

**School of Accounting**

**Audit Committee Effectiveness and Earnings Conservatism –  
An Australian Analysis**

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**This thesis is presented for the Degree of  
Doctor of Philosophy  
of  
Curtin University**

**December 2010**

## DECLARATION

To the best of my knowledge and belief this thesis contains no material previously published by any other person except where due acknowledgment 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**

The overarching objective of this study is to examine the association between audit committee effectiveness and the level of earnings conservatism exhibited by Australian publicly listed firms. Studying the audit committee effectiveness/earnings conservatism linkage is both important and timely given the deterioration in reported earnings by firms. This study measures audit committee effectiveness based on four prime components underlying its effectiveness (i.e., independence; financial expertise; experience; and diligence) and earnings conservatism is measured following Basu (1997) and Ball and Shivakumar (2005). Using a sample of 494 firm-year observations for the period 2004 to 2008, overall results show that there is no significant association between audit committee effectiveness and earnings conservatism. Further analysis, however, indicates that firms with audit committees comprising financially qualified, experienced and more diligent members are associated with higher earnings conservatism levels. Results from this study have wide-ranging implications for regulators, investors, firms/corporate management and scholars.

## ACKNOWLEDGEMENTS

I would like to thank my supervisor, Professor J-L.W. Mitchell Van der Zahn for the altruistic guidance, support, patience and encouragement that he has shown over the course of this thesis. Professor Mitchell Van der Zahn is truly an exceptional supervisor with the perfect balance of inspirational encouragement and kindness. I am very grateful to him for the time and effort he has dedicated and for the research skills that he has enriched me with. I would also like to thank my secondary supervisor, Associate Professor Inderpal Singh for his guidance and support. Thanks also to my colleagues, Mr. Andrew Reynolds and Mr. Harjinder Singh for their selfless assistance at various times.

I wish to express my gratitude to my mother for all her support, encouragement and sacrifice. Thank you, Ammu. I also would like to thank my sisters for their support.

Lastly and most importantly, I would like to thank my little Jaan and my Jantu. Without your support, it was not possible to finish this thesis. Thank you.

## **DEDICATION**

To my little Jaan, Zarifah Saniat, and  
To my mother, Ashrafunnesa.

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## ABBREVIATIONS

AARF	Australian Accounting Research Foundation
AICD	Australian Institute of Company Directors
AICPA	American Institute of Certified Public Accountants
AMEX	American Stock Exchange
ASIC	Australian Securities and Investments Commission
ASX	Australian Securities Exchange
ASX CGC	ASX Corporate Governance Council
ASX 2003	ASX Corporate Governance Council Recommendations 2003
BRC	Blue Ribbon Committee
CEO	Chief Executive Officer
CLERP 9	Corporate Law Economic Reform Program 9
CRSP	Center for Research in Security Prices
EPS	Earnings Per Share
FAME	Financial Analysis Made Easy
FASB	Financial Accounting Standards Board (US)
IFRS	International Financial Reporting Standards
IIA	Institute of Internal Auditors (Australia)
LSE	London Stock Exchange
NAS	Non-Audit Services
NYSE	New York Stock Exchange
OLS	Ordinary Least Squares
PWC	PriceWaterhouseCoopers
SEC	Securities and Exchange Commission (US)
SOX	Sarbanes-Oxley Act 2002
S&P	Standard and Poors
UK	United Kingdom
US	United States of America

## **CHAPTER ONE: INTRODUCTION**

### **1.1 Background and Motivation**

The objective of this study is to examine the association between audit committee effectiveness and the level of earnings conservatism of Australian publicly listed firms. Conservatism is one of the principal foundations of financial accounting and has a longstanding influence on the quality of financial reporting by a firm.<sup>1</sup> Empirical research suggests that evidence of conservatism has increased in the past three decades (Balkrishna, Coulton, and Taylor 2007; Givoly and Hayn 2002; Huijgen and Lubberink 2005; Krishnan 2007). Despite the longevity and reputed importance of conservatism, this leading accounting principle has been frequently criticized by capital market regulators, accounting standard-setters and scholars alike. This is because the persistent asymmetric treatment of gains and losses (associated with conservatism) is believed to lead to understatements in the current period that prompt the overstatement of earnings in future periods via the understatement of future expenditure (Ball and Shivakumar 2006; Givoly and Hayn 2002; Gotti 2008). The entrenchment of conservatism within the financial accounting system and resilience to criticism, has led to a dilemma with a number of important questions remaining unanswered (Basu 1997; Gigler and Hemmer 2001; Lafond and Watts 2008). Nonetheless, the endurance of conservatism to criticism strongly suggests that conservatism has significant benefits overlooked by critics.

Empirical evidence suggests that conservatism benefits users of a firm's accounting reports in a number of ways (Lafond and Watts 2008; Pae 2007; Penman and Zhang 2002). For example, Watts (2003a) suggests that conservatism can restrain management's opportunistic behavior in reporting accounting measures used in a contract. Another benefit of conservatism is that conservatism can offset management bias since conservatism defers earnings and thereby, understates cumulative earnings and net assets (Basu 1997; Watts 2003a, 2003b). Consequently, the value of the firm increases as a result of management being restricted from making payments to themselves and other parties such as shareholders (Ahmed, Billings, Morton, and Stanford-Harris 2002; Watts 2003b). Huijgen and Lubberink (2005) also state that conservatism minimizes litigation costs of a firm by encouraging the understatement of net assets. Recent empirical studies have concluded that conservatism plays an influential role in the quality of a firm's financial report (Krishnan and Visvanathan 2007a; Kung, James, and Cheng 2008; Lafond and Roychowdhury 2008; Lafond and Watts

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<sup>1</sup> Conservatism is an open-ended phrase that is frequently used to refer to various concepts such as earnings conservatism and balance sheet conservatism. The author acknowledges the broad use of this phrase but within the specific context of this study, unless stated, conservatism is used purely from an earnings conservatism point of view. Other forms of conservatism, if used, will be prefixed by a leading word to describe the other form of conservatism.

2008; Roychowdhury and Watts 2007). Specifically, Kung et al. (2008) argue that conservatism is a desirable feature of accounting because of the existence of inherent uncertainty, risk aversion and information asymmetry in the real world. Moreover, recent global corporate collapses, including WorldCom and Enron in the United States of America (US), HIH in Australia and Parmalat in Europe have compelled regulators and scholars alike to re-think the relevance of conservatism (Lafond and Watts 2008).

Despite the importance and alleged benefits of conservatism in the financial accounting system, little is known about what influences (i.e., determines) levels of conservatism. As international regulators continue to adjust corporate governance and financial accounting systems around the globe, developing a greater understanding of the factors driving conservatism is becoming increasingly critical. For example, although capital market regulators and accounting standard-setters may not directly seek to eliminate conservatism, actions affecting the determinants of conservatism could have serious indirect repercussions on financial reporting quality. Also, the need to understand the determinants of conservatism has been amplified in the past decade following major corporate scandals which some argue occurred due to over aggressive application of accounting principles (Abbott and Parker 2000; Klein 2002a; Vafeas 2005). It has long been acknowledged that corporate management has strong incentives to overstate earnings (Fama 1980; Jensen and Meckling 1976). However, escalating pressures during the past decade to meet investor and market expectations for higher revenues and earnings is believed to be enticing corporate management to adopt greater aggressive financial accounting practices (Lafond and Watts 2008). Consequently, such pressures undermine conservatism and the quality of reported earnings. Currently, a limited but growing body of literature has examined the determinants of conservatism (Ball, Kothari, and Robin 2000; Huijgen and Lubberink 2005; Pope and Walker 1999). The majority of prior research has concentrated on the influence of institutional factors such as accounting policies and regulation, legal regimes (code law versus common law), political influence and cross-listing of firms in different jurisdictions (e.g., Ball et al. 2000; Grambovas, Giner, and Christodoulou 2006). Partly in response to the high profile corporate governance issues of the past decade, a new stream of research has focused on impact of corporate governance mechanisms on conservatism.

The conservatism concept is thought by some researchers to itself be an effective governance mechanism (Ahmed and Duellman 2007; Lafond and Roychowdhury 2008; Watts 2003a). Watts and Zimmerman (1990), for example, suggest that the use of conservative accounting figures in contractual arrangements amongst the various parties associated with the firm (e.g., owners, managers, debt-holders etc.) reduces information asymmetry and the moral hazard problems arising from agency conflicts. Whilst conservatism may act to control actions of management, a growing number of researchers

argue that other corporate governance mechanisms may provide an additional layer of conservatism important in determining earnings quality (Ahmed and Duellman 2007; Beekes, Pope, and Young 2004; Lara, Osma, and Mora 2005). Actions by regulators, therefore, affecting the quality of corporate governance mechanisms could inadvertently and adversely affect both conservatism and earnings quality.

Corporate governance mechanisms within firms receiving the most frequent attention include the firm's ownership structure, auditing processes, audit fees and auditor brand quality (Ahmed and Duellman 2007; Beekes et al. 2004; Hamilton, Ruddock, Stokes, and Taylor 2005; Lafond and Roychowdhury 2008; Ruddock, Taylor, and Taylor 2006). Other key corporate governance mechanisms pivotal to the financial accounting process and influencing conservatism practices as yet, have received little, if any, attention. The audit committee is one such feature.

Audit committees have been at the centre stage of the global debate on corporate governance reforms since the early 1990s (BRC 1999; Corporate Governance Committee 2001). Numerous high profile corporate collapses worldwide (including Australia) sparked intense debate and demands for improvements in the way firms operate (Abbott, Parker, and Peters 2004; Krishnan 2005; Krishnan and Visvanathan 2007a; Lansley, Gibson, and Fogarty 2002; Xie, Davidson, and DaDalt 2003). In response to concerns about corporate governance standards, regulators worldwide have responded with the introduction of new reforms. The formal establishment, role and responsibilities of the audit committee have been a pivotal component of the new worldwide reforms including Australia.

Prior to 2003, there were no formal requirements for Australian firms to form an audit committee. Nonetheless, the importance of the audit committee as a fundamental component in ensuring the integrity of a firm's financial report was recognized by Australian regulators (ASX CGC 2003; Watts and Zimmerman 1990). Regulations introduced in Australia in 2003 – in the form of the Australian Securities Exchange (ASX) Corporate Governance Council Recommendations 2003 (ASX 2003) and the Corporations Law Economic Reform Program 9 (CLERP 9) – formally sought to enforce a need on Australian firms to create an audit committee. The guidelines in ASX 2003 and CLERP 9 also defined the audit committee's role and responsibilities. Recommendations on structural and operational procedures to ensure the audit committee's integrity are also outlined in ASX 2003 and CLERP 9. ASX 2003 Recommendation 4.3, for example, requires all members of the audit committee must be non-executive directors with the majority being independent of the firm's management (i.e., independent directors). Furthermore, all audit committee members must financially literate with at least one having financial expertise (ASX CGC 2003). Like ASX 2003, CLERP 9 was introduced to improve the quality of the financial reporting process in Australia. CLERP 9 is expected to also improve the quality of the

auditing process and through this avenue, improve the integrity of the firm's financial report, a key audit committee responsibility (Gay and Simnett 2007; Commonwealth Government of Australia 2004). The audit committee is also responsible for ensuring the quality and independence of the external auditor in an effort to improve overall reported earnings (Lansley et al. 2002). Thus the introduction of *ASX 2003* and *CLERP 9* has served to increase the responsibilities of, and therefore, the influence of audit committees over the financial reporting process. Overall, it is envisioned that both *ASX 2003* and *CLERP 9* will improve the credibility, objectivity and accuracy of the financial reporting process.

Scholars (Beasley and Salterio 2001; Klein 2002a; Pincus, Rusbarsky, and Wong 1989) have a lengthy history of supporting the importance of the audit committee in the financial reporting process. Klein (2002a), for example, concluded that the central role of the audit committee is essentially to reduce the extent of accruals (both positive and negative) reported by firms, thereby, increasing the quality of reported earnings. The mere existence of an audit committee, however, does not mean that this key sub-committee is capable of undertaking the prescribed roles and responsibilities to improve the quality of the financial report. In fact, audit committee's ability to accomplish any required and/or perceived roles and responsibilities in monitoring the financial reporting process will depend primarily upon the sub-committee's effectiveness (DeZoort, Hermanson, Archambeault, and Reed 2002; Krishnan and Visvanathan 2007a; McMullen and Raghunandan 1996). Despite extensive debate, there is little empirical research surrounding the issue of an audit committee's effectiveness with a number of questions remaining open. Aside from studies (Carcello, Hollingsworth, Klein, and Neal 2006; Dhaliwal, Naiker, and Navissi 2006; Klein 2002a; Larcker and Richardson 2004) focusing on earnings management, very few empirical studies (Krishnan and Visvanathan 2007a) have sought to determine the influence of audit committee effectiveness on other key aspects of financial accounting such as conservatism.

Given the role that empirical research suggests audit committees have in increasing the quality of financial reporting and the consensus that the conservatism concept also seeks to achieve a similar objective, clearly there may be a substantial link between the conservatism concept and audit committee. Specifically, given the extraordinary and greater than ever interest in earnings by investors, combined with demands for higher quality earnings by capital market participants, there is an urgent need to identify influential factors and resulting impact on reported earnings. Both the conservatism principle and the audit committee are alleged to have a significant bearing on the quality of earnings (Beasley and Salterio 2001; Klein 2002a; Watts and Zimmerman 1990). However, the influence of an audit committee and the audit committee's effectiveness on conservatism (and ultimately earnings quality) remains an open empirical question that has not yet been formally investigated.

## 1.2 Research Questions and Objectives

Studying the audit committee effectiveness/earnings conservatism linkage is both important and timely. Despite what appears a natural overlap between an audit committee's actions on conservatism practices combined with the reputed importance of each corporate governance mechanism, there is (to the author's best knowledge) only one study (Krishnan and Visvanathan 2007a) that has presently examined any such linkage. With intense debate about corporate governance still continuing to shroud the global business environment, this gap in the literature regarding the audit committee/conservatism linkage requires investigation. Intense volatility in international capital markets (including Australia) during 2007 and 2008 (as highlighted by wild swings in major stock market indices and near collapse of Wall Street in the US) raises important and intriguing questions about earnings quality and its association with conservatism and audit committees. Understanding the audit committee effectiveness/earnings conservatism link and the potential bearing on earnings quality can also assist regulators formulate strategies and legislation to restore credibility in earnings and, thereby, reducing the volatility in capital markets. Finally, corporate governance is continuously under reform and by studying the audit committee effectiveness/earnings conservatism linkage, changes to regulations governing audit committees existence and operations will be able to be made, therefore improving overall corporate governance practices.

Considering the audit committee effectiveness/earnings conservatism linkage in the context of Australia is also of considerable interest. For example, corporate governance has been a hot-bed of debate and activity in Australia as a result of high-profile corporate collapses (e.g., HIH, OneTel and Harris Scarfe). As a result, *ASX 2003* and *CLERP 9* regulations have been introduced to restore investor confidence in the capital market and both regulators and investors have acknowledged the important role of audit committee as a key corporate governance mechanism (ASX CGC 2003; Goodwin 2003; Ruddock et al. 2006). However, the effectiveness and true impact of the corporate governance reforms is still a matter of debate due to the continued volatility of the capital markets. Therefore, findings from this study will help shed new light and understanding on the debate. This study also focuses on Australia due to several other key reasons such as the: (a) paucity of existing research examining the relationship between audit committees and financial reporting quality in Australia; and (b) mixed empirical results to date (in relation to audit committee effectiveness) using data from Australia (Francis and Stokes 1986; Goodwin 2003; Stewart and Munro 2007). Most importantly, no published study in Australia has examined the important relationship between audit committee effectiveness and earnings conservatism. Therefore, this study is motivated to provide a detailed examination of the relationship between one of key corporate governance mechanisms (i.e., audit committee) and earnings

conservatism in Australian setting. In addition, Australia provides an interesting background in which to study such relationships because corporate governance is less regulated in Australia than countries (e.g., the US).

The pivotal aim of this study, therefore, is to address the void in the extant literature surrounding audit committees and conservatism by investigating the following main research question:

*RQ: Is there an association between audit committee effectiveness and the level of earnings conservatism of Australian publicly listed firms?*

Audit committee effectiveness is a multi-dimensional concept. Whilst this study seeks to look at the audit committee effectiveness/earnings conservatism linkage in a holistic manner in terms of audit committee effectiveness it is comprised of four separate and distinguishable features. Consequently a set of secondary objectives is to consider the influence of four key individual components of audit committee effectiveness on earnings conservatism.

Corporate governance advocates generally argue that structural and operational composition factors influence an audit committee's effectiveness. For example, in respect to structural composition, Klein (2002b) argues that more independent audit committees are effective in constraining managerial opportunism, thereby, leading to greater quality of reported earnings. In the case of operational composition, Abbott and Parker (2000) and Abbott, Parker, Peters and Raghunandan (2003a) state that more diligent audit committees (i.e., audit committees that meet more frequently) are better able to manage key financial reporting issues such as earnings management and financial misstatements. In line with prior literature (Beasley and Salterio 2001; Carcello et al. 2006; DeZoort et al. 2002; Van der Zahn and Tower 2004), this study focuses on the four prime components underlying audit committee effectiveness: (1) sub-committee independence; (2) financial expertise; (3) experience; and (4) diligence. A set of secondary research objectives of interest in this study related to specific components of audit committee effectiveness, therefore, can be defined as follows:

*MSQ1a: Is there an association between audit committee independence and earnings conservatism of Australian publicly listed firms?*

*MSQ1b: Is there an association between audit committee member financial expertise and earnings conservatism of Australian publicly listed firms?*

*MSQ1c: Is there an association between audit committee member governance experience and earnings conservatism of Australian publicly listed firms?*

*MSQ1d: Is there an association between audit committee diligence and earnings conservatism of Australian publicly listed firms?*

Similar to audit committee effectiveness, there is a lack of consensus on the definition of earnings conservatism. Basu (1997), for example, defines earnings conservatism to be a function of timeliness, particularly in regards to the disclosure of good and bad news. It is argued, however, that earnings conservatism may not be a contemporaneous event but one subject to time. Hence, earnings conservatism has also been conceptualized as a product of persistence. Ball and Shivakumar (2005) and Dechow, Kothari and Watts (1998) also maintain that earnings conservatism is localized to the relationship between current period accruals and cash flows. Therefore, in consideration of various views of earnings conservatism, this study will also aim to address the following set of major secondary research questions:

*MSQ2a: Is there an association between audit committee effectiveness and the timeliness of earnings conservatism of Australian publicly listed firms?*

*MSQ2b: Is there an association between audit committee effectiveness and the persistence of earnings conservatism of Australian publicly listed firms?*

*MSQ2c: Is there an association between audit committee effectiveness and the accrual/cash flow differential of earnings conservatism of Australian publicly listed firms?*

Finally, apart from answering the main research and secondary research questions as defined above (i.e., *RQ*, *MSQ1* and *MSQ2*), this study seeks to address other important objectives. First, this study aims to provide further evidence of the extent and trend of earnings conservatism (with specific reference to Australian publicly listed firms) in the early years of the new millennium. Whilst studies of earnings conservatism are generally sparse, prior work usually predates 2001. By focusing on 2004 to 2008, this study provides updated evidence on the existence of earnings conservatism. In addition, this study also investigates whether recommendations relating to audit committees arising from *ASX 2003* impact the audit committee effectiveness/earnings conservatism linkage and if so, in which way.

Second, this study will seek to determine if the audit committee effectiveness/earnings conservatism linkage persists across alternative interpretations of earnings (e.g., net income before taxation, change in net income etc.) and share returns (e.g., market-adjusted returns and fiscal returns). This additional investigation will provide important insights on the best measure/s for this essential accounting principle.

Third, prior research (Beekes et al. 2004; Lara et al. 2005; Roychowdhury and Watts 2007; Watts 2003a) suggests firm (e.g., size or growth opportunities) and non-firm (e.g., audit quality or industry type) characteristics could influence the audit committee effectiveness/earnings conservatism linkage. To develop further insights into the audit

committee effectiveness/earnings conservatism association and to check the robustness of the main results, the full sample will be partitioned by key firm and non-firm characteristics.

### **1.3 Significance of the Study**

This study makes various contributions to the extant literature. First, this study is the first (to the best knowledge of the author) to provide a comprehensive examination of the relationship between earnings conservatism and audit committee effectiveness. Although Krishnan and Visvanathan (2007a) examined the audit committee effectiveness/earnings conservatism association, only a single attribute (i.e., financial expertise) of the audit committee was examined. By focusing on audit committee effectiveness within a holistic framework (i.e., considering multiple attributes underlying the audit committee's effectiveness), this study aims to provide a deeper understanding of an important corporate governance mechanism and the extent to which it ensures the integrity of financial reporting (Bedard, Chtourou, and Courteau 2004; Xie et al. 2003).

Second, although prior research shows that conservatism exists and has increased noticeably in the past decade, a number of relevant questions about the true worth of conservatism to the financial reporting process remain unanswered (Givoly, Hayn, and Natarajan 2007; Gotti 2008; Grambovas et al. 2006). Given that this study uses two well-established measures of earnings conservatism (i.e., Ball and Shivakumar 2005; Basu 1997), accounting practitioners, regulators, standard-setters and scholars will better understand which form of conservatism, if any, actually/better improves financial reporting quality.

Third, results from this study will not only help understand the benefits of conservatism but also identify the key determinants of conservatism. Empirical research to date has utilized a number of different measures only to assess if conservatism exists (Basu 1997; Givoly and Hayn 2002; Grambovas et al. 2006; Kim, Chung, and Firth 2003; Lubberink and Huijgen 2001). However, very little research has been undertaken to identify the key drivers of conservatism. This study, therefore, will be able to add substantially to the existing literature since one of the contributions of this study is to identify the factors influencing conservative accounting practices.

Fourth, this study contributes to the growing literature on the impact of audit committee effectiveness on financial reporting quality. This study achieves important methodological enhancements by providing broader evidence on the influence of specific audit committee structural and operational characteristics (such as audit committee independence, expertise, experience and diligence) on earnings conservatism. Results from this study will, therefore, help determine which attributes of audit committees make it effective enough to improve the quality of financial reporting and this is achieved by using a

range of audit committee characteristics. Therefore, the result will add significantly to the current literature on the multi-faceted nature of audit committee effectiveness.

Fifth, this study provides additional contributions to the Australian capital market and regulators. This study involves a longitudinal examination covering a five calendar year period (January 1, 2004 and December 31, 2008). This observation window has been selected as the period occurs after the introduction of key corporate governance reform in Australia (i.e., *ASX 2003*).<sup>2</sup> Thus, the findings from this study may show whether recommendations relating to audit committees arising from *ASX 2003* impact the audit committee effectiveness/earnings conservatism linkage and if so, in which way. In other words, results from this study will allow stakeholders to assess the effectiveness of *ASX 2003* (for audit committees) in terms of ensuring the integrity of financial reporting by firms.

Sixth, most prior studies (Abbott and Parker 2000; Carcello and Neal 2003; DeZoort and Salterio 2001; Park 1999; Pucheta-Martinez and Fuentes 2007) have examined the effectiveness of audit committee only for firms with the highest market capitalizations. However, for the purposes of this study, the sample was selected using a stratified random approach. Therefore, results from this study can be generalized across all listed firms.

Seventh, by examining the link between audit committee effectiveness and earnings conservatism in an 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: (1) boards of directors in determining the optimal composition of audit committees; (2) policymakers and investors by identifying the impact of audit committee features on the quality of financial reporting; and (3) regulators in determining more accurately the true role audit committees play in improving the quality of reported earnings and therefore, the integrity of the financial reporting process. Finally, findings from this study can also be the basis for a more structured and systematic approach to audit committee formation and operation and the ability of the audit committee to uphold key regulatory reforms.

#### **1.4 Limitations of the Study**

While this study has various strengths, it is not without limitations. First, despite the success of Basu's (1997) reverse regression/returns-based approach to estimating asymmetric timeliness of returns to detect greater asymmetric timeliness for samples for which conditional conservatism is hypothesized, a number of limitations apply to the model and to asymmetric timeliness in general. Dietrich, Muller and Riedl (2007), for example, claim that the Basu (1997) specification is biased and that inferences based on Basu (1997)

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<sup>2</sup> *ASX 2003* were introduced in March 2003 and was effective from July 2003 (i.e., where a firm's financial year began on 1 July, disclosure was required in regards to the financial year 1 July 2003 – 30 June 2004 and should be published in 2004 annual report) (*ASX CGC 2003*).

model should not be relied upon as the bias seems to be caused by the method used to partition the sample and by the choice of deflator for the variables in the equation.<sup>3</sup>

Second, research in earnings conservatism is traditionally longitudinal in nature with timeframes extending ten or more years (Givoly et al. 2007; Krishnan and Visvanathan 2007a; Lafond and Watts 2008). Whilst the six year observation window of this study is shorter than the norm, it nevertheless allows standard multivariate testing to be undertaken given the total number of firm-year observations collected (Hair, Anderson, Tatham, and Black 1995). Nevertheless, this is acknowledged as a potential limitation.

Third, being a multi-dimensional construct, there is presently a lack of consensus on the precise definition of audit committee effectiveness (DeZoort et al. 2002; McMullen and Raghunandan 1996). Instead, various properties of audit committees postulated to increase audit committee effectiveness have been forwarded in the empirical literature (Bedard et al. 2004; DeZoort 1997; DeZoort et al. 2002; Klein 2002a; Raghunandan, Rama, and Scarbrough 1998). Although this study develops a proxy measure for four of the most frequently cited properties underpinning audit committee effectiveness, this measure is not entirely exclusive. Due to data limitations, however, it is highly difficult (if not impossible) to develop a comprehensive measure that will properly reflect all of the inner complex workings of audit committees.

Fourth, in order to test the hypotheses of this study, data for the variables used to measure audit committee effectiveness are collected from annual reports which limit the amount and type of data that can be collected. For example, it is possible that alternative (and perhaps better) measures for proxies representing audit committee effectiveness exist within firms and that the proxies could be collected via interviews and questionnaires. Dependence on data from annual reports to provide information about the audit committee also raises an issue relating to the accuracy and completeness of the information disclosed by the preparer's of financial reports. There is, therefore, reliance by this study that firms are being faithful in disclosing the information contained in the annual report.

Fifth, for the purposes of this study, data is collected only from Australian publicly listed firms. Therefore, the results of this study may not be generalizable to non-listed Australian firms and to countries with different institutional settings. Also, as a result of the fact that the observation window for this study spans 2004 to 2008, the results may not be generalizable to periods prior to 2004.

Sixth, for the purposes of this study, the sample firms will be the same for each of the calendar years examined. This raises a possible independence of samples issue (Hair et al. 1995). However, this is not considered detrimental to this study because: (1) it only

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<sup>3</sup> Please refer to Ryan (2006) for a further discussion of the limitations of Basu (1997) model.

applies to the longitudinal Ordinary Least Squares (OLS) regression models used; and (2) almost all of the 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 that there is no other parsimonious way to undertake such longitudinal analysis where changes in the selected firms' results are of interest to the researcher/s (Ball and Shivakumar 2006; Beekes et al. 2004; Gassen, Fulbier, and Sellhom 2006; Givoly et al. 2007; Grambovas et al. 2006; Kung et al. 2008; Roychowdhury and Watts 2007; Zhang 2008). 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 central emphasis of Chapter One was to provide an overview of this study. Key research objectives and significance of this study were indicated. The latter discussion of the chapter focused on the limitations of this study.

The remaining chapters in this thesis are organized as follows. An in-depth literature review on earnings conservatism is covered in Chapter Two. As part of the discussion, the central emphasis is on existence, time series pattern and determinants of earnings conservatism. Subsequently, roles and responsibilities of an audit committee within a corporate governance context are also outlined. Chapter Three details the theoretical framework used in this study. A literature review of the proxies underlying audit committee effectiveness which provides the foundation for the development of the testable hypotheses of this study, is discussed. A conceptual schema is then developed.

The research methods adopted in this study are outlined in Chapter Four. Measures for earnings conservatism (dependent variable) and audit committee effectiveness (independent variable) are detailed and related statistical tests and regression models specified. Descriptive analysis of the data points are presented in Chapter Five.

The results of the multiple regression analysis are presented in Chapter Six. Scrutiny of all findings and applications on the derived hypotheses are also shown in this chapter. Chapter Seven details the robustness and sensitivity tests completed. 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**

The central emphasis of Chapter One was to provide an overview of this study. Key research objectives and significance of this study were identified followed by the discussion on the limitations of this study.

This chapter provides a comprehensive literature review on conservatism. The notion of conservatism and different dimensions of conservatism in accounting is discussed initially before a definition of earnings conservatism adopted for this study provided. Subsequently, details of the prior research on earnings conservatism is classified under four categories: (1) existence of earnings conservatism; (2) time-series pattern of earnings conservatism; (3) explanations for earnings conservatism; and (4) factors influencing earnings conservatism. The empirical literature on the factors influencing earnings conservatism is further disaggregated into firm characteristics, institutional factors and governance structures. The link between corporate governance and earnings quality is followed by a discussion on audit committees and the financial reporting system in general. Finally, there is a focused analysis of the literature on audit committees and the Australian regulatory environment. A summary the chapter is then provided.

### **2.2 Notion of Conservatism**

The term ‘conservatism’ (or phrase ‘to be conservative’) frequently implies a tendency for a preference towards an existing or traditional condition or situation rather than to change and progress; that is, support for the *status quo* (or *status quo ante*) (Davis 2008). The term conservatism, however, has a large range of interpretations that not only emerge when applied across a variety of disciplines but also when debated within a discipline.

Much of the controversy surrounding the general notion of conservatism can be related to the root of the word conservative; that is, to conserve. It is suggested that an overemphasis on the phrase ‘to conserve’ reduces the term conservatism to be nothing more than a blind adherence to the past with a stubborn opposition to progress. Others, however, argue that the notion of conservatism does not seek to establish a fixed position that impedes progress (White 1950). Indeed, the political scientist Reginald James White (1950) argued that it is virtually impossible to properly label conservatism due to the nature of the phenomenon. He (White 1950) further stated that conservatism is less a doctrine but rather a habit of mind, a mode of feeling, a way of living.

Conservatism has been examined within a number of disciplines including accounting. Consistent with White (1950), various accounting scholars recognize the

difficulty in attempting to ‘bottle’ conservatism and its role in accounting. The next subsection outlines the role of conservatism in accounting.

### **2.2.1 Conservatism in accounting**

Conservatism has a long and lengthy history in financial accounting. Watts (2003a, 2003b), for example, noted that conservatism has influenced accounting practice for centuries and is strongly associated with the contractual role of accounting. Despite the longevity of conservatism within accounting, there is still considerable debate and discussion about how conservatism is defined and applied within the accounting discipline. Conservatism has been defined in a number of ways by researchers, regulators and investors. The American Financial Accounting Standards Board’s (*FASB*) *Concept Statement No. 2*, for example, defines conservatism as a “prudent reaction to uncertainty and risks inherent in business situations” (Financial Accounting Standards Board 1980, para. 91-92). Bliss (1924, as cited in Watts 2003a), meanwhile, argues that the general principle of conservatism implies that accountants in practice should ‘anticipate no profit, but anticipate all losses’; that is, conservatism can be defined as the accountant’s tendency to report the lowest value among the possible alternative values for assets and the highest alternative values for liabilities. Furthermore, revenue is recognized later rather than sooner and expenses sooner than later (Watts and Zimmerman 1990). In a similar vein, conservatism is also seen as the deliberate choice of accounting methods that tend to minimize cumulative earnings through slower revenue recognition, faster expense recognition, lower asset valuation and higher liability valuation (Davidson, Stickney, and Weil 1985; Stickney and Weil 1994; Wolk, Francis, and Tearney 1989). Beaver and Ryan (2000) define conservatism as a persistent difference between market value and book value that is distinctive from temporary differences due to economic gains and losses that are recognized in book value gradually over time.

Accounting conservatism is commonly presented in the accounting literature in two distinct veins: (1) earnings conservatism; and (2) balance sheet conservatism (Gassen et al. 2006; Pae, Thornton, and Michael 2004). Earnings conservatism is frequently viewed as the degree to which a firm’s accounting income reflects expected losses in a timelier manner than expected gains in a given fiscal year (Gassen et al. 2006; Pae et al. 2004). In contrast, balance sheet conservatism is perceived as the understatement of book values of net assets relative to market value (Gassen et al. 2006; Pae et al. 2004).

In seeking to describe conservatism, some scholars have focused on conservatism either within the context of earnings (Huijgen and Lubberink 2005; Lafond and Roychowdhury 2008; Lafond and Watts 2008; O’Connell 2006; Pae 2007) or the balance sheet (Beaver and Ryan 2000; Penman and Zhang 2002). Others, however, have sought to

provide a hybrid approach adapting both earnings and balance sheet perceptions (Ahmed et al. 2002; Ahmed and Duellman 2007; Feltham and Ohlson 1995; Givoly and Hayn 2000; Pae, Thornton, and Welker 2005). Aside from classifying accounting conservatism within either the earnings or balance sheet perspectives (or both), researchers (Ball and Shivakumar 2005; Beaver and Ryan 2005; Gassen et al. 2006; Gotti 2008; Pae 2007; Qiang 2007) have more recently attempted to divide the general concept of conservatism into two distinct sub-concepts: (1) unconditional; and (2) conditional conservatism.<sup>4</sup> Richardson and Tinaikar (2004), Beaver and Ryan (2000) and Pae (2007), for example, describe unconditional (i.e., *ex-ante*/news independent/balance sheet) accounting conservatism as referring to the adoption of accounting methods and policies that reduce the book value of net assets independent of economic gains or losses.<sup>5</sup> On the other hand, the choice of accounting methods and policies that recognize bad news in earnings in a timelier manner than good news is known as conditional (i.e., *ex-post*/news dependent/income statement) accounting conservatism.<sup>6</sup>

As discussed in Chapter One, the primary focus of this study is on accounting conservatism within a conditional/earnings perspective. This perspective is adopted due to the overwhelming focus during the past decade on issues related to earnings such as earnings quality.<sup>7</sup> Whilst not dismissing the significance of unconditional/balance sheet conservatism view, this study limits its context so as to better develop findings relevant to the topics of current interest.

In the next subsection, a definition of earnings conservatism will be provided to effectively operationalize this phenomenon for the purpose of this study.

### **2.2.2 Definition of earnings conservatism**

Whilst various definitions of both conditional and unconditional conservatism have been developed, the definition of conditional conservatism stems solely from the seminal model developed by Basu (1997). Basu's (1997) definition of earnings conservatism is the most widely known and adopted definition in the past literature (Beekes et al. 2004; Huijgen and Lubberink 2005; Lafond and Watts 2008; Pae 2007; Roychowdhury and Watts 2007; Ruddock et al. 2006; Watts 2003b). Specifically, Basu (1997, p.4) defines conservatism as "capturing accountants' tendency to require a higher degree of verification for recognizing

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<sup>4</sup> Commonly the former is associated more closely with balance sheet conservatism and the latter with earnings conservatism.

<sup>5</sup> Examples of unconditional conservatism include the immediate expensing of research and development costs, depreciation of property, plant and equipment (accelerated depreciation) and historical cost accounting for positive net present value projects (Beaver and Ryan 2000, 2005).

<sup>6</sup> Examples of conditional conservatism include lower of cost or market value accounting for inventory, impairment test for long-lived tangible and intangible assets and the asymmetric treatment of contingent losses versus contingent gains (Roychowdhury and Watts 2007).

<sup>7</sup> A growing number of researchers (Beaver and Ryan 2005; Beekes et al. 2004; Lara et al. 2005) have determined that conservatism improves earnings quality.

good news than bad news in financial statements”. Using Basu’s (1997) definition, current-year equity returns are assumed to efficiently impound bad and good news from a firm’s expected future cash flow. However, due to conservatism, accounting practice will reduce earnings (and write-down net assets) rapidly in response to ‘bad news’ but linger in increasing (if at all) earnings (and write-ups of net assets) in response to ‘good news’. In a subsequent definition, Watts (2003a), building on Basu (1997), described conservatism as the differential verifiability required for the recognition of profit versus loss which generates a understatement of net assets (Lafond and Watts 2008; Watts 2003a). In his definition of conservatism, Watts (2003a) emphasizes the application of a higher standard of verification for favorable information.

Though this study acknowledges that there is a lack of consensus on a definition of conservatism within a conditional/earnings perspective, the predominant use of Basu’s (1997) approach in empirical conservatism research provides justification for the adoption of Basu (1997) definition in the current study.<sup>8</sup> However, in recognition of the key attributes highlighted by Watts (2003a), and to develop a slightly broader and holistic dimension of the conservatism construct, this study employs a synthesized Basu’s (1997) and Watt’s (2003a) definition in operationalizing earning conservatism. Specifically, for the purposes of this study, earnings conservatism is defined as:

*“Earnings reflecting bad news more quickly than good news, where higher degree of verification is preferred by accountants to recognize good news as gains than to recognize bad news as losses”.*

### **2.3 Explanations for Earnings Conservatism**

Aside from documenting changes in earnings conservatism, some studies (Ball 2001; Ball, Robin, and Sadka 2008; Basu 1997; Holthausen and Watts 2001; Huijgen and Lubberink 2005; Watts 2003a) sought to provide explanations for earning conservatism. Watts (2003a) points out four main explanations for the existence and influence of earnings conservatism: (1) contracting; (2) litigation; (3) regulation; and (4) taxation. The four explanations were supported by a number of subsequent studies (Ahmed and Duellman 2007; Ball 2001; Ball, Robin, and Sadka 2008; Basu 1997; Holthausen and Watts 2001; Huijgen and Lubberink 2005; Watts 2003a; Watts and Zimmerman 1986) as determinants for earnings conservatism.

In the following subsections, the contributions of contracting, litigation, regulation and taxation to earnings conservatism are discussed.

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<sup>8</sup> Basu (1997) definition is utilized by the majority of the conservatism literature (Ball et al. 2008; Ahmed and Duellman 2007; Huijgen and Lubberink 2005; Watts 2003a; Ball 2001; Holthausen and Watts 2001) and therefore, widely accepted.

