of the board of directors and audit committee in constraining earnings management, board's independence, board's expertise, audit committee's independence, audit committee's size, audit committee's expertise, and frequency of audit committee meetings were shown to have a negative relationship while audit committee's share ownership was shown to have a positive relationship with earnings management behaviour. While the impact of audit committee independence as a deterrent to earnings management was more pronounced in the US than in other countries, the impact of board independence was more profound in countries other than the US. However, other board and audit committee characteristics such as board of director's stock ownership, the separation of the board chair position from the CEO position, and the audit committee's existence were not shown to have a significant effect on earnings management behaviour. For measures of audit quality, auditor tenure, auditor size, auditor specialization, and auditor independence (measured by fee ratio and total fees) were shown to have a negative relationship with earnings management. Auditor size was shown to significantly constrain earnings management practices and improve earnings quality in the US than in other countries where the results were not significant.

Appendix 1 A – Summary of major selected studies on Big Firm auditor and earnings quality: chronological order

No.	Author/s (year)	Country	Sample	Period of study	Earnings quality proxy	Audit firm characteristics	Main results
18	Sun, J. and Liu, G. (2011)	US	81, 901 firm year observations	1988-2006	Absolute value of performance-matched discretionary accruals	BigN auditor ¹³⁴ , auditor specialization	Higher effectiveness of BigN auditors over non-BigN auditors in constraining earnings management is greater for high litigation risk clients than for low litigation risk clients. This study finds that client-specific litigation risk more explicitly affects an auditor's legal liability for auditing a specific client, suggesting that the client's high litigation risk can force big auditors to perform more effectively. This study further documents that the audit quality differentiation between industry specialist auditors and non-specialist auditors is more pronounced for client with high litigation risk compared to clients with low litigation risk, indicating that client-specific litigation risk positively affects the audit quality of industry specialist auditors. Hence, it is the level of litigation risk surrounding a client firm that primarily drives the firm's earnings quality. Finally, this study finds no evidence suggesting an increased concern amongst big auditors on client specific litigation risk after the Sarbanes-Oxley Act became effective.
19	Kabir, M., Dharma, D., Islam, M., and Salat, A. (2011)	Bangladesh	382 firm year observations	2000-2003	Signed discretionary accruals, absolute value of discretionary accruals	Big4 auditor affiliates	The association between Big4 auditor affiliates and accrual quality in Bangladesh, a small and emerging market with poor regulations and low investor protection, depends on measures of accrual quality and accrual models used. Overall, the Big4 auditor affiliates are not shown to have a positive impact on the accrual quality of clients in Bangladesh. In the absence of market demand for quality differentiated audits and a strong monitoring and enforcement regime in place, the institutional environment of Bangladesh potentially limits the benefits to be derived from Big4 auditor affiliates. Hence, the presence of Big4 auditor affiliates does not necessarily improve the earnings quality of client firms in Bangladesh.
20	Chi, W., Lisic, L., and Pevzner, M. (2011)	US	925 firm-year observations	2001-2008	Abnormal cash flows, abnormal inventory production, abnormal discretionary expenditures, real earnings management index ¹³⁵	Auditor industry specialization, BigN auditor, auditor tenure	City-level auditor industry expertise and audit fees are found to be associated with higher levels of real earnings management in settings involving strong upward earnings management incentives (that is, for firms that meet or just beat earnings benchmarks and firms that issue seasoned equities), suggesting that an unintended consequence of higher quality auditors in constraining accrual earnings management is that firms resort to potentially even more costly real earnings management. Similar, albeit weaker, results are found for BigN auditors. Longer auditor tenure is also found to be associated with greater real earnings management, suggesting merits of mandating audit firm rotation.

¹³⁴ Sun and Liu (2011) use the dummy variable BigN auditors, as a proxy for brand name auditors and a surrogate measure for audit quality, to represent Big8 auditors (1988-1989), Big6 auditors (1989-1998), Big5 auditors (1998-2002), and Big4 auditors (2002-2006).

¹³⁵ Following Cohen et al. (2008), chi, Lisic and Pevzner (2011) compute real earnings management index by adding together standardized abnormal cash flows, standardized abnormal production costs, and standardized abnormal discretionary expenses.

Appendix 1 A – Summary of major selected studies on Big Firm auditor and earnings quality: chronological order

No.	Author/s (year)	Country	Sample	Period of study	Earnings quality proxy	Audit firm characteristics	Main results
21	Lai, C., Li, Y., Shan, Y., and Taylor, S. (2013)	Australia	7,509 firm-year observations	1998-2008	Working capital accruals, non-current operating accruals, and financing accruals	Big4 auditor	Evidence is obtained suggesting that the mandatory adoption of the International Financial Reporting Standards (IFRS) in the Australian jurisdiction has resulted in a significant decline in the reliability of accruals (working capital accruals, non-current operating accruals, and financing accruals). The study differentiates cash flow from accruals persistence to increase confidence in the results that the apparent decline in accrual reliability is not merely a reflection of a decrease in the persistence of fundamentals. Moreover, brand name firms/Big4 auditors are shown to attenuate the decrease in accrual reliability (specifically, the reliability of working capital accruals and non-current operating accruals) during the post-IFRS period.

Appendix 1 B – Summary of major selected studies on industry specialist auditor and earnings quality: chronological order

No.	Author/s (year)	Country	Sample	Period of study	Earnings quality proxy	Audit firm characteristics	Main results
1	Craswell, A., Francis, J., and Taylor, S. (1995)	Australia	1,484 firms	1986-1987	N/A	Big8 auditor, auditor industry specialization	Audit fees of Big8 auditors contain premia relating to both general brand name and industry specialization. Industry specialist Big8 auditors earn a 34% premium over non-specialist Big8 auditors, and the Big8 brand name premium over non-Big8 auditors averages around 30%. While specialization may lead to auditor production economies, this study finds evidence showing that positive returns to investment in specialization dominate potential production economies and lead to higher average audit fees. Overall, the findings support that industry expertise is a dimension of the demand for higher quality Big8 audits and a basis for within Big8 product differentiation.
2	Balsam, S., Krishnan, J., and Yang, J. (2003)	US	50,116 firm-year observations (discretionary accruals sample), 19,091 firm-year observations (earnings response coefficient sample)	1991-1999	Absolute level of discretionary accruals, earnings response coefficients	Auditor industry specialization	Clients of industry specialist auditors are shown to have lower discretionary accruals and higher earnings response coefficients than clients of non-specialist auditors, suggesting that industry specialists contribute positively to the earnings quality and to the market perceptions of that quality for client firms. The effect of specialization on discretionary accruals is found to be nonlinear with absolute discretionary accruals actually increasing slightly at lower levels of market share but declining rapidly thereafter. The beneficial impact of auditor industry specialization is found to be the most marked in the service industry, and in varying degrees, in the mining and construction, trade and transportation industries. Overall, the findings suggest that recent structural shifts by the Big4 audit firms in the direction of greater industry focus is likely to have a favourable impact on the quality of financial reporting.
3	Velury, U. (2003)	US	4,128 firm-year observations	1994-1996	Absolute value of estimated discretionary accruals	Auditor industry specialization	Lesser earnings management is observed for firms with substantial accrual generating ability when the auditor is an industry specialist. However, such an association is not apparent for highly leveraged firms. Industry-specialist client firms are just as likely to manage earnings as client firms of non-specialists when leverage is large. Overall, the findings suggest that the effectiveness of audits performed by industry-specialist auditors appears to be context-specific.
4	Carcello, J. and Nagy, A. (2004)	US	109 firms	1990-2001	Accounting and Auditing Enforcement Release (AAER)	Big6 auditor, auditor industry specialization	A significant negative relationship is observed between industry specialist auditors and client financial fraud. This relationship is found to be stronger for clients of Big6 accounting firms. The negative relationship between auditor industry specialization and fraudulent financial reporting is found to be weaker for larger client firms. This weaker relationship does not appear to be driven by client complexity. Overall, the study suggests that the positive benefits of auditor industry specialization in deterring financial fraud is affected by client size.