### 2.3.1 Contracting

Past literature provides several contracting explanations for the existence and influence of conservatism (Ahmed and Duellman 2007; Ball 2001; Ball et al. 2008; Basu 1997; Holthausen and Watts 2001; Huijgen and Lubberink 2005; Watts 2003a; Watts and Zimmerman 1986). According to Watts and Zimmerman (1986), many contracts between parties to the firm use accounting numbers to reduce agency costs associated with the firm. Such contracts include contracts between the firm and the holders of the firm's debts (debt contracts), contracts between the firm and management (management compensation contracts). Both of the contracts influence earnings conservatism (Ahmed and Duellman 2007; Ball 2001; Ball et al. 2000; Ball et al. 2008; Ball and Shivakumar 2005; Basu 1997; Beekes et al. 2004; Watts 2003a).

According to Basu (1997), conservatism plays an *ex ante* efficient role in contracting between parties constituting the firm. Watts (2003a) suggests that the use of conservative accounting figures in contractual arrangements amongst various parties associated with the firm reduces information asymmetry and moral hazard problems derived from agency conflicts. Furthermore, Watts (2003a) expresses the view that earnings conservatism is a component of efficient contracting that restricts management's opportunistic behavior in contracting purposes. Specifically, conservatism reduces management's ability and incentives to overstate earnings and net assets by requiring higher verification standards for gain recognition and reduces management's ability to withhold information on expected losses. Watt's (2003a) view on the role of contracting in generating conservatism was subsequently supported by a number of researchers (Ahmed and Duellman 2007; Brown, He, and Teitel 2006; Lafond and Watts 2008; Roychowdhury and Watts 2007; Zhang 2008). Brown et al. (2006), for example, suggest that conditional conservatism serves an efficient contracting role to reduce managers' opportunistic behavior in the use of accruals. LaFond and Watts (2008) found that information asymmetry between firm insiders and outside equity investors generates conservatism in published financial statements. The reporting of conservative results by firms reduces managers' incentives and ability to manipulate accounting numbers and therefore, reduces information asymmetry which, in turn, increases equity values. This suggests that conservatism is an equilibrium response to mitigate value reductions resulting from information asymmetries between managers and outside equity investors.

In addition to management contracting, a number of studies emphasize debt contracting as a source of demand for earnings conservatism (Ahmed et al. 2002; Ahmed and Duellman 2007; Ball et al. 2008; Ball and Shivakumar 2005; Zhang 2008). According to Watts (Watts 2003a), earnings are used in debt contracts to restrict the payments of dividends to shareholders and maintain a minimum amount of net assets within the firm to

provide backing for outstanding debt and, in turn, reduce the agency cost of debt. According to Ball et al. (2008), debt contracts treat gains and losses asymmetrically. Since economic losses decrease the value of debt, lenders protect themselves against loss-making managers by introducing covenants into debt contracts that permit restricting major decisions which further decrease the value of the outstanding debt and the possibility that creditors will realize investment returns. Debt contracts are commonly written in terms of variables reported in the financial statements, such as interest coverage or financial leverage. Conservative accounting facilitates the monitoring of such contracts, improving the efficiency of contracting *ex-ante* by providing lenders with information that permit writing the terms of loan more efficiently and *ex-post* by triggering debt-covenants violation faster (Ball and Shivakumar 2005). As a result, debt holders demand conservative earnings (Ahmed et al. 2002; Ball and Shivakumar 2005; Watts 2003a).

Empirical research provides evidence that debt contracts influences conservatism (Ahmed et al. 2002; Ahmed and Duellman 2007; Ball et al. 2008; Ball and Shivakumar 2005; Zhang 2008). Ahmed et al.'s (2002) evidence, for example, is consistent with the notion that conservatism reduces manager's ability to loosen and avoid dividend restrictions and transfer wealth from bondholders to shareholders, thereby, mitigating deadweight losses and increasing firm values. Investigating the contracting benefits of accounting conservatism in the debt contracting process, Zhang (2008) concludes that conservative borrowers are more likely to violate debt covenants following a negative price shock and that lenders offer lower interest rates to more conservative borrowers.

While contracting considerations appear to explain the origin of conservatism, litigation, regulatory forces and taxation also influence the degree of conservatism exhibited by firms (Basu 1997; Watts 2003a).

### **2.3.2 Litigation**

Shareholder litigation is an important source of conservatism (Ball et al. 2000; Basu 1997; Watts 2003a). Firm litigation costs arise when different parties to the firm sue managers, directors or auditors in an attempt to recover incurred losses caused by misstatements in financial statements, thereby, assigning responsibility for reported losses not reflecting the true underlying economic performance of the firm (Lara, Osma, and Penalva 2009b). According to Watts (2003a) and Pae et al. (2005), the right of shareholders to sue for financial statement misrepresentation creates a demand for conservative accounting in order to limit litigation losses stemming from allegations of overstated net assets or income. Watts (2003a), further, observed that courts generally punished overstatement of net assets or income more than understatement because stakeholders (especially shareholders) are more likely to suffer losses when earnings/assets are overstated

than understated. Since the expected cost of overstatement is higher than the cost of understatement, management and auditors have incentives to report conservative values of earnings and net assets. Watt's (2003a) view is supported by a number of studies (Bushman and Piotroski 2006; DuCharme, Malatesta, and Sefcik 2004; Huijgen and Lubberink 2005). Kellogg (1984) and DuCharme et al. (2004), for example, show that aggressive financial reporting by firms is more likely to be associated with shareholder litigation than conservative financial reporting. Moreover, Skinner (1994) concludes that in order to reduce the possibility of shareholder suits, management tend to disclose bad news earlier than good news.

Huijgen and Lubberink (2005) found that managers and auditors of United Kingdom (UK) (cross-listed firms in the US) faced an increased threat of litigation or a formal investigation into misleading financial statements compared with firms without a US listing. Managers and auditors, therefore, have significant incentives to adopt conservative accounting practices in order to avoid an increased threat of litigation (Ball et al. 2000; Beekes et al. 2004; Huijgen and Lubberink 2005; Lubberink and Huijgen 2001; Qiang 2007; Watts 2003a).<sup>9</sup>

### **2.3.3 Regulation**

A number of studies conclude that the regulatory environment influences conservatism (Ball et al. 2000; Ball and Shivakumar 2005; Bushman and Piotroski 2006; Watts 2003a). According to Watts (2003a), financial accounting standard-setters and regulators have incentives to favor conservative accounting and reporting. Specifically, standard-setters and regulators are likely to face more criticism if firms overstate net assets than if firms understate net assets. Watt's (2003a) view was empirically tested by a number of subsequent studies (Ball et al. 2000; Ball and Shivakumar 2005; Bushman and Piotroski 2006; Huijgen and Lubberink 2005). The majority of the past literature has concluded that the regulatory and political environment influences conservatism (Ball and Shivakumar 2005; Bushman and Piotroski 2006; Huijgen and Lubberink 2005). Bushman and Piotroski (2006), for example, conclude that investor protection embodied in corporate law and the efficiency and impartiality of a judicial system play a significant role in creating incentives for timely loss recognition. Firms in countries with strong investor protection and high quality judicial systems reflect bad news in reported earnings numbers in timelier fashion than firms in countries characterized by weak investor protection and low quality judicial systems. Consistent with Bushman and Piotroski (2006), Huijgen and Lubberink (2005) and Ball et al. (2000) also find that the degree of conservatism in reported earnings is higher

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<sup>9</sup> Although litigation risk is lower in Australia compared to other countries (e.g., US), there are other factors that can drive earnings conservatism in Australia (i.e., contracting and reputational costs) (Watts 2003a).

among US firms than UK firms because of the stronger accounting regulation, accounting standard's enforcement and related liability exposure in the US.

#### **2.3.4 Taxation**

According to Shackelford and Shelvin (2001) and Watts (2003a), tax regulation also generates conservatism in financial reporting. Although financial accounting and tax accounting can differ in a number of ways, tax planning usually involves managerial use of accounting discretion to minimize the present value of tax payments. According to Watts (2003a), asymmetric recognition of gains and losses assist managers of profitable firms to reduce the present value of the taxes and, thereby, increase the value of the firm. This view is supported by a number of subsequent studies (Lara et al. 2009b; Pae 2007; Qiang 2007). Pae (2007), for example, states that conservatism reduces the present value of the tax liabilities when taxable income is influenced by reported income. In a similar vein, Lara et al. (2009b) state that both conditional and unconditional conservatism are used by managers as a tool to reduce the present value of taxes, thereby, increasing firm value. In the case of conditional conservatism, earnings conservatism is used to shift income across periods; specifically from periods with high expected tax rates to periods of low expected tax rate. This shifting of income reduces the net present value of tax payments as well as the overall amount paid. Therefore, in a scenario where firms face greater tax pressures, management tend to adopt conservative accounting practices (Lara et al. 2009b).

Qiang (2007) also investigated whether the four explanations theoretically put forward by Watts (2003a) as determinants of accounting conservatism were supported by empirical analysis. Findings from Qiang (2007) indicated that both forms of conservatism played distinct roles in contracting, regulation and taxation as well as a common role in litigation. Both forms of conservatism (i.e., conditional and unconditional conservatism) played an interrelated role in that unconditional conservatism reduced conditional conservatism. The combined evidence suggests that since the two forms of conservatism meet different distinct needs but are negatively related, it is necessary to trade-off the two forms of conservatism when making decisions. Qiang's (2007) findings provided extensive firm-level evidence that allows the proper measurement of the importance of each conservatism explanation and more importantly, presents new evidence for the first time on the distinct, common and interrelated nature of the two forms of conservatism.

#### **2.4 Prior Research of Earnings Conservatism**

Various studies have examined the different aspects of conservatism including existence, time series pattern, and determinants of conservatism (Basu 1997; Givoly and Hayn 2002; Givoly and Hayn 2000; Givoly et al. 2007; Krishnan 2007; Krishnan and Visvanathan 2007a; Lobo and Zhou 2006; Lubberink and Huijgen 2001; Penman and Zhang

2002; Roychowdhury and Watts 2007; Ruddock et al. 2006). The studies are identified in the following subsections.

#### **2.4.1 Existence of earnings conservatism**

The existence of earnings conservatism is well documented by a number of studies (Basu 1997; Givoly and Hayn 2002; Gotti 2008; Lafond and Watts 2008; Pae et al. 2004; Watts 2003a). The seminal study by Basu (1997), using market based measures, examined the asymmetric impact of conservatism in earnings (both in ‘good news’ and ‘bad news’ periods) in the US between 1963 through 1990. Basu (1997) sample consisted of 36,394 firm-year observations from 1963 to 1990 with share returns data from the Center for Research in Security Prices (*CRSP*) New York Stock Exchange (*NYSE*)/American Stock Exchange (*AMEX*) monthly files and with accounting data from the *Compustat* Annual Industrial and Research files. Basu (1997) formulated four hypotheses to examine the impact of conservatism on the timeliness and persistence of earnings. Using firm stock returns to measure news, Basu (1997) found that the contemporaneous sensitivity of earnings to negative returns was two to six times that of earnings to positive returns suggesting that earnings were timelier in reporting publicly available bad news than good news about future cash flows. Accruals also played an important role in recognizing the greater timeliness of earnings relative to cash flow. Specifically, Basu (1997) found that positive earnings changes were more persistent than negative earnings changes. The asymmetric persistence of earnings indicated that positive earnings changes have higher earnings response coefficients than negative earnings changes.<sup>10</sup>

After the groundbreaking findings of Basu (1997), other scholars sought to extend understanding of conservatism. Pae et al. (2005), for example, extended the research on conservatism by providing evidence of cross-sectional differences in earnings conservatism. Using Basu (1997) model, Pae et al.’s (2005) sample spanning 1970 through 2001 comprised 119,983 US firm-year observations with data from 32 portfolios of firms with each annual portfolio partitioned into sub-portfolios of good and bad news firms. Seeking to examine the existence of earnings conservatism and conservatism’s association with a firm’s price-to-book ratios, Pae et al. (2005) found that earnings were conservative in all periods examined. Specifically, a negative association between the price-to-book ratio at the beginning of the year and earnings conservatism was detected and most importantly, the negative relationship was primarily due to the accrual component of earnings, not to the operating cash flow component of earnings. Findings suggest that it is necessary to control for the link between

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<sup>10</sup> A number of additional tests were conducted by Basu (1997) to verify the robustness of findings. As a result, Basu (2005) further found that the changes in the pattern of asymmetric timeliness of earnings are consistent with the changes in the legal liability exposures of managers and auditors. Moreover, there was a correlation between changes in auditor legal liability exposure and changes in accounting conservatism.

earnings conservatism and the price-to-book ratio if the earnings-returns associations are used to investigate time-series or cross-sectional differences in earnings conservatism.

Studies from non-US countries have also found the evidence of conservative financial reporting.<sup>11</sup> For example, Balkrishna et al. (2007) sought to provide evidence of conditional conservatism in the financial reporting practices of Australian firms. The sample of Balkrishna et al. (2007) consisted of 5,980 firm-year observations with financial statement information obtained from the Aspect Financial Database over the period 1993 to 2003. Using Basu (1997) measure of conservatism and the asymmetric operating accrual-cash flow test of Ball and Shivakumar (2005), Balkrishna et al. (2007) found that Australian firms practiced conservative financial reporting and losses reflected incrementally greater conservatism than profits.

#### **2.4.2 Time-series pattern of earnings conservatism**

A number of scholars (Balkrishna et al. 2007; Basu 1997; Givoly and Hayn 2002; Givoly and Hayn 2000; Huijgen and Lubberink 2005; Krishnan 2007; Lobo and Zhou 2006) have examined the time series pattern of earnings conservatism to determine if there are changes in earnings conservatism over time. The empirical evidence suggests that earnings conservatism has increased over time (Balkrishna et al. 2007; Basu 1997; Givoly and Hayn 2002; Givoly and Hayn 2000; Huijgen and Lubberink 2005; Krishnan 2007; Lobo and Zhou 2006).

Givoly and Hayn (2000) investigated whether the pattern of US firms earnings, cash flows and accruals changed over the period 1950 to 1998. Four measures of conservatism were employed to estimate the extent of, as well as the change in reporting conservatism: (1) the level and rate of accumulation over time of negative non-operating accruals; (2) measures based on the earnings-return association during periods of good news and bad news; (3) measures based on the time series properties of earnings and cash flows; and (4) the market-to-book ratio. Givoly and Hayn's (2000) sample consisted of a constant sample of 896 firms spanning the period 1968 to 1998 with data from the 1999 *Compustat* database. Similar to Basu, Hwang and Jan (2000), Givoly and Hayn's (2000) results indicated that level of conservatism in financial reporting has increased over time.

Using the same sample size and period, Givoly and Hayn (2002) extended their earlier research (Givoly and Hayn 2000) by further examining the time series properties of earnings conservatism. Givoly and Hayn (2002) examined four different measures of conservatism: (1) the level and rate of accumulation over time of negative non-operating

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<sup>11</sup> However, a study by Jindrichovska and McLeay (1997) in the Czech Republic investigating whether the Czech market exhibits conservative financial reporting practices did not support the general evidence of conservative financial reporting. Using a sample of 317 earnings-yield observations for the period from 1993 to 1999, the study documented that there was no evidence of earnings conservatism in Czech markets. The absence of findings is most likely attributable to the fact that the Czech Republic has different structural and institutional factors in existence compared to countries (i.e., US, UK and Australia etc.) where evidence of conservatism was evident.

accruals; (2) the differential timeliness of incorporating good news versus bad news (i.e., Basu 1997); (3) the skewness and verifiability of the earnings distribution relative to the cash flows distribution; and (4) changes in the market-to-book ratio. Givoly and Hayn (2002) concluded that US firms (which were already conservative), had become increasingly conservative since the early 1980s. Most importantly, Givoly and Hayn (2002) reported that the increased conservatism contributed to a persistent and prevalent decline in reported profitability, an increase in the incidence of losses and an increase in the dispersion of earnings.

Lobo and Zhou (2006) examined the change in managerial discretion over financial reporting following the introduction of the Sarbanes–Oxley Act 2002 (*SOX*) in the US. Lobo and Zhou (2006) examined 4,441 US firms totaling 14,396 firm-year observations with equal observations before and post-*SOX*. By using discretionary accruals and Basu (1997) model, Lobo and Zhou (2006) reported a significant increase in reporting conservatism by US firms post-*SOX* period.

Krishnan (2007) examined if earnings conservatism amongst former Arthur Andersen clients increased after being forced to switch auditors in 2002. Using four measures (i.e., (1) earnings skewness; (2) asymmetric timeliness of earnings; (3) earnings persistence; and (4) asymmetric operating accrual-cash flow test) of earnings conservatism, Krishnan's (2007) sample comprised 856 former Arthur Andersen client with 91 switching to *non-Big-4* auditors and 44 Houston-based US clients. Krishnan (2007) found that earnings conservatism increased for Arthur Andersen clients switching to a *Big-4* auditor.<sup>12</sup> Also, conservatism levels of former Arthur Andersen clients were higher relative to a matched sample of non-Arthur Andersen clients not switching auditors. Findings indicate that in the post-Arthur Andersen era, *Big-4* auditors and corporate managers use earnings conservatism as a risk management strategy.

## **2.5 Factors Influencing Earnings Conservatism**

Prior research on earnings conservatism has also identified a number of determinants which influence earnings conservatism (Ball et al. 2000; Ball and Shivakumar 2005; Beekes et al. 2004; Krishnan and Visvanathan 2007a; Lara, Osma, and Penalva 2009a; Lubberink and Huijgen 2001). The determinants can be classified into three broad categories: (1) firm characteristics; (2) institutional factors; and (3) governance structures.

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<sup>12</sup> For the purpose of this study, *Big-4* refers to four largest international accounting/audit firms: (1) Deloitte Touche Tohmatsu; (2) PricewaterhouseCoopers; (3) Earnst & Young; and (4) KPMG. Previously other terms are used to identify largest accounting firms, for example, *Big-8*, *Big-7* and *Big-5*. For the purpose of this study, only the term '*Big-4*' is used to identify aforementioned four largest international accounting firms.

### **2.5.1 Firm characteristics**

The prior literature has examined the variation in earnings conservatism against a number of firm characteristics (Ball and Shivakumar 2005; Easton and Pae 2004; Gotti 2008; 2006; Lubberink and Huijgen 2001). Specifically, the influence of firm size, firm risk, industry, business cycle and management behavior on earnings conservatism has been reported upon (Ball and Shivakumar 2005; Easton and Pae 2004; Gotti 2008; Klein and Marquardt 2006; Kwon, Yin, and Han 2006; Lubberink and Huijgen 2001; Pae 2007; Pae et al. 2005). The studies are summarized in Table 2.1.

**Table 2.1 - Summary of major prior studies examining firm characteristics and earnings conservatism: Country-based and chronological order**

No.	Author/s (year)	Country	Sample size	Period of study	Firm characteristics			Main results
					Firm size	Firm risk	Other	
1	Easton, P. and Pae, J. (2004)	US	54,313 firm-year observations	1988 to 2002	Change in cash investments and change in lagged operating assets	-	-	Change in cash investments provides significant incremental explanatory power for returns over earnings and earnings changes. Moreover, accounting tends to be less conservative for firms with negative returns than for firms with non-negative returns.
2	Pae, J., Thornton, D.B. and Welker, M. (2005)	US	119,983 firm-year observations	1970 to 2000	-	Price-to-book ratio	-	Earnings conservatism is substantially greater in portfolios of firms with lower price-to-book ratios than in portfolios of firms with higher-to-book ratios.
3	Klein, A. and Marquardt, C. A. (2006)	US	259,116 firm-year observations	1951 to 2001	Total assets	-	Business cycle	There is a positive relationship between the frequency of firms reporting negative income over time and accounting conservatism.
4	Kwon, S. S., Yin, J. Q. and Han, J. (2006)	US	2,728 high-tech and 984 low-tech firms	2000	-	-	Industry – high-tech firms versus low-tech firms	There is a higher level of accounting conservatism in high-tech firms compared to low-tech firms.
5	Pae, J. (2007)	US	63,041 firm-year observations	1988 to 2003	-	Expected and unexpected accruals	-	The study examines the impact of management discretion over accruals on conditional accounting conservatism. The results suggest that conditional accounting conservatism is primarily attributable to unexpected accruals rather than expected accruals.
6	Gotti, G. (2008)	US	6,282 firm-year observations	1963 to 2005	-	Debt-to-assets ratio	Executive compensation linked to firm performance	Results show that firms with: (1) high debt-to-asset ratios; (2) executives compensated based on the firm's accounting performance; (3) a <i>Big-7</i> auditor in the previous year; and (4) firms which received an unqualified audit report all show more conservative behavior than the rest of the sample.
7	Ball, R. and Shivakumar, L. (2005)	UK	54,778 private firms and 1475 public firms	1990 to 2000	-	Earnings and accruals-based changes	-	Listed public firms recognize the larger loss component in book income sooner than private firms.
8	Lubberink, M. and Huijgen, C. (2001)	Holland	124 firms	1983 to 1995	-	-	Heterogeneous executives' risk attitudes	Risk-averse managers report earnings more conservatively than do less risk-averse managers.

As highlighted in Table 2.1, Easton and Pae (2004) examined whether the changes in cash investments of firms captured conservatism associated with investments in positive net present value projects regardless of the fact that income from such projects will not flow into the accounting statements until expected future benefits are realized. Using two types of accounting conservatism: (1) conservatism due to accounting rules; and (2) conservatism associated with investments in positive net present value projects, Easton and Pae's (2004) sample comprised 54,313 firm-year observations for all *Compustat* firm-year observations in the US spanning 1988 through 2002. Easton and Pae (2004) found evidence that change in cash investment provided significant incremental explanatory power for returns over earnings and earnings changes. Findings indicate that firms with negative returns tended to adopt less conservative accounting practices.

Pae et al. (2005) evaluated the link between earnings conservatism and the price-to-book ratio of firms. Measuring conservatism using Basu (1997) and Beaver and Ryan (2005) models, Pae et al.'s (2005) sample covering the period 1970 through 2001 comprised 119,983 firm-year observations for firms with data obtained from the US *Compustat* and *CRSP* database. Results showed that: (1) earnings conservatism was substantially greater in portfolios of firms with lower price-to-book ratios than in portfolios of firms with higher price-to-book ratios; and (2) the negative association between earnings conservatism and the price-to-book ratio stemmed primarily from the accrual component of earnings. Findings indicate that the link between earnings conservatism and the price-to-book ratio of firms should be controlled for if earnings-returns associations are used to investigate time-series or cross-sectional differences in earnings conservatism.

Klein and Marquardt (2006) sought to determine the extent of the relationship between a firm's reporting negative income and accounting conservatism. Defining conservatism as non-operating accruals (i.e., Givoly and Hayn 2000), Klein and Marquardt's (2006) sample encompassing 1951 to 2001 consisted of 259,116 firm-year observations with data from *Compustat* annual industrial file. The results indicated a positive relationship between the frequency of a firm reporting negative income over time and accounting conservatism. More importantly, non-accounting factors (most notably firm size and business cycle) played the dominant role in explaining accounting losses. Findings indicate that while both accounting and non-accounting factors are related systematically to accounting losses, non-accounting losses play the dominant role in explaining accounting losses.

Kwon et al. (2006) investigated differences in the level of accounting conservatism between high-tech and low-tech firms. Using Basu (1997) and Givoly and Hayn (2000) models as a measure of accounting conservatism, Kwon et al.'s (2006) sample comprising the year-ended July 30, 2000 consisted of 2,728 high-tech firms and 984 low-tech firms

obtained from [www.cnnfn.com](http://www.cnnfn.com). Results clearly indicated that distribution of earnings and discretionary accruals between the two groups of firms were consistent with a higher level of accounting conservatism evident in high-tech firms vis-à-vis low-tech firms. Findings caution that investors, financial analysts and regulators should consider the different levels of accounting conservatism between high-tech and low-tech firms before making economic decisions.

Pae (2007) examined the impact of management discretion over accruals on conditional accounting conservatism. Using Basu (1997) model as a measure of conditional accounting conservatism, Pae's (2007) sample spanning 1988 to 2003 comprised of 63,041 firm-year observations. Annual stock returns were calculated by compounding the US *CRSP* monthly stock returns over the fiscal year. After decomposing total accruals into expected and unexpected accruals, Pae (2007) found that conditional accounting conservatism was attributable mainly to unexpected accruals suggesting that managers exercise discretion over accruals to expedite the recognition of bad news rather than good news.

Gotti (2008) believed that Basu's (1997) choice of proxy measuring good/bad news (i.e., stock returns), introduced inaccuracy in the measure of conditional conservatism (this view was also supported by Dietrich et al. 2007; Givoly et al. 2007; and Roychowdhury and Watts 2007). Gotti (2008) introduced a new measure of conditional conservatism by adopting the number of changes in financial analyst's earnings per share (EPS) forecasts as a proxy for good/bad news about a firm's future earnings. Gotti's (2008) sample comprising 1963 to 2005 resulted in 6,282 firm-year observations from US *CRSP* monthly files, *Compustat* North America annual industrial files, First Call database, Audit Analytics database and *ExecuComp* database. Results showed that firms with: (1) high debt-to-assets ratio; (2) larger portion of executives' compensation tied to firm performance; and (3) in the year prior to a going concern opinion from the external auditor, reported aggressively, (contrary to expectations) recognizing future good news in annual earnings more quickly than bad news.

Studies using data from non-US countries have also documented the influence of firm characteristics on earnings conservatism. Ball and Shivakumar (2005), for example, argued that the financial reporting practices of UK private firms were lower than UK public firms despite being the subject of equivalent auditing, accounting and tax regulations. Measuring earnings conservatism using Basu (1997) model, Ball and Shivakumar (2005) sample spanning 1990 to 2000 comprised 54,778 (1,475) firms and 141,649 (6,208) firm-years for private (public) firms with data from the Financial Analysis Made Easy (*FAME*) database. Results consistently showed earnings of UK private-firm were of a lower quality on average despite being prepared under the same regulations as public firms. Major differences in earnings timeliness occurred consistently in both earnings changes-based and

accruals-based tests of quality. Ball and Shivakumar (2005) concluded that difference in average earnings quality between private and public firms was an equilibrium outcome in the market for corporate financial reporting reflecting differences in demand for financial reporting between private and public firms.

Lubberink and Huijgen (2001) argued that heterogeneous executive's risk attitudes would influence the degree of accounting conservatism reported in that risk-averse managers would report more conservative earnings. The reporting of more conservative earnings would, in turn, reduce expectations among shareholders about future cash flows to be distributed and therefore, potential litigation or threats for executives to be fired. Using measures of earnings conservatism used by Basu (1997), Ball et al. (2000) and Pope and Walker (1999), Lubberink and Huijgen's (2001) sample consisted of 124 firms from the Amsterdam Exchange over the period 1983 to 1995. Results of Lubberink and Huijgen's (2001) study confirmed that more risk-averse managers reported earnings more conservatively than less risk-averse managers

As discussed in this subsection, firm characteristics contain important explanatory variables which significantly influence the variation in earnings conservatism reported by firms. Notwithstanding the prior literature evaluating firm characteristics' impact on earnings conservatism, there have also been a number of important studies concentrating on the influence of institutional factors on earnings conservatism (Brown et al. 2006; Bushman and Piotroski 2006; Huijgen and Lubberink 2005; Lara et al. 2005; Pope and Walker 1999). The following subsection examines studies which have examined the relationship between structural institutional factors and earnings conservatism.

### **2.5.2 Institutional factors**

Prior research has investigated the influence of institutional factors such as accounting policies and regulation, legal regimes (i.e., code law versus common law), political influence and cross-listing of firms in different jurisdictions on earnings conservatism (Brown et al. 2006; Bushman and Piotroski 2006; Huijgen and Lubberink 2005; Lara et al. 2005; Pope and Walker 1999). The majority of the prior research has concluded that institutional factors have a significant impact on the level of earnings conservatism reported by firms (Huijgen and Lubberink 2005; Lara et al. 2005; Pope and Walker 1999). The studies are summarized in Table 2.2.

**Table 2.2 - Summary of major prior studies examining institutional factors and earnings conservatism: Country-based and chronological order**

No.	Author/s (year)	Country	Sample size	Period of study	Institutional factors					Main results
					Accounting policies and regulations	Legal regimes	Political influence	Cross-listing of firms	Other	
1	Ball, R., Kothari, S. P. and Robin, A. (2000)	US, UK, Australia, Canada, France, Germany and Japan	40,359 firm-year observations	1985 to 1995	-	Common law countries (Australia, Canada, US and UK) and code law countries (France, Germany and Japan)	-	-	-	Common law accounting income does exhibit significantly greater timeliness than code-law accounting income, but that this is due entirely to greater sensitivity to economic losses (income conservatism).
2	Pope and Walker (1999)	US and UK	18,380 US and 7,189 UK firm-year observations	1976 to 1996	Earnings before extraordinary items and bottom-line earnings	-	-	-	-	<i>US GAAP</i> is more conservative than <i>UK GAAP</i> for earnings before extraordinary items and the opposite is true for bottom-line earnings.
3	Huijgen, C. and Lubberink, M. (2005)	US	86 firms	1993 to 2002	-	-	-	UK firms cross-listed in the US and UK firms without a US-listing	-	Earnings of UK firms (cross-listed in US) are significantly more conservative than earnings of UK firms without a US listing. This indicates that firms use earnings conservatism to commit to highly demanding reporting requirements and in doing so, communicate a perception of investor care.
4	Lara, J., M., G., Osma, B., G. and More, A. (2005)	UK, France and Germany	4, 743 firm-year observations	1990 to 2001	-	Investor protection regimes	-	-	Concentrated versus dispersed ownership structures	Code-law based countries (i.e., France and Germany) managers have incentives to reduce earnings consistently while a common-law based country (i.e., UK) does not.

**Table 2.2 (continued) – Summary of major prior studies examining institutional factors and earnings conservatism: Country-based and chronological order**

No.	Author/s (year)	Country	Sample size	Period of study	Institutional factors					Main results
					Accounting policies and regulations	Legal regimes	Political influence	Cross-listing of firms	Other	
5	Bushman and Piotroski (2006)	38 countries	86,927 firm-year observations	1992 to 2001	-	Investor protection regimes, judicial systems and strength of public enforcement	State involvement in economy represented by publicly traded government firms	-	-	Firms in countries with strong investor protection and high quality judicial systems reflected bad news in reported earnings numbers in a more timely fashion than firms in countries characterized by weak investor protection and low quality judicial systems. Furthermore, firms in countries with strong public enforcement (i.e., securities law) characterized by an independent, powerful public enforcer slowed the recognition of good news in reported earnings numbers relative to countries with weak public enforcement. Finally, countries characterized by high state involvement in the economy, firms speeded recognition of good news and slowed recognition of bad news in reported earnings relative to firms with less state involvement.
6	Brown, W., He, H. and Teitel, K. (2006)	20 countries	47, 802 firm-year observations	1993 to 2004	Country-specific level of accruals intensity	-	-	-	-	For countries with higher accrual intensity, earnings which are more conditionally conservative have a higher degree of value relevance (incremental to the effects of shareholder protection). Value relevance is the degree to which accounting earnings incorporate information impounded in market prices.

As highlighted in Table 2.2, Ball et al. (2000) examined the effect of international factors on the properties of earnings conservatism, specifically timeliness and conservatism. Using Basu (1997) model, Ball et al.'s (2000) sample comprised 40,359 firm-year accounting incomes from seven countries: Australia, Canada, UK and US (common law countries) and France, Germany and Japan (code law countries). Data was obtained from the Global Vantage Industrial/Commercial files from 1985 to 1995 inclusive. Ball et al. (2000) results indicated that common-law accounting income did exhibit greater timeliness than code-law accounting income but this difference was due to common-law accounting income's greater sensitivity to economic losses (i.e., income conservatism). Findings suggest that earnings conservatism facilitates monitoring of managers (thereby, reducing agency costs) and is an important feature of common-law countries.

Pope and Walker (1999) were the first researchers to investigate differences in the reported timeliness and conservatism of US firms and UK firms' reported earnings. Using Basu (1997) method to measure conservatism, Pope and Walker's (1999) sample comprised of all December fiscal year-end firms listed in US (*NYSE/AMEX*) and in UK (London Stock Exchange (*LSE*)) during 1976 through 1996 amounting to 18,380 US firm-year observations and 7,189 UK firm-year observations respectively. For the US firms, data were collected from *Compustat PC Plus* and for UK firms from *Datastream*. Pope and Walker (1999) concluded that the US accounting regime was significantly more conservative than the UK regime, when comparing earnings before extraordinary items. However, when comparing bottom-line earnings, UK firms were more conservative than US firms. Findings indicate that *US GAAP* is more conservative than *UK GAAP* for earnings before extraordinary item and the opposite for bottom-line earnings.

Huijgen and Lubberink (2005) compared the earnings conservatism of UK firms cross-listed in the US to that of UK firms without a US-listing. Huijgen and Lubberink (2005) hypothesized that conservatism would be more pronounced for cross-listed firms than for firms with a UK-listing only due to the fact that cross-listed firms face a stricter enforcement regime. The sample for this study was obtained from both the *LSE* and the *NYSE* or *NASDAQ* for the period 1993 to 2002 with a final sample size of 172 UK firms and 86 US firms. Using a matched-pairs research design, Huijgen and Lubberink (2005) found that earnings of UK cross-listed firms (in the US) were significantly more conservative than earnings of UK firms without a US listing. Additionally, the cross-listed firms displayed particularly high levels of conservatism during the early years of the cross-listing. Findings indicate that firms may use earnings conservatism and adhere to highly demanding reporting requirements in order to communicate a perception of greater investor care.

Lara et al. (2005) sought to identify the reasons for the significant differences between common law countries and code law countries first identified by Ball et al. (2000)

in relation to the effect of earnings conservatism. Using Basu (1997) model, Lara et al.'s (2005) sample consisted of 10,131 firm-year observations for the UK, 1,367 for France and 3,245 for Germany for the period 1990 to 2001 from *DataStream*. Lara et al. (2005) reported that in certain institutional contexts (i.e., weaker investor protection and less dispersed ownership structures), earnings management drove the measures of conservatism. This was particularly the case for France and Germany suggesting that European countries have incentives to reduce earnings consistently.

Bushman and Piotroski (2006), using Basu (1997) model as a proxy for earnings conservatism, analyzed the relationship between key characteristics of country-level institutions and conditional conservatism. The premise of this study was that a country's legal/judicial system, securities law and political economy created incentives which influenced the behavior of corporate executives, investors, regulators and other capital market participants and the incentives shaped the properties of reported accounting numbers. Bushman and Piotroski's (2006) sample spanning 1992 through 2001 comprised of 86,927 firm-year observations drawn from 38 countries with data obtained from the Global Vantage Industrial/Commercial and the Global Vantage Issues files. Bushman and Piotroski (2006) found that investor protections embodied in corporate law and the efficiency and impartiality of the judicial system played a significant role in creating incentives for timely loss recognition. Firms in countries with strong investor protection and high quality judicial systems reflected bad news in reported earnings numbers in a more timely fashion than firms in countries characterized by weak investor protection and low quality judicial systems. Furthermore, firms in countries with strong public enforcement (i.e., securities law) characterized by an independent, powerful public enforcer slowed the recognition of good news in reported earnings numbers relative to countries with weak public enforcement.<sup>13</sup> In relation to the influence of the political economy on incentives for conservative reporting, Bushman and Piotroski (2006) found that in countries characterized by high state involvement in the economy, firms speeded recognition of good news and slowed recognition of bad news in reported earnings relative to firms with less state involvement. This is consistent with a scenario where a 'caring' government assists underperforming firms but firms seek to avoid such assistance by exploiting reported discretion to portray an optimistic outlook. Alternatively, publicly traded government firms may feel pressure by the government to upwardly report financial results.

Brown et al. (2006) investigated the association between conditional conservatism and accrual intensity on the value relevance of accounting earnings. Using Basu (1997) and

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<sup>13</sup> The results suggested that self-interested regulators were penalized more for overstated accounting numbers than understated accounting numbers (Beekes et al. 2004; Huijgen and Lubberink 2005; Lafond and Watts 2008; Lara et al. 2009b; Pae 2007; Roychowdhury and Watts 2007; Ruddock et al. 2006; Watts 2003a; Zhang 2008).

Beaver and Ryan (2000) models, Brown et al. (2006) sample consisted of a total of 47,802 firm-year observations from 1993 to 2004 from 20 countries. Results indicated that the association of conditional conservatism and the value relevance of accounting earnings depended on the country-specific level of accruals intensity (i.e., countries with higher accruals intensity tended to have conditional conservatism which was positively associated with the value relevance of earnings). The results, however, also indicated that the benefits occurring from conditional conservatism were contextual and were lost in countries with lower accrual intensity. Findings indicate that conditional conservatism serves an efficient contracting role to reduce managers' opportunistic behavior in the use of accruals.

In addition to institutional factors impacting earnings conservatism, corporate governance structures have also been found to be significantly associated with earnings conservatism. The following subsection examines studies which have examined the relationship between a firm's corporate governance features and earnings conservatism.

### **2.5.3 Governance structures**

A number of studies (Ahmed and Duellman 2007; Beekes et al. 2004; Hamilton et al. 2005; Krishnan and Visvanathan 2007a; Lafond and Watts 2008; Lara et al. 2009a; Ruddock et al. 2006) provide evidence that corporate governance provisions play an important role in the implementation of accounting conservatism. Such studies mainly examine the relationship between earnings conservatism and key corporate governance mechanisms such as the board of directors, audit committees and auditor characteristics. The studies are summarized in Table 2.3.

**Table 2.3 - Summary of major prior studies examining governance structures and earnings conservatism: Country-based and chronological order**

No.	Author/s (year)	Country	Sample size	Period of study	Governance structures				Main results
					Board of directors	Audit committee	Auditor characteristics	Other	
1	Hamilton, J., Ruddock, C., Stokes, D. and Taylor, S. (2005)	Australia	3,621 firm-year observations	1998 to 2003	-	-	External audit partner rotation	-	Audit partner rotation is followed by more conservative reporting by a firm, that is, there is a significant increase in the asymmetrically timely recognition of economic losses when firms have a change of audit partner (note: a change in audit partner is not a change in auditors).
2	Ruddock, C., Taylor, S., J. and Taylor, S., L. (2006)	Australia	3,746 firm-year observations	2002	-	-	Provision of NAS by incumbent auditors	-	Higher than expected NAS are not associated with reduced earnings conservatism.
3	Ahmed, A. S., and Duellman, S. (2007)	US	306 firms	1999 to 2001	Percentage of inside directors, average number of additional directorships by board members, Chief Executive Officer (CEO) duality, percentage of shares held by outside directors and board size	-	-	-	There is a negative relationship between the percentage of the inside directors on the board and conservatism. However, there is a positive relationship between the percentage of a firm's shares owned by the outside directors and conservatism.
4	Krishnan, G. and Visvanathan, G. (2007a)	US	929 firm-year observations	2000 to 2002	-	Financial expertise was measured in three ways: accounting financial experts; non-accounting financial experts; and non-financial experts (directors who are neither accounting nor non-accounting financial experts)	-	-	A firm's accounting conservatism is positively associated with audit committee's financial expertise when financial expertise is defined to include only accounting experts.

**Table 2.3 (continued) – Summary of major prior studies examining governance structures and earnings conservatism: Country-based and chronological order**

No.	Author/s (year)	Country	Sample size	Period of study	Governance structures				Main results
					Board of directors	Audit committee	Auditor characteristics	Other	
5	Lafond and Roychowdhury (2008)	US	14,786 firm-year observations	1994 to 2004	-	-	-	Managerial ownership	As managerial ownership declined, the severity of the agency problem increases, thereby, increasing also the demand for accounting conservatism. The results were consistent with equity investors demanding greater conservatism as a means of addressing agency problems arising from the associated greater separation between ownership and control.
6	Lara, J. M. G., Osma, B. G. and Penalva, F. (2009a)	US	9,152 firm-year observations	1992 to 2003	Independence of board members and number of meetings	-	-	Takeover index (proxy for external monitoring) and CEO involvement	Results indicated that firms with stronger corporate governance provisions in place are more conservative.
7	Beekes, W., Pope, P. and Young, S. (2004)	UK	508 firm-year observations	1950 to 1998 (i.e., a 49-year period)	Proportion of outside board members	-	-	-	The results indicate that firms with a higher proportion of outside members are more likely to recognize bad news in earnings on a timely basis.

As highlighted in Table 2.3, Hamilton et al. (2005) sought to determine the association between external audit partner rotation and the quality of earnings (reflecting greater conservative practices) in Australian firms. Using Basu (1997) and Ball and Shivakumar (2005) models, Hamilton et al.'s (2005) sample consisted 3,621 ASX listed firm-year observations from 1998 to 2003. Results indicated that audit partner changes were associated with lower unexpected accruals. This is consistent with the assertion that firms report greater conservative practices following a rotation of audit partner.

Ruddock et al. (2006) provided evidence whether the provision of NAS by incumbent auditors were associated with news-based conservatism. Ruddock et al. (2006) hypothesized that reduced conservatism is expected if high levels of NAS result in reduced auditor independence and ultimately, lower quality auditing. Using Basu (1997) and Ball and Shivakumar (2005) models, Ruddock et al.'s (2006) sample encompassing 1993 through 2000 comprised 3,746 firm-year observations with data obtained from Aspect Financial Data. Results suggested that earnings conservatism did not reduce as NAS increased contradicting critics of the accounting profession who argued that NAS results in impaired auditor independence with a resulting decline in reported earnings conservatism. Ruddock et al. (2006) conclude that the results were consistent with factors such as market-based incentives, the threat of litigation and alternative governance mechanisms offsetting any expected benefits to the audit firm from reduced independence.

Ahmed and Duellman (2007) undertook an in-depth analysis of the relationship between accounting conservatism and five boards of directors' characteristics, namely: (1) percentage of inside directors; (2) average number of additional directorships by board of director's members; (3) CEO duality; (4) percentage of shares held by outside directors; and (5) board size. Using three measures (i.e., accruals-based measure, market-based measure and asymmetric timeliness of earnings) of earnings conservatism, Ahmed and Duellman's (2007) sample comprised 306 US firms from the Standards and Poors (*S&P*) 500 obtained from Lexis-Nexis for the period 1999 to 2001. Ahmed and Duellman (2007) found that the percentage of inside directors was negatively related to conservatism and the percentage of outside directors' shareholdings was positively related to conservatism. Overall, the findings were consistent with the notion that accounting conservatism assists the board of directors in reducing the agency costs of firms.

Krishnan and Visvanathan (2007b) examined whether an audit committee's financial expertise was associated with accounting conservatism measured four ways: (1) an accruals-based measure; (2) a measure derived from book-to-market ratio; (3) a conservatism score; and (4) asymmetric loss. Krishnan and Visvanathan (2007b) also measured financial expertise in three ways: (1) accounting financial experts; (2) non-accounting financial experts; and (3) non-financial experts. Krishnan and Visvanathan's (2007b) sample spanning

2000 through 2002 comprised 929 firm-year observations with data from the US *S&P 500*. Results indicated that an audit committee's financial expertise was positively associated with conservatism when financial expertise was defined to include only accounting experts. Findings are consistent with the belief that accounting expertise contributes to greater monitoring by members of the audit committee which, in turn, enhances reported conservatism.

Lafond and Roychowdhury (2008) examined the effects of managerial ownership on financial reporting conservatism. Lafond and Roychowdhury (2008) hypothesized that as managerial ownership declined, the severity of the agency problem increases, thereby, increasing the demand for accounting conservatism. Using Basu (1997) model, Lafond and Roychowdhury's (2008) sample covering the period 1994 to 2004 comprised 14,786 firm-year observations from the *S&P ExecuComp* database, *CRSP* and *Compustat*. Results were consistent with equity investors demanding greater conservatism from management as a means of addressing agency problems arising from separation between ownership and control. Lafond and Roychowdhury (2008), therefore, provided evidence that one of the sources/determinants of conservatism is a firm's shareholders.

Lara et al. (2009a) posited that corporate governance structures of firms play an important role in the reporting of earnings conservatism. Using three proxies for conservatism (i.e., (1) Basu 1997; (2) Ball and Shivakumar 2005; and (3) Givoly and Hayn 2000) Lara et al.'s (2009a) sample contained 9,152 firm-year observations for the period 1992 through 2003 with data taken from the 2003 version of *Compustat* and *Execucomp* and *CRSP* databases in US. Results indicated that firms with stronger corporate governance provisions in place are more conservative.<sup>14</sup> Evidence is consistent with stronger corporate governance structures demanding more conservative accounting information.

In a similar vein to Ahmed and Duellman (2007) in the US, Beekes et al. (2004) sought to examine the link between accounting quality (proxied by earnings timeliness and conservatism) and the composition of UK board of directors. Using Basu (1997) reverse regression model, Beekes et al. (2004) selected listed non-financial firms from 1993 to 1995 from the London Share Price database and *Datastream* resulting in a sample of 508 firm-year observations. Results indicated that firms with a higher proportion of outside board members were more likely to recognize bad news in earnings on a timelier basis. Unsurprisingly, firms whose boards comprised of a relatively high proportion of outsiders did not display greater conservatism with regard to the recognition of good news. Findings

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<sup>14</sup> Lara et al. (2009a) developed a composite measure of total governance that incorporated attributes of external and internal governance (which was subsequently used to classify firms into strong and weak governance structures). Specifically, external governance was proxied by the level of external monitoring using the takeover index developed by Gompers, Ishii and Metrick (1997) and internal governance was proxied by three measures: (1) CEO involvement; (2) board composition; and (3) board effectiveness.

reflect that board composition is an important factor in determining the quality of firms' reported earnings.

As indicated in Table 2.3, corporate governance structures within firms play a vital role in the levels of reported earnings conservatism. Studies indicate that firms with strong and effective corporate governance structures consisting primarily of independent board of directors and effective audit committees coupled with effective external audit oversight, have a significantly positive relationship with earnings conservatism (Ahmed and Duellman 2007; Beekes et al. 2004; Hamilton et al. 2005; Krishnan and Visvanathan 2007a; Lafond and Watts 2008; Ruddock et al. 2006).

The following section discusses the concept of corporate governance and emphasizes the role of audit committees in the financial reporting system.

## **2.6 Corporate Governance**

Corporate governance has been defined in a number of ways by regulators, corporate governance advocates and scholars (ASX CGC 2003; du Plessis, McConvill, and Bagaric 2005; Gay and Simnett 2007). In general terms, corporate governance can be defined as a set of rules, processes, customs, policies and incentives by which a firm is directed and controlled (du Plessis et al. 2005). Textbooks commonly define corporate governance as "the system by which firms are directed and managed and covers the conduct of the board of directors and relationship between the board, management and shareholders" (Gay and Simnett 2007, p.89). The ASX Corporate Governance Council (ASX CGC) specifically defines corporate governance as the framework of rules, relationships, systems and processes within and by which authority is exercised and controlled in corporations (ASX CGC 2003). The main objective of corporate governance is to ensure the accountability of different stakeholders in a firm through mechanisms that attempt to eliminate the traditional agency costs/problem (Cohen, Krishnamoorthy, and Wright 2002; Klein and Marquardt 2006). The principal stakeholders in any firm are the shareholders, management and the board of directors. The need for corporate governance has received growing attention both in practice and academic research because of the high number of financial reporting fraud, earnings restatements and earnings manipulation by corporate management (BRC 1999; Cohen, Krishnamoorthy, and Wright 2004; Palmrose and Scholz 2002).

A large body of prior literature has shown that weak corporate governance structures lead to poor financial reporting quality, earnings manipulation, financial statement fraud and weaker internal control (Abbott et al. 2004; Beasley 1996; BRC 1999; Cohen et al. 2002; Dechow, Sloan, and Sweeney 1996; Krishnan 2005; McMullen and Raghunandan 1996; Palmrose and Scholz 2002). Conversely, past literature has also determined that strong corporate governance is associated with higher quality financial reporting (Abbott et al.

2003a; Carcello, Hermanson, Neal, and Riley 2002; Carcello and Neal 2003; Klein 2002a; Vafeas 2005; Xie et al. 2003). Specifically, prior published research focused on three key components of corporate governance: (1) board of directors; (2) audit committee; and (3) external audit and argues that the three components of corporate governance have important respective influences on earnings quality either individually, collectively or in some combination (Abbott et al. 2003a; Carcello et al. 2002; Carcello and Neal 2003; Klein 2002a; Vafeas 2005; Xie et al. 2003).

According to Berle and Means (1932, as cited in Hermalin and Weisbach 1998), the separation ownership and control inherent in a diversely held firm leads to a board of directors controlled by corporate management. In a similar vein, Fama and Jensen (1983) recognize the board of directors as the fundamental internal control mechanism responsible for overseeing the actions of top management. The board of directors is appointed by the shareholders with the responsibility of monitoring the performance of management so that the quality of reported earnings is maintained. Although, in general, the board of directors is responsible for monitoring the financial reporting process, this responsibility is delegated to the audit committee and therefore, a firm's audit committee is often directly responsible for improving the quality of financial reporting.

Whilst boards of directors and external auditors play important roles in the financial reporting process, audit committees are the main focus of this study. The role and emergence of audit committees in the financial reporting process is discussed in the next subsection.

### **2.6.1 Audit committee**

An audit committee is a subcommittee of the board of directors. The audit committee plays a key role in assisting the board to fulfill board's corporate governance and other responsibilities in areas such as financial reporting, internal control, risk management and the internal and external audit functions (ASX CGC 2003). For example, an audit committee selects the external auditor, meets separately with senior financial managers and auditors to review the firm's financial statements, audit processes and internal controls. Gay and Simnett (2007) defines an audit committee as a committee of directors (usually predominantly non-executive) responsible for overseeing external financial reporting and liaising with the external and internal audit functions. Even though the audit committee performs various key tasks, the main responsibility of an audit committee is to oversee the financial reporting system and process (Klein 2002a). After an unprecedented number of high profile corporate collapses, regulators, investors and scholars have recognized the audit committee as the single most important component of a firm's corporate governance structure and there has, therefore, been an increased emphasis for firms to have an audit

committee which are solely responsible for improving the quality of reported earnings (Commonwealth Government of Australia 2003; ASX CGC 2003; BRC 1999).

The development of audit committees in US, UK, Canada, Australia and other jurisdictions have emphasized the importance of audit committees in ensuring reliable and high quality corporate financial reporting. In 1940, the role of audit committee was recognized when the US Securities and Exchange Commission (*SEC*) acknowledged the concept of an audit committee and proposed the establishment of such committees in publicly-traded firms to protect investors and other key stakeholders (*SEC* 1999). The purpose of the audit committee was seen as ensuring the accuracy of financial reports (Buchalter and Yokomoto 2003).

However, audit committees did not receive much attention (since the 1940s) until the late 1960s and early 1970s (Collier and Gregory 1999).<sup>15</sup> In the 1970s, recommendations in regards to the establishment of audit committees were strongly suggested by the *SEC*, *NYSE* and professional accounting bodies such as the American Institute of Certified Public Accountants (*AICPA*) with the aim to stimulate improvements in financial reporting (BRC 1999; *SEC* 1999). In 1999, the Blue Ribbon Committee (*BRC*) issued recommendations aimed at improving the quality of the audit committee so that the committee can work as the ‘ultimate monitor of financial reporting’ (BRC 1999).

In 2001, the largest corporate collapse (i.e., Enron Corporation) in US history captured the attention of regulators and investors and rekindled the clamor for better corporate accountability. As a result, the US Congress introduced new legislation, principally the *SOX* which requires all public firms to establish audit committees and stipulates the audit committee’s composition and responsibilities (Congress of the United States of America 2002). Subsequently, other countries such as UK, Canada and Australia also recognized the oversight responsibilities of audit committees in similar terms as *SOX*.<sup>16</sup>

## **2.6.2 Audit committees and Australia’s regulatory environment**

Over the past two decades audit committee has become a center of focus and has been recognized as an important mechanism strengthening the corporate governance structure of firms worldwide (Munro and Buckby 2008). In Australia, audit committees emerged as a topic of interest during 1970s following major financial crises in 1960s and 1970s and since then audit committees have been under continuous reform by several bodies such as the *ASX*, the Australian Accounting Research Foundation (*AARF*), the Australian

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<sup>15</sup> An interesting observation made during the review of the literature was that in all countries in which audit committees were introduced, audit committees were precipitated by corporate failures.

<sup>16</sup> The regulatory bodies include the *LSE*, the British Financial Reporting Council, the Toronto Stock Exchange, Canadian Securities Administrators and the *ASX*.

Institute of Company Directors (*AICD*), the Institute of Internal Auditors-Australia (*IIA*), *Corporation Act 2001* and the Australian Securities and Investments Commission (*ASIC*).

In 1989, a parliamentary committee known as the Cooney Committee recommended that listed firms should have an audit committee. In 1991, the same recommendation was made by House of Representative Standing Committee on Legal and Constitutional Affairs (Grice 1993). In 1992, the *ASX* released a 1992 Exposure Draft which urged the establishment of an audit committee with a majority of non-executive directors by all listed firms (Munro and Buckby 2008). In 1993, the *ASX* further introduced a mandatory requirement for audit committees through the release of two Listing Rules. *ASX* Listing Rule 3B (1) & (2), for example, requires all listed firms to make disclosure of audit committee establishment in the firm's half yearly and preliminary annual returns to the exchange (Munro and Buckby 2008). In July 1993, *ASX* further introduced Listing Rule 3C-3 (i) requiring all listed firms to indicate in the annual report if the firm had an audit committee as at the date of director's report and to provide reasons if the firm did not have an audit committee (Baxter and Pragasam 1999).

In 1993, the Hilmer Committee was formed to reform the corporate governance structure of firms in Australia. The Hilmer Committee, emphasizing the independence of the audit committee, suggested for the first time, that audit committees should be comprised of non-executive directors of which the majority including the chairperson, should be independent directors (Munro and Buckby 2008).

In 1996, *ASX* Listing Rule 4.10 replaced *ASX* Ruling 3C. The first requirement of this new Rule 4.10.2 continued the requirements of Listing Rule 3C-3(i); that is, to disclose whether the firm had an audit committee and if not, why not. The second requirement of *ASX* Listing Rule 4.10, part 3, requires listed firms to include in the annual report a statement of the main corporate governance practices that the entity had in place during the reporting period. If a practice had been in place for only part of the period, the entity must state the period during which it had been in place (Munro and Buckby 2008).

In 1997, Corporate Law Economic Reform Program (*CLERP*) was announced by the Australian government with a view to enhance the quality of financial reporting and to increase the accountability of different stakeholders (Commonwealth Government of Australia 2003). *CLERP*, which is designed to strengthen the regulatory frameworks in the key areas of corporate accountability, continuous disclosure and the protection of shareholders' interests, is an ongoing reform program which has been revised several times by the Australian government. The most important *CLERP* reform relevant to the audit committee was *CLERP 9* introduced in 2002 by the Australian government. Reform Proposal 8 of *CLERP 9* required the top 500 listed firms to formulate audit committees. The Proposal further stated that the Australian government supported the role of the *ASX CGC* in

developing best practice standards for audit committees. As a result, the *ASX CGC* was formed on August 15, 2002 constituting 21 different groups recognizing the importance of corporate governance in the context of global markets (*ASX CGC* 2003). The *ASX CGC*, therefore, sets the standard for corporate governance in Australia. The principles and recommendations of the *ASX CGC* were first released in 2003 and an update of the principles was released in 2007 (*ASX CGC* 2003).

In August 2001, the *AuASB* (the successor of the *AARF*), the *AICD* and the *IIA* jointly published a guide titled 'Audit Committees: Best Practice Guide' (Leung, Coram, and Cooper 2007). The guide outlines the roles and responsibilities of the audit committee in general and specifically, terms of communication with the external auditor. According to the guide, an important aspect of the audit committee's role is to review the external auditor's independence based on auditor services and relationships with the firm (Gay and Simnett 2007). Consequently, in October 2001, the Australian government commissioned a report known as 'Ramsay Report' with a view to examine Australia's legislative and professional requirements on corporate governance practices, particularly, on the independence of auditors. The Ramsay Report suggested that all listed firms should have an appropriately constituted audit committee (Gay and Simnett 2007).

In March 2003, the *ASX CGC* issued 10 principles aimed at enhancing corporate governance in Australia (*ASX CGC* 2003). The 10 *ASX CGC* principles that are outlined in a document titled 'Principles of Good Corporate Governance and Best Practice Recommendations' (released in March 2003 and enforceable from July 2003) recognizes that there is no single model of good corporate governance structure and the ten core principles are believed to assist in enhancing corporate governance structures in order to minimize problems and achieve the best performance and accountability. Principle Four (4) titled 'Safeguard Integrity in Financial Reporting' has focused on audit committee establishment and provides recommendations and guidelines on audit committee structure and composition. For example, under *ASX Listing Rule 4.10*, firms are required to provide a statement in the annual report disclosing the extent to which firms have complied with the best practice recommendations in the reporting period. Where reporting firms have not complied with all the recommendations, reporting firms must identify the recommendations which have not been followed and provide reasons for non-compliance. Moreover, *ASX Listing Rule 12.7* requires the top 300 firms to have an audit committee and stipulates that the composition, operation and the responsibility of the audit committee should comply with the *ASX CGC*'s 'Principles of good corporate governance and best practice recommendations' (*ASX CGC* 2003; Gay and Simnett 2007).

The composition, operation and responsibilities of the audit committee are set out in Principle Four of the *ASX CGC*. Principle Four, titled 'Safeguard Integrity in Financial

Reporting' states that a firm should "have a structure to independently verify and safeguard the integrity of the firm's financial reporting" (ASX CGC 2003, p.11). Principle four proceeds to indicate that a structure (namely, the audit committee) of review and authorization should be designed to ensure the truthful and factual presentation of the firm's financial position. Best Practice Recommendation 4.2 requires that the board of directors should establish an audit committee and Best Practice Recommendation 4.3 specifies the audit committee's structural composition. It is recognized that the audit committee should be of a sufficient size, independence and technical expertise to fulfill its (audit committee's) mandate effectively. The ASX also encourages firms to move towards having audit committees constituted majority of independent directors and members who are all financially literate with at least one member having financial expertise. Best Practice Recommendation 4.4 goes on to state that the audit committee should also have a formal charter outlining the role, responsibilities, composition, structure and membership requirements (ASX CGC 2003).<sup>17</sup>

In 2004, ASX CGC revised ASX Listing Rule 12.7 so that audit committee composition, operation and responsibility requirements apply only to top 300 listed firms. In the same year, the final version of the *CLERP* bill became law and enacted as the corporate law Economic Reform Program Act 2004 (Commonwealth Government of Australia 2004).

In 2007, ASX CGC released an amended version of corporate governance principles. The recommendations are very similar to the original version introduced in 2003. The key change in the newer version in relation to the audit committee is the introduction of further guidance on the list of relationships affecting board members' independence status. The list of relationship will assist the board of directors determine the independence of a director for audit committee purposes (ASX CGC 2007).

The audit committee, therefore, has a significant role to play in ensuring the integrity of financial reporting, the adequacy of risk management and the reliability of the internal control structures within firms. In aggregate, the key role of audit committee is to ensure the quality of financial reporting process.

## **2.7 Summary of the Chapter**

This chapter provided the background to this study by identifying the prior literature on conservatism. Different aspects of conservatism were initially discussed before a common definition adopted for the purposes of this study. Published prior literature on conservatism

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<sup>17</sup> For the purposes of this study, specific recommendations in relation to audit committees outlined in Principle Four (4) of ASX CGC 2003 (i.e., recommendations on audit committee independence, financial expertise and meeting frequency) are discussed in this section. However, there are other recommendations (e.g., recommendation on having an audit committee charter) apart from those discussed in this section. Since such recommendations are not the focus of this study, the other recommendations have not been fully discussed. Please refer to Appendix A for a copy of the Principle Four (4) of the ASX CGC's 'Principles of good corporate governance and best practice recommendations' (ASX CGC 2003).

was subsequently detailed and followed up with a discussion of the relationship between corporate governance and earnings quality. The role of audit committees in financial reporting systems was outlined generally before a more specific examination undertaken of audit committees and the Australian regulatory environment.

Chapter Three discusses the theoretical perspective to this study. In this respect, the five theories underpinning the concept of corporate governance are outlined; namely agency theory, institutional theory, resource dependency theory, stewardship theory and stakeholder theory. The overall role of audit committees in effective corporate governance structures is discussed before a formal definition of audit committee effectiveness provided. Chapter Three also discusses the key literature relating to the hypotheses tested in this study is discussed. Specifically, the empirical literature relating to each of the four key components of audit committee effectiveness examined in this study is identified and the rationale for each component's expected relationship to earnings conservatism detailed. A conceptual schema is also provided illustrating the key relationships examined in this study.

## **CHAPTER THREE: THEORETICAL PERSPECTIVE AND HYPOTHESES DEVELOPMENT**

### **3.1 Overview of the Chapter**

Chapter Two provided the background to this study by identifying the prior literature on conservatism. Different aspects of conservatism were initially discussed before a common definition adopted for the purposes of this study. Published prior literature on conservatism was subsequently detailed and followed up with a discussion of the relationship between corporate governance and earnings quality. The role of audit committees in financial reporting systems was outlined generally before a more specific examination undertaken of audit committees and the Australian regulatory environment.

This chapter has two prime objectives; first, the chapter discusses the theoretical perspective to this study; second, the key literature relating to the hypotheses examined in this study is discussed. In relation to theory, the five theories underpinning the concept of corporate governance are outlined; namely agency theory, institutional theory, resource dependency theory, stewardship theory and stakeholder theory. Subsequently, various corporate governance structures within firms are discussed including the audit committee and as part of the discussion, a formal definition of audit committee effectiveness is provided. The empirical literature relating to each of the four key components of audit committee effectiveness examined in this study is then identified and the rationale for each component's expected relationship to earnings conservatism is detailed. A conceptual schema is also provided illustrating the key relationships examined in this study. Finally, a summary of the chapter is provided.

### **3.2 Theoretical Perspective – Corporate Governance**

Corporate governance has been explained by a number of key theoretical context: namely, agency theory; institutional theory; resource dependency theory; stewardship theory; and stakeholder theory (Psaros 2009). The following subsections will outline each theory so as to provide a theoretical foundation to this study.

#### **3.2.1 Agency theory**

Agency theory evolved from the concept of separation of ownership from management in modern firms. Agency theory was initiated by Berle and Means (1932) who first described the separation of ownership and control due to the wide disbursement of firm share ownership. While discussing the separation of ownership and control, one of the conflicts identified by Berle and Means (1932) was the potential conflict between shareholders and management when ownership is widely distributed among shareholders.

Although Berle and Means (1932) initiated the concept of agency theory, Jensen and Meckling (1976) were probably the first researchers to place the theory in a precise theoretical framework and describe it as an agency relationship.<sup>18</sup> Subsequent development in agency theory was suggested by Fama and Jensen (1983). Both Jensen and Meckling (1976) and Fama and Jensen (1983) posit an agency relationship arises when the principal delegates some authority to the agent to perform some service on the behalf of the principal. Shareholders (and debt holders) act as principals in deriving maximum utility from the actions of management (serving as the agents). If both parties in the relationship are utility maximizers, there is good rationale to believe that the managers will not always act in the best interest of the shareholders but will work based on self-interests creating the agency problem. As a result, both shareholders and managers incur monitoring and bonding costs respectively, known as agency costs (Fama and Jensen 1983; Jensen and Meckling 1976).

In an agency theory setting, corporate governance structures in firms are viewed as important mechanisms to overcome agency problems. Burton (2000) believes that agency costs are best controlled by limiting management discretion through the establishment of structures to monitor and control management behavior. Such structures include independent board of directors, an independent chairperson and independent board sub-committees such as the audit committee (Ellstrand, Daily, Johnson, and Dalton 1999).

### **3.2.2 Institutional theory**

Institutional theory, originally developed by Meyer and Rowan (1977) in a corporate governance context, suggests that organizational structures play a vital role as symbolic displays of conformity and social accountability (Kalbers and Fogarty 1998). Institutional theory indicates that numerous aspects of formal organizational structure, policies and procedures result from prevailing societal attitudes of what comprises acceptable practice and the views of important constituents (Bealing, Dirsmith, and Fogarty 1996; Scott 1987). Firms obey rule and regulations, not just an efficiency grounds, but also to enhance legitimacy, resources and survival capacities (DiMaggio and Powell 1983). Institutional pressures operate in conjunction with other forces such as competition to effect ecological influences (Meyer and Rowan 1977).

The real work of the firm is accomplished by internal operating processes. As a result, firms with appropriate structures in place avoid detailed investigations of key internal operating activities by external parties (Meyer and Rowan 1977). Firms are subject to rules and regulations to which firms must conform in order to ensure legitimacy, access to resources and survival (DiMaggio and Powell 1983). Meyer and Rowan (1977, p.346) classifies firms as “dramatic enactments of the rationalized myths pervading modern

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<sup>18</sup> See Jensen and Meckling (1976) for a detailed discussion of the conflicts arising from the separation of ownership and control.

societies". Rules, accreditation processes and public opinion together make it essential or, at least, beneficial for firms to adopt the new structures. By developing a formal configuration (which includes key corporate governance mechanisms such as an audit committee and board of directors) that adheres to prescriptions of the institutional environment, a firm displays that it is operating on communally valued principles (O'Connell 2006). Conversely, firms that exclude environmentally justifiable components of structure lack acceptable legitimate records of operations. Such firms are, therefore, susceptible to allegations that the firms are neglectful, irrational, or redundant and risk forfeiting stakeholder patronage (O'Connell 2006). As a result, the pressures to achieve legitimacy help initiate isomorphism; a process that forces one unit in a population to resemble other units that face the same set of environmental conditions (Deegan 2010; DiMaggio and Powell 1983).

Institutional theorists have identified two major types of isomorphism: (1) competitive; and (2) institutional. Competitive isomorphism assumes a system of competitive markets and robustness measures and is often used to explain how firms develop bureaucracies and respond to new innovations (DiMaggio and Powell 1983). Three mechanisms of institutional isomorphic change were identified: (1) coercive; (2) mimetic; and (3) normative. Coercive isomorphism emanates from stresses applied on firms by other firms and by cultural expectations in society as a whole. Mimetic isomorphism reflects a standard response to ambiguity. Firms will follow other firms when faced with uncertain outside environment. Normative isomorphism pressures stem from professionalization. While diverse type of professionals within a firm may vary from one another, they (professionals) display many identical characteristics to the equivalents in other firms (Deegan 2010; DiMaggio and Powell 1983; Psaros 2009). Institutional isomorphism promotes the success and survival of firms (Meyer and Rowan 1977). Isomorphic firms functioning in a mode comparable to competitors may lessen the risk of performing poorly when compared to other firms (Kondra and Hinings 1998).

In a corporate governance context, institutional theory applies to a wide variety of situations including the choice of accounting methods. Fogarty (1992) for example, studied the *FASB*'s standard-setting process and found that institutionalization, through the basis of separated procedures and the formal characteristics of assessment, enables the board of directors to achieve tolerable decisional freedom. Fogarty (1992, p.331) further noted that the visibility of a firm's processes and the consequences of outcomes contributed to the "critical dependence on legitimacy". Fogarty (1992), analyzed the peer review process of accounting firms as a mechanism utilized by the US accounting firms seeking to legitimize a largely self-regulatory industry. Finally, Bealing et al. (1996) studied the historical development of the *SEC*, specifically, the form, content and rhetoric of early regulatory

actions as a case example of a firm attempting to justify existence and role in the financial reporting process.

### **3.2.3 Stakeholder theory**

Stakeholder theory considers the firm from a broader perspective whereby shareholders are only one of many potential stakeholder groups (Blair 1995; Clarkson 1994; Donaldson and Preston 1995; Freeman 1984). Other stakeholder groups include creditors, employees, suppliers, government authorities and even society as a whole. Stakeholder theorists (Blair 1995; Clarkson 1994; Donaldson and Preston 1995; Freeman 1984) argue that stakeholders are affected by and also affect the firm. The premise is that since society provides the social structure and framework in which firms can prosper, to ignore society is to threaten the equilibrium that it (society) provides (Blair 1995; Clarkson 1994; Psaros 2009).

One of the early stakeholder theorists was Freeman (1984) who came up with the definition of stakeholder. According to Freeman (1984, p.2), stakeholder means “any group or individual who can affect or be affected by the achievements of firms’ objectives”. Freeman (1984), further, conceptualized the stakeholder model as a map in which the firm is the hub of a wheel and stakeholders are the ends of the spokes around the wheel. Freeman (1984) suggests that a firm intending to achieve goals can only do so with a full and detailed understanding of the relationships it holds with different stakeholder groups. Freeman’s (1984) conceptualization became the focus from which stakeholder theory subsequently developed.

Clarkson (1994) provided a more vibrant explanation of stakeholder theory, and focused on the fact that stakeholder theory is important because it can help firms to achieve goals. According to Clarkson (1994, p.322), “the firm is a system of stakeholders operating within the large system of the host society that provides the necessary legal and market infrastructure for the firm’s activities. The purpose of the firm is to create wealth and value for stakeholders by converting stakes into goods and services”.

Donaldson and Preston (1995) presents a more detailed explanation of stakeholder theory and views the firm as an entity through which numerous and diverse participants accomplish multiple purposes. The central core of the stakeholder theory asserts that managers and other agents act as if all stakeholders’ interests have intrinsic value, though not necessarily equal value (Psaros 2009).

Stakeholder theory has been viewed by a number of theorists as a more valid and morally acceptable framework in which to assess corporate governance issues (Blair 1995; Clarkson 1994; Donaldson and Preston 1995; Freeman 1984). In a stakeholder theory setting, corporate governance is, therefore, one of the key mechanisms in which a firm

understands and relates to the different stakeholder relationships which exist (Psaros 2009). In this respect, the nature of the corporate governance mechanisms that are established by firms can differ substantially as long as stakeholder relations are properly understood and managed. In order to protect the stakeholder's stakes firm adopts different type of corporate governance mechanism (Gray, Kouhy, and Lavers 1995). Moreover, firm values the importance of each stake holder by releasing information (annual reports) that helps stakeholder in the decision making process. Strong corporate governance ensures firms perform corporate social responsibility so that each stakeholder's interest can be protected (Hill and Jones 1992).

#### **3.2.4 Resource dependency theory**

The resource dependency view of corporate governance is based on the premise that various elements of corporate governance can act as critical resources for the firm (Psaros 2009). Resource dependency theory states that a firm's level of success is contingent on the ability to control external resources. As a consequence, a firm's board of directors provides the crucial link to external resources if the firm wants to achieve goals and objectives. Firms must cope with uncertainty in order to survive and the uncertainty confuses the firm's control of resources and strategic choices and therefore, the efficient operation of the firm. In a resource dependency role, directors serve to connect the firm with external factors which reduce environmental uncertainties and external dependencies (Hillman, Cannella, and Paetzold 2000; Pfeffer 1972).

Resource dependence theory, further, posits that directors also add value to the firm in a number of ways. Hillman et al. (2000), for example, suggest that directors bring other resources to the firm including specialist information, skills and access to key constituents (e.g., suppliers, environmental groups, educators and government policy makers). Therefore, the extent to which directors add value to a firm depends on the skills and resource base of the directors. Directors may also bring an enhanced reputation by virtue of personal reputation and therefore, acceptance of the resource dependency theory suggests that independence of directors is largely not an important issue. Thus, in a corporate governance context, the resource dependency theory implies that the benefit of the board and board sub-committees such as audit committee to a firm is a function of the skills and contacts of the members (Hillman et al. 2000; Hillman and Dalziel 2003; Psaros 2009).

In the context of corporate governance, this theory can be applied to suggest that effective corporate governance structures within firms can lead to the generation of resources. Particularly, board of directors contributes to a firm through expertise and linkages to other firms and institutions and directors can also contribute to the positive valuation of a firm through reputation. Boards can be a key source of various resources

(Hillman and Dalziel 2003; McGregor 1960; Pfeffer 1972), based on human capital and social capital (Certo 2003). The former includes the director's advice and expertise and the latter covers resources such as legitimacy (Westphal and Zajac 1994) and links to other firms. Cumulatively, the resources are all described as board capital (Hillman and Dalziel 2003). The relationship between board capital and firm performance is well documented by a number of studies (Daily, Johnson, Ellstrand, and Dalton 1998; Pfeffer 1972).

### **3.2.5 Stewardship theory**

Stewardship theory developed from the work of early organizational psychologists such as McGregor (1960) and adopts a psychological/sociological perspective of human behavior. According to stewardship theory, individuals are motivated in actions by a range of non-economic factors (Psaros 2009). Donaldson and Davis (1991) provide a description of stewardship theory from an organizational perspective. They (Donaldson and Davis 1991) argue that individuals are motivated by non-financial factors such as a need to achieve, satisfaction by performing challenging tasks, exercising responsibility and authority and ultimately, gaining recognition from peers and bosses. Therefore, a key premise of stewardship theory is that individuals have higher-order relationship needs, such as acceptance and personal growth. The individual's needs subsequently align with the firm's goals. The general position of stewardship theory is that a manager basically wishes to do a good job and be a steward of the firm's resources, thereby, suggesting that there is no inherent problem with executive motivation (Donaldson and Davis 1991).

Stewardship theory considers managers as good stewards of organizational resources for a number of reasons; managers can be assumed to be honest people who generally try and do the right thing by the firms that managers manage (Donaldson and Davis 1991); there is significant evidence that many senior managers are incentivized by intrinsic motivations such as achievement and being successful at work (i.e., self-actualization) rather than by extrinsic motivations such as economic remuneration (Donaldson and Davis 1991); and there is also a strong argument that a manager's reputation is his/her key asset and, as a result, self-interested behavior will be balanced against possible damage to this important asset (Barney 1990; Donaldson and Davis 1991; Donaldson and Preston 1995).

In a corporate governance arena, stewardship theory shows that, in the presence of intrinsically-motivated managers who strive for job satisfaction and self-actualization rather than monetary remuneration, there is less pressure on boards within firms to closely monitor managers' performance. Therefore, the emphasis of independent representation on firm boards and subcommittees is unnecessary and potentially counter-productive since shareholder and shareholder economic returns are best served by empowering management and having minimal independent director representation (Barney 1990; Donaldson and Davis

1991; Psaros 2009). The theory indicates that corporate governance structure is less important.

Above discussion indicates that all of afore-mentioned theories have important role to play within corporate governance context. However, each of the theories has an individual perspective which differs from each other. For example, institutional theory focuses on the effect of quality and enforcement of regulation on corporate governance (Udayasankar and Das 2007). On the other hand, stakeholder theory has a more 'morally' driven, socially oriented perspective which views firm from a broader perspective where each stakeholder is equally important. Stakeholder theory emphasizes on a firm's corporate social responsibility. In contrast, agency theory focuses on the economic perspective of human behavior where human beings are utility maximizers and states that human beings are motivated to work only for economic interest (Collier and Gregory 1999; Donaldson and Davis 1991; Hillman and Dalziel 2003). Agency theory recognizes the relationship between two parties, agent and principal and posits that agent will always be motivated to conserve self interest. Therefore, agent must be controlled by the principal to align agent's interest with principal (Fama 1980; Jensen and Meckling 1976). On contrary to agency theory, stewardship theory adopts a psychological/sociological perspective of human behavior and posits that human being is motivated to actions by a range of non-economic factors such as personal growth, job satisfaction. Resource dependence theory focuses only on the resources that can improve corporate governance. For example, resource dependence theory focuses on board's quality and skills which will help the directors maintain relationship with external environment (Collier and Gregory 1999; Donaldson and Davis 1991; Hillman and Dalziel 2003).

Notwithstanding the difference among the theories, there is also lot of similarities which makes the theories to some extent complementary to each other. For example, agency and resource dependence theory views corporate governance from competitive perspective (Hillman and Dalziel 2003). Corporate governance is considered as a competitive resource, providing benefits to firms in many ways, by both agency and resource dependence theory (Udayasankar and Das 2007). Similarly, a number of researchers argue that stakeholder theory is an extension of agency theory (Hill and Jones 1992; Shankman 1999). According to Hill and Jones (1992), managers can be viewed agent for each of the stakeholders (creditors, employees, government authorities and society) rather than being the agent for shareholders (or debt holders) only. Therefore, management must make decisions and allocate resources in a manner which will protect interest of each stakeholder (Hill and Jones 1992). According to Kiel and Nicholson (2003), although agency theory focuses very closely on agency costs, agency costs have relevance for stewardship and resource dependence theory as well. Therefore, all of the theories play an important role in determining what should be

appropriate corporate governance structures. Empirical research also shows the importance of the theories in a corporate governance setting.