Appendix 1 B – Summary of major selected studies on industry specialist auditor and earnings quality: chronological order

No.	Author/s (year)	Country	Sample	Period of study	Earnings quality proxy	Audit firm characteristics	Main results
5	Chen, K., Wu, S., and Zhou, J. (2006)	Taiwan	2,324 firm year observations	1998-2002	Discretionary accruals	Big5 auditor, auditor industry specialization	Clients of Big5 auditors are shown to exercise lower earnings management than clients of non-Big5 auditors. On separating earnings management into income increasing and income decreasing earnings management, industry specialist auditors are found to be associated with less income increasing earnings management. Overall, the study finds that the employment of brand name auditors and industry specialist auditors can improve earnings quality and further enhance the credibility of financial reporting in less developed capital markets like Taiwan, where the information asymmetry could be more severe than in the USA.
6	Knechel, W., Naiker, V., and Pacheco, G. (2007)	US	318 firms	2000-2003	Cumulative size adjusted abnormal stock returns	Big4 auditor, auditor industry specialization	Market reaction to auditor switches is influenced by the relative industry expertise of predecessor and successor auditors. Firms switching between Big4 auditors experience significant positive abnormal returns when the successor auditor is an industry specialist while a significant negative abnormal return when the successor auditor is not a specialist. These market reactions more likely result from changes in perceived audit quality rather than differential costs of using specialist auditors. Firms switching from a specialist Big4 auditor to a non-Big4 auditor suffer the largest negative market reaction while the firms switching from a non-Big4 auditor to a Big4 auditor who is not a specialist experience the largest positive market reaction. Overall, the findings suggest that market does perceive audit quality differences based on industry specialization to be relevant to the valuation of a firm's market value.
7	Kwon, S., Lim, C., and Tan, P. (2007)	28 countries	27,824 firm-year observations (discretionary current accruals sample), 36, 807 firm-year observations (earnings response coefficients sample)	1993-2003	Discretionary current accruals, earnings response coefficients	Auditor industry specialization	The clients of industry specialist auditors have lower discretionary current accruals and higher earnings response coefficients than clients of non-specialist auditors in the global environment, suggesting that industry specialists contribute positively to the earnings quality and to the market perceptions of that quality for client firms. Further, this study finds that positive impact of auditor industry specialization on earnings quality is driven by the country's legal environment. The impact of auditor industry specialization on earnings quality is found to increase as the legal environment weakens. Overall, the findings suggest that the benefits from engaging services of specialist auditors increase as the legal environment of a country shifts from a strong to a weak environment.

Appendix 1 B – Summary of major selected studies on industry specialist auditor and earnings quality: chronological order

No.	Author/s (year)	Country	Sample	Period of study	Earnings quality proxy	Audit firm characteristics	Main results
8	Cenker, W. and Nagy, A. (2008)	US	117 resignations	2004-2005	N/A	Auditor industry specialization	Evidence is obtained from the post-SOX period of a negative association between auditor industry specialization and auditor resignations. This negative association is observed wherein the auditor is either a joint specialist (that is, a specialist at both the local and national levels) or a local specialist only (that is, a local specialist but not a national specialist). While the national specialization alone variable (that is, the auditor is a national specialist but not a local specialist) is not shown to be significant in the study's primary analysis, it is shown to significantly vary in the study's additional analysis incorporating alternative measurements for auditor specialization. Hence, the study finds mixed and inconclusive evidence on the association between national specialization and auditor's resignation. Overall, the evidence obtained suggests that auditor perception of industry specialization, notably at the local level, is associated with a reduction in clientele mismatch and litigation risks, thereby resulting in an improvement of the quality of audit.
9	Kanagaretnam, K., Krishnan, G., and Lobo, G. (2009)	US	835 bank-year observations	1993-2004	Discretionary loan loss provisions	Big5 auditor, auditor industry specialization	The market assigns a higher valuation to discretionary loan loss provisions when the auditor is a Big5 auditor. On separating auditor type and industry expertise, the study finds that the auditor expertise in the banking industry instead of the auditor type (Big5 vs. non-Big5) results in a significant positive association between discretionary component of loan loss provisions and stock returns. These findings suggest that the use of industry specialist auditors in the banking industry attenuates the information asymmetry between the bank managers and the investors by enhancing the information conveyed by discretionary loan loss provision, resulting in an improved earnings quality. This study also finds that the impact of auditor expertise on discretionary loan loss provisions is greater for smaller banks than for larger banks and for positive discretionary loan loss provisions than for negative discretionary loan loss provisions.

Appendix 1 B – Summary of major selected studies on industry specialist auditor and earnings quality: chronological order

No.	Author/s (year)	Country	Sample	Period of study	Earnings quality proxy	Audit firm characteristics	Main results
10	Almutairi, A., Dunn, K., and Skantz, T. (2009)	US	31,689 firm-year observations	1992-2001	N/A	Auditor industry specialization, auditor tenure	The bid-ask spreads for client firms associated with industry specialist auditors, compared to non-specialists, are shown to be lower in the approximately 48 trading-days following the disclosure of audited financial information. Bid-ask spreads are also shown to have a U-shaped association with auditor tenure. The study finds that the bid-ask spreads for client firms in an audit engagement decrease in the second and third years relative to the first year of the engagement and then increase in the later years (four to nine years, and longer than nine years). No differences are observed between the bid-ask spreads for medium (four to nine years) and long auditor tenure (longer than nine years). While the U-shaped association between a bid-ask spread and auditor tenure holds for both industry specialist as well as non-specialist auditors, the bid-ask spread for specialist auditors tends to fall below that of non-specialist auditors at all tenure intervals. Overall, the study finds that auditor attributes such as industry specialization and tenure form a crucial part of a portfolio of concurrent reporting and disclosure choices that significantly influence the private information search opportunities as well as the market's perception of financial reporting quality of client firms.
11	Rusmin, R. (2010)	Singapore	301 firms	2003	Absolute value of discretionary accruals	Big4 auditor, Auditor industry specialization	A negative and significant association is found between auditor industry specialization and the absolute value of discretionary accruals, suggesting that the magnitude of earnings management amongst firms engaging the services of a specialist auditor is significantly lower than firms acquiring audit services from a non-specialist auditor. Further, the clients of a Big4 audit specialist are shown to exhibit a significantly lower magnitude of earnings managements as compared to the clients using audit services of a non-Big4 specialist. Overall, the study finds that auditor industry specialists have a positive impact on the earnings quality of client firms and this association is stronger when the specialist auditor is a Big4 auditor compared to a non-Big4 auditor.
12	Kanagaretnam, K., Lim, C., and Lobo, G. (2010)	29 countries	6,072 bank-year observations (earnings benchmark analysis), 4,232 bank-year observations (abnormal loan loss provisions' analysis)	1993-2006	Earnings benchmark indicators (loss avoidance, just-meeting-or-beating prior year's earnings), abnormal loan loss provisions	Big5 auditor, auditor industry specialization	Both auditor type (Big5 vs. non-Big5) and auditor industry specialization moderate benchmark-beating (loss-avoidance and just-meeting-or-beating prior year's earnings) behaviour in banks. However, on including auditor type and industry specialization in the same tests, the study finds that only auditor-industry specialization has a significant impact on constraining benchmark-beating behaviour. While in separate tests both auditor type and auditor expertise are shown to constrain income-increasing earnings management, in joint tests only auditor industry expertise is shown to have a significant impact on constraining income-increasing earnings management. Overall, this study shows that auditor reputation represented by auditor type and auditor industry specialization has a significant impact on constraining earnings management practices and improving the quality of earnings in a highly regulated industry such as banking.

Appendix 1 B – Summary of major selected studies on industry specialist auditor and earnings quality: chronological order

No.	Author/s (year)	Country	Sample	Period of study	Earnings quality proxy	Audit firm characteristics	Main results
13	Mascarenhas, D., Cahan, S., and Naiker, V. (2010)	US	26,956 firm-year observations	1989-2006	Total accruals, discretionary accruals, non-discretionary accruals, cash flow from operations, earnings response coefficients, earnings per share	Auditor industry specialization	Specialist auditors are no better than non-specialists in constraining opportunistic discretionary accruals relative to informative discretionary accruals. This finding suggests that the positive effect of reducing opportunism by specialist auditors is offset by the negative effect of reducing information, leaving the net informativeness of discretionary accruals largely unchanged. The impact of specialist auditors on the non-discretionary accrual component of earnings results in clients of specialists having higher earnings response coefficients than the clients of non-specialists. Overall, the clients of industry specialists are not shown to have more informative or more value relevant discretionary component of total accruals but are shown to have more informative non-discretionary accruals.
14	Li, C., Xie, Y., and Zhou, J. (2010)	US	3,790 firm-year observations (credit rating sample), 351 firm-year observations (bond spread sample)	2001-2006	N/A	Auditor industry specialization	Firms audited by city level industry specialist auditors, either alone or jointly with national level industry specialist auditors, enjoy significantly lower cost of debt financing measured by both credit rating and bond spread. Compared to clients of non-industry specialists, firms' odds of worse credit ratings are 0.859 (0.664) times lower and bond spreads are 17(16) basis points lower for clients of city-level-only (joint national and city level) industry specialists. For joint national and city level industry specialists both information and insurance roles are significant to reduce cost-of-debt financing. Overall, the study finds that, from an investor's perspective audit quality differences exist across different levels of auditor industry specialization with city-level-only industry specialists and joint national and city level industry specialists being associated with superiority of audit quality. National-only leaders are not found to distinguish themselves from non-leaders.

Appendix 1 B – Summary of major selected studies on industry specialist auditor and earnings quality: chronological order

No.	Author/s (year)	Country	Sample	Period of study	Earnings quality proxy	Audit firm characteristics	Main results
15	Rusmin, R. (2011)	Australia and Singapore	615 firms	2003-2004	Absolute value of discretionary accruals	Big4 auditor, Auditor independence, auditor industry specialization	Auditor independence is not shown to be associated with earnings management behaviour amongst listed firms in Australia and Singapore. However, a negative association is found between auditor industry specialization and absolute value of discretionary accruals (an indicator of earnings management), indicating that earnings management practices amongst firms engaging specialist auditors is significantly lower than firms purchasing audit services from a non-specialist auditor. Further, the study then separately considers three instances (client firms associated with Big4 vs. non-Big4 accounting firms, client firm performances being good or poor, and client firms being Australian or Singaporean firms) to re-examine the impact of auditor independence and auditor specialization on earnings management behaviour. The association between auditor independence and earnings managements is shown to be statistically insignificant across the three category sub-samples. Auditor industry specialization is shown to have a negative and significant impact on earnings management practices for poor client performance and Singaporean firms but a negative and insignificant impact on the earnings management practices of Australian firms. Overall, the data set from Australia and Singapore does not support the proposition that purchase of non-audit services compromises auditor independence but provides further evidence that specialist auditors provide better quality audits than non-specialist auditors.
16	Cahan, S., Jeter, D., and Naiker, V. (2011)	US	9,396 firm-year observations	2003-2007	Discretionary accruals	Auditor industry specialization, Big4 auditor, audit fees	Audit fees and audit quality are found to be higher (lower) when the specialist auditor gains significant market share by auditing a low (high) proportion of clients in that industry, suggesting that not all industry specialists are the same. In spite of the dominant position held by the Big4 in the overall audit market, the study finds that specialists (exclusively Big4 auditors) respond to different market conditions by pursuing different production and pricing strategies. The audit market is shown to be classified into two segments (1) true “specialists” and (2) “low-end” producers. The true “specialists” are shown to focus extensively on acquiring specialized skills and expertise and thus product differentiation. In contrast, “low-end” producers are found to gain market share by competing on price and offer lower quality audits. Overall, the study finds that price plays a principal role in more competitive markets while audit quality assumes greater importance in markets with fewer, more dominant, or less homogenous, client firms.

Appendix 1 B – Summary of major selected studies on industry specialist auditor and earnings quality: chronological order

No.	Author/s (year)	Country	Sample	Period of study	Earnings quality proxy	Audit firm characteristics	Main results
17	Chi, W., Lisic, L., and Pevzner, M. (2011)	US	925 firm-year observations	2001-2008	Abnormal cash flows, abnormal inventory production, abnormal discretionary expenditures, real earnings management index ¹³⁶	Auditor industry specialization, BigN auditor, auditor tenure	City-level auditor industry expertise and audit fees are found to be associated with higher levels of real earnings management in settings involving strong upward earnings management incentives (that is, for firms that meet or just beat earnings benchmarks and firms that issue seasoned equities), suggesting that an unintended consequence of higher quality auditors in constraining accrual earnings management is that firms resort to potentially even more costly real earnings management. Similar, albeit weaker, results are found for BigN auditors. Longer auditor tenure is also found to be associated with greater real earnings management, suggesting merits of mandating audit firm rotation.
18	Habib, A. and Bhuiyan, B. (2011)	New Zealand	502 firm-year observations	2004-2008	N/A	Auditor industry specialization, audit report lag	Audit report lag is shorter for firms audited by industry specialist auditors, suggesting that industry specialists are associated with higher quality audits. The adoption of International Financial Reporting Standards has increased the audit report lag for all auditors except for industry specialists.
19	DeBoskey, D. and Jiang, W. (2012)	US	1,249 bank-year observations	2002-2006	Loan loss provisions, discretionary loan loss provisions	Auditor industry specialization	A positive relationship exists between earnings (before provisions) and loan loss provision, suggesting that US banks continue to smooth earnings even after the implementation of the Sarbanes-Oxley Act of 2002. The use of industry specialist auditors is shown to significantly moderate this relationship and constrain income smoothing practices in the highly regulated banking industry. Further, industry specialist auditors are shown to be more effective in reducing potentially income-increasing earnings management, suggesting that auditor industry specialization leads to a more conservative estimation of loan loss provisions. Hence, this study finds that auditor industry specialization is an effective mechanism in constraining management's discretionary accounting choices and improving the quality of reported earnings.

¹³⁶ Following Cohen et al. (2008), chi, Lisic and Pevzner (2011) compute real earnings management index by adding together standardized abnormal cash flows, standardized abnormal production costs, and standardized abnormal discretionary expenses.

Appendix 1 B – Summary of major selected studies on industry specialist auditor and earnings quality: chronological order

No.	Author/s (year)	Country	Sample	Period of study	Earnings quality proxy	Audit firm characteristics	Main results
20	Jaggi, B., Gul, F., and Lau, T. (2012)	28 countries	48,308 firm-year observations	1996-2006	Log of absolute value of discretionary current accruals	Auditor industry specialization	A significantly negative association is found between auditor industry specialization and discretionary accruals, implying that high earnings quality is associated with industry specialist auditors across all countries. Countries with proportional electoral system, reflecting weak investor protection, experience a stronger positive (negative) association between audits by industry specialists and earnings quality (discretionary accruals). The study also confirms the finding by Kwon, Lim, and Tan (2007) that the quality of earnings is high when firms are audited by industry specialists in countries with weak legal enforcement. This association between high earnings quality and audits by industry specialists appears to be valid only for countries with weak investor protection reflected by the proportional electoral system and not for countries with strong investor protection reflected by majoritarian electoral system. Overall, the positive (negative) association between auditor industry specialization and earnings quality (discretionary accruals) across countries can especially be expected in countries with weak legal environment, reflected both by weak legal enforcement and weak investor protection.
21	Nagy, A. (2012)	US	180 firms	2002	Absolute value of discretionary accruals	Auditor industry specialization	A significantly negative relationship is found between audit partner specialization and abnormal accruals, suggesting that audit partner specialization improves audit quality. Furthermore, evidence is obtained suggesting partner level specialization, compared to office level specialization, to have a greater influence on the quality of audit.
22	Sun, J. and Liu, G. (2013)	US	18,513 firm-year observations	1996-2010	Absolute value of performance-matched discretionary accruals	Auditor industry specialization	Earnings management is found to be more negatively associated with board independence for firms audited by industry specialists than for firms audited by non-specialists, thereby suggesting a positive interaction effect of auditor industry specialization and board governance on accounting quality. Simply put, the study finds that high quality boards can be more effective in monitoring earnings quality through hiring industry specialist auditors.
23	Bratten, B., Causholli, M., and Myers, L. (2013)	US	2,935 bank-year observations	2000-2008	Discretionary loan loss provisions, discretionary realized gains and losses on sales of investments	Auditor industry specialization	High fair value banks ¹³⁷ , compared to non-high fair value banks, are found to smooth earnings to a lesser extent using the discretionary portion of loan loss provision. High fair value banks trade off the use of loan loss provision based earnings management with transaction based earnings management (involving discretion over the timing of realized gains and losses on sales of investments) more than non-high fair value banks. Industry specialist auditors are found to mitigate the extent to which banks use the discretionary loan loss provision and the timing of realized gains and losses on sales of investments to smooth earnings.

¹³⁷ Bratten, Causholli, and Myers (2013, p.2) define “high fair value banks” as “those in the top quintile of the distribution of assets and liabilities reported at fair value.”

Appendix 1 C – Summary of major selected studies on non-audit services and earnings quality: chronological order

No.	Author/s (year)	Country	Sample	Period of study	Earnings quality proxy	Audit firm characteristics	Main results
1	Chai, S. and Jubb, C. (2000)	Australia	607 firms	1994	Absolute value of discretionary accruals	Non-audit fees, Big6 auditor, audit opinion	Client firms of Big6 auditors that purchase higher levels of non-audit services (relative to audit services) exhibit greater earnings management behaviour by showing a higher level of discretionary accruals compared to client firms that are low level purchasers of non-audit services. However, on using the audit qualification prediction model developed by Dopuch et al. (1987) and Monroe and Teh (1993), this study fails to find a significant association between the relative level of non-audit services fees and the type of audit opinion issued by showing that the high level purchasers of non-audit services are not more likely to receive a clean opinion compared to low level purchasers of non-audit services. Further tests find that client firms purchasing a higher level of non-audit services and concurrently engaging in higher levels of earnings management are not more likely to receive a clean opinion, suggesting that auditors do not compromise independence in terms of willingness to issue deserved qualification when providing audit and non-audit services jointly to the client firms.
2	Frankel, R., Johnson, M., and Nelson, K. (2002)	US	3,074 firms	2001	Absolute value of discretionary accruals, income-increasing discretionary accruals, income-decreasing discretionary accruals, likelihood of reporting a small earnings surprise, likelihood of reporting a small earnings increase, abnormal returns	Non-audit fees, audit fees, client importance, Big5 auditor, auditor tenure	A statistically significant positive association is found between non-audit service purchase and the magnitude of absolute discretionary accruals, income-increasing discretionary accruals and income-decreasing discretionary accruals. These results appear robust in the presence of alternative measures of earnings management variables (including discretionary total accruals, discretionary working capital accruals and performance-matched discretionary accruals). Evidence from auditor-specific regressions suggests that the results are not driven by any particular auditor. On examining the relationship between audit firm fees and two earnings benchmarks (small earnings surprises and small earnings increases), non-audit fees is found to be significantly and positively associated with likelihood of reporting a small earnings surprise (association is insignificant for larger firms in sample) but not associated with the likelihood of reporting small increase in earnings. Overall, these findings provide some evidence suggesting that non-audit service purchase is associated with greater earnings management behaviour. In contrast to the findings associated with non-audit fees, audit fees are found to be significantly and negatively associated with the earnings management indicators (including small increases in earnings). No association is found between total fees and any of the earnings management indicators being used in the study. Hence, the study suggests that while audit and non-audit fees create different incentive effects, combining the fees into a single measure masks these effects. Finally, a significant and negative association is found between share values and the disclosure of higher than expected non-audit fees, although this association is small in economic terms and is insignificant when abnormal returns are measured over a longer event window.