A number of studies (Klapper and Love 2002; La Porta, Lopez-de-Silanes, and Schleifer 1999; La Porta, Lopez-de-Silanes, and Shleifer 1998) which are the representative of institutional theory of corporate governance, find that institutional factors (e.g., shareholder protection laws, judicial efficiency etc.) have positive impact on corporate governance. Resource dependence literature also suggests that firms with better corporate governance are likely to have better access to critical resources, including human capital and relational resources (Hillman and Dalziel 2003). Similarly, scholars (Beasley 1996; Carcello and Neal 2000; Van der Zahn and Tower 2004) provide evidence that the strong corporate governance mechanism mitigates conflicts arising from agency relationships.

As discussed, there are several different theoretical frameworks in which corporate governance can be considered. Notwithstanding the importance of other theories in corporate governance context, agency theory will be adopted for the purpose of this study. Agency theory is adopted in this study since agency theory provides the most relevant theoretical framework for investigating the relationship between earnings conservatism and audit committee effectiveness. Why an effective audit committee is willing to adopt conservative practices can best be explained in an agency theory context.

Agency theory is strongly linked to both audit committees and earnings conservatism. In the case of audit committees, agency theory provides a theoretical basis for the formation of the audit committee and audit committee activities (Adams 1997; Collier 1993; Menon and Williams 1994; Pincus et al. 1989). For example, Pincus et al. (1989) found a significant relationship between agency costs (proxied by firm leverage, size and ownership structure) and the formation of an audit committee. Collier (1993) provides evidence that the increased agency costs of debt are associated with the voluntary formation of audit committees. Collier's (1993) study is supported by Adams (1997) who found that firm leverage is significantly related to formation of audit committee. Meanwhile, Menon and Williams (1994) argues that some specific agency variables (i.e., outside directors, auditor type) influences the existence of an audit committee, the percentage of outside directors on the audit committee and the frequency of audit committee meetings. In some recent studies, scholars strongly argue the audit committee is a pivotal governance mechanism in mitigating conflicts between contractual parties (Beasley 1996; Carcello and Neal 2000; Van der Zahn and Tower 2004). Beasley (1996), for example, finds an audit committee is an effective monitoring mechanism in assuring the quality of financial reporting and corporate accountability. This view is also supported by other researchers (e.g., Carcello and Neal 2000; Klein 2002a; Van der Zahn and Tower 2004).

Agency theory also provides an ideal base for conservatism. Watts (2003a), for example, suggests conservatism likely evolved from accounting's contracting role. Watts (2003a) argues accounting conservatism helps avoid inappropriate distributions to claim holders. Basu (1997) suggests that the conservatism principle evolved with audited financial statements as a means of management bonding to prevent management exploiting information asymmetry (a premise of Fama's 1980 agency theory). Ahmed et al. (2002) also support the conservatism and contractual arrangements link (and, in turn, agency theory). Specifically, Ahmed et al. (2002) argue conservatism mitigates conflicts of interest over dividend policy between shareholders and bondholders. Finally, Watts (2003a) expresses the view earnings conservatism is a component of efficient contracting that restricts management's opportunistic behavior in contracting purposes. Given the close association of earnings conservatism and audit committees to contractual arrangements and agency conflicts, agency theory provides this study's underlying theoretical perspective. In the next section, the influence of the audit committee on earnings conservatism will be discussed specifically in an agency theory context.

### **3.3 Audit Committee and the Influence on Earnings Conservatism**

Earnings are increasingly prevalent in contractual arrangements, formation of capital market expectations and stock price valuations. Also, earnings are important catalysts in lending decisions and a barometer for governments in developing policy (Cohen et al. 2002, 2004; Dhaliwal et al. 2006; Klein 2002a). Given earnings pivotal role scholars, practitioners, corporate executives and regulators argue it is imperative quality be maintained (Beasley 1996; Carcello et al. 2002; Wright 1996). Dechow, Sloan and Soliman (2004) argue high quality earnings accomplishes three things: (1) reflects current operating performance; (2) is a good indicator of future operating performance; and (3) accurately annuitizes the intrinsic value of the firm. Further, Healey and Wahlen (1999, p.3) suggest that the extent to which earnings are managed to "mislead some stakeholders from the underlying performance of the firm or to influence contractual outcomes" is a key benchmark of earnings quality.

Poorly designed and implemented financial reporting systems, however, can produce both systematic and random financial accounting errors that naturally impair a firm's quality of earnings (Beasley 1996; Carcello et al. 2002; Wright 1996). Corporate management's decisions are likely to have a far larger influence on earnings quality. Earnings, whether positive or negative, can adversely affect corporate management's self-interests prompting conflicts with shareholders, investors and other related parties (Fama 1980). In an effort to protect self-interests, corporate management may make various financial accounting decisions which significantly influence earnings quality.

A number of researchers (Lara et al. 2009b; Watts 2003a) argue earnings conservatism has important economic functions that impact on earnings quality. For example, earnings conservatism reduces opportunities for managerial opportunistic behavior, facilitates managerial monitoring and monitoring of contracts. Therefore, various renowned scholars (Ball and Shivakumar 2005; Francis, LaFond, Olsson, and Schipper 2005; Watts 2003a) consider earnings conservatism a central indicator of earnings quality or a desirable property of accounting earnings.

The concept of conservatism itself is unlikely to ensure automatically high earnings quality. It is generally accepted that corporate management has strong incentives to engage in opportunistic behavior (Donaldson and Davis 1991; Hill and Jones 1992; Watts 2003a; Watts and Zimmerman 1990). Thus, if given the opportunity, corporate management may elect to engage in earnings management that ultimately affects earnings quality. Conversely, management may choose to engage in more conservative accounting resulting in poor earnings quality. For example, in a scenario where firms face greater tax pressure, management tends to adopt conservative practices (Lara et al. 2009b). Therefore, a strong corporate governance structure is increasingly viewed as being pivotal in setting the environment upon which corporate management can or cannot participate in opportunistic behavior. Specifically, it is argued corporate management in firms with sound corporate governance structures are less likely to have scope to engage in opportunistic behavior. Based on this reasoning, strong corporate governance structures will regard conservatism as desirable property of accounting numbers since conservatism plays a vital role in restricting management's opportunistic behavior foster heightened earnings conservatism and therefore, earnings quality (Lara et al. 2009a, 2009b; Watts 2003a, 2003b; Watts and Zimmerman 1986; Zhang 2008).

Recent studies (Ahmed and Duellman 2007; Beekes et al. 2004; Hamilton et al. 2005; Krishnan and Visvanathan 2007a; Lafond and Watts 2008; Lara et al. 2009a; Ruddock et al. 2006) highlight the link between earnings conservatism and corporate governance structures. Beekes et al. (2004) find firms with a higher proportion of outside members are more likely to recognize bad news in earnings. Similarly, Ahmed and Duellman (2007) find a negative relationship between the percentage of the inside directors on the board and earnings conservatism. They (Ahmed and Duellman 2007), further, find a positive relationship between the ownership percentage of outside directors and earnings conservatism. Similarly, Lafond and Roychowdhury (2008) find firms with lower managerial ownership report more conservative earnings. Lara et al. (2009a) shows the evidence that firms with stronger corporate governance exhibit higher degree of accounting conservatism. In an Australian study, Hamilton et al. (2005) find a significant increase in the asymmetrically timeliness of economic losses when a firm changes an audit partner.

Ruddock et al. (2006), meanwhile, find that the provision of NAS is positively associated with a reduction in the extent to which earnings reflect bad news on a timelier basis than good news (i.e., earnings conservatism).

Of various corporate governance mechanisms discussed in the popular press and scholarly research during the past decade, audit committees have been a central focus in debates about how to assure and enhance the quality of financial reporting and corporate accounting. Despite the acknowledged role of the audit committee, studies have yet to consider the relationship to earnings conservatism. Research does, however, provide evidence of the linkage between audit committees and earnings quality (Beasley and Salterio 2001; Defond, Hann, and Hu 2005; DeZoort et al. 2002; Klein 2002a). Various incentives exist to suggest why an audit committee is motivated to ensure the credibility of the financial reporting process and that quality of earnings is preserved. For example, independent directors on the audit committee have a strong incentive to ensure the sub-committee's roles and responsibilities are fulfilled so as to ensure the director's (i.e., the independent directors) reputational capital and opportunities for appointment to other boards. High quality earnings will likely be perceived as a key benchmark of an audit committee's success and reputation (and that of the members) and therefore, will provide strong motivation for the sub-committee to undertake actions that enhance earnings quality. As noted earlier, greater earnings conservatism is thought to enhance earnings quality. Consequently, it follows that an audit committee will actively engage in conservative earnings practices with the aim of improving earnings quality (Ahmed and Duellman 2007; Krishnan and Visvanathan 2007a; Lara et al. 2009a).

Despite incentives to engage in greater earnings conservatism, the mere presence of the audit committee does not automatically mean such practices will be undertaken. Rather, as highlighted in the extant literature, the effectiveness of the audit committee will determine whether the sub-committee actively seeks to conserve earnings or not (DeZoort et al. 2002; Dhaliwal et al. 2006; Klein 2002a; Song and Windram 2000; Turley and Zaman 2007; Vafeas 2005).

### **3.4 Definition of Audit Committee Effectiveness**

Audit committee effectiveness is often cited as the benchmark to judge whether an audit committee lends credibility to the financial information reported by a firm (Abbott and Parker 2000; Bedard et al. 2004; Klein 2002a; Xie et al. 2003). There is currently no consensus on a definition of audit committee effectiveness. However, many corporate governance advocates agree that if an audit committee is able to perform three key regulatory responsibilities (e.g., ensuring the integrity of the financial reporting, scrutinizing the external audit function and monitoring the internal audit process), then the audit

committee can be viewed as effective (ASX CGC 2003; BRC 1999; DeZoort et al. 2002; Vera-Munoz 2005). Kalbers and Fogarty (1993), for example, argue audit committee effectiveness is a function of the sub-committee's power and authority over the monitoring of financial reporting practices and the external and internal auditing process. Rittenberg and Nair (1993) state that audit committee effectiveness occurs when the audit committee fulfills assigned responsibilities. According to PriceWaterhouseCoopers (1999, p.3), "to be effective, an audit committee must be able to oversee the firm's financial responsibilities without overstepping its responsibility by becoming too involved in operational issues". Klein (2002b) suggests that audit committee effectiveness occurs when the audit committee is independent of management and therefore, better able to monitor the earning process of a firm. Xie et al. (2003) also states that audit committee effectiveness occurs when the committee is active, well-functioned and well structured. They (Xie et al. 2003), further, states that if a large proportion of the audit committee is made up of independent outside members with corporate and financial backgrounds, the audit committee is expected to be more effective. Similarly, Lennox and Park (2007) indicate that an audit committee functions more effectively if members are independent of management. Finally, Krishnan (2005) suggests that audit committee effectiveness arises if the committee has at least three members, all of whom are independent of management and at least one member has financial expertise.

Among all audit committee advocates, DeZoort et al. (2002, p.41) offers the most comprehensive definition of audit committee effectiveness which is as follows:

*"An effective audit committee has qualified members with the authority and resources to protect stakeholder interests by ensuring reliable financial reporting, internal controls, and risk management through its diligent oversight efforts".*

DeZoort et al.'s (2002) definition of audit committee effectiveness is strongly endorsed by other corporate governance scholars (Cohen et al. 2004; Vera-Munoz 2005; Xie et al. 2003). Vera-Munoz (2005), for example, states that DeZoort et al.'s (2002) definition of audit committee effectiveness emphasizes the ultimate goal of the audit committee (which is to protect shareholders' interests) and simultaneously explains the manner by which the goal can be achieved (i.e., the use of qualified members with the authority and resources to provide diligent oversights). Given that this study aims to capture a holistic dimension of audit committee effectiveness, DeZoort et al.'s (2002) definition of audit committee effectiveness provides an appropriate base for this study. DeZoort et al.'s (2002) definition encompasses the input (i.e., composition, authority and resources), process (i.e., diligence) and output (i.e., overall effectiveness) dimensions of audit committee effectiveness. Given that this study's measure of audit committee effectiveness (when measuring variation in earnings conservatism) is encompassing similar dimensions as specified by DeZoort et al.'s

(2002), this study will formally adopt DeZoort et al.'s (2002) definition of audit committee effectiveness.

The studies (Karamanou and Vafeas 2005; Klein 2002a, 2002b; Lennox and Park 2007; Stewart and Munro 2007; Turley and Zaman 2007; Vafeas 2005; Wright 1996; Xie et al. 2003) discussed above suggest that more effective audit committees will improve earnings quality. Specifically, more effective audit committees will be better able to mitigate opportunities for corporate management to engage in opportunistic behavior that can affect earnings quality (Klein 2002b). Furthermore, a more effective audit committee will have greater ability to override aggressive financial accounting policy choices initiated by corporate management that could promote less conservative earnings results. Finally, if an audit committee is effective in an arbitration role, the audit committee will develop more systematic compromises between corporate management and external parties (e.g., the external auditor) (DeZoort 1998; DeZoort and Salterio 2001). Improved resolution of conflicts, therefore, will likely enhance the acceptance of conservative earnings practices. An effective audit committee is more likely to pick up overstatements since the audit committee has oversight responsibilities. Given audit committees' role in improving the quality of financial reporting, it is predicted that an effective audit committee will be involved in conservative accounting practices.

Various incentives exist to suggest why an audit committee is motivated to promote earnings conservatism (Abbott, Park, and Parker 2000; Abbott and Parker 2000; Carcello et al. 2002). Specifically, since conservatism reduces management's ability and incentives to overstate earnings by requiring higher degree of verification for gain recognition and reduces management ability to withhold unexpected losses, an effective audit committee is more likely to adopt conservatism. Moreover, members of audit committees especially independent members, have strong incentives to ensure the adoption of conservative accounting practices so as to protect and enhance their (i.e., members of the audit committee) reputational capital and improve or at the very least, not diminish, opportunities for appointment to boards of other firms (Abbott et al. 2000; Abbott and Parker 2000; Carcello et al. 2002). Although service on an audit committee may increase a director's reputation as an effective monitor, such service also exacerbates the potential reputational damage and consequently, potentially creating less opportunity for appointment of other boards if financial statement misstatements occur by firms while such directors serve on the audit committee. In addition, financial statement misstatements can lead to litigation risks and costs (Abbott et al. 2004; Palmrose and Scholz 2002). As a result, the preservation of reputational capital and reduction in litigations risks/costs serve as an important motivation for higher quality monitoring by audit committees. Past literature shows that conservatism helps retaining reputational capital by reducing litigation risk (Lara et al. 2009a, 2009b; Pae

et al. 2005; Watts 2003a). Therefore, it is more likely that an effective audit committee will engage in conservative accounting practices so that the reputational damage and threat of litigation can be prevented.<sup>19</sup>

Therefore, based on the prior literature and the rationale provided, the general proposition is postulated as:

*GP<sub>EAC</sub>: Australian publicly listed firms with more effective audit committees are more likely to have higher levels of earnings conservatism.*

As discussed earlier, earnings conservatism is conceptualized in three different ways: (1) timeliness of earnings conservatism; (2) persistence of earnings conservatism; and (3) Accruals-based model of earnings conservatism.<sup>20</sup> To formally test the general proposition *GP<sub>EAC</sub>*, three major hypotheses are formulated based on three different models of earnings conservatism. The hypotheses are as follows:

*H<sub>1</sub>: Australian publicly listed firms with more effective audit committees are more likely to be associated with timelier recognition of negative news in reported earnings.*

*H<sub>2</sub>: Australian publicly listed firms with more effective audit committees are more likely to be associated with the persistence of earnings.*

*H<sub>3</sub>: Australian publicly listed firms with more effective audit committees are more likely to be associated with accruals-based earnings conservatism (i.e., recognition negative operating cash flows quicker than positive operating cash flows).*

### **3.5 Audit Committee Effectiveness components and the Influence on Conservatism**

Whilst the audit committee effectiveness – earnings conservatism link can be considered by adopting a holistic perspective of audit committee effectiveness, the influence of specific components underlying audit committee effectiveness on earnings conservatism may provide additional insights. A number of determinants have been detailed in the extant literature that researchers propose affect audit committee effectiveness (Abbott et al. 2000; Abbott, Parker, Peters, and Raghunandan 2003b; Abbott, Parker, Peters, and Rama 2007; Carcello et al. 2006; Carcello and Neal 2003; Carcello, Neal, Palmrose, and Scholz 2006; Klein 2002a, 2002b; Krishnan 2005; Krishnan and Visvanathan 2007a; Van der Zahn and Tower 2004; Xie et al. 2003). Broadly, the four main components of audit committee

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<sup>19</sup> Firm litigation costs arise when different parties to the firm sue managers, directors or auditors in an attempt to recover incurred losses caused by misstatements in the financial statements, thereby assigning responsibility for reported losses not reflecting the true underlying economic performance of the firm (2009a). According to Watts (Lara et al. 2009b) and Pae et al. (2003a), the right of shareholders to sue for financial statement misrepresentation creates a demand for conservative accounting in order to limit litigation losses stemming from allegations of overstated net assets or income. Watts (2005), further, observed that courts generally punished overstatement of net assets or income more than understatement because stakeholders (especially shareholders) are more likely to suffer losses when earnings/assets are overstated than understated. Since the expected cost of overstatement is higher than the cost of understatement, management and auditors have incentives to report conservatism.

<sup>20</sup> For the purposes of the study, the phrase ‘accruals-based earnings conservatism’ refers to the Ball and Shivakumar (2005) model of earnings conservatism.

effectiveness determinants are identified as: (1) arrangement (i.e., audit committee independence, size and duality); (2) resources (i.e., financial expertise, committee experience); (3) authority (i.e., power enshrined in the audit committee); and (4) diligence (i.e., audit committee frequency of meeting) (DeZoort et al. 2002). The first two components relate to structural composition of the audit committee whilst the latter two relate to operational composition features. Whilst overall audit committee effectiveness (on an aggregated basis) is expected to positively associate with earnings conservatism, the different components underlying an audit committee's effectiveness could have differing degrees of influence on earnings conservatism (Abbott et al. 2000; Abbott and Parker 2001; Beasley and Salterio 2001; Carcello, Hollingsworth, and Neal 2006; Carcello and Neal 2003; DeZoort et al. 2002).

This study, therefore, also seeks to empirically examine the isolated impact of four key components of audit committee (i.e., audit committee independence, financial expertise, prior experience and diligence) on earnings conservatism.

### **3.5.1 Audit committee independence**

Corporate governance advocates, regulators and scholars frequently argue that an audit committee with independent directors is more likely to be effective in discharging responsibilities. A number of studies examined the relationship between audit committee with independent directors and quality of a firm's financial reporting (Abbott et al. 2000; Beasley and Petroni 2001; Bedard et al. 2004; Craswell 1999; Klein 2002b; Lee, Mande, and Ortman 2003; Vicknair, Hickman, and Carnes 1993). The empirical results indicate that audit committees comprised either entirely or by a majority of independent directors are successful in improving the quality of reported earnings (Abbott et al. 2003b; Klein 2002b; Vafeas 2005; Xie et al. 2003). Empirical research also shows that audit committees comprised either entirely or by a majority of independent directors support the external audit function (Abbott and Parker 2000; Abbott et al. 2007; Carcello and Neal 2000) and improve the overall corporate governance practices within firms (Beasley and Salterio 2001; Chen and Zhou 2007; Klein 2002a). The past literature examining audit committee independence is summarized in Table 3.1.

**Table 3.1 - Summary of major selected prior studies on audit committee independence: Country-based and chronological order**

No.	Author/s (year)	Country	Sample	Period of study	Dependent variable			Main results
					Earnings quality	Audit function	Overall governance	
1	Chen, K. Y., Moroney, R., Houghton, K. (2005)	Australia	510 firms	2000	-	Industry specialist auditor	-	A higher proportion of non-executive directors on the audit committee use an industry-specialist audit firm. Findings also suggest that financial expertise and meeting frequency is not significantly associated with the use of an industry specialist audit firm.
2	Davidson, R., Goodwin-Stewart, J. and Kent, P. (2005)	Australia	434 firms	2000	Accruals quality	-	-	Firms with a majority of non-executive directors on the board and audit committee are significantly associated with a lower likelihood of earnings management.
3	Vicknair, D., Hickman, K., and Carnes, K. C. (1993)	US	100 NYSE firms	1980 to 1987	-	-	Directors who have some operating association with the firm	'Grey' director representation on audit committees is pervasive across NYSE firms and over time.
4	McMullen, D. A. and Raghunandan, K. (1996)	US	51 firms	1986 to 1989	SEC enforcement actions/material restatements of earnings	-	-	Firms with audit committees which are comprised solely of outside directors and have at least one financial expert and meet at least three or four times a year have less financial reporting problems (SEC enforcement actions/material restatements of earnings).
5	Abbott, L. J. and Parker, S. (2000)	US	500 firms	1994	-	Industry specialist auditor	-	Firms with audit committees that are both independent and active are more likely to employ an industry-specialist auditor.
6	Carcello, J. V. and Neal, T. L. (2000)	US	383 firms	1994	-	Issuance of a qualified audit report	-	If majority of audit committee members are non-independent, it is less likely for the firm to receive a qualified audit report.
7	Klein, A. (2002b)	US	803 firm-year observations	2002	-	-	Size of board of directors and percentage of outside directors on board	Audit committee member independence increases with board size and the percentage of the outsiders on the board.
8	Klein, A. (2002a)	US	692 firm-year observations	July 1, 1991 to June 30, 1993	Opportunities for firm growth	-	-	Independent boards and audit committees are more effective in monitoring financial reporting quality.

**Table 3.1 (continued) – Summary of major selected prior studies on audit committee independence: Country-based and chronological order**

No.	Author/s (year)	Country	Sample	Period of study	Dependent variable			Main results
					Earnings quality	Audit function	Overall governance	
9	Abbott, L. J., Parker, S., Peters, G. F. and Raghunandan, K. (2003a)	US	538 firms	February 5, 2001 to June 30, 2001	-	Lower non-audit fees	-	Audit committees that consists solely of independent directors and meet at least four times a year have lower non-audit fees; thereby, increasing audit committee effectiveness.
10	Xie, B., Davidson, W. N. and DaDalt, P. J. (2003)	US	282 firms	1992, 1994 and 1996	Discretionary current accruals	-	-	Earnings management is less likely to occur if there are independent audit committee members and a financial expert on the audit committee which meets regularly.
11	Abbott, L. J., Parker, S and Peters, G. F. (2004)	US	88 observations	1991 to 1999	Occurrence of restatements	-	-	Firms with audit committees that are both independent and active and have at least one member who is a financial expert exhibit a significant negative association with the occurrence of restatements.
12	Bedard, J., Chtourou, S. M. and Courteau, L. (2004)	US	3,451 firms	1996	Abnormal accruals influencing income	-	-	Aggressive earnings management is negatively associated with the financial and governance expertise of audit committee members, audit committee member independence and a clear mandate defining the responsibilities of the audit committee.
13	Agarwal and Chadha (2005)	US.	159 firms	2000 to 2001	Occurrence of restatements	-	-	Firms with audit committees composed of independent directors with financial expertise have lower restatement problem.
14	Carcello, J. V., Hollingsworth, C. W., Klein, A. and Neal, T. L. (2006)	US	350 firms	2003	Discretionary current accruals	-	-	Audit committees with independent members and an accounting financial expert are more effective in reducing earnings management.
15	Abbott, L. J., Parker, S., Peters, G. F and Rama, D. V. (2007)	US	219 questionnaires	2000	-	Outsourced routine internal audit activities	-	The results indicate that firms with independent, active and expert audit committees are less likely to outsource routine internal audit activities to the external auditor.
16	Chen, K. Y. and Zhou, J. (2007)	US	821 firms	October 15, 2001 and August 31, 2002	-	-	Earlier dismissal of Arthur Andersen	Firms with more independent audit committees and audit committees with greater financial expertise dismissed Arthur Andersen earlier.
17	Beasley, M. S. and Salterio, S.E. (2001)	Canada	627 firms	1994	-	-	Large board of directors and outside members on boards	Audit committees with outside directors (who have financial expertise) and audit committee experience are associated with boards that are larger and contain outside members.
18	Van der Zahn, J-L., W., M. and Tower, G. (2004)	Singapore	485 firm-year observations	2000 to 2001	Discretionary accruals	-	-	Firms with a higher proportion of independent audit committee members, greater diligence and reduced presence on other boards and committees are more effective in constraining earnings management.

As indicated in Table 3.1, empirical findings have generally supported the perception that independent audit committees are more effective in constraining corporate management and improving earnings quality. Abbott and Parker (2000), for example, concluded that firms with audit committees composed of independent directors were less likely to be sanctioned by the *SEC* for fraudulent or misleading financial reporting compared to firms whose audit committees were not comprised of independent directors. Similarly, Klein (2002b) found that the percentage of independent audit committees were negatively associated with a firm's abnormal accruals. Klein (2002a), Xie et al. (2003) and Van der Zahn and Tower (2004) also observed a significant positive relationship between earnings management (as measured by discretionary accruals) and audit committees with less than absolute or a majority of outside directors. Similarly, Abbott et al. (2004) concluded that restatements were significantly less likely when audit committees were comprised of solely independent members. Bedard et al. (2004), meanwhile, determined that audit committees comprising solely of independent directors had a positive association with the quality of the firm's financial reports as measured by abnormal accruals influencing income. In an Australian study, Davidson et al. (2005) showed that firms with audit committee comprised a majority of non-executive directors are associated with a lower likelihood of earnings management as measured by accruals quality.

The past literature also suggests that firms with independent audit committee members have a lower incidence of fraud (Abbott et al. 2000; Beasley 1996; Beasley, Carcello, and Hermanson 1999; Beasley, Carcello, Hermanson and Lapidés 2000; Carcello and Nagy 2002; Farber 2005). McMullen and Raghunandan (1996), for example, found that firms with reporting problems were less likely to have audit committees composed solely of outside directors. Additionally, Beasley et al. (2000) found that fraud firms had less independent audit committees than non-fraud firms.

A number of studies have concluded that an independent audit committee improves the quality of a firm's audit function, both external and internal (Abbott and Parker 2000; Abbott et al. 2003a; Carcello and Neal 2000; Chen et al. 2005). Carcello and Neal (2000), for example, showed that if majority of audit committee members are non-independent, it is less likely that the auditors would issue a going concern report to financially distressed firms. Additionally, a study by Abbott and Parker (2000) showed that firms with independent audit committees are more likely to select industry-specialist external auditors. Abbott et al. (2003b) found that firms with audit committees that consisted solely of independent directors had lower NAS fees paid to auditors in an effort to enhance auditor independence. In another study, Abbott et al. (2003a) found that audit committees comprised entirely of outside directors are significantly associated with audit fees suggesting the aspiration for high-quality audits. Similarly, Chen et al. (2005) found that firms with high percentage of

independent directors on the audit committee are more likely to hire an industry-specialist auditor compared to firms with low percentage of independent directors on the audit committees.<sup>21</sup> Moreover, firms with independent audit committees were less likely to outsource routine internal audit activities to the external auditors (Abbott et al. 2007).<sup>22</sup>

Overall, prior theoretical and empirical research provides a sound foundation to suggest that independent audit committee members are more likely to constrain management behavior in a number of areas and improve the quality of reported financial information. As part of improving the quality of reported financial information, audit committees with independent members are more likely to adopt financial accounting practices which will help restrain overstatement. Earnings conservatism is such a tool which can ensure that a firm's financial report is not overstated since conservatism requires the recognition of bad news sooner and delay the reporting of good news. The increase in reported conservatism also protects the audit committee member's reputational capital and reduces contracting and mitigates litigation costs.<sup>23</sup> Thus, more independent audit committees are likely to support actions promoting earnings conservatism. To test this assertion, the following proposition is proposed:

*GP<sub>Ind</sub>: Australian publicly listed firms with more independent audit committees are more likely to have higher levels of earnings conservatism.*

As discussed earlier, earnings conservatism is conceptualized in three different ways: (1) timeliness of earnings conservatism; (2) persistence of earnings conservatism; and (3) accruals-based model of earnings conservatism. To formally test the general proposition *GP<sub>Ind</sub>*, three hypotheses are formulated based on three different models of earnings conservatism. The hypotheses are as follows:

*H<sub>1a</sub>: Australian publicly listed firms with more independent audit committees are more likely to be associated with timelier recognition of negative news in reported earnings.*

*H<sub>2a</sub>: Australian publicly listed firms with more independent audit committees are more likely to be associated with the persistence of earnings.*

*H<sub>3a</sub>: Australian publicly listed firms with more independent audit committees are more likely to be associated with accruals-based earnings conservatism (i.e., recognition negative operating cash flows quicker than positive operating cash flows).*

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<sup>21</sup> An industry-specialist auditor is perceived to be better able to formulate relevant audit procedures given the industry that the firm is in and this, in turn, increases audit quality (Abbott et al. 2003a).

<sup>22</sup> Given the fact that an outsourced internal auditor is not normally present at the firm's premises and unlikely to be as familiar with a firm's operations compared to an in-house internal audit function, the quality of the out-sourced internal audit is perceived to be lower than an internal audit function which is in-house (Carcello and Nagy 2002; Casterella, Francis, Lewis, and Walker 2004; Defond, Francis, and Wong 2000).

<sup>23</sup> Improved monitoring by independent directors generate from incentives for such directors to build and maintain reputations as decision control experts. Moreover, litigation concerns provide a secondary motivation for maintaining the quality of financial reporting (Felix, Gramling, and Maletta 2001; Goodwin 2003).

### **3.5.2 Audit committee financial expertise**

The financial expertise of audit committee members has also received growing attention by corporate governance advocates and researchers (Bedard et al. 2004; Bonner, Lewis, and Marchant 1990; Chan and Li 2008; Defond et al. 2005; McDaniel, Marint, Maines, and Peecher 2002). As new corporate governance regulations continue to expand an audit committee's role and responsibilities, there is growing pressure on members to develop greater financial expertise to counter the escalating complexity and sophistication of the financial reporting (ASX CGC 2003, 2007; BRC 1999). This is because researchers believe that an audit committee with financial expertise necessary to ensure that the audit committee fulfils primary responsibilities of overseeing the financial reporting process and ensuring high quality of reported earnings (Dhaliwal et al. 2006; Krishnan 2003; McMullen and Raghunandan 1996).

A number of studies have investigated the relationship between audit committee financial expertise and a firm's financial reporting processes (Chan and Li 2008; Defond et al. 2005; Krishnan 2005; McDaniel et al. 2002; McMullen and Raghunandan 1996). Empirical studies to date provide mixed results. Results from a number studies indicate that audit committees comprised of at least one member with financial expertise are more effective in improving the quality of reported earnings (Bedard et al. 2004; McDaniel et al. 2002; McMullen and Raghunandan 1996; Xie et al. 2003), support the external audit function (DeZoort, Hermanson, and Houston 2003) and improve the overall corporate governance practices within firms (Chan and Li 2008; Defond et al. 2005; Krishnan 2005). On the other hand, a small number of studies (Anderson, Mansi, and Reeb 2004; Defond et al. 2005; Lee and Mande 2005) have failed to show any significant relationship between audit committees comprised of at least one member with financial expertise and the quality of reported earnings. The studies are summarized in Table 3.2.

**Table 3.2 - Summary of major selected prior studies on audit committee financial expertise: Country-based and chronological order**

No.	Author/s (year)	Country	Sample	Period of study	Dependent variable			Main results
					Earnings quality	Audit function	Overall governance	
1	McMullen, D. A. and Raghunandan, K. (1996)	US	51 firms	1986 to 1989	SEC enforcement actions/material restatements of earnings	-	-	Firms with audit committees which are comprised solely of outside directors and have at least one financial expert and meet at least three or four times a year have less financial reporting problems (SEC enforcement actions/material restatements of earnings).
2	McDaniel, L., Marint, R. and Maines, L. A. (2002)	US	Experimental design	Experimental research	Quality of a firm's financial reports using FASB's Concept No. 2 (e.g., relevance)	-	-	The existence of a financial expert on audit committees may improve the quality of a firm's financial reports.
3	DeZoort, F. T., Hermanson, D.R. and Houston, R. W. (2003)	US	55 audit committee members	2000	-	Support for auditor in a auditor-management disagreement	-	More experienced audit committee members and experienced members who are CPAs were more supportive of the auditor in a auditor-management disagreement.
4	Xie, B., Davidson, W. N. and DaDalt, P. J. (2003)	US	282 firms	1992, 1994 and 1996	Discretionary current accruals	-	-	Earnings management is less likely to occur if there are independent audit committee members and a financial expert on the audit committee which meets regularly.
5	Abbott, L. J., Parker, S and Peters, G. F. (2004)	US	88 observations	1991 to 1999	Occurrence of restatements	-	-	Firms with audit committees that are both independent and active and have at least one member who is a financial expert exhibit a significant negative association with the occurrence of restatements.
6	Bedard, J., Chtourou, S. M. and Courteau, L. (2004)	US	3,451 firms	1996	Discretionary current accruals	-	-	Aggressive earnings management is negatively associated with the financial and governance expertise of audit committee members, audit committee member independence and a clear mandate defining the responsibilities of the audit committee.
7	Agarwal, A. and Chadha, S. (2005)	US	159 firms	2000 to 2001	Occurrence of restatements	-	-	Firms with audit committees composed of independent directors with financial expertise have lower restatement problem.

**Table 3.2 (continued) – Summary of major selected prior studies on audit committee financial expertise: Country-based and chronological order**

No.	Author/s (year)	Country	Sample	Period of study	Dependent variable			Main results
					Earnings quality	Audit function	Overall governance	
8	Defond, M. L., Hann, R. N. and Hu, X. (2005)	US	702	1993 to 2002	-	-	Market reaction (cumulative abnormal returns) to appointment of accounting financial experts	A financial expert on the audit committee improves a firm's corporate governance.
9	Krishnan, J. (2005)	US	128 firms	1994 to 2000	-	-	Extent of internal control problems	Firms face greater internal control problems if the audit committee does not have independent members and financial experts.
10	Carcello, J. V., Neal, T. L., Hollingsworth, C. W. (2006)	US	400 firms	July 15, 2003 to December 31, 2003	Discretionary current accruals	-	-	Audit committees with an accounting financial expert are more effective in reducing earnings management.
11	Dhaliwal, D, Naiker, V. and Navissi, F. (2006)	US	3,501 audit committee members	1995 to 1998	Accruals quality	-	-	There is a positive relationship between the existence of an accounting financial expert on the audit committee and accruals quality.
12	Krishnan, G. V. and Visvanathan, G. (2007b)	US	164 firms	November 15, 2004 to March 1, 2005	-	-	Internal control weaknesses	Audit committees who meet regularly and have a smaller proportion of financial experts are more likely to detect internal control weaknesses.
13	Chan, K. C. and Li, J. (2008)	US	200 firms	2000	-	-	Firm value as represented by stock price (holding period return)	The presence of expert-independent directors on the audit committee and board enhances firm value, thereby, increasing audit committee effectiveness.

As indicated in Table 3.2, studies undertaken examining the relationship between audit committee financial expertise and audit committee effectiveness indicate that greater financial expertise amongst audit committee members enhances audit committee effectiveness. McMullen and Raghunandan (1996) provided initial evidence that firms with poorer earnings quality (in the form of financial reporting problems) were less likely to have a financial expert on the audit committee. McDaniel et al. (2002) determined that the presence of a financial expert on the audit committee improved the quality of the firm's financial statements. Similarly, Bedard et al. (2004) and Agrawal and Chadha (2005) found that aggressive earnings management is negatively associated with the financial and governance expertise of audit committee members. Abbott et al. (2004) also provided evidence that audit committees with greater financial expertise are better able to prevent occurrences of financial misstatements. Finally, Dhaliwal et al. (2006) concluded that there is a positive relationship between the existence of an accounting financial expert on the audit committee and the firm's accruals quality.

DeZoort et al. (2003) found evidence that financial experts on an audit committee would provide the sub-committee with greater resolve to support the external auditor during auditor-management disagreements. Defond et al. (2005) found greater audit committee financial expertise enhanced the firm's overall internal control environment. Similarly, Krishnan (2005) stated that firms experienced greater internal control problems if the audit committee did not have a financial expert. Finally, Krishnan and Visvanathan (2007a) and Chan and Li (2008) showed that a firm's value was enhanced by the presence of a financial expert on the audit committee.

As indicated in the summary of prior research on the influence of audit committee financial expertise on the quality of a firm's financial report, empirical research has generally supported the notion that audit committee effectiveness is enhanced with the presence of a financial expert (or experts) as a member. Audit committee members with financial expertise can enhance conservatism by assessing the adequacy of financial provisions such as warranty obligations, law suits and other contingencies. An audit committee member with financial expertise will also be better able to detect aggressive earnings management since the financial expert can examine the reasonableness of explanations provided by management (Krishnan and Visvanathan 2007a). Moreover, an audit committee member with financial expertise will also be better able to pick overstatement in the financial statement. An audit committee member with financial expertise, in fact, will be motivated to encourage conservative accounting practices in order to preserve his reputational capital and the opportunity to serve at another board and at the same time to reduce litigation concerns (Carcello et al. 2006; Defond et al. 2005; Dhaliwal et al. 2006; McDaniel et al. 2002). Based on the prior empirical findings and relevant

discussions about the role financial experts play in increasing audit committee effectiveness, it is likely that the presence of a financial expert on the audit committee will increase conservative accounting practices by management. To formally test this assertion, the following proposition is proposed:

*GP<sub>Expt</sub>: Australian publicly listed firms with more financially astute audit committees are more likely to have higher levels of earnings conservatism.*

As discussed earlier, earnings conservatism is conceptualized in three different ways: (1) timeliness of earnings conservatism; (2) persistence of earnings conservatism; and (3) accruals-based model of earnings conservatism. To formally test the general proposition *GP<sub>Expt</sub>*, three hypotheses are formulated based on three different models of earnings conservatism. The hypotheses are as follows:

*H<sub>1b</sub>: Australian publicly listed firms with more financially astute audit committees are more likely to be associated with timelier recognition of negative news in reported earnings.*

*H<sub>2b</sub>: Australian publicly listed firms with more financially astute audit committees are more likely to be associated with the persistence of earnings.*

*H<sub>3b</sub>: Australian publicly listed firms with more financially astute audit committees are more likely to be associated with accruals-based earnings conservatism (i.e., recognition negative operating cash flows quicker than positive operating cash flows).*

### **3.5.3 Audit committee corporate governance experience**

Audit committee members with corporate governance experience are also posited to increase the audit committee's effectiveness. A number of studies have empirically examined the relationship between audit committee members' corporate governance experience and a firm's financial reporting process. Empirical research shows that audit committees consisting of members with greater corporate governance experience are better able to ensure the quality of reported earnings, protect the audit function and improve the overall governance structures within firms (Beasley and Salterio 2001; Carcello and Neal 2003; DeZoort 1998; DeZoort et al. 2003) indicating that audit committees with members who have corporate governance experience are more effective in discharging responsibilities and ensuring the integrity of the financial reporting process. The empirical evidence supporting this view is summarized in Table 3.3.