Appendix 1 C – Summary of major selected studies on non-audit services and earnings quality: chronological order

No.	Author/s (year)	Country	Sample	Period of study	Earnings quality proxy	Audit firm characteristics	Main results
3	Chung, H. and Kallapur, S. (2003)	US	1,871 firms	2001	Absolute value of abnormal accruals	Non-audit fees, client importance, Big5 auditor, auditor industry specialization	Client importance measures (captured by ratios of total fees (audit and non-audit) from a client and of non-audit fees from the client divided by the revenues of the audit firm or the practice office) are not shown to have a significant cross-sectional relationship with absolute Jones-model abnormal accruals for a sample of Big5 audit clients (after controlling for industry effects and determinants of abnormal accruals based on previous studies). A significant association is also not found between client importance ratios and abnormal accruals in sample partitions (based on proxies for size, client opportunities and incentives to manage earnings, strength of corporate governance, and auditor expertise) that are likely to have an effect on an auditor's independence. Overall, this study challenges the findings of Frankel et al. (2002) by failing to show any statistically significant association between different client fee ratios and auditor independence impairment.
4	Ashbaugh, H., LaFond, R., and Mayhew, B. (2003)	US	3,170 firms	Fiscal year 2000	Performance-adjusted discretionary current accruals, absolute value of performance-adjusted discretionary current accruals, non-discretionary current accruals, income-increasing discretionary accruals, income-decreasing discretionary accruals, likelihood of firms reporting small earnings increases, likelihood of firms meeting or beating analyst earnings forecasts, abnormal returns	Non-audit fees, audit fees, Big5 auditor	This study challenges the findings of Frankel et al. (2002) by failing to find any systematic evidence supporting the claim that auditors violate independence as a result of clients purchasing relatively more non-audit services. Consistent with findings of Frankel et al. (2002), this study finds no evidence of an association between the total fees and the discretionary current accruals of a firm. However, on partitioning the sample based on directionality of discretionary accruals and employing performance-adjusted measures of current discretionary accruals, no association is found between the fee-ratio and income-increasing discretionary accruals. The measurement error caused by not controlling for firm performance in the estimate of income-increasing discretionary accruals is found to be associated with the fee ratio, thereby explaining the significant positive association between the non-audit service purchase and the magnitude of income-increasing earnings management in Frankel et al.'s. (2002) study. The association between fee ratio and the absolute value of discretionary accruals appears to be driven by income-decreasing discretionary accruals. On examining the relationship between audit firm fees and two earnings benchmarks (small earnings increases and meeting analyst forecasts), a statistical significant association is found neither between fee ratio and reporting of small earning increases (consistent with Frankel et al. 2002) nor between either fee ratio or total fees and firms meeting analyst forecasts (in contrast to Frankel et al. 2002). Finally, in contrast to Frankel et al. (2002), Ashbaugh et al fail to find evidence that the market, on average, reacts to non-audit fee disclosures. Overall, the study suggests that Frankel et al.'s (2002) results are sensitive to research design choices.

Appendix 1 C – Summary of major selected studies on non-audit services and earnings quality: chronological order

No.	Author/s (year)	Country	Sample	Period of study	Earnings quality proxy	Audit firm characteristics	Main results
5	Geiger, M. and Rama, D. (2003)	US	66 firms	2000-2001	N/A	Non-audit fees, audit fees, audit opinion	A significant positive association is found between the magnitude of audit fees and the likelihood of receiving a going-concern modified audit opinion. However, the association between non-audit fees and audit opinions is not found to be statistically significant. These results hold even after controlling for the potential endogeneity of audit opinions, audit fees, and non-audit fees. Overall, non-audit fees are not shown to have any significant adverse effect on auditor reporting judgments for the sample of distressed companies used in the study, suggesting that non-audit services do not compromise auditor independence.
6	Ferguson, M., Seow, G., and Young, D. (2004)	UK	610 firms	1996-1998	The likelihood that the client firm's accounting practices are subject to public criticism or regulatory investigation, the likelihood that firms restated prior financial statements or adjusted current-period results upon adoption of Financial Reporting Standard 12, the absolute value of discretionary working capital accruals scaled by lagged assets	Non-audit fees	This study finds a significant positive association between all the three employed alternative measures of earnings management (the likelihood that the client firm's accounting practices are subject to public criticism or regulatory investigation, the likelihood that firms restated prior financial statements or adjusted current-period results upon adoption of Financial Reporting Standard 12, and the absolute value of discretionary working capital accruals scaled by lagged assets) and all the three employed proxies of non-audit service purchase (the ratio of non-audit to total auditor fees, the natural log of non-audit services fees, and the decile rank of a particular client's non-audit services fees given all non-audit services fees received by the audit firm practice office) with the exception of the association between the likelihood that the client firm's accounting practices are subject to public criticism or regulatory investigation and the decile rank of a particular client's non-audit services fees given all non-audit services fees received by the audit firm practice office. Overall, the finding from this study support the economic bonding hypothesis which purports that the joint provision of non-audit services compromises auditor independence by reducing an auditor's willingness to constrain a client's earnings management practices.

Appendix 1 C – Summary of major selected studies on non-audit services and earnings quality: chronological order

No.	Author/s (year)	Country	Sample	Period of study	Earnings quality proxy	Audit firm characteristics	Main results
7	Kinney, W., Palmrose, Z., and Scholz, S. (2004)	US	432 restating firm fee years, 512 non-restating firm fee years	1995-2000	Restatement probability	Audit fees, non-audit fees	The study fails to find a statistically significant positive association between either the financial information systems design and implementation fees or the internal audit services fees and restatements. In contrast, some evidence of a statistically significant positive association is found between audit fees, audit-related fees, and unspecified non-audit services fees and restatements. While the association of audit fees with restatement is primarily driven by smaller registrants, the association of unspecified non-audit services fees with restatements is primarily driven by larger registrants. Finally, the study also finds a significant negative association between tax services fees (fees for services other than those directly related to the audit of the income tax accrual) and restatements and further finds this association to be driven primarily by larger registrants. Overall, the study finds that while some non-audit services may create an economic dependence that results in more restatements, banning or restricting tax services from a registrant's audit firm may either compromise the quality of financial reporting or escalate the cost of professional services to registrants without corresponding benefits from enhanced audit firm independence.
8	Krishnan, J., Sami, H., and Zhang, Y. (2005)	US	2,390 firms	2001	Earnings response coefficients	Non-audit fees	The study finds both the magnitude of non-audit fees and the non-audit fee ratio to be negatively associated with the earnings response coefficients in each of the three quarters following the proxy release. However, on examining unexpected fees (a measure of over or underpayment of non-audit service fees) as an alternative measure of auditor independence, a negative association is found between the unexpected non-audit fees and the earnings response coefficients only in the second and third quarters following the proxy release. Evidence suggests that the quarterly differences observed in the case of unexpected non-audit fees may have arisen due to a greater amount of information available to investors in the chosen sample period resulting from first-time disclosure of fees and media analysis of these disclosures. Overall, the findings indicate that investors perceive non-audit services as impairing auditor independence.