**Table 3.3 - Summary of major selected prior studies on audit committee experience: Country-based and chronological order**

No.	Author/s (year)	Country	Sample	Period of study	Dependent variable			Main results
					Earnings quality	Audit function	Overall governance	
1	Goodwin, J. (2003)	Australia and New Zealand	109 questionnaires	2000	-	Relationship with internal audit	-	Independence of the audit committee and the level of accounting experience among audit committee members have a complementary impact on audit committee relations with internal audit.
2	DeZoort, F. T. (1998)	US	87 audit committee members	Experimental research	-	-	Consistent audit committee judgments, have better self-insight and higher technical content levels	Experienced audit committee members make more consistent judgments, have better self-insight and higher technical content levels; thereby, increasing audit committee effectiveness.
3	Carcello, J. V., Neal, T. L. (2003)	US	374 firms	1988 to 1999	-	Protecting the auditor from dismissal following the issuance of a going concern report	-	Audit committee members that are more independent and who sit on other audit committees (governance expertise) and own less firm shares are more effective in protecting the auditor from dismissal following the issuance of a going concern report.
4	DeZoort, F. T., Hermanson, D. R. and Houston, R. W. (2003)	US	55 audit committee members	2000	-	Support for the auditor in a auditor-management disagreement	-	More experienced audit committee members and experienced members who are CPAs were more supportive of the auditor in a auditor-management disagreement.
5	Beasley, M. S. and Salterio, S. E. (2001)	Canada	627 firms	1994	-	-	Larger board of directors and outside directors	Audit committees with outside directors (who have financial expertise) and audit committee experience are associated with boards that are larger and contain outside members.
6	DeZoort, F. T., Salterio, S. E. (2001)	Canada	68 audit committee members	Experimental research	-	Support for the auditor in a auditor-management disagreement	-	Greater audit committee independent director experience and audit knowledge were associated with audit committee support for the auditor in a dispute with firm management.

Empirical evidence supports the view that experienced audit committee members are better able to restrict management's opportunistic behavior. DeZoort (1998), for example, observed that experienced audit committee members made more consistent judgments, had better self-insight and higher technical content levels, thereby, increasing audit committee effectiveness. In two subsequent studies, DeZoort and Salterio (2001) and DeZoort et al. (2003) found that audit committee members with greater corporate governance experience were also more likely to support the auditor in an auditor-management conflict and more likely to address and detect material misstatements in the firm's financial report. Most importantly, Beasley and Salterio (2001) found that the audit committee's financial reporting knowledge and experience affected the overall governance structure within firms. They (Beasley and Salterio 2001) concluded that financial reporting knowledge and experience were positively associated with board size, proportions of outsiders on the board and separation of board chairperson and CEO (i.e., CEO duality). Carcello and Neal (2003) also found that audit committee members who were also on audit committees of other firms were more effective in protecting the auditor from dismissal following the issuance of a going concern report.

In an Australian study, Goodwin (2003) found that the level of accounting experience among audit committee members has a positive impact on audit committee's relation with the internal audit function.

Based on empirical studies and preceding discussions, it is hypothesized that audit committees with more experienced members will be more effective in ensuring that firms adopt conservative earnings practices relative to firms with less experienced audit committee members. The following proposition is proposed:

*GP<sub>Exp</sub>: Australian publicly listed firms with more experienced audit committees are more likely to have higher levels of earnings conservatism.*

As discussed earlier, earnings conservatism is conceptualized in three different ways: (1) timeliness of earnings conservatism; (2) persistence of earnings conservatism; and (3) accruals-based model of earnings conservatism. To formally test the general proposition *GP<sub>Exp</sub>*, three hypotheses are formulated based on three different models of earnings conservatism. The hypotheses are as follows:

*H<sub>1c</sub>: Australian publicly listed firms with more experienced audit committees are more likely to be associated with timelier recognition of negative news in reported earnings.*

*H<sub>2c</sub>: Australian publicly listed firms with more experienced audit committees are more likely to be associated with the persistence of earnings.*

*H<sub>3c</sub>: Australian publicly listed firms with more experienced audit committees are more likely to be associated with accruals-based earnings conservatism (i.e., recognition negative operating cash flows quicker than positive operating cash flows).*

#### **3.5.4 Audit committee diligence**

The extent to which an audit committee is diligent is viewed by regulators, corporate governance advocates and scholars as a major factor determining audit committee effectiveness (BRC 1999; Corporate Governance Committee 2001; PriceWaterhouseCoopers 1997). Diligence refers to the willingness of audit committee members to work together as needed to prepare, ask questions, and pursue answers when dealing with management, external auditors, internal auditors, and other relevant constituents (DeZoort et al. 2002).

Studies examining the relationship between audit committee diligence and the association with audit committee effectiveness have concluded that diligence is one of the most important factors in achieving audit committee effectiveness (Abbott et al. 2004; Bedard et al. 2004; Menon and Williams 1994; Xie et al. 2003). Past literature indicates that a diligent audit committee which meets regularly is more capable of ensuring that the financial reporting process is functioning properly (Farber 2005; Vafeas 2005; Xie et al. 2003). Similarly, a more active audit committee is better able to detect and prevent opportunistic behavior by management and to ensure the integrity of reported earnings (Beasley et al. 2000; Menon and Williams 1994; Stewart and Munro 2007). The past literature examining audit committee diligence is summarized in Table 3.4.

**Table 3.4 - Summary of major selected prior studies on audit committee diligence: Country-based and chronological order**

No.	Author/s (year)	Country	Sample	Period of study	Dependent variable			Main results
					Earnings quality	Audit function	Overall governance	
1	Stewart, J. and Munro, L. (2007)	Australia	Experimental design	Experimental research	-	Reduction in firm audit risk	-	A firm with an audit committee which meets frequently and the auditors attend the meetings, is positively associated with a reduction in audit risk.
2	Menon, K., and Williams, J. D. (1994)	US	200 firms	1986 to 1987	-	-	Reporting of consecutive period losses	The majority of audit committees formed were not utilized effectively since the audit committees were staffed by insiders and met infrequently. Audit committees may, therefore, be created for the purposes of appearances rather than to increase stockholder's control of management.
3	McMullen, D. A. and Raghunandan, K. (1996)	US	51 firms	1986 to 1989	SEC enforcement actions/material restatements of earnings	-	-	Firms with audit committees which are comprised solely of outside directors and have at least one financial expert and meet at least three or four times a year have less financial reporting problems (SEC enforcement actions/material restatements of earnings).
4	Abbott, L. J. and Parker, S. (2000)	US	500 firms	1994	-	Engagement of an industry-specialist auditor	-	Firms with audit committees that are both independent and active are more likely to employ an industry-specialist auditor.
5	Beasley, M. S., Carcello, J. V., Hermanson, D. R. and Lapides, P. D. (2000)	US	66 firms	1987 to 1997	-	-	Existence of fraud	Fraud firms and non-fraud firms differ to the extent that audit committees exist and are independent from management. In addition, the audit committees also differ in terms of audit committee diligence (number of meetings) and internal audit existence.
6	Abbott, L. J., Parker, S., Peters, G. F. and Raghunandan, K. (2003a)	US	538 firms	February 5, 2001 to June 30, 2001	-	Lower non-audit fees	-	Audit committees that consists solely of independent directors and meet at least four times a year have lower non-audit fees; thereby, increasing audit committee effectiveness.
7	Xie, B., Davidson, W. N. and DaDalt, P. J. (2003)	US	282 firms	1992, 1994 and 1996	Discretionary current accruals	-	-	Earnings management is less likely to occur if there are independent audit committee members and a financial expert on the audit committee which meets regularly.
8	Abbott, L. J., Parker, S and Peters, G. F. (2004)	US	88 observations	1991 to 1999	Occurrence of restatements	-	-	Firms with audit committees that are both independent and active and have at least one member who is a financial expert exhibit a significant negative association with the occurrence of restatements.

**Table 3.4 (continued) – Summary of major selected prior studies on audit committee diligence: Country-based and chronological order**

No.	Author/s (year)	Country	Sample	Period of study	Dependent variable			Main results
					Earnings quality	Audit function	Overall governance	
9	Bedard, J., Chtourou, S. M. and Courteau, L. (2004)	US	3,451 firms	1996	Discretionary current accruals	-	-	Aggressive earnings management is negatively associated with the financial and governance expertise of audit committee members, audit committee member independence and a clear mandate defining the responsibilities of the audit committee.
10	Farber, D. B. (2005)	US	87 firms	1982 to 2000	-	-	Existence of fraud	Fraud firms have fewer audit committee meetings and fewer financial experts, thereby, reducing audit committee effectiveness.
11	Vafeas, N. (2005)	US	252 firms	1994 to 2000	Likelihood of small earnings increase and meeting or just beating analyst's forecasts	-	-	The independence and activity levels of an audit committee have a positive relationship with the quality of the earnings information produced.
12	Abbott, L. J., Parker, S., Peters, G. F. and Rama, D.V. (2007)	US	219 questionnaires	2000	-	Outsource routine internal audit activities to the external auditor	-	The results indicate that firms with independent, active and expert audit committees are less likely to outsource routine internal audit activities to the external auditor.
13	Krishnan, G. V. and Visvanathan, G. (2007b)	US	164 firms	November 15, 2004 to March 1, 2005	-	-	Detection of internal control weaknesses	Audit committees who meet regularly and have a smaller proportion of financial experts are more likely to detect internal control weaknesses.

As indicated in Table 3.4, a significant strand of the published literature has identified a positive relationship between the number of audit committee meetings (proxying for audit committee diligence) and the quality of a firm's reported earnings (McMullen and Raghunandan 1996; Menon and Williams 1994; Vafeas 2005; Xie et al. 2003). For example, McMullen and Raghunandan (1996) determined that audit committees meeting at least three or four times annually had significantly less financial reporting problems in terms of *SEC* enforcement actions. Similarly, Abbott et al. (2000), Abbott et al. (2004) and Vafeas (2005) reported that firms with audit committees meeting at least biannually were less likely to be sanctioned by the *SEC* for financial reporting problems. Xie et al. (2003) and Vafeas (2005) also concluded that earnings management was less likely to occur if a firm's audit committee meets regularly. Abbott et al. (2000) and Abbott et al. (2004), investigating the relationship between audit fees, non-audit fees and audit committees, determined that audit committees which met at least four times a year had lower non-audit fees; thereby, increasing external auditor independence. Finally, Beasley et al. (2000) and Farber (2005) concluded that increased audit committee activity resulted in a negative occurrence with financial restatements and fraud respectively.

There have also been a number of published studies which have found a significant relationship between audit committee activity and the audit function (Abbott and Parker 2000; Abbott et al. 2007; Stewart and Munro 2007). Abbott and Parker (2000) concluded that firms were less likely to appoint an officer's former firm as the external auditor if audit committee members met more often and were independent of management. Stewart and Munro (2007) stated that frequent audit committee meetings with auditors were positively associated with a reduction in the firm's audit risk. Moreover, Abbott et al. (2007) indicated that firms with active audit committees were also less likely to outsource routine internal audit activities to the external auditor.

In relation to firm's governance mechanisms, Beasley et al. (2000) and Krishnan and Visvanathan (2007a) found evidence suggesting that audit committees which met regularly were also more likely to detect internal control weakness within the firm and less likely to experience fraud respectively.

In summary, the prior literature examining audit committee diligence indicates that a firm having sufficient audit committee meetings per year will have higher quality reported earnings, better relationship with the auditors and improved governance features. A diligent audit committee will always be motivated to maintain reputational capital. Therefore, a diligent audit committee will be more concerned about overstatement than understatement of reported earnings. If an audit committee meets regularly the committee will better be able to pick misstatements and ensure the quality of reported earnings. Since conservative accounting practices represent higher quality earnings, it is likely that diligent audit

committees will be better able to ensure the adoption of conservative earnings practices by management. To formally test this assertion, the following proposition is forwarded:

*GP<sub>Dil</sub>: Australian publicly listed firms with more diligent audit committees are more likely to have higher levels of earnings conservatism.*

As discussed earlier, earnings conservatism is conceptualized in three different ways: (1) timeliness of earnings conservatism; (2) persistence of earnings conservatism; and (3) accruals-based model of earnings conservatism. To formally test the general proposition *GP<sub>Dil</sub>*, three hypotheses are formulated based on three different models of earnings conservatism. The hypotheses are as follows:

*H<sub>1d</sub>: Australian publicly listed firms with more diligent audit committees are more likely to be associated with timelier recognition of negative news in reported earnings.*

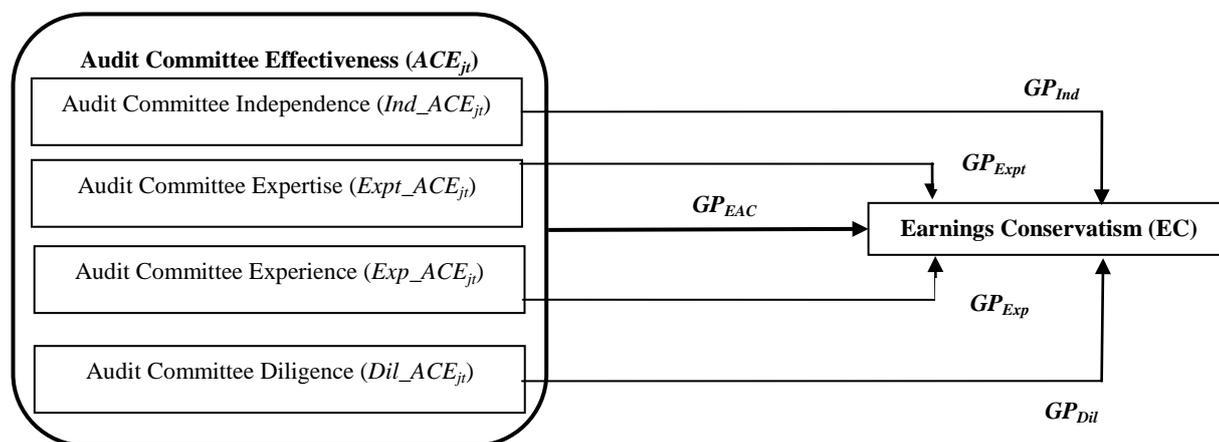
*H<sub>2d</sub>: Australian publicly listed firms with more diligent audit committees are more likely to be associated with the persistence of earnings.*

*H<sub>3d</sub>: Australian publicly listed firms with more diligent audit committees are more likely to be associated with accruals-based earnings conservatism (i.e., recognition negative operating cash flows quicker than positive operating cash flows).*

### 3.6 Conceptual Schema

Figure 3.1 graphically illustrates the key relationships examined in this study.

Figure 3.1 - Conceptual schema



The conceptual schema shown in Figure 3.1 represents a set of testable hypotheses that were formed with reference to the prior literature. As shown in Figure 3.1, it is postulated in this study that there is a positive relationship between audit committee effectiveness and the level of earnings conservatism reported by firms. A number of associations are also derived between individual components of audit committee effectiveness and earnings conservatism within the schema. As outlined in the schema, the

four key components of audit committee effectiveness (i.e., audit committee independence, financial expertise, experience and diligence) are also expected to have a positive relationship with earnings conservatism.

### **3.7 Summary of the Chapter**

This chapter documented the five theories underpinning this study. A detailed literature review relating to audit committee effectiveness is provided. A set of testable hypotheses were also formulated based on the detailed analysis of the prior literature. Finally, a conceptual schema was also provided outlining the key relationships between audit committee effectiveness and earnings conservatism.

Having provided the theoretical perspectives and hypotheses of this study, Chapter Four will provide details of the research method utilized in this study. Specifically, details of the sample, source documentation and time period selected will be provided. Measures to operationalize both earnings conservatism and audit committee effectiveness will be discussed and evaluated. The final sections of Chapter Four will 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 documented the five theories underpinning corporate governance and subsequently identified the key theory supporting this study. A detailed literature review relating to audit committee effectiveness was provided. A set of testable hypotheses were also formulated based on the detailed analysis of the prior literature. Finally, a conceptual schema was also provided outlining the key relationships between audit committee effectiveness and earnings conservatism.

This chapter provides details of the research method used to test the hypotheses developed in Chapter Three. The chapter begins with a justification of the sample selected, source documentation chosen and time period analyzed. The subsequent section explains how the dependent variable of this study, earnings conservatism, is measured using the three predominant empirical models used in the prior literature. Measures to operationalize audit committee effectiveness are then provided; namely measures for audit committee independence, expertise, governance experience and diligence. Finally, the statistical tests and models utilized to test the hypotheses are outlined before a summary is provided at the end of the chapter.

### **4.2 Sample, Documentation and Time Period**

This section outlines the methodology applied in selecting the sample, source documentation and time period.

#### **4.2.1 Sample selection**

The initial sample comprises all publicly listed firms listed on the *ASX* as at January 1, 2004. *ASX* listed firms are chosen because information on such firms are publicly available. Moreover, listed firms were selected since listed firms provide readily available information in an appropriate useable form. Consistent with prior research, financial and banking and insurance and utilities firms are excluded from the sample as such firms are regulated by specific regulatory boards (Ball et al. 2000; Givoly and Hayn 2000; Givoly et al. 2007; Goodwin 2003; Ruddock et al. 2006). Firms that were not continuously listed on the *ASX* during the observation period (e.g., 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 price. Moreover, firms involved in joint mergers and acquisitions will also be excluded on the basis that such activities may impact the extent of financial reporting undertaken (Salter 1998). Consistent with Clifford and Evans (1997), unit trusts and foreign

firms domiciled outside Australia will also be excluded because the financial statements of unit trusts and foreign firms domiciled outside Australia 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 are also excluded (Klein 2002b). From the resulting sample pool, 100 firms will be randomly selected for each year based on market capitalization. Since one of the major drivers of firm performance is the need to maximize shareholder value, this measure is best reflected by the market capitalization of a firm (Balvers, Cosimano, and McDonald 1990). Subsequently, a stratified-random approach will be used to capture the overall picture of the market as a whole, and thereby, to generalize the findings. The stratified-random approach will involve stratifying each year into quartiles by market capitalization and randomly selecting a sample of 25 firms within each quartile (Balvers et al. 1990). Each calendar year (i.e., 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 500 firm-year observations for use as data points in the subsequent testing.

#### **4.2.2 Source documentation**

The data for this study are obtained from a number of sources. The major item of focus in this study is earnings conservatism. Earnings conservatism will be measured based on the models developed by Basu (1997) and Ball and Shivakumar (2005).<sup>24</sup> Data for the aforementioned models will be obtained from *DataStream* and from the Aspect Huntleys Financial Database, specifically, from *FinAnalysis* and *DatAnalysis*. Accounting data will be collected from *FinAnalysis* and *DatAnalysis* whilst stock return data is obtained from *DataStream*. *DatAnalysis* provides comprehensive coverage of financial data for all ASX listed firms. *DatAnalysis* reports are updated daily from ASX announcements. *FinAnalysis* provides a 12-year history of detailed financial information for all firms listed on ASX. More than 400 data items are provided in addition to annual reports and prospectuses.

The main independent variable of this study is audit committee effectiveness (i.e.,  $ACE_{jt}$ ) which comprises of four primary sub-components; that is, audit committee independence, audit committee financial expertise, audit committee experience and audit committee diligence. Data used in the measurement of audit committee effectiveness and the four sub-components (i.e., audit committee independence, audit committee financial expertise, audit committee experience and audit committee diligence) will be obtained from the *Annual Reports Collection* (Connect 4 Pty Ltd). Data which may not available in the

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<sup>24</sup> See Section 4.3 for the detailed discussion of Basu (1997) and Ball and Shivakumar (2005) models.

*Annual Reports Collection* (Connect 4 Pty Ltd) database will be gathered from *DatAnalysis* since *DatAnalysis* contains the annual reports of all ASX listed firms since 1995.

Whilst the main focus of this study is to examine the relationship between audit committee effectiveness and the four main sub-components of the audit committee with earnings conservatism, robustness and various sensitivity tests will also be conducted.<sup>25</sup> Data for the sensitivity analysis will be obtained from either the *Annual Reports Collection* (Connect 4 Pty Ltd) or *DatAnalysis*.

#### **4.2.3 Time period selection**

Analysis involves a longitudinal examination covering a five calendar-year period (January 1, 2004 to December 31, 2008). The five-year period is selected to minimize any significant extraneous influences on findings as a result of fallout from the 'Dot.Com Bubble' or the introduction of new International Financial Reporting Standards (*IFRS*). Nonetheless, the period is also selected in order to determine the effectiveness of key corporate governance reforms introduced in 2003. As the time period is after the introduction of key corporate governance reforms in Australia (i.e., *CLERP 9* and *ASX 2003*), findings may indicate whether recommendations related to audit committees in *CLERP 9* and *ASX 2003* impact the audit committee effectiveness/earnings conservatism linkage. The time-frame is also selected to collect the timeliest information available.

In the next sections, proxy measures for the dependent variable (earnings conservatism) and independent variables (audit committee effectiveness) are identified.

#### **4.3 Measurement of Earnings Conservatism**

Prior research suggests that earnings conservatism can be conceptualized in several different ways (Balkrishna et al. 2007; Ball and Shivakumar 2005; Basu 1997; Lara et al. 2009a, 2009b; Ruddock et al. 2006). Three dominant views detailed in the past literature show earnings conservatism as being a function of either: (1) timeliness; (2) persistence; or (3) differences in current period accruals and cash flows (Ball and Shivakumar 2005; Basu 1997; Ruddock et al. 2006; Watts 2003a). To ensure a comprehensive analysis of earnings conservatism and the three major dimensions of this concept, three different measurement approaches are used. The measures of earnings conservatism focusing on timeliness and persistence draw on the methodology developed by Basu (1997) which is considered as a typical method by a significant amount of prior earnings conservatism research (Balkrishna et al. 2007; Ball and Shivakumar 2005; Dietrich et al. 2007; Roychowdhury and Watts 2007; Ruddock et al. 2006). The third measure of earnings conservatism used in this study is based on the difference in current period accruals and cash flows measured using the approach

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<sup>25</sup> See Section 4.5 for the detailed discussion of sensitivity tests.

adopted by Ball and Shivakumar (2005). The following subsection describes the measures used to capture earnings conservatism.

#### 4.3.1 Basu (1997) model of timeliness

Basu (1997) timeliness approach of earnings conservatism is grounded in the assumption that the timeliness of earnings is asymmetric (Balkrishna et al. 2007; Basu 1997; Ruddock et al. 2006). According to Basu (1997), earnings are reverse-regressed on contemporaneous stock returns. The timeliness of earnings is inferred from the responsiveness of accounting income to changes in market value. Negative market adjusted stock returns are used as a proxy for bad news, whilst positive returns as a proxy for good news. Timeliness is measured by the slope coefficient from a regression of annual earnings on contemporaneous stock returns (Basu 1997).

*Equation 1* details the basic model underlying the timeliness measure of earnings conservatism:

$$X_{jt} = \alpha_0 + \beta_0 DR_{jt} + \beta_1 RR-AllOrd_{jt} + \beta_2 RR-AllOrd_{jt} * DR_{jt} + \varepsilon_{jt} \quad [1]$$

#### Legend:

- $X_{jt}$  = Operating profit after tax of firm  $j$  deflated by market value of equity ( $MVE_{t-1}$  - Market capitalization of firm  $j$  at beginning of the fiscal year  $t$ ) of firm  $j$  at beginning of the fiscal year  $t$ ;
- $DR_{jt}$  = Indicator variable where firm  $j$  is scored one (1) if  $RR-AllOrd_{jt}$  is negative, otherwise firm  $j$  is scored zero (0);
- $RR-AllOrd_{jt}$  = Annual share returns for firm  $j$  from three months after the previous fiscal year  $t-1$  to three months after the current fiscal year  $t$  (i.e.,  $(P_t - P_{t-1})/P_{t-1}$  where  $P_t$  is the price of shares for firm  $j$  three months after the end of the fiscal year  $t$  and  $P_{t-1}$  is the price of shares for firm  $j$  three months after the end of the fiscal year  $t-1$ ) adjusted for the All Ordinaries Index over the same period;
- $RR-AllOrd_{jt} * DR_{jt}$  = Two-way interaction between annual share returns for firm  $j$  from three months after the previous fiscal year  $t-1$  to three months after the current fiscal year  $t$  (i.e.,  $(P_t - P_{t-1})/P_{t-1}$ ) adjusted for the change in the *market index* between dates relevant to the buy-and-hold return period of firm  $j$  and indicator variable where firm  $j$  is scored one (1) if  $RR-AllOrd_{jt}$  is negative, otherwise firm  $j$  is scored zero (0); of firm  $j$  in fiscal year  $t$ ;
- $\alpha_k, \beta_k$  = Coefficients; and
- $\varepsilon_{jt}$  = Error term.

The value of  $\beta_1$  reflects the incremental incorporation of bad news compared to good news into accounting earnings. Consistent with Basu's (1997) definition of earnings conservatism as a more timely incorporation of bad news relative to good news,  $\beta_1$  is expected to be positive and statistically significant.

#### 4.3.2 Basu (1997) model of persistence

Basu (1997) timeliness model of earnings conservatism (i.e., *Equation 1*) presumes losses are recognized more quickly than gains and share prices reflect bad news in contemporaneous market losses earlier than good news via market gains. As the impact of news (whether good or bad) may not be captured in contemporaneous share prices alone, Basu's (1997) second model (defined in *Equation 2*) presumes bad news reverses whilst

good news persists. The deferred recognition of relatively good news results in positive changes in income being more likely to persist than negative earnings changes.

Equation 2 details the basic model underlying the persistence measure of earnings conservatism:

$$BPX_{jt} = \alpha_0 + \beta_0 DPX_{jt} + \beta_1 PX_{jt} + \beta_2 PX_{jt} * DPX_{jt} + \varepsilon_{jt} \quad [2]$$

**Legend:**

$BPX_{jt}$  = Change in operating profit after tax of firm  $j$  for period  $t$  from operating profit after tax of firm  $j$  for period  $t-1$  deflated by market capitalization of firm  $j$  at the end of period  $t-1$ ;

$PX_{jt}$  = Change in operating profit after tax of firm  $j$  for period  $t-1$  from operating profit after tax of firm  $j$  for period  $t-2$  deflated by market capitalization of firm  $j$  at the end of period  $t-2$ ;

$DPX_{jt}$  = Indicator variable where firm  $j$  is scored one (1) if  $PX_{jt}$  is negative; otherwise score of zero (0);

$PX_{jt} * DPX_{jt}$  = The two way interaction between change in operating profit after tax of firm  $j$  for period  $t$  from operating profit after tax of firm  $j$  for period  $t-1$  deflated by market capitalization of firm  $j$  at the end of period  $t-1$  and Indicator variable where firm  $j$  is scored one (1) if  $PX_{jt}$  is negative; otherwise score of zero (0);

$\alpha_k, \beta_k$  = Coefficients; and

$\varepsilon_{jt}$  = Error term.

Consistent with a reduced likelihood of positive changes in earnings being significantly more likely to persist than negative earnings changes, coefficient  $\beta_2$  is expected to be negative and significant.

Although Basu's (1997) model is the most commonly used method to measure earnings conservatism, it is not without limitations (Dietrich, Muller, and Riedl 2002; Dietrich et al. 2007; Givoly et al. 2007; Roychowdhury and Watts 2007). Dietrich et al. (2007), for example, argue that the difference in slopes predicted and reported in Basu's (1997) model reflects a sample variance-ratio bias and sample truncation bias. Moreover, Ball and Shivakumar (2005) conclude that Basu (1997) model cannot differentiate transitory gains and loss components in earnings from random errors in accruals. In addition, Ball and Shivakumar (2005) also note that the reverse regression approach assumes asymmetrical and efficient reaction to economic news. Therefore, taking the limitations of Basu (1997) model into account and in an effort to capture the holistic dimension of earnings conservatism, an alternative measure of earnings conservatism proposed by Ball and Shivakumar (2005) is used in this study. This measure is based on the underlying relationship between contemporaneous accruals and cash flows (Ball and Shivakumar 2005).

#### 4.3.3 Ball and Shivakumar (2005) model

Unlike Basu (1997) model that focuses both on accounting and stock market information, Ball and Shivakumar (2005) model is entirely accounting based. Nonetheless, the premise underlying the Ball and Shivakumar (2005) model is consistent with Basu (1997) model; that is, bad news is recognized and reflected in the accounts quicker than good news. Operating cash flows are used to determine bad news and good news. The asymmetric timely recognition of bad news will result in a greater association between accruals and cash

flows for bad news firms relative to good news firms. Ball and Shivakumar's (2005) model as a measure for earnings conservatism is detailed in *Equation 3*:

$$ACC_{jt} = \alpha_0 + \alpha_1 DCFO_{jt} + \beta_0 CFO_{jt} + \beta_1 CFO_{jt} * DCFO_{jt} + \varepsilon_{jt} \quad [3]$$

**Legend:**

- $ACC_{jt}$  = Accruals (i.e., difference between operating profit and cash flow from operations) of firm  $j$  in fiscal year  $t$  scaled by the book value of total assets of firm  $j$  at the beginning of the fiscal year  $t$  (i.e.,  $BVTA_{jt}$ );
- $CFO_{jt}$  = Cash flow from operating activities of firm  $j$  in fiscal year  $t$  scaled by the book value of total assets of firm  $j$  at the beginning of the fiscal year  $t$  (i.e.,  $BVTA_{jt}$ );
- $DCFO_{jt}$  = Indicator variable where firm  $j$  is scored one (1) if  $\Delta CFO_{jt}$  is negative, otherwise scored zero (0);
- $CFO_{jt} * DCFO_{jt}$  = The two way interaction between cash flow from operating activities of firm  $j$  in fiscal year  $t$  scaled by the book value of total assets of firm  $j$  at the beginning of the fiscal year  $t$  (i.e.,  $BVTA_{jt}$ ) and indicator variable where firm  $j$  is scored one (1) if  $\Delta CFO_{jt}$  is negative, otherwise scored zero (0);
- $\alpha_k, \beta_k$  = Coefficients; and
- $\varepsilon_{jt}$  = Error term.

Consistent with Ball and Shivakumar (2005), cash flow from operating activities is measured as earnings before exceptional and extraordinary items less accruals.<sup>26</sup> Several methods for calculating accruals exist. Consistent with Ball and Shivakumar (2005), accruals is calculated as follows:

$$ACC_{jt} = \Delta Inventory_{jt} + \Delta Accounts\ Receivable_{jt} + \Delta Other\ Current\ Assets_{jt} - \Delta Accounts\ Payable_{jt} - \Delta Other\ Current\ Liabilities_{jt} - Depreciation\ Expense_{jt}.$$

Using Ball and Shivakumar's (2005) model of earnings conservatism, the coefficient  $\beta_0$  should be negative and statistically significant while the coefficient  $\beta_1$  should be positive and statistically significant (Balkrishna et al. 2007; Gregoriou and Skerratt 2007; Lafond and Watts 2008; Ruddock et al. 2006). Having outlined the various measures for the dependent variable of this study, the following section focuses on the measurement of independent variable of this study, that is, audit committee effectiveness.

#### 4.4 Measurement of Audit Committee Effectiveness

Presently there is no consensus on a precise measure for audit committee effectiveness. Following prior work (Beasley and Salterio 2001; Klein 2002a, 2002b; Van der Zahn and Tower 2004), this study develops a composite score for audit committee effectiveness based on the sub-committee's independence, expertise, experience and diligence. Specifically, for firm  $j$  in time period  $t$ , a composite score for audit committee effectiveness (henceforth denoted  $ACE_{jt}$ ) is based on a score of (1) being awarded for each of the following individual characteristics being met:

- The audit committee of firm  $j$  in time period  $t$  consists of majority of independent directors;

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<sup>26</sup> Exceptional and extraordinary items tend to be accrued liabilities or diminutions in value of fixed assets.

- At least one independent audit committee member of firm  $j$  in time period  $t$  is a qualified person with financial expertise possessing necessary educational qualifications (i.e., degree in accounting), professional credentials (i.e., member of a professional accounting body) or work experience (i.e., experience as a public accountant, auditor, principal or chief financial officer, controller, principal or chief accounting officer, CEO or president of a for-profit firm).
- At least one independent member of the audit committee of firm  $j$  in time period  $t$  has prior corporate governance experience (i.e., experience as an outside directors); and
- The audit committee of firm  $j$  in time period  $t$  meets four or more times or the board meets 10 or more times where the boards of directors' meetings surrogate audit committee meetings.<sup>27</sup>

The range of scores for  $ACE_{jt}$ , therefore, is 0 to 4. For additional analysis,  $ACE_{jt}$  is decomposed into four measures representing each individual component. Specifically, the measure for: (1) audit committee independence is denoted as  $Ind\_ACE_{jt}$ ; (2) audit committee expertise is denoted as  $Expt\_ACE_{jt}$ ; (3) audit committee experience is denoted as  $Exp\_ACE_{jt}$ ; and (4) audit committee diligence as  $Dil\_ACE_{jt}$ . Each individual audit committee effectiveness component metric is scored as per the respective criteria outlined in scoring  $ACE_{jt}$ . Data to calculate the respective audit committee effectiveness individual measures is obtained from annual reports of firms selected in each firm year.

The calculation can be represented mathematically as:

$$ACE_{jt} = \sum (Ind\_ACE_{jt} + Expt\_ACE_{jt} + Exp\_ACE_{jt} + Dil\_ACE_{jt})$$

The justification for the proxy measures representing the four components of audit committee effectiveness is outlined in the following subsections.

#### **4.4.1 Measurement of audit committee independence ( $Ind\_ACE_{jt}$ )**

$Ind\_ACE_{jt}$  is measured based on the definition of an independent director proposed by the *ASX CGC* (2003). However, following past literature (Abbott and Parker 2000; Abbott et al. 2004; Bedard et al. 2004; Carcello and Neal 2000, 2003; McMullen and Raghunandan 1996), the decision of whether an audit committee member is independent in accordance with the definition of *ASX CGC* (Gregoriou and Skerratt 2007; Lafond and Watts

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<sup>27</sup> If firm  $j$  at time period  $t$  has a formal audit committee and holds formal audit committee meetings the actual number of meetings of the audit committee is used. If firm  $j$  at time period  $t$  has formal audit committee but holds board of directors meetings to discuss audit committee matters the actual number of meetings of the board of directors is used as a proxy measure for  $Dil\_ACE_{jt}$ .

2008) is based entirely on the information disclosed in the annual reports. Past literature outlines various ways of measuring audit committee member independence (Abbott et al. 2003a, 2003b; Carcello et al. 2006; Klein 2002a, 2002b; Vafeas 2005; Xie et al. 2003). Some studies (Abbott et al. 2003a, 2003b; Carcello et al. 2006), for example, use dichotomous variable, that is, a score of (1) is coded when the audit committee entirely comprised of independent directors, (0) otherwise. On the other hand, other studies (Klein 2002a, 2002b; Vafeas 2005; Xie et al. 2003) measure audit committee independence as the percentage of independent members in the audit committee. For this particular study, both approaches will be used. Therefore, consistent with Abbott et al. (2003a, 2003b) and Carcello et al. (2006), a dichotomous variable will be used, that is, a score of (1) is coded when the audit committee comprised of majority of independent directors, (0) otherwise) when measuring a composite score for audit committee effectiveness. However, consistent with Klein (2002a, 2002b) and Xie et al. (2003), the percentage of independent directors in the audit committee is used as a proxy for the degree of independence only when the variable is used in isolation.

#### **4.4.2 Measurement of audit committee expertise ( $Expt\_ACE_{jt}$ )**

Audit committee expertise has been recognized by various studies as the key component of audit committee effectiveness. Scholars, regulators and researchers (Beasley and Salterio 2001; Bedard et al. 2004; Defond et al. 2005; Krishnan and Visvanathan 2007a; Van der Zahn and Tower 2004) have classified expertise into two different categories: financial expertise and non-financial expertise. For this particular study, emphasis will be given on financial expertise given the predominant use of financial expertise in the past literature (Defond et al. 2005; Dhaliwal et al. 2006; Krishnan and Visvanathan 2007a; McDaniel et al. 2002).

Following on from *SOX* (2006), researchers (Defond et al. 2005; Krishnan and Visvanathan 2007a) classify financial expertise in the following two categories:

- 1) Accounting financial expertise  
Directors with experience as a public accountant, auditor, principal or chief financial officer, controller, principal or chief accounting officer; and
- 2) Non-accounting financial expertise  
Directors with experience as a CEO or president of a for-profit firm (Defond et al. 2005; Krishnan and Visvanathan 2007a).

Consistent with prior literature (Bedard et al. 2004; Defond et al. 2005; Dhaliwal et al. 2006; Krishnan and Visvanathan 2007a; Van der Zahn and Tower 2004; Xie et al. 2003), this study will measure  $Expt\_ACE_{jt}$  in two different ways: audit committee members with experience as a public accountant, auditor, principal or chief financial officer, controller,

principal or chief accounting officer will be classified as accounting financial experts. Audit committee members with experience as a CEO or president of a for-profit firm will be classified as non-accounting financial experts. Therefore, the variable,  $Exp_{t\_ACE_{jt}}$  is coded (1) if the audit committee has a member with accounting or non-accounting expertise, (0) otherwise.

#### **4.4.3 Measurement of audit committee experience ( $Exp_{t\_ACE_{jt}}$ )**

Whilst various corporate governance advocates state that audit committee experience is a key factor for audit committee effectiveness, few studies have sought to empirically examine audit committee experience (Beasley and Salterio 2001; DeZoort 1998; DeZoort and Salterio 2001; Goodwin 2003). The majority of such studies (Beasley and Salterio 2001; DeZoort et al. 2003; Goodwin 2003) measured audit committee experience from surveys and questionnaires. Due to data and time constraints, this study will not use surveys and questionnaires. Instead, this study will conceptualize the measurement for audit committee experience similar to the measurement of financial expertise since there is no systematic method for measuring audit committee experience.