Appendix 1 C – Summary of major selected studies on non-audit services and earnings quality: chronological order

No.	Author/s (year)	Country	Sample	Period of study	Earnings quality proxy	Audit firm characteristics	Main results
9	Rusmin, R., Van der Zahn, J., Tower, G., and Brown, A. (2006)	Singapore	298 firms	2003	Absolute value of abnormal accruals, positive abnormal accruals, negative abnormal accruals	Non-audit fees, auditor industry specialization	The study fails to find an inverse relationship between auditor independence (proxied by the ratio of non-audit services to total fees) and absolute value of abnormal accruals. On partitioning the sample based on the directionality of abnormal accruals, a moderately significant association holds between earnings management and auditor independence for firms with income-increasing incentives while an insignificant association holds between earnings management and auditor independence for firms with income-decreasing incentives. In contrast, a significant inverse relationship is found between engaging an industry specialist auditor and the level of abnormal accruals, suggesting that auditor industry specialization is associated with reduced earnings management behaviour exhibited by client firms in Singapore. On partitioning the sample based on firm size, the auditor specialization-earnings management association is found to be significant in small firms rather than in large firms. The insignificant association between auditor independence and absolute value of abnormal accruals holds regardless of the firm size. Overall, the study fails to find a universal association between auditor attributes and earnings management practices of Singaporean client firms.
10	Antle, R., Gordon, E., Narayanamoorthy, G., and Zhou, L. (2006)	UK US	2,294 firm-year observations 1,570 firms	1994-2000 Fiscal year 2000	Abnormal accruals	Audit fees, non-audit fees	Evidence is obtained suggesting knowledge spillovers or economies of scope from auditing to non-audit services and from non-audit services to auditing. The study finds a positive association between audit fees and abnormal accruals while a negative association between non-audit service fees and abnormal accruals, suggesting audit fees (but not non-audit fees) to be associated with greater earnings management behaviour. These findings for the main sample comprising of UK firms are robust to test with US data.

Appendix 1 C – Summary of major selected studies on non-audit services and earnings quality: chronological order

No.	Author/s (year)	Country	Sample	Period of study	Earnings quality proxy	Audit firm characteristics	Main results
11	Huang, H., Mishra, S., and Raghunandan, K. (2007)	US	6,891 firm-year observations (performance-adjusted discretionary accruals analysis), 6,722 firm-year observations (earnings benchmark analysis (reporting small earnings increases)), 3,361 firm-year observations (earnings benchmark analysis (likelihood of meeting or beating analyst earnings forecasts))	2003-2004	Performance-adjusted discretionary current accruals, likelihood of firms reporting small earnings increases, likelihood of firms meeting or beating analyst earnings forecasts	Non-audit fees	This study replicates and extends the results Ashbaugh, LaFond and Mayhew (2003) by examining the impact of fees for different types of non-audit services (subsequent to FRR No. 68 (SEC 2003)) on earnings quality. Some weak evidence is found showing that biased financial reporting (in form of abnormal accruals) is less likely when tax and other non-audit fee ratios are high. This finding suggests that auditors in the post-SOX era might have become more conservative in situations where questions about auditor objectivity might be raised due to the relative magnitude of non-audit fees. No association is found between non-audit fee ratios and meeting or just beating earnings benchmarks. Overall, this study reinforces the findings of Ashbaugh, LaFond and Mayhew (2003) by failing to find a systematic association between non-audit service fees and biased financial reporting.
12	Habib, A. and Islam, A. (2007)	Bangladesh	530 firm-year observations	1996-1999	Performance adjusted discretionary accruals, likelihood of firms reporting small increase in profits, likelihood of firms reporting small profits to avoid losses	Non-audit fees	This study begins by examining the non-audit services purchase decisions in context of Bangladesh and finds that larger firms, firms with more liquidity, firms which are subsidiaries of multinational corporations and firms audited by an international audit firm purchase more non-audit services, while highly-leveraged firms purchase less. In a subsequent analysis, this study fails to find a significant association between the amount of non-audit fees and an earnings management proxy (performance adjusted discretionary accruals), suggesting that a higher amount non-audit fees does not necessarily compromise auditor independence by allowing greater earnings management behaviour in Bangladesh. To overcome the limitations of discretionary accrual models, two alternative proxies of earnings management (the likelihood of managers to report small increase in profits and the likelihood of managers reporting small profits to avoid losses) are employed to investigate this relationship. Results based on this alternative specification remain consistent with the main results by also failing to show a significant association between the amount of non-audit services fee and earnings management behaviour.

Appendix 1 C – Summary of major selected studies on non-audit services and earnings quality: chronological order

No.	Author/s (year)	Country	Sample	Period of study	Earnings quality proxy	Audit firm characteristics	Main results
13	Coulton, J., Ruddock, C., and Taylor, S. (2007)	Australia	4,021 firm-year observations	1993-2000	Absolute value of unexpected accruals, income-increasing unexpected accruals, income-decreasing unexpected accruals	Audit fees, non-audit fees, Big6 auditor	Client firms purchasing unexpectedly large non-audit fees (relative to audit fees) are found to display some evidence of aggressive accounting. However, this association does not hold after allowing for the possible endogenous nature of unexpected accruals and unexpected non-audit services. In contrast, a significant positive association is found between the unexpected dollar value of audit fees (or total fees) and the magnitude of positive unexpected accruals even after explicitly allowing for possible endogeneity. Further analysis examining the brand name auditor effect finds that overall evidence consistent with large fees creating an economic bond is confined to instances where the auditor is a non-Big6 firm, suggesting that the reputational concerns for Big6 auditors outweigh incentives to protect larger than expected fees. Overall, the study finds that the emphasis of non-audit services relative to audit fees is misplaced, and that the extent of economic bonding between auditors and clients is economically insignificant.
14	Srinidhi, B. and Gul, F. (2007)	US	4,282 firm-year observations	2000-2001	Accrual quality	Audit fees, non-audit fees	This study finds a significant negative association between the magnitude of non-audit service fees and accrual quality while a significant positive association between the magnitude of audit fees and accrual quality. Audit and non-audit service fees are then decomposed into expected and unexpected components. While the unexpected component of audit fee is not shown to have a significant effect on accrual quality, the unexpected component of non-audit fee is shown to have a significant negative effect on accrual quality. On examining the expected components, a positive association is found between expected audit fee and accrual quality while a negative association is found between expected non-audit fee and accrual quality. Overall, the study finds the provision of non-audit services to be associated with the adverse effect of economic bonding of auditors, indicating a loss of auditor independence.
15	Cahan, S., Emanuel, D., Hay, D., and Wong, N. (2008)	New Zealand	237 firm-year observations	1995-2001	Absolute value of discretionary accruals, raw (signed) value of discretionary accruals	Non-audit fees, client importance	Non-audit services fee growth rates and the length of time of non-audit fee relationships with clients are not shown to have a significant association with discretionary accruals, a proxy measure used to capture the prevalence of earnings management behaviour, and hence the impairment of auditor independence. A significant association is also not found between client importance (in terms of revenues the auditor derives from the client) and auditor independence. However, some evidence is found showing the interaction of the non-audit fee time period measures and client importance to be positively and significantly associated with earnings management practices prevalent in New Zealand firms. Overall, the findings from the study suggest that an auditor's independence could be compromised when the economic bond between the auditor and client that arises from non-audit services is strong and when the client is more important.

Appendix 1 C – Summary of major selected studies on non-audit services and earnings quality: chronological order

No.	Author/s (year)	Country	Sample	Period of study	Earnings quality proxy	Audit firm characteristics	Main results
16	Bloomfield, D. and Shackman, J. (2008)	US	250 restatement firms, 250 non-restatement firms	2001-2002	Restatement probability	Non-audit fees, Big5 auditor, auditor industry specialization	Non-audit service fees is shown to have a limited explanatory power while total fees is shown to have a significant explanatory power for earnings management behaviour of client firms as measured by restatements. Auditor attributes such as size (as proxied by Big5 auditor) and industry specialization are shown to have a stronger explanatory power for restatements than fees paid to auditors. Audit firm industry specialization was shown to have a negative association with restatements while Big5 audit firms were shown to have a strong positive association with restatements. The Big5 auditor variable is shown to have the strongest explanatory power for restatements. Overall, the study finds that characteristics of auditors rather than fees paid to auditors are more important predictors of earnings management behaviour exhibited by client firms as measured by restatements.
17	Rusmin, R., Van der Zahn, J., Tower, G., and Brown, A. (2009)	Australia	325 firms	2003-2004	Absolute value of discretionary accruals	Audit fees, non-audit fees, client importance	The study fails to find convincing empirical evidence supporting a universal association between auditor independence and earnings management attributes, suggesting that the provision of non-audit services by incumbent auditors does not compromise auditor independence. The only instance wherein auditor independence is found to have a significant influence on discretionary accruals is when the logarithmic transformations of audit and non-audit fees are used as a proxy for auditor independence. The study thus queries recent regulatory initiatives such as the Australian CLERP 9.
18	Krishnan, J., Su, L., and Zhang, Y. (2011)	US	7,072 firm-year observations	2000-2001 and 2004-2005	Discretionary accruals, absolute value of discretionary accruals, income-increasing discretionary accruals, income-decreasing discretionary accruals	Non-audit fees	A positive association is found between absolute discretionary accruals in the pre-SOX period (2000 – 2001) and the subsequent reduction in non-audit services from the pre-SOX period to post-SOX period (2004-2005), suggesting that the decline in earnings management in the post-SOX period was greater for firms with greater decline in non-audit services. After controlling for accrual reversals, such an association was not observed in the post-SOX period. On examining directional accrual measures, a positive association was found between the subsequent reduction in non-audit services and negative discretionary accruals or income-decreasing earnings management (but not positive discretionary accruals or income-increasing earnings management), suggesting that either the auditors' fear of litigation and/or reputational loss overshadowed non-audit services-driven incentives to allow any income-increasing earnings management in the pre-SOX period or the lower concerns about litigation and/or reputational loss associated with income-decreasing earnings management may have caused the auditors to acquiesce to such earnings management behaviour in the presence of non-audit services driven incentives.

Appendix 1 C – Summary of major selected studies on non-audit services and earnings quality: chronological order

No.	Author/s (year)	Country	Sample	Period of study	Earnings quality proxy	Audit firm characteristics	Main results
19	Sharma, V., Sharma, D., and Ananthanarayanan, U. (2011)	New Zealand	224 firm-year observations	2004-2005	Performance-adjusted discretionary total accruals, performance-adjusted discretionary current accruals	Non-audit fees, city office-level client importance	City office-level client importance (measured as non-audit fees paid to the auditor) is found to be positively associated with two (2) proxies of earnings management, namely, performance-adjusted discretionary total accruals and performance-adjusted discretionary current accruals. This association happens to be stronger for income-increasing discretionary accruals that potentially diminish the quality of earnings and are of greater concern to regulators. However, this positive association is moderated by the audit committee. Specifically, the study finds the association between client importance and earnings management to be more pronounced when the audit committee fails to meet best practices. The association between client importance and earnings management is also found to be conditional on factors such as inside ownership, growth, leverage, and firm size which are moderated by the audit committee. Further analyses find an audit committee comprising of 100 percent outsiders (audit committee independence) and the presence of an accounting expert on the audit committee (audit committee expertise) drive the moderating effect results. Overall, the study finds that an audit committee meeting best practices moderates the threats to auditor independence posed by a client's economic importance and protects the quality of financial reporting.
20	Habib, A. (2012)	42 studies spanning over 6 countries	Meta-Analysis	Meta-analysis	Income-increasing abnormal accruals, Earnings conservatism, earnings restatement, earnings response coefficient	Non-audit fees, audit opinion	Statistical evidence is found showing a negative association between non-audit fee and financial reporting quality. However, the correlation between non-audit fees and financial reporting quality is quite low at 0.02. This low correlation is suggested to be primarily attributable to heterogeneous financial reporting quality proxies used in prior literature. On examining five financial reporting proxies (earnings management, earnings conservatism, earnings restatements, issue of going-concern audit opinions and capital market perception of reported earnings information), high non-audit fee is found to impair auditor independence by being associated with higher earnings management behaviour, less propensity for auditors to issue going-concern audit opinions and negative capital market effect of reported earnings. Of the five financial reporting quality proxies, the capital market effect exhibited the strongest correlation with the non-audit fee measure while the earnings management proxy exhibited a much lower association.

Appendix 1 C – Summary of major selected studies on non-audit services and earnings quality: chronological order

21	Koh, K., Rajgopal, S., and Srinivasan, S. (2013)	US	1,281 firm-year observations	1978-1980	Absolute discretionary accruals, likelihood of firms meeting or beating earnings benchmarks, earnings response coefficient	Non-audit fees, information services fees	Evidence of improved earnings quality (that is, lower earnings management and higher earnings informativeness) is observed with the provision of non-audit services (especially information services), suggesting that the joint provision of audit and consulting services is associated with improved audit quality through knowledge spillover benefits. Further, the study finds that the events related to the 1982 repeal of mandatory non-audit services disclosures by the SEC are not associated with a negative share price reaction, thereby implying that the disclosure repeal has no adverse economic consequences. Finally, no evidence of deterioration in earnings quality is uncovered following the repeal. In sum, the study finds the provision of non-audit services by audit firms to be associated with improved audit and reporting quality of client firms through auditors' reputational incentives, synergies, and knowledge transfers.
22	Causholli, M., Chambers, D., and Payne, J. (2013)	US	4,078 firm-year observations (discretionary accruals analysis), 3,361 firm-year observations (classification-shifting analyses)	2000-2001	Absolute performance-adjusted discretionary current accruals, classification shifting (measured by the association between unexpected core earnings and income-decreasing special items)	Non-audit fees	Prior to the passage of the SOX, high fee-growth-opportunity clients that increased their non-audit services purchases in the subsequent period are found in the current period to exhibit greater earnings management practices in the form of larger discretionary accruals and inflated core earnings through greater classification-shifting of core expenses into special items. This observed effect is found to be particularly strong amongst firms with powerful incentives to manage earnings, including firms that meet or beat earnings forecasts and those with a concurrent seasoned equity offering. In sum, the study finds strong evidence of compromised audit quality in the pre-SOX period in instances where rewards to auditors in the form of future additional non-audit service fees were offered by current-year high fee-growth opportunity clients.
23	Hossain, S. (2013)	Australia	4,961 firm-year observations for the auditor opinion model, 6,656 firm-year observations for the discretionary accrual model.	2002-2007	Absolute value of performance-adjusted discretionary accruals	Non-audit fees, abnormal non-audit fees, audit opinion	Evidence of improved auditor independence and audit quality is discovered after the implementation of the CLERP 9 legislation. For instance, whilst a significant and positive association is observed between auditor-provided non-audit service fees and the performance-adjusted absolute value of discretionary accruals pre-CLERP 9, such an association becomes statistically insignificant post-CLERP 9. Also, the insignificant association between non-audit service fees and the propensity to issue a going-concern opinion for a financially distressed company pre-CLERP 9 becomes significant and positive post-CLERP 9. This study's analysis further incorporates abnormal non-audit service fees to examine its impact on auditor independence. Abnormal non-audit service fees are found to be significantly and negatively associated with the propensity to issue a going-concern opinion for a financially distressed company and positively associated with discretionary accruals pre-CLERP 9. However, these associations are not found to be statistically significant post-CLERP 9. Overall, the results of the study provide evidence on the effectiveness of the CLERP 9 regulatory change in enhancing auditor independence and audit quality in Australia.

Appendix 1 D – Summary of major selected studies on auditor tenure and earnings quality: chronological order

No.	Author/s (year)	Country	Sample	Period of study	Earnings quality proxy	Audit firm characteristics	Main results
1	DeAngelo, L. (1981)	US	Theoretical accounting research	N/A	N/A	Auditor size	Larger audit firms provide better quality audits than smaller audit firms, suggesting that audit quality is not independent of audit firm size. Incumbent auditors earn client-specific quasi-rents which when subjected to a loss from discovery of lower than promised audit quality serve as collateral against such type of opportunistic behaviour. Hence, holding other things constant, the larger the audit firm (measured by the number of current clients) and smaller the client firm (as a fraction in terms of the auditor's total quasi-rents), the lesser the incentive for the audit firm to behave opportunistically by having 'more to lose' in case of failing to report a discovered breach in the particular client's records, and higher the perceived audit quality.
2	Johnson, V., Khurana, I., and Reynolds, J. (2002)	US	2,463 firm-year observations (unexpected accruals tests), 2280 firm-year observations (persistence tests)	1986-1995	Absolute value of unexpected accruals, persistence of accrual component of earnings (relationship between current accruals and future income)	Auditor tenure	Evidence is obtained suggesting that shorter audit firm tenure (two to three years) is associated with higher absolute levels of unexpected accruals and accruals that are less persistent in subsequent earnings. Hence, the study finds shorter auditor tenure to be associated with greater management intervention in reported earnings and lower quality of accruals. Medium audit firm tenure (four to eight years), compared to short audit firm tenure, has been shown to be associated with lesser earnings management behaviour exhibited by client firms. In contrast to the findings for short audit firm tenure, long audit firm tenure (nine or more years) is not shown to be significantly associated with reduced financial reporting quality relative to medium audit firm tenure. Overall, the study finds evidence suggesting lower earnings quality for short audit firm tenure, but not for long audit firm tenure.
3	Geiger, M. and Raghunandan, K. (2002)	US	117 firms	1996-1998	N/A	Auditor tenure, audit opinion	The study finds a positive association between the length of auditor tenure and the likelihood of a bankrupt firm being issued a prior going-concern modified audit report. Evidence obtained shows that auditors are less likely to modify audit opinions for the financial statements of client firms immediately preceding bankruptcy during the initial years of auditor-client relationships. More audit reporting failures are observed in the early years relative to the later years of auditor-client relationships. Overall, the study finds an inverse relationship between auditor tenure and audit reporting failures, suggesting that audit quality improves with the length of auditor tenure. The findings from this study do not support the arguments in favor of mandatory auditor rotation.