Consistent with Beasley and Salterio (2001) and Dhaliwal et al. (2006), experience as an outside director will be used to proxy for the corporate governance experience. The identification of whether the audit committee member has experience as an outside director will be solely based on information disclosed in annual reports of firms. Therefore, the variable,  $Exp_{t\_ACE_{jt}}$  is coded (1) if at least one independent member of the audit committee of firm  $j$  in time period  $t$  has prior corporate governance experience (i.e., experience as an outside directors), (0) otherwise.

#### **4.4.4 Measurement of audit committee diligence ( $Dil_{t\_ACE_{jt}}$ )**

Past literature (Abbott et al. 2004; Beasley et al. 2000; Bedard et al. 2004; Farber 2005; Menon and Williams 1994; Vafeas 1999, 2005; Xie et al. 2003) has used the number of audit committee meetings as a proxy for audit committee diligence suggesting that the number of audit committee meetings held is the representation of the degree of effort the audit committee puts forth in monitoring the financial reporting process. Although regulators (e.g., ASX, US Stock Exchanges, and the BRC) do not prescribe how often an audit committee should meet in a year, following on from Price Waterhouse (1997), past literature (Abbott et al. 2004; Abbott et al. 2003b; McMullen and Raghunandan 1996; Menon and Williams 1994; Stewart and Munro 2007) has used the audit committee meeting at least four times annually as a standard measure for audit committee diligence. For the purposes of this study, audit committee diligence is operationalized in two different ways. First, consistent with prior research (Abbott et al. 2004; Bedard et al. 2004; Menon and Williams 1994; Xie et al. 2003), the number of audit committee meetings held annually is used as a measure

audit committee diligence. Second, if a firm does have a formal audit committee but all audit committee matters are discussed during the board meetings, the number of board meetings held annually is also used as a proxy measure of audit committee diligence. Therefore, the variable,  $Dil\_ACE_{jt}$  is coded (1) if the audit committee of firm  $j$  in time period  $t$  meets at least four times or more a year or if the board of firm  $j$  in time period  $t$  meets 10 times or more a year where board meetings surrogate audit committee meetings, (0) otherwise.

#### 4.5 Statistical Tests and Models

The main focus of this study is to examine whether audit committee effectiveness influences the level of a firm's earnings conservatism with regards to timeliness, persistence and cash flow and accruals.

To formally test whether Australian publicly listed firms with more effective audit committees are more likely to have higher levels of earnings conservatism, *Equations 1-3* are extended to incorporate intercept and slope coefficients for the interactive effects of an audit committee's effectiveness. The models are defined in *Equations 4-6*:

$$X_{jt} = \alpha_0 + \beta_0 DR_{jt} + \beta_1 RR-AllOrd_{jt} + \beta_2 RR-AllOrd_{jt} * DR_{jt} + \beta_3 ACE_{jt} + \beta_4 ACE_{jt} * RR-AllOrd_{jt} + \beta_5 ACE_{jt} * DR_{jt} + \beta_6 ACE_{jt} * RR_{jt} * DR_{jt} + \sum Year_{jkt} + \varepsilon_{jt} \quad [4]$$

$$BPX_{jt} = \alpha_0 + \beta_0 DPX_{jt} + \beta_1 PX_{jt} + \beta_2 PX_{jt} * DPX_{jt} + \beta_3 ACE_{jt} + \beta_4 ACE_{jt} * PX_{jt} + \beta_5 ACE_{jt} * DPX_{jt} + \beta_6 ACE_{jt} * PX_{jt} * DPX_{jt} + \sum Year_{jkt} + \varepsilon_{jt} \quad [5]$$

$$ACC_{jt} = \alpha_0 + \beta_0 DCFO_{jt} + \beta_1 CFO_{jt} + \beta_2 CFO_{jt} * DCFO_{jt} + \beta_3 ACE_{jt} + \beta_4 ACE_{jt} * CFO_{jt} + \beta_5 ACE_{jt} * DCFO_{jt} + \beta_6 ACE_{jt} * CFO_{jt} * DCFO_{jt} + \sum Year_{jkt} + \varepsilon_{jt} \quad [6]$$

#### Legend:

$ACE_{jt}$  = Composite audit committee effectiveness score of firm  $j$  in fiscal year  $t$ ;

$A_{jt} * \Pi_{jt}$  = Two-way interaction term between the buy-and-hold return ( $RR-AllOrd_{jt}$ ), change in profit after tax ( $PX_{jt}$ ) and cash flow from operations ( $CFO_{jt}$ ) and the related dummy indicators (i.e.,  $DR_{jt}$ ,  $DPX_{jt}$  and  $DCFO_{jt}$ ) where (i)  $A_{jt}$  is  $RR-AllOrd_{jt}$ ,  $PX_{jt}$  and  $CFO_{jt}$  and (ii)  $\Pi_{jt}$  is  $DR_{jt}$ ,  $DPX_{jt}$  and  $DCFO_{jt}$  in *Equation 4, 5 and 6* respectively;

$A_{jt} * ACE_{jt}$  = Two-way interaction term between audit committee effectiveness and (i) buy-and-hold return ( $RR-AllOrd_{jt}$ ), (ii) change in profit after tax ( $PX_{jt}$ ) and (iii) cash flow from operations ( $CFO_{jt}$ ) where  $A_{jt}$  is  $RR-AllOrd_{jt}$ ,  $PX_{jt}$  and  $CFO_{jt}$  in *Equation 4, 5 and 6* respectively;

$\Pi_{jt} * ACE_{jt}$  = Two-way interaction term between audit committee effectiveness and dummy indicator variables for (i) buy-and-hold return ( $DR_{jt}$ ), (ii) change in profit after tax ( $DPX_{jt}$ ) and (iii) cash flow from operations ( $DCFO_{jt}$ ) where  $\Pi_{jt}$  is  $DR_{jt}$ ,  $DPX_{jt}$  and  $DCFO_{jt}$  in *Equation 4, 5 and 6* respectively;

$A_{jt} * \Pi_{jt} * ACE_{jt}$  = Three-way interaction term between audit committee effectiveness and buy-and-hold return ( $RR-AllOrd_{jt}$ ), change in profit after tax ( $PX_{jt}$ ) and cash flow from operations ( $CFO_{jt}$ ) and the related dummy indicators (i.e.,  $DR_{jt}$ ,  $DPX_{jt}$  and  $DCFO_{jt}$ ) where (i)  $A_{jt}$  is  $RR-AllOrd_{jt}$ ,  $PX_{jt}$  and  $CFO_{jt}$  and (ii)  $\Pi_{jt}$  is  $DR_{jt}$ ,  $DPX_{jt}$  and  $DCFO_{jt}$  in *Equation 4, 5 and 6* respectively;

$\alpha_k, \beta_k$  = Coefficients; and

$\varepsilon_{jt}$  = Error term.

To formally test whether Australian publicly listed firms with a majority of independent directors on the audit committee are more likely to have higher levels of earnings conservatism (i.e.,  $H_{1a}$  -  $H_{3a}$ ), the proxy for audit committee independence (i.e.,  $Ind\_ACE_{jt}$ ) is substituted for  $ACE_{jt}$  in Equations 4a-6a:

$$X_{jt} = \alpha_0 + \alpha_1 DR_{jt} + \alpha_2 Ind\_ACE_{jt} + \alpha_3 DR_{jt} * Ind\_ACE_{jt} + \beta_0 RR-AllOrd_{jt} + \beta_1 RR-AllOrd_{jt} * DR_{jt} + \beta_2 RR-AllOrd_{jt} * Ind\_ACE_{jt} + \beta_3 RR-AllOrd_{jt} * DR_{jt} * Ind\_ACE_{jt} + \varepsilon_{jt} \quad [4a]$$

$$BPX_{jt} = \alpha_0 + \alpha_1 DPX_{jt} + \alpha_2 Ind\_ACE_{jt} + \alpha_3 DPX_{jt} * Ind\_ACE_{jt} + \beta_0 PX_{jt} + \beta_1 DPX_{jt} * PX_{jt} + \beta_2 PX_{jt} * Ind\_ACE_{jt} + \beta_3 PX_{jt} * DPX_{jt} * Ind\_ACE_{jt} + \varepsilon_{jt} \quad [5a]$$

$$ACC_{jt} = \alpha_0 + \alpha_1 DCFO_{jt} + \alpha_2 Ind\_ACE_{jt} + \alpha_3 DCFO_{jt} * Ind\_ACE_{jt} + \beta_0 CFO_{jt} + \beta_1 CFO_{jt} * DCFO_{jt} + \beta_2 CFO_{jt} * Ind\_ACE_{jt} + \beta_3 CFO_{jt} * DCFO_{jt} * Ind\_ACE_{jt} + \varepsilon_{jt} \quad [6a]$$

**Where:**

$Ind\_ACE_{jt}$  = An indicator variable given the value of one (1) if there are a majority of independent directors on the audit committee of firm  $j$  at time period  $t$ ; otherwise a score of zero (0);

$A_{jt} * \Pi_{jt}$  = Two-way interaction term between the buy-and-hold return ( $RR-AllOrd_{jt}$ ), change in profit after tax ( $PX_{jt}$ ) and cash flow from operations ( $CFO_{jt}$ ) and the related dummy indicators (i.e.,  $DR_{jt}$ ,  $DPX_{jt}$  and  $DCFO_{jt}$ ) where (i)  $A_{jt}$  is  $RR-AllOrd_{jt}$ ,  $PX_{jt}$  and  $CFO_{jt}$  and (ii)  $\Pi_{jt}$  is  $DR_{jt}$ ,  $DPX_{jt}$  and  $DCFO_{jt}$  in Equation 4a, 5a and 6a respectively;

$A_{jt} * Ind\_ACE_{jt}$  = Two-way interaction term between the indicator variable given the value of one (1) if there are a majority of independent directors on the audit committee of firm  $j$  at time period  $t$ ; otherwise a score of zero (0) and (i) buy-and-hold return ( $RR-AllOrd_{jt}$ ), (ii) change in profit after tax ( $PX_{jt}$ ) and (iii) cash flow from operations ( $CFO_{jt}$ ) where  $A_{jt}$  is  $RR-AllOrd_{jt}$ ,  $PX_{jt}$  and  $CFO_{jt}$  in Equation 4a, 5a and 6a respectively;

$A_{jt} * Ind\_ACE_{jt}$  = Two-way interaction term between the indicator variable given the value of one (1) if there are a majority of independent directors on the audit committee of firm  $j$  at time period  $t$ ; otherwise a score of zero (0) and (i) buy-and-hold return ( $DR_{jt}$ ), (ii) change in profit after tax ( $DPX_{jt}$ ) and (iii) cash flow from operations ( $DCFO_{jt}$ ) where  $\Pi_{jt}$  is  $DR_{jt}$ ,  $DPX_{jt}$  and  $DCFO_{jt}$  in Equation 4a, 5a and 6a respectively;

$\Pi_{jt} * Ind\_ACE_{jt}$  = Two-way interaction term between the indicator variable given the value of one (1) if there are a majority of independent directors on the audit committee of firm  $j$  at time period  $t$ ; otherwise a score of zero (0) and dummy indicator variables for (i) buy-and-hold return ( $DR_{jt}$ ), (ii) change in profit after tax ( $DPX_{jt}$ ) and (iii) cash flow from operations ( $DCFO_{jt}$ ) where  $\Pi_{jt}$  is  $DR_{jt}$ ,  $DPX_{jt}$  and  $DCFO_{jt}$  in Equation 4a, 5a and 6a respectively;

$A_{jt} * \Pi_{jt} * Ind\_ACE_{jt}$  = Three-way interaction term between the indicator variable given the value of one (1) if there are a majority of independent directors on the audit committee of firm  $j$  at time period  $t$ ; otherwise a score of zero (0) and buy-and-hold return ( $RR-AllOrd_{jt}$ ), change in profit after tax ( $PX_{jt}$ ) and cash flow from operations ( $CFO_{jt}$ ) and the related dummy indicators (i.e.,  $DR_{jt}$ ,  $DPX_{jt}$  and  $DCFO_{jt}$ ) where (i)  $A_{jt}$  is  $RR-AllOrd_{jt}$ ,  $PX_{jt}$  and  $CFO_{jt}$  and (ii)  $\Pi_{jt}$  is  $DR_{jt}$ ,  $DPX_{jt}$  and  $DCFO_{jt}$  in Equation 4a, 5a and 6a respectively;

$\alpha_k, \beta_k$  = Coefficients; and

$\varepsilon_{jt}$  = Error term.

To formally test whether Australian publicly listed firms with audit committees comprising at least one member with financial expertise are more likely to have higher level of earnings conservatism (i.e.,  $H_{1b}$  -  $H_{3b}$ ), the proxy for audit committee expertise (i.e.,  $Expt\_ACE_{jt}$ ) is substituted for  $ACE_{jt}$  in Equations 4b-6b:

$$X_{jt} = \alpha_0 + \alpha_1 DR_{jt} + \alpha_2 Expt\_ACE_{jt} + \alpha_3 DR_{jt} * Expt\_ACE_{jt} + \beta_0 RR-AllOrd_{jt} + \beta_1 RR-AllOrd_{jt} * DR_{jt} + \beta_2 RR-AllOrd_{jt} * Expt\_ACE_{jt} + \beta_3 RR-AllOrd_{jt} * DR_{jt} * Expt\_ACE_{jt} + \varepsilon_{jt} \quad [4b]$$

$$BPX_{jt} = \alpha_0 + \alpha_1 DPX_{jt} + \alpha_2 Expt\_ACE_{jt} + \alpha_3 DPX_{jt} * Expt\_ACE_{jt} + \beta_0 PX_{jt} + \beta_1 DPX_{jt} * PX_{jt} + \beta_2 PX_{jt} * Expt\_ACE_{jt} + \beta_3 PX_{jt} * DX_{jt-1} * Expt\_ACE_{jt} + \varepsilon_{jt} \quad [5b]$$

$$ACC_{jt} = \alpha_0 + \alpha_1 DCF_{jt} + \alpha_2 Expt\_ACE_{jt} + \alpha_3 DCF_{jt} * Expt\_ACE_{jt} + \beta_0 CFO_{jt} + \beta_1 CFO_{jt} * DCF_{jt} + \beta_2 CFO_{jt} * Expt\_ACE_{jt} + \beta_3 CFO_{jt} * DCF_{jt} * Expt\_ACE_{jt} + \varepsilon_{jt} \quad [6b]$$

**Where:**

$Expt\_ACE_{jt}$  = An indicator variable given the value of one (1) if the audit committee of firm  $j$  at time period  $t$  has a member with experience as a public accountant, auditor, principal or chief financial officer, controller, principal or chief accounting officer or with experience as a CEO or president for a for-profit corporation (i.e.,  $Sum\_Expt\_ACE_{j,t}$ ); otherwise score of zero (0);

$A_{jt} * \Pi_{jt}$  = Two-way interaction term between the buy-and-hold return ( $RR-AllOrd_{jt}$ ), change in profit after tax ( $PX_{jt}$ ) and cash flow from operations ( $CFO_{jt}$ ) and the related dummy indicators (i.e.,  $DR_{jt}$ ,  $DPX_{jt}$  and  $DCF_{jt}$ ) where (i)  $A_{jt}$  is  $RR-AllOrd_{jt}$ ,  $PX_{jt}$  and  $CFO_{jt}$  and (ii)  $\Pi_{jt}$  is  $DR_{jt}$ ,  $DPX_{jt}$  and  $DCF_{jt}$  in Equation 4b, 5b and 6b respectively;

$A_{jt} * Expt\_ACE_{jt}$  = Two-way interaction term between audit committee effectiveness and (i) buy-and-hold return ( $RR-AllOrd_{jt}$ ), (ii) change in profit after tax ( $PX_{jt}$ ) and (iii) cash flow from operations ( $CFO_{jt}$ ) where  $A_{jt}$  is  $RR-AllOrd_{jt}$ ,  $PX_{jt}$  and  $CFO_{jt}$  in Equation 4b, 5b and 6b respectively;

$A_{jt} * Expt\_ACE_{jt}$  = Two-way interaction term between indicator variable given the value of one (1) if the audit committee of firm  $j$  at time period  $t$  has a member with experience as a public accountant, auditor, principal or chief financial officer, controller, principal or chief accounting officer or with experience as a CEO or president for a for-profit corporation (i.e.,  $Sum\_Expt\_ACE_{j,t}$ ); otherwise score of zero (0) and (i) buy-and-hold return ( $DR_{jt}$ ), (ii) change in profit after tax ( $DPX_{jt}$ ) and (iii) cash flow from operations ( $DCF_{jt}$ ) where  $\Pi_{jt}$  is  $DR_{jt}$ ,  $DPX_{jt}$  and  $DCF_{jt}$  in Equation 4b, 5b and 6b respectively;

$\Pi_{jt} * Expt\_ACE_{jt}$  = Two-way interaction term between indicator variable given the value of one (1) if the audit committee of firm  $j$  at time period  $t$  has a member with experience as a public accountant, auditor, principal or chief financial officer, controller, principal or chief accounting officer or with experience as a CEO or president for a for-profit corporation (i.e.,  $Sum\_Expt\_ACE_{j,t}$ ); otherwise score of zero (0) and dummy indicator variables for (i) buy-and-hold return ( $DR_{jt}$ ), (ii) change in profit after tax ( $DPX_{jt}$ ) and (iii) cash flow from operations ( $DCF_{jt}$ ) where  $\Pi_{jt}$  is  $DR_{jt}$ ,  $DPX_{jt}$  and  $DCF_{jt}$  in Equation 4b, 5b and 6b respectively;

$A_{jt} * \Pi_{jt} * Expt\_ACE_{jt}$  = Three-way interaction term between indicator variable given the value of one (1) if the audit committee of firm  $j$  at time period  $t$  has a member with experience as a public accountant, auditor, principal or chief financial officer, controller, principal or chief accounting officer or with experience as a CEO or president for a for-profit corporation (i.e.,  $Sum\_Expt\_ACE_{j,t}$ ); otherwise score of zero (0) and buy-and-hold return ( $RR-AllOrd_{jt}$ ), change in profit after tax ( $PX_{jt}$ ) and cash flow from operations ( $CFO_{jt}$ ) and the related dummy indicators (i.e.,  $DR_{jt}$ ,  $DPX_{jt}$  and  $DCF_{jt}$ ) where (i)  $A_{jt}$  is  $RR-AllOrd_{jt}$ ,  $PX_{jt}$  and  $CFO_{jt}$  and (ii)  $\Pi_{jt}$  is,  $DR_{jt}$ ,  $DPX_{jt}$  and  $DCF_{jt}$  in Equation 4b, 5b and 6b respectively;

$\alpha_k, \beta_k$  = Coefficients; and

$\varepsilon_{jt}$  = Error term.

To formally test whether Australian publicly listed firms with audit committees comprising members with governance experience are more likely to have higher level of earnings conservatism (i.e.,  $H_{1c} - H_{3c}$ ), the proxy for audit committee experience (i.e.,  $Exp\_ACE_{jt}$ ) is substituted for  $ACE_{jt}$  in Equations 4c-6c:

$$X_{jt} = \alpha_0 + \alpha_1 DR_{jt} + \alpha_2 Exp\_ACE_{jt} + \alpha_3 DR_{jt} * Exp\_ACE_{jt} + \beta_0 RR-AllOrd_{jt} + \beta_1 RR-AllOrd_{jt} * DR_{jt} + \beta_2 RR-AllOrd_{jt} * Exp\_ACE_{jt} + \beta_3 RR-AllOrd_{jt} * DR_{jt} * Exp\_ACE_{jt} + \varepsilon_{jt} \quad [4c]$$

$$BPX_{jt} = \alpha_0 + \alpha_1 DPX_{jt} + \alpha_2 Exp\_ACE_{jt} + \alpha_3 DPX_{jt} * Exp\_ACE_{jt} + \beta_0 PX_{jt} + \beta_1 DPX_{jt} * PX_{jt} + \beta_2 PX_{jt} * Exp\_ACE_{jt} + \beta_3 PX_{jt} * DPX_{jt} * Exp\_ACE_{jt} + \varepsilon_{jt} \quad [5c]$$

$$ACC_{jt} = \alpha_0 + \alpha_1 DCF_{jt} + \alpha_2 Exp\_ACE_{jt} + \alpha_3 DCF_{jt} * Exp\_ACE_{jt} + \beta_0 CFO_{jt} + \beta_1 CFO_{jt} * DCF_{jt} + \beta_2 CFO_{jt} * Exp\_ACE_{jt} + \beta_3 CFO_{jt} * DCF_{jt} * Exp\_ACE_{jt} + \varepsilon_{jt} \quad [6c]$$

**Where:**

$Exp\_ACE_{jt}$  = An indicator variable given the value of one (1) if at least one member of the audit committee of firm  $j$  in time period  $t$  has prior corporate governance experience (i.e., experience as an outside director); otherwise score of zero (0);

$A_{jt} * \Pi_{jt}$  = Two-way interaction term between the buy-and-hold return ( $RR-AllOrd_{jt}$ ), change in profit after tax ( $PX_{jt}$ ) and cash flow from operations ( $CFO_{jt}$ ) and the related dummy indicators (i.e.,  $DR_{jt}$ ,  $DPX_{jt}$  and  $DCF_{jt}$ ) where (i)  $A_{jt}$  is  $RR-AllOrd_{jt}$ ,  $PX_{jt}$  and  $CFO_{jt}$  and (ii)  $\Pi_{jt}$  is  $DR_{jt}$ ,  $DPX_{jt}$  and  $DCF_{jt}$  in Equation 4c, 5c and 6c respectively;

$A_{jt} * Exp\_ACE_{jt}$  = Two-way interaction term between indicator variable given the value of one (1) if at least one member of the audit committee of firm  $j$  in time period  $t$  has prior corporate governance experience (i.e., experience as an outside director); otherwise score of zero (0) and (i) buy-and-hold return ( $RR-AllOrd_{jt}$ ), (ii) change in profit after tax ( $PX_{jt}$ ) and (iii) cash flow from operations ( $CFO_{jt}$ ) where  $A_{jt}$  is  $RR-AllOrd_{jt}$ ,  $PX_{jt}$  and  $CFO_{jt}$  in Equation 4c, 5c and 6c respectively;

$A_{jt} * Exp\_ACE_{jt}$  = Two-way interaction term between indicator variable given the value of one (1) if at least one member of the audit committee of firm  $j$  in time period  $t$  has prior corporate governance experience (i.e., experience as an outside director); otherwise score of zero (0) and (i) buy-and-hold return ( $DR_{jt}$ ), (ii) change in profit after tax ( $DPX_{jt}$ ) and (iii) cash flow from operations ( $DCF_{jt}$ ) where  $\Pi_{jt}$  is  $DR_{jt}$ ,  $DPX_{jt}$  and  $DCF_{jt}$  in Equation 4c, 5c and 6c respectively;

$\Pi_{jt} * Exp\_ACE_{jt}$  = Two-way interaction term between indicator variable given the value of one (1) if at least one member of the audit committee of firm  $j$  in time period  $t$  has prior corporate governance experience (i.e., experience as an outside director); otherwise score of zero (0) and dummy indicator variables for (i) buy-and-hold return ( $DR_{jt}$ ), (ii) change in profit after tax ( $DPX_{jt}$ ) and (iii) cash flow from operations ( $DCF_{jt}$ ) where  $\Pi_{jt}$  is  $DR_{jt}$ ,  $DPX_{jt}$  and  $DCF_{jt}$  in Equation 4c, 5c and 6c respectively;

$A_{jt} * \Pi_{jt} * Exp\_ACE_{jt}$  = Three-way interaction term between indicator variable given the value of one (1) if at least one member of the audit committee of firm  $j$  in time period  $t$  has prior corporate governance experience (i.e., experience as an outside director); otherwise score of zero [0] and buy-and-hold return ( $RR-AllOrd_{jt}$ ), change in profit after tax ( $PX_{jt}$ ) and cash flow from operations ( $CFO_{jt}$ ) and the related dummy indicators (i.e.,  $DR_{jt}$ ,  $DPX_{jt}$  and  $DCF_{jt}$ ) where (i)  $A_{jt}$  is  $RR-AllOrd_{jt}$ ,  $PX_{jt}$  and  $CFO_{jt}$  and (ii)  $\Pi_{jt}$  is,  $DR_{jt}$ ,  $DPX_{jt}$  and  $DCF_{jt}$  in Equation 4c, 5c and 6c respectively;

$\alpha_k, \beta_k$  = Coefficients; and

$\varepsilon_{jt}$  = Error term.

To formally test whether Australian publicly listed firms with more diligent audit committee members (i.e., meet more frequently) are more likely to have higher level of earnings conservatism (i.e.,  $H_{1d} - H_{3d}$ ), the proxy for audit committee diligence (i.e.,  $Dil\_ACE_{jt}$ ) is substituted for  $ACE_{jt}$  in Equations 4d-6d:

$$X_{jt} = \alpha_0 + \alpha_1 DR_{jt} + \alpha_2 Dil\_ACE_{jt} + \alpha_3 DR_{jt} * Dil\_ACE_{jt} + \beta_0 RR\_AllOrd_{jt} + \beta_1 RR\_AllOrd_{jt} * DR_{jt} + \beta_2 RR\_AllOrd_{jt} * Dil\_ACE_{jt} + \beta_3 RR\_AllOrd_{jt} * DR_{jt} * Dil\_ACE_{jt} + \varepsilon_{jt} \quad [4d]$$

$$\Delta X_{jt} = \alpha_0 + \alpha_1 DPX_{jt} + \alpha_2 Dil\_ACE_{jt} + \alpha_3 DPX_{jt} * Dil\_ACE_{jt} + \beta_0 PX_{jt} + \beta_1 DPX_{jt} * PX_{jt} + \beta_2 PX_{jt} * Dil\_ACE_{jt} + \beta_3 PX_{jt} * DPX_{jt} * Dil\_ACE_{jt} + \varepsilon_{jt} \quad [5d]$$

$$ACC_{jt} = \alpha_0 + \alpha_1 DCF_{jt} + \alpha_2 Dil\_ACE_{jt} + \alpha_3 DCF_{jt} * Dil\_ACE_{jt} + \beta_0 CFO_{jt} + \beta_1 CFO_{jt} * DCF_{jt} + \beta_2 CFO_{jt} * Dil\_ACE_{jt} + \beta_3 CFO_{jt} * DCF_{jt} * Dil\_ACE_{jt} + \varepsilon_{jt} \quad [6d]$$

**Where:**

$Dil\_ACE_{jt}$  = An indicator variable given the value of one (1) if the audit committee of firm  $j$  in time period  $t$  meets at least four times or more a year or the board of firm  $j$  in time period  $t$  meets 10 times or more a year where board meetings surrogate audit committee meetings, (0) otherwise;

$A_{jt} * \Pi_{jt}$  = Two-way interaction term between the buy-and-hold return ( $RR\_AllOrd_{jt}$ ), change in profit after tax ( $PX_{jt}$ ) and cash flow from operations ( $CFO_{jt}$ ) and the related dummy indicators (i.e.,  $DR_{jt}$ ,  $DPX_{jt}$  and  $DCF_{jt}$ ) where (i)  $A_{jt}$  is  $RR\_AllOrd_{jt}$ ,  $PX_{jt}$  and  $CFO_{jt}$  and (ii)  $\Pi_{jt}$  is  $DR_{jt}$ ,  $DPX_{jt}$  and  $DCF_{jt}$  in Equation 4d, 5d and 6d respectively;

$A_{jt} * Dil\_ACE_{jt}$  = Two-way interaction term between audit committee effectiveness and (i) buy-and-hold return ( $RR\_AllOrd_{jt}$ ), (ii) change in profit after tax ( $PX_{jt}$ ) and (iii) cash flow from operations ( $CFO_{jt}$ ) where  $A_{jt}$  is  $RR\_AllOrd_{jt}$ ,  $PX_{jt}$  and  $CFO_{jt}$  in Equation 4d, 5d and 6d respectively;

$A_{jt} * Dil\_ACE_{jt}$  = Two-way interaction term between indicator variable given the value of one (1) if the audit committee of firm  $j$  in time period  $t$  meets at least four times or more a year or if the board of firm  $j$  in time period  $t$  meets 10 times or more a year where board meetings surrogate audit committee meetings, (0) otherwise and (i) buy-and-hold return ( $DR_{jt}$ ), (ii) change in profit after tax ( $DPX_{jt}$ ) and (iii) cash flow from operations ( $DCF_{jt}$ ) where  $\Pi_{jt}$  is  $DR_{jt}$ ,  $DPX_{jt}$  and  $DCF_{jt}$  in Equation 4d, 5d and 6d respectively;

$\Pi_{jt} * Dil\_ACE_{jt}$  = Two-way interaction term between indicator variable given the value of one (1) if the audit committee of firm  $j$  in time period  $t$  meets at least four times or more a year or if the board of firm  $j$  in time period  $t$  meets 10 times or more a year where board meetings surrogate audit committee meetings, (0) otherwise and dummy indicator variables for (i) buy-and-hold return ( $DR_{jt}$ ), (ii) change in profit after tax ( $DPX_{jt}$ ) and (iii) cash flow from operations ( $DCF_{jt}$ ) where  $\Pi_{jt}$  is  $DR_{jt}$ ,  $DPX_{jt}$  and  $DCF_{jt}$  in Equation 4d, 5d and 6d respectively;

$A_{jt} * \Pi_{jt} * Dil\_ACE_{jt}$  = Three-way interaction term between indicator variable given the value of one (1) if the audit committee of firm  $j$  in time period  $t$  meets at least four times or more a year or if the board of firm  $j$  in time period  $t$  meets 10 times or more a year where board meetings surrogate audit committee meetings, (0) otherwise and buy-and-hold return ( $RR\_AllOrd_{jt}$ ), change in profit after tax ( $PX_{jt}$ ) and cash flow from operations ( $CFO_{jt}$ ) and the related dummy indicators (i.e.,  $DR_{jt}$ ,  $DPX_{jt}$  and  $DCF_{jt}$ ) where (i)  $A_{jt}$  is  $RR\_AllOrd_{jt}$ ,  $PX_{jt}$  and  $CFO_{jt}$  and (ii)  $\Pi_{jt}$  is,  $DR_{jt}$ ,  $DPX_{jt}$  and  $DCF_{jt}$  in Equation 4d, 5d and 6d respectively;

$\alpha_k, \beta_k$  = Coefficients; and

$\varepsilon_{jt}$  = Error term.

In determining the influence of audit committee effectiveness (and individual components) on earnings conservatism, the sign and significance of the coefficients on  $\beta_2$  and  $\beta_3$  are considered. If higher audit committee effectiveness (and respective individual components) is associated with firms reporting conservative earnings on a timely basis, then the  $\beta_2$  and  $\beta_3$  coefficients in tests of Equation 4 (and also Equations 4a-4d) should be positive and significant. Positive and significant  $\beta_2$  and  $\beta_3$  coefficients would indicate greater asymmetric timeliness in the recognition of good and bad news. In the reverse news

regression model defined by *Equation 5*, more conservative earnings would imply that a decline in earnings is a one period shock that reverses almost immediately whilst increases in earnings continue in subsequent period. If there is an increase in the reversal of earnings declines and persistence of earnings increase due to higher audit committee effectiveness (and respective individual components), the  $\beta_2$  and  $\beta_3$  coefficients in tests based on *Equation 5* (and also *Equations 5a-5d*) should be significant and negative. Finally, if audit committee effectiveness (and respective individual components) is associated with earnings conservatism as defined by the correlation between accruals and cash flows, then the  $\beta_2$  and  $\beta_3$  coefficients in tests based on *Equation 6* (and also *Equations 6a-6d*) should be positive and significant. This would indicate that where cash flows decline and audit committee effectiveness is strong, accruals do not increase to offset the decline in cash flows.

#### **4.6 Sensitivity Analysis**

A number of sensitivity tests will be conducted to determine the robustness of the primary findings. For example, alternative market-adjusted returns underpinning Basu's (1997) timeliness model will be utilized (using three alternative indices) in an effort to better control for size and industry biases. Alternative measures for earnings conservatism based on Khan and Watts (2009) will be used. The audit committee effectiveness composite score will be recalculated based on audit committee member independence and an alternative measure of audit committee diligence will also be utilized.

Since firm size may also be of influence, the influence of audit committee effectiveness on earnings conservatism will be examined across partitioned sub-samples based on market capitalization quartiles. The sample will also be partitioned based on firm-years to reduce potential biases arising from year effects. Prior research (Lee, Stokes, Taylor, and Walter 2003) reports audit quality (as defined by *Big-4* versus *non-Big-4*) influences earnings conservatism. Also, corporate governance advocates have frequently noted the close working relationship between the audit committee and the external auditor in the financial reporting process and in monitoring corporate management. Thus, this study examines if audit committee effectiveness on earnings conservatism varies between firms audited by a *Big-4* audit firm and counterparts audited by a *non-Big-4* audit firm. Finally, Prior research indicates growth opportunities influences earnings conservatism (Roychowdhury and Watts 2007). Following previous studies (Beekes et al. 2004; Lara et al. 2005), the pooled sample will be partitioned by market-to-book ratios (used as a proxy for growth opportunities) to determine if audit committee effectiveness – earnings conservatism linkage varies according to a firm's growth prospects.

#### **4.7 Summary of the Chapter**

This chapter 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 and independent variables used in this study were outlined before the main empirical tests undertaken in this study identified.

Chapter Five will provide the descriptive statistics of the sample and also provide basic univariate analysis. Specifically, sample descriptive statistics such as mean, median, minimum, maximum and standard deviation etc. will be provided.

## **CHAPTER FIVE: DESCRIPTIVE STATISTICS**

### **5.1 Overview 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 and independent variables used in this study were outlined before the main empirical tests undertaken in this study identified.

This chapter focuses on the descriptive characteristics determined from scrutinizing a sample pool of 494 firm-year observations for this study. The chapter begins by outlining the procedure of selecting the final usable sample. The subsequent sections present the basic descriptive statistics for the firm characteristics. The descriptive statistics for dependent variable, earnings conservatism, are then provided followed by the descriptive statistics for the independent variable, audit committee effectiveness. Finally, a summary is provided at the end of the chapter.

### **5.2 Sample Selection Process**

This section provides a detailed description of how the final sample is chosen for this study.<sup>28</sup> The discussion concentrates on two key aspects; sample selection and industry breakdown. As outlined in Chapter Four, analysis for this study involves an examination of a sample of 100 stratified-randomly (by Quartile) selected firms listed on the *ASX* between the 2004 to 2008 calendar years inclusive. Table 5.1 Panel A presents a summary of how the final usable sample is derived. Specifically, the initial sample comprises 2,128 firms, all publicly listed firms listed on the *ASX* as at January 1, 2004. Consistent with prior research, financial (133), insurance (10), utilities (30) and IPO firms (106), and trust (92) are excluded from the sample (Ball et al. 2000; Givoly and Hayn 2000; Givoly et al. 2007; Goodwin 2003; Ruddock et al. 2006). In order to avoid undue influences of unexpected share price changes, 222 firms were also subsequently eliminated since the firms were not continuously listed on the *ASX* during the observation period (specifically firms de-listed for a period of time and re-listed). Consistent with Clifford and Evans (1997), 64 foreign incorporated firms domiciled outside Australia are excluded since the financial statements are not always prepared in accordance with the normal disclosure requirements for other firms listed on the *ASX*. Finally, 381 firms are excluded on the basis of missing data during the observation period (Klein 2002b) leaving a final sample pool of 1,090 firms.

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<sup>28</sup> All monetary balances are expressed in Australian dollar currency.

From the resulting sample pool of 1,090 firms, 100 are randomly selected using a stratified-random approach which involves stratifying firms into Quartiles by market capitalization and randomly selecting a sample of 25 firms within each Quartile (Balvers et al. 1990), thereby, providing 100 firms (500 firm-year observations in total).<sup>29</sup> However, from the final sample of 500 firm-year observations, 6 firm-year observations are further excluded given the existence of incomplete information leaving a final usable sample of 494 firm-year observations.

**Table 5.1 - Sample selection and industry breakdown**

<b>Panel A: Sample Selection</b>			
<b>Number of firms listed on the ASX as at January 1, 2004</b>			2,128
Exclusions:			
	Financial institutions	(133)	
	Insurance	(10)	
	Utilities	(30)	
	IPO firms	(106)	
	Trust	(92)	
	Foreign incorporated firms	(64)	
	Firms that are not continuously listed	(222)	
	Missing data	(381)	(1,038)
<b>Sample pool for random selection</b>			1,090
	Number randomly selected by Quartiles	100	
	Firm-years from 2004 to 2008	500 (100*5)	
	Excluded due to missing data	(6)	
<b>Final usable sample</b>			494
<b>Panel B: Sample firm break down by industry</b>			
<b>ASX Industry</b>		<b>No. of Firms</b>	<b>% of Sample</b>
	Consumer Discretionary	80	16.194
	Consumer Staples	19	3.846
	Energy	35	7.085
	Health Care	70	14.170
	Industrials	128	25.911
	Information Technology	34	6.883
	Materials	115	23.279
	Telecommunication Services	13	2.632
<b>Total</b>		<b>494</b>	<b>100</b>

Table 5.1 Panel B presents industry breakdowns of the sample firms. Table 5.1 Panel B reveals that Industrials (25.911%) is the most prominent industry sector in the sample followed by Materials (23.279%), suggesting that, Industrials and Materials collectively represent the highest proportion of final sample firms by industry. On the other hand, Telecommunication Services (2.632%) and Consumer Staples (3.846%) are the least represented sectors in the final sample. The representation of firms within each industry is

<sup>29</sup> 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. For this study firms will be the same for each of the calendar years examined. This raises a possible independence of samples issue. However, it is not considered detrimental to this study because: (a) it only applies to the longitudinal OLS regression models to be used; and (b) almost all of the 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 that there is no other parsimonious way to undertake such length-of-time analysis where the changes in selected firm's results are of interest to the researcher/s.

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 Basic Sample Descriptive Statistics of Firm Characteristics

This section provides the descriptive statistics for the firm characteristics of this study. The descriptives for basic firm characteristics will initially be presented followed by the descriptives for earnings conservatism and audit committee effectiveness.