Appendix 1 D – Summary of major selected studies on auditor tenure and earnings quality: chronological order

No.	Author/s (year)	Country	Sample	Period of study	Earnings quality proxy	Audit firm characteristics	Main results
4	Myers, J., Myers, L., and Omer, T. (2003)	US	42,302 firm-year observations	1988-2000	Raw (unsigned) values of discretionary and current accruals, absolute values of discretionary and current accruals, signed values of discretionary and current accruals	Auditor tenure	This study finds lengthier auditor tenure to be associated with greater constraints being placed on the aggressive earnings management behaviour exhibited by client firms as evidenced by a decline in the magnitude of both discretionary and current accruals. Longer auditor tenure is shown to be associated with lesser extreme income-increasing as well as income-decreasing accruals. Overall, the study finds a positive association between the length of auditor tenure and earnings quality.
5	Mansi, S., Maxwell, W., and Miller, D. (2004)	US	8,529 firm-year observations	1974-1998	N/A	Big6 auditor, Auditor tenure	A significant and negative association is found between auditor quality and tenure, and the return investors require on corporate bonds. This association is found to be more pronounced for non-investment-grade firms as compared to investment-grade firms. On controlling for the information effects of audits, a reduction in the coefficient on auditor size as well as a decrease in the effect of auditor tenure is observed. The coefficient on auditor size is shown to be statistically and economically significant for both non-investment-grade and investment-grade firms while the effect of auditor tenure is shown to be statistically and economically significant for non-investment-grade firms only. These findings suggest that investors value insurance role of auditors in addition to information role. Further, the study also finds an association between lower rates of returns required by investors and lengthier tenure of auditors. Overall, after conducting several tests for serial correlation, potential endogeneity, and correlated omitted variables, the study finds that audits provide both insurance as well as information role, and furthermore add value for capital market participants.
6	Carcello, J. and Nagy, A. (2004)	US	147 fraud observations, 68,195 non-fraud observations	1990-2001	SEC Accounting and Auditing Enforcement Releases	Auditor tenure	Fraudulent financial reporting is found to more likely occur in the first three years of the auditor-client relationship. In contrast, no evidence is obtained linking long auditor tenure with a higher incidence of fraudulent financial reporting. Overall, the findings of this study suggest that mandatory audit firm rotation could have adverse effects on the quality of audit.
7	Ghosh, A. and Moon, D. (2005)	US	38,794 firm-year observations (full sample), 35,826 firm-year observations (restricted sample with auditor-client relationships lasting for at least five years.)	1990-2000	Earnings response coefficients	Auditor tenure	A positive association is found between investor perceptions of earnings quality (captured by the magnitude of earnings response coefficients) and auditor tenure. On controlling other determinants of stock rankings, the study further finds a positive association between Standard and Poor's (S&P) common stock rankings and length of auditor tenure. However, no evidence is found showing that the association between S&P debt ratings and reported earnings varies with auditor tenure. A positive association is also observed between the influence of past earnings on one-year-ahead earnings forecasts and length of auditor-client relationships. Overall, the study finds some evidence suggesting that investors and information intermediaries perceive auditor tenure as improving audit quality.

Appendix 1 D – Summary of major selected studies on auditor tenure and earnings quality: chronological order

No.	Author/s (year)	Country	Sample	Period of study	Earnings quality proxy	Audit firm characteristics	Main results
8	Hamilton, J., Ruddock, C., Stokes, D., and Taylor, S. (2005)	Australia	3,621 firm-year observations	1998-2003	Absolute value of performance-adjusted unexpected accruals, signed performance-adjusted unexpected accruals, positive performance-adjusted unexpected accruals, negative performance-adjusted unexpected accruals	Big5 auditor, auditor tenure	The Australian study finds evidence of a substantial increase in partner rotations by Big5 auditors over the 1998 – 2003 period. Evidence is obtained showing audit partner changes resulting from partner rotations (but not audit firm switches) to be associated with lower signed unexpected accruals (but not magnitude of unexpected accruals) and hence lesser earnings management behaviour exhibited by client firms. Audit partner rotation for Big5 clients is shown to be associated with lower positive unexpected accruals (but not lower negative unexpected accruals). In contrast to Big5 clients, non-Big5 clients show some evidence of lower unexpected negative accruals at the time of partner rotation. Further, on using two distinct methods from Basu (1997) and Ball and Shivakumar (2005) to test the asymmetric recognition of “economic losses”, the study finds partner rotations to be associated with incrementally more conservative contemporaneous earnings. This association between partner rotation and increased conservatism is largely restricted to Big5 audit firms since for a majority of tests undertaken only the clients of Big5 audit firms that rotate partners are found to exhibit more conservative contemporaneous earnings than non-rotating firms. The study finds this association between audit partner rotation and earnings conservatism (and hence earnings quality) to be largely restricted to the period 2001-2004 that coincides with the introduction of professional requirements mandating audit partner rotation. Overall, the study provides some evidence suggesting an association between audit partner rotation and improved earnings quality.
9	Chi, W. and Huang, H. (2005)	Taiwan	1,337 firm-year observations	1998-2001	Discretionary accruals	Auditor tenure, Big5 auditor	The study shows that while familiarity obtained through either audit partner tenure or audit firm tenure produces both higher audit quality and higher earnings quality, excessive familiarity exceeding five years has a detrimental effect on audit quality. Further, audit firm tenure is found to be more imperative to earnings quality than audit partner tenure. Finally, the study finds that Big5 auditors, compared to non-Big5 auditors, gain client-specific knowledge more quickly and thus are more prominent in auditing expertise. Hence, the threat of an impaired learning experience resulting from mandatory auditor rotation is more serious for non-Big5 auditors. However, the resulting difference in audit quality between Big5 and non-Big5 auditors is shown to diminish with the passage of time.

Appendix 1 D – Summary of major selected studies on auditor tenure and earnings quality: chronological order

No.	Author/s (year)	Country	Sample	Period of study	Earnings quality proxy	Audit firm characteristics	Main results
10	Carey, P. and Simnett, R. (2006)	Australia	1,021 firms	1995	Absolute value of abnormal working capital accruals, signed abnormal working capital accruals, likelihood of firms just beating (missing) earnings forecasts	Audit opinion, Auditor tenure, Big6 auditor	Evidence is obtained showing lengthier audit partner tenure (more than 7 years) to be associated with a lower propensity to issue going-concern audit opinions for distressed companies and an increase in the likelihood of just beating (missing) earnings benchmarks. However, no evidence of an association is found between the length of audit-partner tenure and either the signed or absolute amount of abnormal working capital accruals. Overall, this Australian cross-sectional study finds audit partner tenure to be negatively associated with audit quality as well as earnings quality and this negative association is driven by mechanism other than variations in working capital accruals. Sensitivity analysis reveals that the diminution of audit quality and earnings quality associated with the length of audit partner tenure is specifically attributed to non-Big6 audit firms.
11	Knechel, W. and Vanstraelen, A. (2007)	Belgium	309 financially stressed bankrupt firms, 309 financially stressed non-bankrupt firms	1992-1996	N/A	Auditor tenure, audit opinion	The study finds that the decision of an auditor to issue a going concern opinion is not affected by the length of auditor tenure for the sample of stressed bankrupt companies. In contrast, some evidence of a negative association between the length of auditor tenure and the issuance of a going concern opinion is obtained for a sample of stressed non-bankrupt companies. The findings suggest that the likelihood an auditor issues a false going concern signal reduces with the length of auditor tenure. Overall, for the sample of stressed bankrupt companies as well as stressed non-bankrupt companies, the study finds that the auditors neither become less independent nor become better at predicting bankruptcy. Hence, the study suggests that the evidence for tenure either increasing or decreasing audit quality is weak.
12	Manry, D., Mock, T., and Turner, J. (2008)	US	90 firms	1999-2001	Discretionary accruals	Auditor tenure	Estimated discretionary accruals are shown to be significantly and negatively associated with lead audit partner's tenure with a specific client, suggesting a positive association between length of audit partner tenure and audit quality. On controlling for client size and engagement risk, audit partner tenure is shown to be significantly and negatively associated with estimated discretionary accruals only for small client firms with partner tenure exceeding seven years, irrespective of risk level. Overall, the findings from this study show (1) a negative association between the length of audit partner tenure and an auditor's acceptance of aggressive financial statement assertions by managers of small client firms, and (2) no association between audit partner tenure and audit quality for large client firms (low-risk or high-risk) or for shorter-tenure small client firms. Hence, the study finds some evidence against mandatory audit partner rotation.
13	Dao, M., Mishra, S., and Raghunandan, K. (2008)	US	635 firms	2006	N/A	Auditor tenure	Shareholder votes against (or abstaining from) auditor ratification are shown to be positively associated with auditor tenure, suggesting that shareholders view long auditor tenure as adversely affecting audit quality. Hence, the study finds some evidence in favor of mandatory auditor rotation.