#### 5.3.1 Firm size

Table 5.2 provides the descriptive statistics for several dimensions of firm size namely, market capitalization ( $MarCap_{jt}$ ), total assets ( $BVTA_{jt}$ ) and cash flow ( $CF_{jt}$ ). Results from Table 5.2 Panel A indicate that the average market capitalization for the five-year period is \$880,512,000, the minimum being \$764,000 and the maximum being \$34,684,976,000.<sup>30</sup> However, when the market capitalization is divided by Quartiles, significant variation can be observed as evidenced by Table 5.2 Panel B. As expected, declines in market capitalization occur across each Quartile sub-sample. Average market capitalization decreases from 1<sup>st</sup> Quartile to 4<sup>th</sup> Quartile with the decline highest (least) amongst firms in the 1<sup>st</sup> Quartile (2<sup>nd</sup> Quartile). Table 5.2 Panel C shows all indicators (i.e., market capitalization, total assets and cash flow) of firm size increase on average throughout the observation period. Average market capitalization, for example, increases in an upward trend until 2007 with a slight fall in average market capitalization in 2008. The decline in market capitalization can be attributed to the difficult economic conditions that developed during the 2008 financial year culminating in the global financial crisis.

Table 5.2 Panel A further indicates that the average (median) total assets are \$564,279,000 (\$38,851,000) for the pooled sample. In respect to the Quartile breakdown, as shown by Table 5.2 Panel B, total assets decline significantly and continuously from the 1<sup>st</sup> Quartile to 4<sup>th</sup> Quartile. In terms of Table 5.2 Panel C, total assets increase constantly from 2004 to 2008. Table 5.2 Panel A also shows that the operating cash flows for firms in the pooled sample range from -\$27,165,000 to \$1,743,600,000 with a mean (median) of \$40,583,000 (\$4,266,000). As indicated by Table 5.2 Panel B, consistent with total assets cash flows decline constantly from the 1<sup>st</sup> Quartile (\$143,244,000) to 4<sup>th</sup> Quartile (\$1,837,000) as indicated by Table 5.2 Panel B. However, Table 5.2 Panel C shows the cash flows change continuously from 2004 to 2008 without any upward or downward trend.

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<sup>30</sup> Using 2004 as the base year, the pooled sample market capitalization of this study represents 68% of the market as a whole.

**Table 5.2 - Descriptive statistics - firm size**

<b>Panel A: Overall</b>						
	<b>Pooled sample</b>	<b>Mean</b>	<b>Median</b>	<b>Std. Dev</b>	<b>Min</b>	<b>Max</b>
$MarCap_{jt}$ (\$'000)	492	880,512	43,696	3,116,779	764	34,684,976
$BVTA_{jt}$ (\$'000)	492	564,279	38,851	1,563,848	61	14,929,000
$CF_{jt}$ (\$'000)	492	40,583	4,266	139,462	-27,165	1,743,600
<b>Panel B: Firm size by Quartiles</b>						
	<b>Pooled sample</b>	<b>Statistic</b>	<b>1<sup>st</sup> Quartile (n=125)</b>	<b>2<sup>nd</sup> Quartile (n=123)</b>	<b>3<sup>rd</sup> Quartile (n=123)</b>	<b>4<sup>th</sup> Quartile (n=121)</b>
$MarCap_{jt}$ (\$'000)	492	Mean (Median)	3,308,054 (1,348,448)	124,246 (106,233)	26,962 (21,895)	9,144 (7,500)
$BVTA_{jt}$ (\$'000)	492	Mean (Median)	2,073,042 (1,106,100)	108,768 (68,301)	30,732 (21,364)	11,044 (6,331)
$CF_{jt}$ (\$'000)	492	Mean (Median)	143,244 (68,156)	11,602 (6,758)	3,350 (2,311)	1,837 (1,281)
<b>Panel C: Firm size by year</b>						
	<b>Statistic</b>	<b>2004 (n=95)</b>	<b>2005 (n=97)</b>	<b>2006 (n=100)</b>	<b>2007 (n=100)</b>	<b>2008 (n=100)</b>
$MarCap_{jt}$ (\$'000)	Mean (Median)	502,093 (22,224)	745,894 (32,424)	913,911 (45,531)	1,217,114 (65,716)	1,000,586 (44,639)
$BVTA_{jt}$ (\$'000)	Mean (Median)	388,142 (24,509)	430,971 (32,496)	621,446 (40,701)	610,599 (46,369)	757,430 (63,352)
$CF_{jt}$ (\$'000)	Mean (Median)	25,515 (3,520)	29,833 (3,328)	56,058 (4,421)	48,701 (4,877)	41,733 (4,986)

**Legend:**

$MarCap_{jt}$  = Market capitalization of firm  $j$  at the end of period  $t$ ;

$BVTA_{jt}$  = Book value of total assets of firm  $j$  at end of the period  $t$ ; and

$CF_{jt}$  = Cash flow from operating activities of firm  $j$  at end of period  $t$ .

**5.3.2 Firm performance**

Table 5.3 discloses firm performance at various levels. Table 5.3 Panel A reveals that operating income ( $OPAT_{jt}$ ) averages \$34,110,000 for the pooled sample. The median operating income is smaller than the average operating income indicating that earnings are right-skewed for the pooled sample. Table 5.3 Panel B shows that the average and median operating income for firms in the 1<sup>st</sup> Quartile and 2<sup>nd</sup> Quartile (3<sup>rd</sup> Quartile and 4<sup>th</sup> Quartile) are positive (negative). Moreover, operating income is right-skewed for the 1<sup>st</sup> and 2<sup>nd</sup> Quartile and left-skewed for the 3<sup>rd</sup> and 4<sup>th</sup> Quartile. Table 5.3 Panel C indicates that average operating income values gradually increase from 2004 to 2007 and with a sharp fall in 2008. The decline in operating income can likely be attributed to the difficult economic condition that developed during the 2008 financial year culminating in the global financial crisis.

The return on asset ( $ROA_{jt}$ ) calculations in Table 5.3 shows the pattern of firm profitability and indicates that firms in the pooled sample are at various stages of firm risk. Table 5.3 Panel A shows that the average (median)  $ROA_{jt}$  for the pooled sample is -26.604% (1.555%) indicating that on average firms are reporting losses. However, Table 5.3 Panel B reveals that when the pooled sample is partitioned by Quartile,  $ROA_{jt}$  is positive only for firms in the 1<sup>st</sup> Quartile. Additionally, the decline in profitability and the increase in losses are more pronounced for smaller firms than the larger counterparts. Table 5.3 Panel C shows

a continuous change in  $ROA_{jt}$  without any upward or downward trend over the observation window (2004 to 2008).

**Table 5.3 - Descriptive statistics - firm performance**

<b>Panel A: Overall</b>						
	<b>Pooled sample</b>	<b>Mean</b>	<b>Median</b>	<b>Std. Dev</b>	<b>Min</b>	<b>Max</b>
$OPAT_{jt}$ (\$'000)	492 <sup>31</sup>	34,110	348	205,309	-2,501,700	1,786,000
$ROA_{jt}$ (%)	492	-26.604	1.555	105.783	-1107.625	51.544
$MTB_{jt}$	492	3.510	2.140	6.970	-19.130	110.170
$CFO_{jt}$ (%)	492	32.750	13.355	70.160	-18.820	976.033
<b>Panel B: Firm performance by Quartiles</b>						
	<b>Pooled sample</b>	<b>Statistic</b>	<b>1<sup>st</sup> Quartile (n=125)</b>	<b>2<sup>nd</sup> Quartile (n=123)</b>	<b>3<sup>rd</sup> Quartile (n=123)</b>	<b>4<sup>th</sup> Quartile (n=121)</b>
$OPAT_{jt}$ (\$'000)	492	Mean (Median)	134,617 (66,131)	3,196 (3,030)	-2,154 (-1,166)	-1,430 (-971)
$ROA_{jt}$ (%)	492	Mean (Median)	5.972 (6.697)	-18.606 (3.470)	-23.665 (-8.251)	-71.374 (-18.392)
$MTB_{jt}$	492	Mean (Median)	3.915 (2.670)	3.712 (2.050)	3.591 (2.130)	2.819 (1.530)
$CFO_{jt}$ (%)	492	Mean (Median)	12.320 (05.858)	41.137 (15.826)	34.785 (13.578)	43.264 (20.167)
<b>Panel C: Firm performance by year</b>						
	<b>Statistic</b>	<b>2004 (n=95)</b>	<b>2005 (n=97)</b>	<b>2006 (n=100)</b>	<b>2007 (n=100)</b>	<b>2008 (n=100)</b>
$OPAT_{jt}$ (\$'000)	Mean (Median)	28,440 (232)	35,721 (287)	36,952 (856)	50,259 (344)	18,943 (79)
$ROA_{jt}$ (%)	Mean (Median)	-26.748 (1.283)	-21.508 (2.530)	-30.962 (2.073)	-28.909 (1.838)	-24.745 (0.385)
$MTB_{jt}$	Mean (Median)	2.610 (1.810)	2.870 (2.205)	4.413 (2.155)	4.550 (2.855)	3.062 (1.805)
$CFO_{jt}$ (%)	Mean (Median)	33.617 (13.910)	26.458 (16.000)	34.491 (16.523)	47.721 (13.203)	21.508 (08.327)

**Legend:**

$OPAT_{jt}$  = Operating profit after tax of firm  $j$  at end of the period  $t$ ;

$ROA_{jt}$  = Return on assets measured as a ratio of operating profit after tax ( $OPAT_{jt}$ ) and book value of total assets ( $BVTA_{jt}$ );

$MTB_{jt}$  = Market-to-book ratio measured as a ratio of market value of equity and book value of equity; and

$CFO_{jt}$  = Cash flow from operating activities of firm  $j$  in fiscal year  $t$  scaled by the book value of total assets of firm  $j$  at the beginning of the fiscal year  $t$  (i.e.,  $BVTA_{jt}$ ).

Table 5.3 Panel A shows that the average market to book ratio ( $MTB_{jt}$ ) for the pooled sample is 3.510 indicating the presence of growth opportunities. In respect to the Quartile breakdown, as indicated by Table 5.3 Panel B, the average  $MTB_{jt}$  changes with a downward trend for firms in the 1<sup>st</sup> Quartile to firms in the 4<sup>th</sup> Quartile. However, Table 5.3 Panel C indicates that the  $MTB_{jt}$  increases significantly from 2004 to 2007. The increase in  $MTB_{jt}$  could be due to the increase in market returns associated with the improvement in the general state of economic conditions between 2004 and 2007.

Cash flow of operations ( $CFO_{jt}$ ) has been used as the final measure of firm performance. The ratio of cash flow from operations to assets is used to assess firms' economic performance. Table 5.3 Panel A reveals that  $CFO_{jt}$  for the pooled sample ranges

<sup>31</sup> Sample size for  $OPAT_{jt}$ ,  $ROA_{jt}$ ,  $MTB_{jt}$  and  $CFO_{jt}$  is 492 since data for two observations was unobtainable.

from -18.820% to 976.033% with a mean of 32.750%. When the pooled sample is divided into Quartiles in Table 5.3 Panel B, the  $CFO_{jt}$  is significantly smaller in the 1<sup>st</sup> Quartile than the remaining. The average  $CFO_{jt}$  is positive for the pooled sample with a mean (median) of 32.750 (13.355). Moreover, the average  $CFO_{jt}$  is positive for all Quartiles, suggesting that very few firms that report profits have negative cash flow from operations. However, Table 5.3 Panel C reveals that there is no observable trend for  $CFO_{jt}$  over the observation window.

## 5.4 Basic Sample Descriptives for Earnings Conservatism

As discussed in Chapter Four, three different measurement approaches are used to measure earnings conservatism: (1) timeliness; (2) persistence; and (3) differences in current period accruals and cash flows (Basu 1997; Ruddock et al. 2006; Watts 2003a). This section will report the descriptive statistics for all three measures of earnings conservatism.

### 5.4.1 Timeliness of earnings conservatism

Using the Basu (1997) timeliness model, the key variables are annotated as  $X_{jt}$ ,  $RR_{jt}$ ,  $RR-AllOrd_{jt}$ , and  $DR_{jt}$ . The descriptive statistics for all variables related to Basu (1997) timeliness model of earnings conservatism are provided in Table 5.4. In respect to  $X_{jt}$ , Table 5.4 Panel A shows that the median value of deflated earnings ( $X_{jt}$ ) for the pooled sample is greater than the mean value (i.e., 0.021 compared to -0.081), a result consistent with Lara et al. (2009a). The result indicates that earnings for the pooled sample are negatively skewed. The negative earnings skewness for the pooled sample is consistent with the existence of earnings conservatism suggesting the timelier recognition of losses than gains (Ball and Shivakumar 2005; Basu 1997; Lara et al. 2009a). However, when the pooled-sample is partitioned by Quartiles, Table 5.4 Panel B reveals that earnings are negatively skewed (i.e., median values exceed mean values) for the 1<sup>st</sup> Quartile, 2<sup>nd</sup> Quartile and 4<sup>th</sup> Quartile (Lara et al. 2005; Lara et al. 2009a, 2009b). Earnings are positively skewed (mean values exceed the median values) for 3<sup>rd</sup> Quartile; a result which is consistent with Ruddock et al. (2006). In terms of Table 5.4 Panel C, earnings are negatively skewed for all years (i.e., median values exceed mean values). However, the opposite scenario is observed for returns ( $RR-AllOrd_{jt}$ ) as indicated by Table 5.4 Panel A.

Consistent with Lara et al. (2005; Lara et al. 2009a), returns are positively skewed (mean exceeds median) for the pooled sample. The positive sign on the average  $RR-AllOrd_{jt}$  indicates that relative to the market, firms within the final useable sample performed well.<sup>32</sup> Moreover, the standard deviation of earnings ( $X_{jt}$ ) is smaller than the standard deviation of returns ( $RR-AllOrd_{jt}$ ) consistent with Ball et al.'s (2000) argument that net income is a

<sup>32</sup> There is considerable debate in the literature on the appropriate market index to be used in calculating market-adjusted returns.  $RR-AllOrd_{jt}$  values reported in Table 5.4 are based on use of the All Ordinaries Index for purposes of market-adjustment. The All Ordinaries Index is a relatively broad industry based market measure but is generally comprised of larger firms. Returns using alternative market indices to compensate for size and industry biases were also calculated. Sensitivity tests were performed using the alternative return measures.

function of past and present returns. In respect to Quartile breakdown, the results from Table 5.4 Panel B show that returns are positively skewed across the Quartiles indicating firms in the 1<sup>st</sup> Quartile, 2<sup>nd</sup> Quartile, 3<sup>rd</sup> Quartile and 4<sup>th</sup> Quartile by market capitalization outperform the market on average. Table 5.4 Panel A further indicates that overall, 280 firm-years (or 56.680%) of the final useable sample suffer negative market-adjusted returns (see  $DR_{jt}$ ). Of the firm-years in the 1<sup>st</sup> Quartile, only 60 (or 48.000%) had negative market-adjusted returns whilst 84 (or 68.293%) of the firms in the 4<sup>th</sup> Quartile had negative market-adjusted returns. The  $RR-AllOrd_{jt}$  and  $DR_{jt}$  results by Quartiles suggest that smaller firms on the ASX are likely to have suffered greater stock declines for the 2004 to 2008 financial years than larger firms (as measured by market capitalization). However, when firm-years are partitioned by years, no significant difference is found over time as shown by Table 5.4 Panel C.

**Table 5.4 - Descriptive statistics - earnings conservatism**

<b>Panel A: Overall</b>						
	<b>Pooled Sample</b>	<b>Mean</b>	<b>Median</b>	<b>Std. Dev</b>	<b>Minimum</b>	<b>Maximum</b>
$X_{jt}$	494	-0.081	0.021	0.356	-2.707	1.578
$RR_{jt}$	494	0.196	0.030	1.156	-1.000	19.667
$RR-AllOrd_{jt}$	494	0.074	-0.095	1.134	-1.225	19.490
$DR_{jt}$	494	0.567 <sup>33</sup>	-	-	-	-
$BPX_{jt}$	494	0.036	0.011	0.390	-1.937	4.871
$PX_{jt}$	494	0.069	0.015	0.541	-2.687	6.514
$DPX_{jt}$	494	40.286	-	-	-	-
$ACC_{jt}$	494	-0.492	-0.178	0.974	-8.991	2.232
$CFO_{jt}$	492 <sup>34</sup>	0.328	0.134	0.702	-0.188	9.760
$DCFO_{jt}$	492	0.435	-	-	-	-

<b>Panel B: Earnings conservatism by Quartiles</b>						
	<b>Pooled Sample</b>	<b>Statistic</b>	<b>1<sup>st</sup> Quartile (n=125)</b>	<b>2<sup>nd</sup> Quartile (n=123)</b>	<b>3<sup>rd</sup> Quartile (n=123)</b>	<b>4<sup>th</sup> Quartile (n=123)</b>
$X_{jt}$	494	Mean (median)	0.046 (0.064)	-0.035 (0.053)	-0.121 (-0.080)	-0.213 (-0.129)
$RR_{jt}$	494	Mean (median)	0.199 (0.164)	0.439 (0.096)	0.180 (-0.030)	-0.038 (-0.111)
$RR-AllOrd_{jt}$	494	Mean (median)	0.094 (0.027)	0.310 (-0.023)	0.051 (-0.173)	-0.162 (-0.237)
$BPX_{jt}$	494	Mean (median)	0.005 (0.010)	0.018 (0.017)	0.018 (0.001)	0.110 (0.017)
$PX_{jt}$	494	Mean (median)	0.013 (0.013)	0.095 (0.018)	0.001 (0.010)	0.173 (0.022)
$ACC_{jt}$	494	Mean (median)	-0.057 (0.015)	-0.533 (-0.170)	-0.569 (-0.326)	-0.820 (-0.501)
$CFO_{jt}$	494	Mean (median)	0.123 (0.059)	0.411 (0.158)	0.348 (0.136)	0.433 (0.202)
$DR_{jt}$	494	Count <sup>35</sup> (% Sample)	60 (48.000)	65 (52.846)	71 (57.724)	84 (68.293)

<sup>33</sup> As  $DR_{jt}$ ,  $DPX_{jt}$ , and  $DCFO_{jt}$  are indicators variable, no information regarding median, standard deviation, minimum and maximum has been provided. Moreover, for all indicator variables mean refers to the percentage (%).

<sup>34</sup> Sample size for this variable is 492 since data for two observations was unobtainable.

<sup>35</sup> Given that  $DR_{jt}$ ,  $DPX_{jt}$ , and  $DCFO_{jt}$  are dichotomous variables, it is appropriate to use count and percentages than mean and median.

**Table 5.4 (continued) - Descriptive statistics - earnings conservatism**

Panel B: Earnings conservatism by Quartiles (continued)						
	Pooled Sample	Statistic	1 <sup>st</sup> Quartile (n=125)	2 <sup>nd</sup> Quartile (n=123)	3 <sup>rd</sup> Quartile (n=123)	4 <sup>th</sup> Quartile (n=123)
$DPX_{jt}$	494	Count (% Sample)	36 (28.800)	43 <sup>36</sup> (35.537)	61 <sup>37</sup> (50.000)	57 <sup>38</sup> (47.107)
$DCFO_{jt}$	494	Count (% Sample)	51 (40.800)	50 (40.650)	56 (45.528)	57 <sup>39</sup> (47.107)
Panel C: Earnings conservatism by year						
	Statistic	2004 (n=95)	2005 (n=97)	2006 (n=100)	2007 (n=100)	2008 (n=100)
$X_{jt}$	Mean (Median)	-0.119 (0.026)	-0.084 (0.030)	-0.094 (0.034)	-0.061 (0.028)	-0.047 (0.003)
$RR_{jt}$	Mean (Median)	0.212 (0.113)	0.108 (0.045)	0.400 (0.111)	0.493 (0.251)	-0.236 (-0.333)
$RR-All\ Ord_{jt}$	Mean (Median)	0.033 (-0.059)	-0.088 (-0.139)	0.222 (-0.065)	0.240 (0.001)	-0.041 (-0.132)
$BPX_{jt}$	Mean (Median)	0.027 (0.020)	0.042 (0.012)	0.002 (-0.000)	0.055 (0.025)	0.059 (0.010)
$PX_{jt}$	Mean (Median)	0.096 (0.019)	0.034 (0.017)	0.109 (0.015)	-0.043 (0.003)	0.150 (0.033)
$ACC_{jt}$	Mean (Median)	-0.492 (-0.168)	-0.080 (-0.238)	-0.533 (-0.210)	-0.609 (-0.160)	-0.346 (-0.152)
$CFO_{jt}$	Mean (Median)	0.340 (0.147)	0.316 (0.161)	0.352 (0.158)	0.419 (0.111)	0.212 (0.082)
$DR_{jt}$	Count (% Sample)	57 (59.375)	59 (60.204)	54 (54.000)	50 (50.000)	60 (60.000)
$DPX_{jt}$	Count (% Sample)	28 (30.108)	34 (53.417)	45 (45.000)	49 (49.000)	41 (41.000)
$DCFO_{jt}$	Count (% Sample)	31 (32.292)	46 (46.938)	45 (45.000)	45 (45.000)	47 (47.000)

**Legend:**

- $X_{jt}$ = Operating profit after tax of firm  $j$  for period  $t$  deflated by market capitalization of firm  $j$  at beginning of the fiscal year  $t$ ;
- $RR_{jt}$ = Annual share returns for firm  $j$  from three months after the previous fiscal year  $t-1$  to three months after the current fiscal year  $t$  (i.e.,  $(P_t - P_{t-1})/P_{t-1}$ );
- $P_t$ = The price of shares for firm  $j$  three months after the end of the fiscal year  $t-1$ ;
- $P_{t-1}$ = The price of shares for firm  $j$  three months after the end of the fiscal year  $t$ ;
- $RR-AllOrd_{jt}$ = Annual share returns for firm  $j$  from three months after the previous fiscal year  $t-1$  to three months after the current fiscal year  $t$  (i.e.,  $(P_t - P_{t-1})/P_{t-1}$  where  $P_t$  is the price of shares for firm  $j$  three months after the end of the fiscal year  $t$  and  $P_{t-1}$  is the price of shares for firm  $j$  three months after the end of the fiscal year  $t-1$ ) adjusted for the All Ordinaries Index over the same period;
- $DR_{jt}$ = Indicator variable that takes the value of one [1] if  $RR-AllOrd_{jt} < 0$ , otherwise scored 0;
- $BPX_{jt}$ = Change in operating profit after tax of firm  $j$  for period  $t$  from operating profit after tax of firm  $j$  for period  $t-1$  deflated by market capitalization of firm  $j$  at the end of period  $t-1$ ;
- $PX_{jt}$ = Change in operating profit after tax of firm  $j$  for period  $t-1$  from operating profit after tax of firm  $j$  for period  $t-2$  deflated by market capitalization of firm  $j$  at the end of period  $t-2$ ;
- $DPX_{jt}$ = Indicator variable where firm  $j$  is scored one (1) if  $PX_{jt}$  is negative; otherwise score of zero (0);
- $ACC_{jt}$ = Accruals (i.e., difference between operating profit and cash flow from operations) of firm  $j$  in fiscal year  $t$  scaled by the book value of total assets of firm  $j$  at the beginning of the fiscal year  $t$  (i.e.,  $BVTA_{jt}$ );
- $CFO_{jt}$ = Cash flow from operating activities of firm  $j$  in fiscal year  $t$  scaled by the book value of total assets of firm  $j$  at the beginning of the fiscal year  $t$  (i.e.,  $BVTA_{jt}$ ); and
- $DCFO_{jt}$ = Indicator variable where firm  $j$  is scored one (1) if  $\Delta CFO_{jt}$  is negative, otherwise scored zero (0).

<sup>36</sup> Sample size for this variable is 121 since data for four observations was unobtainable.

<sup>37</sup> Please refer to Footnote 32.

<sup>38</sup> Please refer to Footnote 32.

<sup>39</sup> Please refer to Footnote 32.

#### 5.4.2 Persistence of earnings conservatism

As discussed in Chapter Four, the key variables relating to Basu (1997) model of persistence are  $BPX_{jt}$ ,  $PX_{jt}$ ,  $DPX_{jt}$ . In respect to  $BPX_{jt}$ , Table 5.4 Panel A shows that the mean value of  $BPX_{jt}$  is 0.036 indicating that, on average, the change in operating profit after tax ( $OPAT_{jt}$ ) from period  $t-1$  to period  $t$  as a proportion of market capitalization is 0.036 for the pooled sample. On the other hand, on average, the change in  $OPAT_{jt}$  from period  $t-2$  to  $t-1$  as a proportion of market capitalization is 0.069 (see  $PX_{jt}$ ). The change in  $OPAT_{jt}$  is greater in period  $t-2$  to period  $t-1$  than the change in period  $t-1$  to period  $t$ . In respect to the Quartile breakdown, Table 5.4 Panel B shows that 4<sup>th</sup> Quartile has the highest change in  $OPAT_{jt}$  both from period  $t-1$  to period  $t$  and from period  $t-2$  to period  $t-1$ . In terms of Table 5.4 Panel C, 2008 has the highest proportion of change in operating profit after tax ( $OPAT_{jt}$ ) both from period  $t-1$  to period  $t$  and period  $t-2$  to period  $t-1$  as a proportion of market capitalization (see  $PX_{jt}$  and  $BPX_{jt}$ ).

Table 5.4 Panel A further indicates that overall, 199 firm-years (or 40.286%) of the final useable sample have a negative change in operating profit after tax from period  $t-2$  to  $t-1$  as a proportion of market capitalization. Table 5.4 Panel B further indicates that of the firm-years in the 1<sup>st</sup> Quartile, only 36 firm-years (or 28.800%) had negative change in operating profit after tax from period  $t-2$  to  $t-1$  as a proportion of market capitalization whilst 57 (or 47.107%) of the firm-years in the 4<sup>th</sup> Quartile had a negative change in operating profit after tax from period  $t-2$  to  $t-1$  as a proportion of market capitalization.  $PX_{jt}$  and  $DPX_{jt}$  results by Quartiles suggest that smaller firms on the ASX are likely to have suffered greater profit declines for the 2004 to 2008 financial years than larger counterparts. In terms of Table 5.4 Panel C, 2007 has the highest proportion of negative change in operating profit after tax from period  $t-2$  to  $t-1$  as a proportion of market capitalization.

#### 5.4.3 Accruals-based earnings conservatism

The key variables related to Ball and Shivakumar (2005) model of earnings conservatism are  $ACC_{jt}$ ,  $CFO_{jt}$  and  $DCFO_{jt}$ . Table 5.4 Panel A indicates that the mean and median for total accruals as a proportion of total assets ( $ACC_{jt}$ ) are both negative (i.e., -0.492 and -0.178) consistent with prior findings that total accruals, on average, are negative (Ball and Shivakumar 2005; Dopuch, Seethamraju, and Xu 2010). In regards to the Quartile breakdown, Table 5.4 Panel B suggests that, on average, accruals are negative across all Quartiles. However, the negative accruals increase steadily from the 1<sup>st</sup> Quartile to 3<sup>rd</sup> Quartile and then, dramatically increase from the 3<sup>rd</sup> Quartile to 4<sup>th</sup> Quartile. Table 5.4 Panel A shows that cash flows from operating activities as a proportion of total assets ( $CFO_{jt}$ ) is positive for the pooled sample with a mean (median) of 0.328 (0.134). In respect to the Quartile breakdown, Table 5.4 Panel B shows that the average  $CFO_{jt}$  is positive across all

four Quartiles, suggesting that very few firms that report profits experienced negative cash flow from operations. In terms of Table 5.4 Panel C, 2007 has the highest proportion of  $CFO_{jt}$  than any of the other years in the observation window.

Table 5.4 Panel A suggests that overall, 215 (43.500%) firm-years have negative changes in cash flows from operating activities as a proportion of total assets ( $DCFO_{jt}$ ). In respect to the Quartile breakdown, Table 5.4 Panel B indicates that there is no significant difference in the proportion of negative cash flows across the Quartiles. In terms of Table 5.4 Panel C, 2008 has the highest proportion of negative cash flow from operating activities as a proportion of total assets (see  $DCFO_{jt}$ ) than any of the other years in the observation window.

## 5.5 Descriptives of Components of Audit Committee Effectiveness

As discussed in Chapter Four, Audit committee effectiveness, the independent variable of this study, is operationalized based on four key characteristics of audit committee: (1) independence; (2) financial expertise; (3) experience; and (4) diligence. Table 5.5 provides the descriptives for the key variables of audit committee effectiveness.<sup>40</sup> The following subsections will discuss descriptive statistics for the key four variables of audit committee effectiveness.

### 5.5.1 Audit committee independence

Table 5.5 Panel A shows that the average size of audit committees (i.e.,  $Size\_ACE_{jt}$ ) within the pooled sample is 3.160 which is relatively (or perhaps slightly) lower than that reported in countries such as the US, UK and Singapore (Abbott et al. 2000; Abbott and Parker 2000; Van der Zahn and Tower 2004). Consistent with prior research both in Australia and abroad, the size of the audit committee tends to be smaller on average when the size of the firm declines (Abbott et al. 2000; Abbott and Parker 2000; Carcello et al. 2006; Goodwin 2003; Van der Zahn and Tower 2004; Xie et al. 2003). Interestingly, the average size of the audit committee (i.e., 3.000) is static from 2004 to 2008 as indicated by Table 5.5 Panel C.

Table 5.5 Panel A reveals that the number of non-executive directors ( $\#NE\_ACE_{jt}$ ) on audit committees is higher than the executive directors ( $\#Ex\_ACE_{jt}$ ) for the pooled sample. On average, each firm has 0.900 non-executive director compared to 0.530 executive directors. With regards to the Quartile breakdown, Table 5.5 Panel B reports that the number of executive directors is higher in smaller firms than in larger firms. Table 5.5 Panel A shows that the number of independent directors ( $\#Ind\_ACE_{jt}$ ) in the pooled sample ranges from 0 to 6 with a mean of 1.730 and a standard deviation of 1.297. As expected,

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<sup>40</sup> Individual audit committee variables will be discussed in this section. Audit committee composite score measuring audit committee effectiveness will be discussed in Section 5.6.

Table 5.5 Panel B shows that the average number of independent directors declines from 1<sup>st</sup> Quartile (3.030) to 4<sup>th</sup> Quartile (0.840). However, the average number of independent directors increases from 2004 to 2008. One of the primary reasons for the increase is likely to be the increased focus on the importance of the independence of the audit committee by regulators globally (ASX CGC 2003; BRC, 1999).

Table 5.5 Panel A shows that independent directors account on average for 54.626% of audit committee members for firms in the pooled sample (see  $\%Ind\_ACE_{jt}$ ). The figures, however, are relatively low compared to the comparative figures reported in the US. For example, Klein (2002a) documents that approximately 87% of US firms listed on the S&P 500 in 1992 to 1993 have a majority of outside directors on the audit committee. Not surprisingly, the percentage of independent directors declines significantly when comparing large and small firms. Specifically, when firms are divided into Quartiles, there is a significant fall of number of independent member from the 1<sup>st</sup> Quartile (85.213) to the 4<sup>th</sup> Quartile (27.967) as indicated by Table 5.5 Panel B. Firms in the 1<sup>st</sup> Quartile (4<sup>th</sup> Quartile) had the highest (lowest) average percentage of independent director representation on the audit committee. In terms of the yearly comparison, Table 5.5 Panel C shows that percentage of independent directors on the audit committee has increased statically from 2004 to 2008.

### **5.5.2 Audit committee expertise**

As discussed in Chapter Four, financial expertise is measured within the following two categories: (1) accounting financial expertise; and (2) non-accounting financial expertise (Beasley and Salterio 2001; Bedard et al. 2004; Defond et al. 2005; Krishnan and Visvanathan 2007a; Van der Zahn and Tower 2004). Accounting financial expertise includes directors with experience as a public accountant, auditor, principal or chief financial officer, controller, principal or chief accounting officer. Non-accounting financial expertise, on the other hand, refers to directors with experience as a CEO or president for a for-profit corporation (Defond et al. 2005; Krishnan and Visvanathan 2007a). Therefore, a director is deemed to have financial expertise if possessing necessary accounting educational qualifications and professional affiliations or has experience as the CEO or president of a for-profit organization. Table 5.5 Panel A results show that approximately one-third (i.e., 31.390%) of directors on the audit committees of pooled sample have accounting financial expertise based on accounting qualifications and professional affiliations (see  $Expt\_Acc\_ACE_{jt}$ ). As expected, firms in the 1<sup>st</sup> Quartile (38.800%) and 2<sup>nd</sup> Quartile (37.764%) have the highest percentage of audit committees comprising of directors with relevant financial accounting qualifications and professional affiliations. Moreover, the proportion of accounting financial experts in the audit committees of firms in the pooled sample is increasing gradually over time (2004 to 2008 financial year ends) as shown by

Table 5.5 Panel C. Further, Table 5.5 Panel A indicates that, on average, 14.096% of the members of the audit committee of pooled sample firms are directors with prior experience as CEO of for-profit firms having non-financial accounting expertise (see  $\%Expt\_CEONP\_ACE_{jt}$ ). In relation to Quartile breakdown in Table 5.5 Panel B, audit committees of firms in the 4<sup>th</sup> Quartile have the lowest number of audit committees composed of directors with prior CEO experience (i.e., 10.244%) compared to firms in the 1<sup>st</sup> Quartile (i.e., 22.000%).

### 5.5.3 Audit committee experience

As discussed in Chapter Four, consistent with Beasley and Salterio (2001) and Dhaliwal et al. (2006), experience as an outside director will be used to proxy for the corporate governance experience. Table 5.5 Panel A shows that the number of audit committee member with prior corporate governance experience in the pooled sample ranges from 0 to 5 with a mean of 1.490 (see  $\#AC\_Exp\_ACE_{jt}$ ). Table 5.5 Panel A results further reveal that, on average, 46.343% of members of audit committees in the pooled sample firms are directors with prior audit committee experience (see  $\%AC\_Exp\_ACE_{jt}$ ). In regards to the Quartile breakdown, audit committees of firms in the 4<sup>th</sup> Quartile have the lowest average of audit committees composed of directors with prior corporate governance experience (i.e., 29.228%) compared to firms in the 1<sup>st</sup> Quartile having the highest average (i.e., 67.067%). In terms of breakdown by years, Table 5.5 Panel C shows that the number of directors with prior corporate governance experience has increased steadily from 2004 to 2008.

### 5.5.4 Audit committee diligence

As discussed in Chapter Four, diligence of the audit committee has been measured in two different ways: (1) based on actual number of audit committee meetings; and (2) based on actual number of board of directors meetings. As a result, a firm has been given a score of one (1) if the audit committee meets four or more times a year or if the board of directors meets 10 or more times a year (Abbott et al. 2004; Beasley et al. 2000; Bedard et al. 2004; Farber 2005; Menon and Williams 1994; Vafeas 1999, 2005; Xie et al. 2003). Table 5.5 Panel A results show the descriptives for actual audit committee meetings only. Table 5.5 Panel A results indicate that, on average, firms for the pooled sample meet four times a year (see  $\#Act\_Meetg\_ACE_{jt}$ ). The pooled sample's average number of audit committee meetings (i.e., 3.400) per year is comparable to that reported for US firms but higher than that reported for UK firms (Abbott et al., 2004; Van der Zahn and Tower, 2004; Xie et al. 2003; Song and Windram, 2000). Results from Table 5.5 Panel B indicate a distinctive division in the number of audit committee meetings held by larger and smaller firms. Specifically, the 1<sup>st</sup> Quartile and 2<sup>nd</sup> Quartile firms meet (on average) almost twice as frequently per year compared to firms in the 3<sup>rd</sup> Quartile and 4<sup>th</sup> Quartile (i.e., 4.070 and 3.960 meetings

compared to 2.380 and 2.390 meetings). Table 5.5 Panel C shows that the audit committee meeting frequency per year remains static from 2004 to 2007 with a significant increase only in 2008.