Appendix 1 D – Summary of major selected studies on auditor tenure and earnings quality: chronological order

No.	Author/s (year)	Country	Sample	Period of study	Earnings quality proxy	Audit firm characteristics	Main results
14	Chen, C., Lin, C., and Lin, Y. (2008)	Taiwan	5,213 firm-year observations	1990-2001	Absolute performance-adjusted discretionary accruals, Positive performance-adjusted discretionary accruals, negative performance-adjusted discretionary accruals	Auditor tenure	Length of audit partner tenure is shown to be negatively associated with both absolute and positive values of performance-adjusted discretionary accruals. On controlling for audit partner tenure, a significant negative association is also found between length of audit firm tenure and absolute performance-adjusted discretionary accruals. Hence, lengthier audit partner tenure and audit firm tenure are shown to have some constraining effect on managerial incentives to engage in earnings management behaviour. Overall, the study finds evidence suggesting that audit partner rotation or audit firm rotation in addition to audit partner rotation is likely to have a detrimental effect on earnings quality.
15	Fargher, N., Lee, H., and Mande, V. (2008)	Australia	2,495 firm-year observations	1990-2004	Absolute value of discretionary accruals, raw signed discretionary accruals, positive discretionary accruals, negative discretionary accruals	Auditor tenure	The study finds a decrease in earnings management behaviour exhibited by client firms in the initial years of engagement when the new audit partner is from the same audit firm as the outgoing partner (audit partner rotation). In contrast, evidence is obtained showing an increase in earnings management behaviour exhibited by client firms in the initial years of engagement when the new audit partner is from a different audit firm as the outgoing audit partner (audit firm rotation). Overall, the study finds audit partner rotation (but not audit firm rotation) to be associated with improved earnings quality.
16	Chi, W., Huang, H., Liao, Y., and Xie, H. (2009)	Taiwan	547 firms with at least one of the audit partners (lead and concurring) required to rotate in 2004 and the same 547 firms with old audit partners not required to rotate in 2003, 134 firms with both audit partners (lead and concurring) not required to rotate in 2004, 553 firm-year observations with at least one of the audit partners (lead and concurring) being voluntarily rotated in the same audit firm in years before 2003 (1999 – 2002).	1999-2004	Absolute value of abnormal accruals, signed abnormal accruals, abnormal working capital accruals, earnings response coefficient	Auditor tenure	The study finds some evidence showing a higher audit quality for firms subjected to mandatory audit partner rotation as compared to firms not subjected to such a mandatory rotation in 2004. However, the audit quality of firms subjected to mandatory audit partner rotation in 2004 is shown to be lower under the new audit partners than under the old audit partners in the previous year (2003). Further, the study finds no difference between the audit quality of firms subjected to mandatory audit partner rotation in 2004 and firms whose audit partners were voluntarily rotated before 2003 (1999-2002). Hence, the study finds mixed evidence on the association between mandatory audit partner rotation and audit quality, as captured by the ability of auditors to constrain extreme income-increasing or income-decreasing earnings management behaviour exhibited by managerial personnel. In contrast to using accounting based proxies, the study also uses earnings response coefficient, a market based proxy, to examine investor perception on mandatory audit partner rotation. The study finds a higher earnings response coefficient to be associated with mandatory audit partner rotation, suggesting that investors perceive mandatory audit partner rotation to be crucial in improving auditor independence (independence in appearance) and hence audit quality.

Appendix 1 D – Summary of major selected studies on auditor tenure and earnings quality: chronological order

No.	Author/s (year)	Country	Sample	Period of study	Earnings quality proxy	Audit firm characteristics	Main results
17	Davis, L., Soo, B., and Trompeter, G. (2009)	US	23,748 firm-year observations	1988-2006	Absolute value of discretionary accruals, positive discretionary accruals	Auditor tenure	For the pre-SOX period, evidence is obtained showing an increase in the earnings management behaviour, captured by the increased use of positive discretionary accruals to meet or beat earnings forecasts, in early years of auditor-client relationships (auditor-client relationships lasting three years or less) as well as in auditor client relationships extending beyond 15 years or more. These findings suggest the presence of a non-linear relationship between audit firm tenure and earnings quality. However, the positive association between auditor tenure and earnings management behaviour exhibited by client firms in the pre-SOX period is not observed following the passage of SOX.
18	Gul, F., Fung, S., and Jaggi, B. (2009)	US	32,777 firm-year observations	1993-2004	Absolute value of discretionary accruals, positive discretionary accruals, negative discretionary accruals	Auditor industry specialization, auditor tenure	This study finds the length of auditor tenure to be significantly and negatively associated with the absolute value of discretionary accruals, a proxy used to capture the extent of earnings management behaviour exhibited by client firms, and hence significantly and positively associated with the quality of reported earnings. On performing additional analysis based on directionality of discretionary accruals, the study finds results for the sub-samples of positive and negative discretionary accruals to be consistent with findings associated with the absolute value of discretionary accruals. Further, the evidence obtained from the study does not support the low balling explanation for the association between short auditor tenure and low earnings quality. However, the positive association between the length of auditor tenure and earnings quality is found to be significantly weaker for firms audited by industry specialists. In conclusion, after conducting a separate set of tests and addressing potential endogeneity issues, the study finds that industry specialist auditors, compared to non-specialists, likely weaken the association between shorter auditor tenure and lower earnings quality.
19	Lim, C. and Tan, H. (2010)	US	12,783 firm-year observations	2000-2005	Accrual quality	Auditor industry specialization, auditor tenure, client importance	Specialist auditors, compared to non-specialist auditors, are shown to be associated with a higher quality of audit when auditor tenure increases. Improvements in audit quality with extended auditor tenure are found to be greater when auditors have lower fee dependence on client firms (in terms of economic contribution to the public accounting firm's income). Overall, the study finds that the relationship between auditor tenure and audit quality is conditional on auditor specialization and fee dependence and that focusing on one moderator alone (either auditor industry specialization or fee dependence) essentially provides a less comprehensive depiction of the conditions under which auditor tenure either improves or impairs the quality of audit.

Appendix 1 D – Summary of major selected studies on auditor tenure and earnings quality: chronological order

No.	Author/s (year)	Country	Sample	Period of study	Earnings quality proxy	Audit firm characteristics	Main results
20	Chi, W., Lisic, L., and Pevzner, M. (2011)	US	925 firm-year observations	2001-2008	Abnormal cash flows, abnormal inventory production, abnormal discretionary expenditures, real earnings management index ¹³⁸	Auditor industry specialization, BigN auditor, auditor tenure	City-level auditor industry expertise and audit fees are found to be associated with higher levels of real earnings management in settings involving strong upward earnings management incentives (that is, for firms that meet or just beat earnings benchmarks and firms that issue seasoned equities), suggesting that an unintended consequence of higher quality auditors in constraining accrual earnings management is that firms resort to potentially even more costly real earnings management. Similar, albeit weaker, results are found for BigN auditors. Longer auditor tenure is also found to be associated with greater real earnings management, suggesting merits of mandating audit firm rotation.
21	Baker, R. and Thuneibat, A. (2011)	Jordan	67 firms (2002), 67 firms (2003), 77 firms (2004), 78 firms (2005)	2002-2005	Absolute value of unexpected accruals	Auditor tenure, Big4 auditor	This study seeks to obtain market based evidence on the impact of audit firm tenure on audit quality from the perspective of an investor. A positive association is found between audit firm tenure and equity risk premium. This finding shows long auditor-client relationships to be associated with lower perceived audit quality. Size of the audit firm (Big4 vs. non-Big4) and the industry of the client firm are not shown to have a significant effect on the association between audit firm tenure and equity risk premium. Overall, the study finds that the longer the audit firm tenure the lower the perceived audit quality regardless of the size of audit firm and industry of the client firm.

¹³⁸ Following Cohen et al. (2008), chi, Lisic and Pevzner (2011) compute real earnings management index by adding together standardized abnormal cash flows, standardized abnormal production costs, and standardized abnormal discretionary expenses.

Appendix 1 D – Summary of major selected studies on auditor tenure and earnings quality: chronological order

No.	Author/s (year)	Country	Sample	Period of study	Earnings quality proxy	Audit firm characteristics	Main results
22	Gold, A., Lindscheid, F., Pott, C., and Watrin, C. (2012)	Germany	893 firm-year observations	2004-2009	Absolute value of discretionary accruals, positive discretionary accruals, negative discretionary accruals	Auditor tenure	This study examines the impact of both the engagement partner tenure and the review partner tenure on the quality of audit. Review partner tenure is found to be negatively associated with the overall magnitude of earnings management behaviour exhibited by client firms, independent of the direction of accruals. On examining the directionality of the accruals, firms are shown to less (more) likely record extreme values of positive (negative) accruals with an increase of review partner tenure, indicating a positive association between length of review partner tenure and income-decreasing accounting procedures. In contrast to review partner tenure, engagement partner tenure is not shown to be associated with audit quality, contradicting the idea that longer engagement partner tenure leads to independence threats. Hence, the evidence obtained in the study shows more conservative accounting behaviour exhibited by client firms with an increase in review partner tenure (but not engagement partner tenure). Further, the study finds engagement partner rotation to be associated with more conservative accounting behaviour regarding positive accruals while review partner rotation to be associated with more conservative accounting behaviour regarding negative accruals. This finding, therefore, provides some evidence in favor of the rotation requirement, primarily for engagement partners. Overall, the study finds weak evidence on the benefits of audit partner rotation and questions the effectiveness of professional standards such as SOX and the 8 th EU Directive. The study emphasizes on the importance for regulators to distinguish between the role and function of key audit partners to ensure correct implementation of related requirements.