**Table 5.5 - Descriptive statistics - audit committee effectiveness**

<b>Panel A: Overall</b>						
	<b>Pooled Sample</b>	<b>Mean</b>	<b>Median</b>	<b>Std. Dev</b>	<b>Minimum</b>	<b>Maximum</b>
<i>Size_ACE<sub>jt</sub></i>	494	3.160	3.000	0.944	1.000	6.000
<i>#Act_Meetg_ACE<sub>jt</sub></i>	494	3.400	3.000	1.951	1.000	13.000
<i>#Ex_ACE<sub>jt</sub></i>	494	0.530	0.000	0.827	0.000	4.000
<i>#NE_ACE<sub>jt</sub></i>	494	0.900	1.000	0.993	0.000	4.000
<i>#Ind_ACE<sub>jt</sub></i>	494	1.730	2.000	1.297	0.000	6.000
<i>#Expt_Acc_ACE<sub>jt</sub></i>	494	0.970	1.000	0.890	0.000	3.000
<i>#Expt_CEONP_ACE<sub>jt</sub></i>	494	0.450	0.000	0.695	0.000	3.000
<i>#AC_Exp_ACE<sub>jt</sub></i>	494	1.490	1.000	1.183	0.000	5.000
<i>%Ind_ACE<sub>jt</sub>(%)</i>	494	54.626	66.667	37.778	0.000	100.000
<i>%Expt_Acc_ACE<sub>jt</sub>(%)</i>	494	31.390	33.333	28.847	0.000	100.000
<i>%Expt_CEONP_ACE<sub>jt</sub>(%)</i>	494	14.096	00.000	21.344	0.000	100.000
<i>% Exp_ACE<sub>jt</sub>(%)</i>	494	46.343	50.000	40.308	0.000	100.000
<b>Panel B: Audit committee effectiveness (ACE) by Quartiles</b>						
	<b>Pooled Sample</b>	<b>Statistic</b>	<b>1<sup>st</sup> Quartile (n=125)</b>	<b>2<sup>nd</sup> Quartile (n=123)</b>	<b>3<sup>rd</sup> Quartile (n=123)</b>	<b>4<sup>th</sup> Quartile (n=121)</b>
<i>Size_ACE<sub>jt</sub></i>	494	Mean (Median)	3.540 (3.000)	3.070 (3.000)	3.060 (3.000)	2.980 (3.000)
<i>#Act_Meetg_ACE<sub>jt</sub></i>	494	Mean (Median)	4.070 (4.000)	3.960 (3.000)	2.380 (2.000)	2.390 (2.000)
<i>#Ex_ACE<sub>jt</sub></i>	494	Mean (Median)	0.110 (0.000)	0.490 (0.000)	0.720 (1.000)	0.830 (1.000)
<i>#NE_ACE<sub>jt</sub></i>	494	Mean (Median)	0.400 (0.000)	0.770 (1.000)	1.030 (1.000)	1.410 (1.000)
<i>#Ind_ACE<sub>jt</sub></i>	494	Mean (Median)	3.030 (3.000)	1.720 (2.000)	1.310 (1.000)	0.840 (1.000)
<i>#Expt_Acc_ACE<sub>jt</sub></i>	494	Mean (Median)	1.330 (1.000)	1.070 (1.000)	0.740 (1.000)	0.720 (1.000)
<i>#Expt_CEONP_ACE<sub>jt</sub></i>	494	Mean (Median)	0.810 (1.000)	0.310 (0.000)	0.380 (0.000)	0.310 (0.000)
<i>#AC_Exp_ACE<sub>jt</sub></i>	494	Mean (median)	2.390 (2.000)	1.350 (1.000)	1.370 (1.000)	0.830 (1.000)
<i>%Ind_ACE<sub>jt</sub>(%)</i>	494	Mean (Median)	85.213 (100.000)	60.962 (66.667)	43.862 (33.333)	27.967 (25.000)
<i>%Expt_Acc_ACE<sub>jt</sub>(%)</i>	494	Mean (median)	38.800 (33.333)	37.764 (33.333)	24.011 (20.000)	24.864 (20.000)
<i>%Expt_CEONP_ACE<sub>jt</sub>(%)</i>	494	Mean (Median)	22.000 (25.000)	11.436 (00.000)	12.575 (00.000)	10.244 (00.000)
<i>% Exp_ACE<sub>jt</sub>(%)</i>	494	Mean (Median)	67.067 (66.667)	45.407 (50.000)	43.333 (50.000)	29.228 (25.000)
<b>Panel C: Audit committee effectiveness (ACE) by year</b>						
	<b>Statistic</b>	<b>2004 (n=96)</b>	<b>2005 (n=98)</b>	<b>2006 (n=100)</b>	<b>2007 (n=100)</b>	<b>2008 (n=100)</b>
<i>Size_ACE<sub>jt</sub></i>	Mean (Median)	3.000 (3.000)	3.000 (3.000)	3.000 (3.000)	3.000 (3.000)	3.000 (3.000)
<i>#Act_Meetg_ACE<sub>jt</sub></i>	Mean (Median)	3.000 (2.000)	3.000 (3.000)	3.000 (3.000)	3.000 (3.000)	4.000 (3.000)
<i>#Ex_ACE<sub>jt</sub></i>	Mean (Median)	0.594 (0.000)	0.520 (0.000)	0.530 (0.000)	0.540 (0.000)	0.490 (0.000)
<i>#NE_ACE<sub>jt</sub></i>	Mean (Median)	1.021 (1.000)	1.091 (1.000)	0.950 (1.000)	0.800 (1.000)	0.650 (0.000)

**Table 5.5 (continued) - Descriptive statistics - audit committee effectiveness**

<b>Panel C: Audit committee effectiveness (ACE) by year (continued)</b>						
	<b>Statistic</b>	<b>2004 (n=96)</b>	<b>2005 (n=98)</b>	<b>2006 (n=100)</b>	<b>2007 (n=100)</b>	<b>2008 (n=100)</b>
$\#Ind\_ACE_{jt}$	Mean (Median)	1.438 (1.000)	1.633 (1.000)	1.633 (1.000)	1.800 (2.000)	1.820 (2.000)
$\#Expt\_Acc\_ACE_{jt}$	Mean (Median)	0.896 (1.000)	0.949 (1.000)	0.970 (1.000)	1.000 (1.000)	1.010 (1.000)
$\#Expt\_CEONP\_ACE_{jt}$	Mean (Median)	0.396 (0.000)	0.449 (0.000)	0.480 (0.000)	0.460 (0.000)	0.480 (0.000)
$\#AC\_Exp\_ACE_{jt}$	Mean (Median)	1.260 (1.000)	1.469 (0.000)	1.600 (1.500)	1.520 (1.500)	1.580 (2.000)
$\%Ind\_ACE_{jt}(\%)$	Mean (Median)	46.736 (50.000)	50.272 (50.000)	54.983 (50.000)	58.900 (66.667)	61.833 (66.667)
$\%Expt\_Acc\_ACE_{jt}(\%)$	Mean (Median)	29.236 (33.333)	30.204 (33.333)	30.333 (33.333)	32.117 (33.333)	34.950 (33.333)
$\%Expt\_CEONP\_ACE_{jt}(\%)$	Mean (Median)	22.396 (00.000)	24.082 (00.000)	26.033 (00.000)	29.417 (00.000)	32.272 (29.167)
$\%Exp\_ACE_{jt}(\%)$	Mean (Median)	40.660 (40.000)	45.833 (50.000)	48.367 (50.000)	47.133 (50.000)	49.483 (50.000)

**Legend:**

- $Size\_ACE_{jt}$  = Total number of audit committee members of firm  $j$  at time period  $t$ ;
- $\#Act\_Meetg\_ACE_{jt}$  = Number of actual audit committee meetings of firm  $j$  in time period  $t$  held during the year;
- $\#Ex\_ACE_{jt}$  = Number of audit committee members of firm  $j$  at time period  $t$  that are executive directors;
- $\#NE\_ACE_{jt}$  = Number of audit committee members of firm  $j$  at time period  $t$  that are non-executive directors;
- $\#Ind\_ACE_{jt}$  = Number of audit committee members of firm  $j$  at time period  $t$  that are independent directors;
- $\#Expt\_Acc\_ACE_{jt}$  = Number of audit committee members of firm  $j$  at time period  $t$  with experience as a public accountant, auditor, principal or chief financial officer, controller, principal or chief accounting officer;
- $\#Expt\_CEONP\_ACE_{jt}$  = Number of audit committee members of firm  $j$  at time period  $t$  with experience as a CEO or president for a for-profit corporation;
- $\%Ind\_ACE_{jt}$  = Percentage of the audit committee of firm  $j$  at time period  $t$  comprised of independent directors;
- $\%Expt\_Acc\_ACE_{jt}$  = Percentage of audit committee members of firm  $j$  at time period  $t$  with experience as a public accountant, auditor, principal or chief financial officer, controller, principal or chief accounting officer;
- $\%Expt\_CEONP\_ACE_{jt}$  = Percentage of audit committee members of firm  $j$  at time period  $t$  with experience as a CEO or president for a for-profit corporation;
- $\#AC\_Exp\_ACE_{jt}$  = Number of independent audit committee members of firm  $j$  at time period  $t$  with prior corporate governance experience (i.e., experience as an outside director); and
- $\%Exp\_ACE_{jt}$  = Percentage of audit committee members of firm  $j$  at time period  $t$  with prior corporate governance experience (i.e., experience as an outside director).

**5.6 Descriptives of Audit Committee Effectiveness Composite Score ( $ACE_{jt}$ )**

As indicated in Chapter Four, this study develops a composite score for audit committee effectiveness based on the sub-committee's independence, expertise, experience and diligence. Specifically, for firm  $j$  in time period  $t$ , a composite score for audit committee effectiveness (henceforth denoted  $ACE_{jt}$ ) is based on a score of one (1) being awarded for each of the following individual characteristics being met:

- The audit committee of firm  $j$  in time  $t$  consists of majority of independent directors;
- At least one independent audit committee member of firm  $j$  in time period  $t$  is a qualified person with financial expertise possessing necessary

educational qualifications (i.e., degree in accounting) and professional credentials (i.e., member of a professional accounting body).

- At least one independent member of the audit committee of firm  $j$  in time period  $t$  has prior corporate governance experience (i.e., experience as an outside directors); and
- The audit committee of firm  $j$  in time period  $t$  meets four or more times or the board meets 10 or more times where the boards of directors' meetings surrogate audit committee meetings.<sup>41</sup>

The range of scores for  $ACE_{jt}$ , therefore, is 0 to 4. For additional analysis,  $ACE_{jt}$  is decomposed into four measures representing each individual component. Specifically, the measure for: (a) audit committee independence is denoted as  $Ind\_ACE_{jt}$ ; (b) audit committee expertise is denoted as  $Expt\_ACE_{jt}$ ; (c) audit committee experience is denoted as  $Exp\_ACE_{jt}$ ; and (d) audit committee diligence as  $Dil\_ACE_{jt}$ . Table 5.6 provides descriptive statistics for the composite scores of audit committee effectiveness. The descriptive statistics for the decomposed audit committee effectiveness is discussed in the following subsections followed by the descriptive statistics of audit committee effectiveness composite score.

### **5.6.1 Audit committee independence ( $Ind\_ACE_{jt}$ )**

Table 5.6 Panel B shows that in total, 295 (or 59.717%) firm-years in the pooled sample have audit committees comprising a majority of independent directors (see  $Ind\_ACE_{jt}$ ). In respect to Quartile breakdown, Table 5.6 Panel B indicates that almost all (122 firm-years out of 125 firm-years) 1<sup>st</sup> Quartile firm-years have audit committees with a majority of independent directors whilst only 33 firm-years in the 4<sup>th</sup> Quartile have a majority. In terms of Table 5.6 Panel C, the percentage of firm-years that have audit committees comprised of a majority of independent directors has increased gradually from 2004 to 2008. Furthermore, 2008 has the highest percentage (68.000%) of firm-years that have audit committee comprised of majority of independent directors.

### **5.6.2 Audit committee expertise ( $Expt\_ACE_{jt}$ )**

Table 5.6 Panel B shows that overall, 379 (or 76.721%) firm-years in the pooled sample have at least one director on the audit committee with financial expertise based on accounting education and/or professional affiliation credentials or have prior or existing CEO or president experience with a for-profit organization (see  $Expt\_ACE_{jt}$ ). The 1<sup>st</sup> Quartile has the highest percentage (92.800%) of firm-years having at least one director on

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<sup>41</sup> If firm  $j$  at time period  $t$  has a formal audit committee and holds formal audit committee meetings the actual number of meetings of the audit committee is used. If firm  $j$  at time period  $t$  has formal audit committee but holds board of directors meetings to discuss audit committee matters the actual number of meetings of the board of directors is used as a proxy measure for  $Dil\_ACE_{jt}$ .

the audit committee who had accounting education and/or professional affiliation credentials or have prior or existing CEO experience with a for-profit organization followed by firm-years in the 2<sup>nd</sup> Quartile (81.300%). Table 5.6 Panel C reveals that the proportion of firms with at least one financial expert has been increasing over time (i.e., 2004 to 2008). This may be due to the fact that corporate governance advocates, researchers and regulators (ASX CGC 2003; BRC, 1999) globally are focusing increasingly on financial expertise as an important dimension of audit committee effectiveness.

### **5.6.3 Audit committee experience ( $Exp\_ACE_{jt}$ )**

Table 5.6 Panel B shows that overall, 375 (or 75.910%) of the firm-years in the pooled sample have at least one independent director on the audit committee with prior corporate governance experience (see  $Exp\_ACE_{jt}$ ). However, when the pooled sample is partitioned by Quartiles, 1<sup>st</sup> Quartile has the highest percentage (93.600%) of firm-years having at least one director on the audit committee possessing prior corporate governance experience followed by firm-years in the 2<sup>nd</sup> Quartile (73.170%). In terms of Table 5.6 Panel C, the proportion of firm-years with at least one audit committee member with prior corporate governance experience has improved from 2004 to 2008.

### **5.6.4 Audit committee diligence ( $Dil\_ACE_{jt}$ )**

Table 5.6 Panel B shows that 174 (or 35.223%) of the firm-years in the pooled sample is scored one (1) for meeting the basic criteria of being diligent as per the proxy measure of diligence.<sup>42</sup> In regards to the breakdown by Quartiles, Table 5.6 Panel B shows that, as expected, of the 174 firm-years, 85 were from the 1<sup>st</sup> Quartile with only 31 from the 4<sup>th</sup> Quartile. In terms of Table 5.6 Panel C, the proportion of firms scoring one (1) for meeting the basic criteria of being diligent as per the proxy measure of diligence has been increasing over time (i.e., 2004 to 2008) and 2008 has the highest percentage of firms that is scored one (1) for meeting the basic criteria of being diligent as per the proxy measure of diligence.

### **5.6.5 Audit committee effectiveness ( $ACE_{jt}$ )**

Table 5.6 Panel A shows that 102 (or 20.648%) of the firm-years in the pooled sample have audit committees that are comprised of a majority of independent directors; at least one independent audit committee member is a qualified person with financial expertise possessing necessary educational qualifications (i.e., degree in accounting) and professional credentials (i.e., member of a professional accounting body); at least one independent member of the audit committees has prior corporate governance experience (i.e., experience

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<sup>42</sup> Diligence of the audit committee has been measured in two different ways: (1) based on actual number of audit committee meetings; and (2) based on actual number of board of directors meetings. As a result, a firm has been given a score of one (1) if the audit committee meets four or more times a year or if the board of directors meets 10 or more times a year.

as an outside director); and the audit committees meet four or more times during a year or the board of directors meet 10 or more times during a year (i.e., achieve a perfect composite score of 4). On the other hand, 20 (4.049%) of the firm-years in the pooled sample have audit committees that do not meet any of the above criteria.

Finally, Table 5.6 Panel B shows that the pooled sample's average (median) audit committee effectiveness score (i.e.,  $ACE_{jt}$ ) is 2.475 (3.000). Using two (2) as an arbitrary benchmark for defining average effectiveness, the majority of firms in the pooled sample have above-average effective audit committees. However, as expected, audit committees of larger firms scored higher on average (3.520) for the effectiveness compared to the smaller firms (1.740). This result may be explained by larger firms having more resources available to ensure audit committees having members that better contribute to the committee's effectiveness. Alternatively, in line with agency theory, larger firms may have more at stake (e.g., reputation, legal costs) than smaller firms. Consequently, larger firms are more politically visible than smaller counterparts and will have greater incentives to ensure the effectiveness of the audit committee.

**Table 5.6 - Descriptive statistics - audit committee effectiveness composite score ( $ACE_{jt}$ )**

<b>Panel A: Overall</b>						
	<b>Statistic</b>	<b>0 (n=494)</b>	<b>1 (n=494)</b>	<b>2 (n=494)</b>	<b>3 (n=494)</b>	<b>4 (n=494)</b>
$ACE_{jt}$	Count (% Sample)	20 (04.049)	86 (17.409)	129 (26.113)	157 (31.781)	102 (20.648)
<b>Panel B: Audit committee effectiveness (ACE) by Quartiles</b>						
	<b>Statistic</b>	<b>Pooled Sample (n=494)</b>	<b>1<sup>st</sup> Quartile (n=125)</b>	<b>2<sup>nd</sup> Quartile (n=123)</b>	<b>3<sup>rd</sup> Quartile (n=123)</b>	<b>4<sup>th</sup> Quartile (n=123)</b>
$ACE_{jt}$	Mean (median)	2.475 (3.000)	3.520 (4.000)	2.577 (3.000)	2.049 (2.000)	1.740 (2.000)
$Ind\_ACE_{jt}$	Count (% Sample)	295 (59.717)	122 (97.600)	87 (70.732)	53 (43.090)	33 (26.830)
$Expt\_ACE_{jt}$	Count (% Sample)	379 (76.721)	116 (92.800)	100 (81.300)	79 (64.228)	84 (68.300)
$Exp\_ACE_{jt}$	Count (% Sample)	375 (75.910)	117 (93.600)	90 (73.170)	102 (82.927)	66 (53.659)
$Dil\_ACE_{jt}$	Count (% Sample)	174 (35.223)	85 (68.000)	40 (32.520)	18 (14.634)	31 (25.203)
<b>Panel C: Audit committee effectiveness (ACE) by years</b>						
	<b>Statistic</b>	<b>2004 (n=96)</b>	<b>2005 (n=98)</b>	<b>2006 (n=100)</b>	<b>2007 (n=100)</b>	<b>2008 (n=100)</b>
$Ind\_ACE_{jt}$	Count (% Sample)	52 (54.167)	53 (54.082)	59 (59.000)	63 (63.000)	68 (68.000)
$Expt\_ACE_{jt}$	Count (% Sample)	67 (69.792)	73 (74.490)	77 (77.000)	78 (78.000)	84 (84.000)
$Exp\_ACE_{jt}$	Count (% Sample)	69 (71.875)	76 (77.551)	79 (79.000)	76 (76.000)	75 (75.000)
$Dil\_ACE_{jt}$	Count (% Sample)	24 (25.000)	30 (30.612)	40 (40.000)	33 (33.000)	47 (47.000)

**Legend:**

- $ACE_{jt}$ = A composite score for audit committee effectiveness based on the sub-committee's independence, expertise, experience and diligence (i.e.,  $Ind\_ACE_{jt} + Expt\_ACE_{jt} + Exp\_ACE_{jt} + Dil\_ACE_{jt}$ );
- $Ind\_ACE_{jt}$ = An indicator variable given the value of one (1) if there are a majority of independent directors on the audit committee of firm  $j$  at time period  $t$ ; otherwise a score of zero (0);
- $Expt\_ACE_{jt}$ = An indicator variable given the value of one (1) if the audit committee of firm  $j$  at time period  $t$  has a member with experience as a public accountant, auditor, principal or chief financial officer, controller, principal or chief accounting officer or with experience as a CEO or president for a for-profit corporation (i.e.,  $Sum\_Expt\_ACE_{jt}$ ), otherwise score of zero (0);
- $Exp\_ACE_{jt}$ = An indicator variable given the value of one (1) if at least one member of the audit committee of firm  $j$  in time period  $t$  has prior corporate governance experience (i.e., experience as an outside director); otherwise score of zero (0); and
- $Dil\_ACE_{jt}$ = An indicator variable given the value of one (1) if the audit committee of firm  $j$  in time period  $t$  meets at least four times or more a year or if the board of firm  $j$  in time period  $t$  meets 10 times or more a year where board meetings surrogate audit committee meetings, (0) otherwise.

## 5.6 Summary of the Chapter

This chapter provided the descriptive statistics for the data examined in this study. The chapter began by outlining the sample selection process and detailing the industry breakdowns in the final usable sample. Basic descriptive statistics for firm characteristics were supplied followed by similar statistics for dependent variable, earnings conservatism. Subsequently, the descriptives for the independent variable, audit committee effectiveness were outlined including descriptive statistics for the composite score (i.e.,  $ACE_{jt}$ ) developed.<sup>43</sup>

Chapter Six will provide univariate results followed by the main empirical results obtained in this study. Initially, regression results examining overall audit committee effectiveness and earnings conservatism will be reported and discussed. Subsequently, the audit committee effectiveness composite score will be decomposed into the four key audit committee attributes of independence, financial expertise, experience and diligence and regression results examining earnings conservatism and each individual attribute of audit committee effectiveness will be generated.

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<sup>43</sup> A correlation matrix was generated for the three main models of this study (i.e. models based on Basu (1997) Timeliness, Basu (1997) Persistence and Ball and Shivakumar (2005)). The correlation matrix reporting Pearson correlation coefficients for the three main models including both continuous and dichotomous variables (used in this study) are reported in Appendix B. Please refer to Appendix B for the correlation matrix.

## **CHAPTER SIX: MULTIVARIATE ANALYSIS – MULTIPLE REGRESSIONS**

### **6.1 Overview of the Chapter**

Chapter Five provided the descriptive statistics for the data examined in this study. The chapter began by outlining the sample selection process and detailing the industry breakdowns in the final usable sample. Basic descriptive statistics for firm characteristics were delivered followed by similar statistics for dependent variable, earnings conservatism. Subsequently, the descriptives for the independent variable, audit committee effectiveness were outlined including descriptive statistics for the  $ACE_{jt}$  developed.

This chapter reports and discusses the main empirical results of this study. Multivariate results testing the association between the Basu (1997) timeliness model of earnings conservatism and audit committee effectiveness are initially documented. This is followed by multivariate results examining the association between individual components of audit committee effectiveness and earnings conservatism based on the Basu (1997) timeliness model. Subsequently, multivariate results examining the relationship between the persistence of earnings conservatism (based on the Basu (1997) model) and audit committee effectiveness (and individual components) are presented. Results testing the association between earnings conservatism measured using Ball and Shivakumar's (2005) model and both the composite and individual components of audit committee effectiveness are then presented. Finally, a summary is provided at the end of the chapter.

### **6.2 Audit Committee Effectiveness and Timeliness of Earnings Conservatism**

Results of multivariate analysis testing the association between timeliness of earnings conservatism (based on the Basu (1997) model) and audit committee effectiveness is presented and discussed in the following subsection. Meanwhile, multivariate results from an examination of the association between earnings conservatism measured using the Basu (1997) timeliness model, and individual components of audit committee effectiveness, are presented in the subsequent subsection.

#### **6.2.1 Influence of overall audit committee effectiveness**

Table 6.1 presents initial results testing the association between earnings conservatism and audit committee effectiveness. Findings presented in Table 6.1 Column I show the univariate results of the Basu (1997) timeliness measure of earnings conservatism. As indicated in Table 6.1 Column I, the coefficient on  $RR-AllOrd_{jt}$  is negative and highly significant ( $p < 0.000$ ). This result is consistent with other related Australian (e.g., Hamilton et al., 2005; Ruddock et al., 2006), UK (Beekes et al. 2004) and European (Lara et al. 2005;

Lara et al. 2009a) earnings conservatism research. When the indicator variable  $DR_{jt}$ , and two-way interaction term  $RR-AllOrd_{jt} * DR_{jt}$ , are included, the coefficient on  $RR-AllOrd_{jt}$  remains negative and highly significant ( $p < 0.000$ ) (see Table 6.1 Column II). When all remaining explanatory factors relevant to audit committee effectiveness are introduced into the Basu (1997) base model specification timeliness of earnings conservatism (see Table 6.1 Column III), the coefficient on  $RR-AllOrd_{jt}$  continues to be negative and highly significant ( $p < 0.000$ ).

In the test of the Basu (1997) timeliness base model (see Table 6.1 Column II), and this study's full model (see Table 6.1 Column III), the coefficient on  $DR_{jt}$  is negative and highly significant ( $p < 0.005$  and  $p < 0.000$  respectively). Meanwhile, the coefficient on the two-way interaction term  $RR-AllOrd_{jt} * DR_{jt}$  is positive and highly significant ( $p < 0.000$ ) in tests shown in Table 6.1 Column II. Findings related to the two-way interaction term  $RR-AllOrd_{jt} * DR_{jt}$  is consistent with prior research (Basu, 1997; Givoly and Hayn, 2002; Gotti 2008; Lafond and Watts, 2008; Pae et al. 2004) suggesting the presence of earnings conservatism. That is,  $RR-AllOrd_{jt} * DR_{jt}$  results reported in Table 6.1 Column II indicate negative news is conveyed more swiftly to the market than good news (Basu 1997; Beekes et al. 2004; Lara et al. 2005; Lara et al. 2009a; Ruddock et al. 2006). Meanwhile, the coefficient on the two-way interaction term  $RR-AllOrd_{jt} * DR_{jt}$  is positive but insignificant ( $p < 0.000$ ) in tests shown in Table 6.1 Column III.<sup>44</sup>

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<sup>44</sup> Additional analyses have been conducted using raw returns when measuring earnings conservatism. Given that additional the testing did not yield any different results, findings from these additional analysis are not tabulated in this study.

**Table 6.1 - Multiple regression analysis of audit committee effectiveness and the Basu (1997) timeliness earnings conservatism model**

Variables	Column I: Univariate Model			Column II: Base Model			Column III: Full Model		
	Beta	t-Stat	P-value	Beta	t-Stat	P-value	Beta	t-Stat	P-value
Intercept	-0.077	-4.831	0.000*	0.056	2.214	0.027**	-0.022	-0.327	0.744
$DR_{jt}$				-0.124	-2.933	0.004*	-0.317	-3.087	0.002*
$ACE_{jt}$							0.023	1.017	0.310
$DR_{jt} * ACE_{jt}$							0.085	2.271	0.024**
$RR-AllOrd_{jt}$	-0.054	-3.837	0.000*	-0.111	-7.128	0.000*	-0.161	-5.207	0.000*
$RR-AllOrd_{jt} * DR_{jt}$				0.256	3.678	0.000*	0.034	0.224	0.823
$RR-AllOrd_{jt} * ACE_{jt}$							0.043	2.076	0.038**
$RR-AllOrd_{jt} * DR_{jt} * ACE_{jt}$							0.052	0.784	0.433
Adjusted-R <sup>2</sup>	0.027			0.115			0.153		
N	494			494			494		
F-Statistic	14.723			22.427			9.088		

**Legend:**

Column I Equation:  $X_{jt} = \alpha_0 + \beta_0 RR-AllOrd_{jt} + \varepsilon_{jt}$

Column II Equation:  $X_{jt} = \alpha_0 + \beta_0 DR_{jt} + \beta_1 RR-AllOrd_{jt} + \beta_2 RR-AllOrd_{jt} * DR_{jt} + \varepsilon_{jt}$

Column III Equation:  $X_{jt} = \alpha_0 + \beta_0 DR_{jt} + \beta_1 RR-AllOrd_{jt} + \beta_2 RR-AllOrd_{jt} * DR_{jt} + \beta_3 ACE_{jt} + \beta_4 ACE_{jt} * RR-AllOrd_{jt} + \beta_5 ACE_{jt} * DR_{jt} + \beta_6 ACE_{jt} * RR-AllOrd_{jt} * DR_{jt} + \sum Year_{jkt} + \varepsilon_{jt}$

Where:

- $X_{jt}$  = Operating profit after tax of firm  $j$  deflated by market value of equity ( $MVE_{t-1}$  - Market capitalization of firm  $j$  at beginning of the fiscal year  $t$ ) of firm  $j$  at beginning of the fiscal year  $t$ ;
- $DR_{jt}$  = Indicator variable where firm  $j$  is scored one (1) if  $RR-AllOrd_{jt}$  is negative, otherwise firm  $j$  is scored zero (0);
- $ACE_{jt}$  = A composite score for audit committee effectiveness based on the sub-committee's independence, expertise, experience and diligence (i.e.,  $Ind\_ACE_{jt} + Expt\_ACE_{jt} + Exp\_ACE_{jt} + Dil\_ACE_{jt}$ );
- $DR_{jt} * ACE_{jt}$  = Two-way interaction between indicator variable where firm  $j$  is scored one (1) if  $RR-AllOrd_{jt}$  is negative, otherwise firm  $j$  is scored zero (0), and the composite audit committee effectiveness score of firm  $j$  in fiscal year  $t$ ;
- $RR-AllOrd_{jt}$  = Annual share returns for firm  $j$  from three months after the previous fiscal year  $t-1$  to three months after the current fiscal year  $t$  (i.e.,  $(P_t - P_{t-1})/P_{t-1}$  where  $P_t$  is the price of shares for firm  $j$  three months after the end of the fiscal year  $t$  and  $P_{t-1}$  is the price of shares for firm  $j$  three months after the end of the fiscal year  $t-1$ ) adjusted for the All Ordinaries Index over the same period;
- $RR-AllOrd_{jt} * DR_{jt}$  = Two-way interaction between annual share returns for firm  $j$  from three months after the previous fiscal year  $t-1$  to three months after the current fiscal year  $t$  (i.e.,  $(P_t - P_{t-1})/P_{t-1}$  where  $P_t$  is the price of shares for firm  $j$  at the end of the fiscal year  $t$  and  $P_{t-1}$  is the price of shares for firm  $j$  at the start of the fiscal year  $t$ ) adjusted for the All Ordinaries Index over the same period and indicator variable where firm  $j$  is scored one (1) if  $RR-AllOrd_{jt}$  is negative, otherwise firm  $j$  is scored zero (0);
- $RR-AllOrd_{jt} * ACE_{jt}$  = Two-way interaction between annual share returns for firm  $j$  from three months after the previous fiscal year  $t-1$  to three months after the current fiscal year  $t$  (i.e.,  $(P_t - P_{t-1})/P_{t-1}$  where  $P_t$  is the price of shares for firm  $j$  at the end of the fiscal year  $t$  and  $P_{t-1}$  is the price of shares for firm  $j$  at the start of the fiscal year  $t$ ) adjusted for the All Ordinaries Index over the same period and the composite audit committee effectiveness score based on the sub-committee's independence, expertise, experience and diligence (i.e.,  $Ind\_ACE_{jt} + Expt\_ACE_{jt} + Exp\_ACE_{jt} + Dil\_ACE_{jt}$ ) of firm  $j$  in fiscal year  $t$ ;

$RR-AllOrd_{jt} * DR_{jt} * ACE_{jt}$  = Three-way interaction between annual share returns for firm  $j$  from three months after the previous fiscal year  $t-1$  to three months after the current fiscal year  $t$  (i.e.,  $(P_t - P_{t-1})/P_{t-1}$  where  $P_t$  is the price of shares for firm  $j$  at the end of the fiscal year  $t$  and  $P_{t-1}$  is the price of shares for firm  $j$  at the start of the fiscal year  $t$ ) adjusted for the All Ordinaries Index over the same period, indicator variable where firm  $j$  is scored one (1) if  $RR-AllOrd_{jt}$  is negative, otherwise firm  $j$  is scored zero (0), and the composite audit committee effectiveness score based on the sub-committee's independence, expertise, experience and diligence (i.e.,  $Ind\_ACE_{jt} + Expt\_ACE_{jt} + Exp\_ACE_{jt} + Dil\_ACE_{jt}$ ) of firm  $j$  in fiscal year  $t$ ;

$\alpha_k, \beta_k$  = Coefficients;

$\varepsilon_{jt}$  = Error term; and

\*, \*\*, \*\*\* = Significant at the 0.01, 0.05 and 0.10 confidence levels respectively.

In Table 6.1 Column III, the original basic base model of the timeliness of earnings conservatism defined by Basu (1997) is extended to include this study's audit committee effectiveness measure (i.e.,  $ACE_{jt}$ ) and relevant two-way and three-way interaction terms (i.e.,  $DR_{jt} * ACE_{jt}$ ,  $RR-AllOrd_{jt} * ACE_{jt}$ , and  $RR-AllOrd_{jt} * DR_{jt} * ACE_{jt}$ ). The coefficient on  $ACE_{jt}$  is positive and statistically not significant. Meanwhile, the coefficient on the two-way  $DR_{jt} * ACE_{jt}$  variable is positive and significant ( $p < 0.05$ ), suggesting firms with effective audit committees incorporate bad news on earnings on a timely basis. One of the two variables of prime interest to this study is defined by the two-way  $RR-AllOrd_{jt} * ACE_{jt}$  interaction term. Table 6.1 Column III results indicate the coefficient on the  $RR-AllOrd_{jt} * ACE_{jt}$  variable is positive and significant ( $p < 0.05$ ). Meanwhile, for the main variable of interest for testing of this study's main hypothesis, the coefficient on the three-way  $RR-AllOrd_{jt} * DR_{jt} * ACE_{jt}$  interaction term is positive but statistically insignificant from zero. Findings related to the three-way  $RR-AllOrd_{jt} * DR_{jt} * ACE_{jt}$  interaction term is inconsistent with prior research (Beekes et al. 2004; Lara et al. 2005; Lara et al. 2009a; Ruddock et al. 2006)

Finally, the adjusted- $R^2$  for Basu (1997) timeliness base model is 11.5% (see Table 6.1 Column II). However, when audit committee effectiveness score is included in the model (i.e., this study's full model) the explanatory power of Basu (1997) timeliness model increases from 11.5% to 15.3% (see Table 6.1 Column III). The adjusted- $R^2$  result is higher than similar results reported in prior US and Australian studies (Basu 1997; Ruddock et al. 2006) but consistent with prior UK studies (Beekes et al. 2004).

### 6.2.2 Influence of audit committee effectiveness components

To further explore the association between audit committee effectiveness and earnings conservatism as defined by timeliness, the main regression model as defined in Table 6.1 Column III is performed again but with the respective scores for each individual components of audit committee effectiveness replacing the composite score (i.e.,  $ACE_{jt}$ ). Results of the additional regressions are shown in Table 6.2.

Consistent with Table 6.1 results, the coefficient on  $RR-AllOrd_{jt}$  is negative and highly significant ( $p < 0.000$ ) in three of the four regressions reported in Table 6.2 (see Columns I, II and IV). The coefficient on  $RR-AllOrd_{jt}$  is positive and insignificant when testing the association between prior audit committee experience of the committee members and the timeliness of earnings conservatism (see Table 6.2 Column III). Similar to  $RR-AllOrd_{jt}$  results shown in Table 6.2, coefficients on  $DR_{jt}$  is negative and highly significant ( $p < 0.000$ ) in three of four regressions (see Table 6.2 Columns I, II and IV). However, the coefficient on  $DR_{jt}$  is negative and insignificant when testing the association between prior corporate governance experience of the committee members and the timeliness of earnings

conservatism (see Table 6.2 Column III). Meanwhile, the coefficient on the  $RR-AllOrd_{jt} * DR_{jt}$  interaction term is positive in three of the four regressions reported in Table 6.2. However, the coefficients on  $RR-AllOrd_{jt} * DR_{jt}$  is only significant in regressions testing the influence of: (a) the audit committee member's financial expertise; and (b) the audit committee's diligence (see Table 6.2 Columns II and IV).

With respect to the individual components of audit committee effectiveness, the coefficients on  $Ind\_ACE_{jt}$  and  $Exp\_ACE_{jt}$  are positive and statistically significant (see Table 6.2 Columns I, and III;  $p < 0.10$ , and  $p < 0.05$  respectively). Meanwhile, the coefficient on  $Expt\_ACE_{jt}$  is positive and statistically insignificant (see Table 6.2 Column II). As for the coefficient on  $Dil\_ACE_{jt}$  this is positive but insignificant from zero (see Table 6.2 Column IV). Overall, findings suggest that more independent audit committees composed of directors with prior corporate governance experience are associated with higher level of earnings.

The coefficients on the two-way  $RR-AllOrd_{jt} * Ind\_ACE_{jt}$  and  $RR-AllOrd_{jt} * Expt\_ACE_{jt}$  interaction terms (see Table 6.2 Columns I and II) are positive and statistically significant ( $p < 0.05$  respectively). The coefficient on the two-way  $RR-AllOrd_{jt} * Exp\_ACE_{jt}$  interaction term, meanwhile, is negative and statistically significant (see Table 6.2 Column III;  $p < 0.10$ ). As for the two-way  $RR-AllOrd_{jt} * Dil\_ACE_{jt}$  interaction term the coefficient is positive but insignificant from zero (see Table 6.2 Column IV).

**Table 6.2 - Multiple regression analysis of audit committee effectiveness components and the Basu (1997) timeliness model of earnings conservatism**

Variables	Column I: ACE Independence			Column II: ACE Expertise			Column III: ACE Experience			Column IV: ACE Diligence		
	Beta	t-Stat	P-value	Beta	t-Stat	P-value	Beta	t-Stat	P-value	Beta	t-Stat	P-value
Intercept	-0.026	-0.531	0.595	0.085	0.805	0.421	-0.088	-1.103	0.270	0.041	0.092	0.367
$DR_{jt}$	-0.264	-4.019	0.000*	-0.165	-1.796	0.073***	-0.142	-1.422	0.156	-0.146	-2.685	0.008*
$Ind\_ACE_{jt}$	0.088	1.679	0.094***									
$Expt\_ACE_{jt}$				0.081	1.331	0.184						
$Exp\_ACE_{jt}$							0.161	2.044	0.042**			
$Dil\_ACE_{jt}$										0.027	0.460	0.643
$DR_{jt}*Ind\_ACE_{jt}$	0.235	2.743	0.006*									
$DR_{jt}*Expt\_ACE_{jt}$				0.108	1.831	0.068***						
$DR_{jt}*Exp\_ACE_{jt}$							0.068	0.618	0.537			
$DR_{jt}*Dil\_ACE_{jt}$										0.083	0.908	0.364
$RR-AllOrd_{jt}$	-0.119	-7.342	0.000*	-0.129	-7.459	0.000*	0.005	0.080	0.936	-0.111	-6.892	0.000*
$RR-AllOrd_{jt}*DR_{jt}$	0.079	0.880	0.379	0.375	2.972	0.003*	-0.134	-0.998	0.319	0.161	1.814	0.070***
$RR-AllOrd_{jt}*Ind\_ACE_{jt}$	0.102	2.341	0.020*									
$RR-AllOrd_{jt}*Expt\_ACE_{jt}$				0.095	2.282	0.023**						
$RR-AllOrd_{jt}*Exp\_ACE_{jt}$							-0.123	-1.761	0.079***			
$RR-AllOrd_{jt}*Dil\_ACE_{jt}$										0.040	0.523	0.601
$RR-AllOrd_{jt}*DR_{jt}*Ind\_ACE_{jt}$	0.059	0.406	0.658									
$RR-AllOrd_{jt}*DR_{jt}*Expt\_ACE_{jt}$				0.266	1.715	0.087***						
$RR-AllOrd_{jt}*DR_{jt}*Exp\_ACE_{jt}$							0.539	3.385	0.001*			
$RR-AllOrd_{jt}*DR_{jt}*Dil\_ACE_{jt}$										0.228	1.434	0.152
Adjusted-R <sup>2</sup>	0.203			0.124			0.132			0.115		
N	494			494			494			494		
F-Statistic	12.432			7.337			7.792			6.839		

**Legend:**

Column I Equation:  $X_{jt} = \alpha_0 + \alpha_1 DR_{jt} + \alpha_2 Ind\_ACE_{jt} + \alpha_3 DR_{jt}*Ind\_ACE_{jt} + \beta_0 RR-AllOrd_{jt} + \beta_1 RR-AllOrd_{jt}*DR_{jt} + \beta_2 RR-AllOrd_{jt}*Ind\_ACE_{jt} + \beta_3 RR-AllOrd_{jt}*DR_{jt}*Ind\_ACE_{jt} + \epsilon_{jt}$

Column II Equation:  $X_{jt} = \alpha_0 + \alpha_1 DR_{jt} + \alpha_2 Expt\_ACE_{jt} + \alpha_3 DR_{jt}*Expt\_ACE_{jt} + \beta_0 RR-AllOrd_{jt} + \beta_1 RR-AllOrd_{jt}*DR_{jt} + \beta_2 RR-AllOrd_{jt}*Expt\_ACE_{jt} + \beta_3 RR-AllOrd_{jt}*DR_{jt}*Expt\_ACE_{jt} + \epsilon_{jt}$

Column III Equation:  $X_{jt} = \alpha_0 + \alpha_1 DR_{jt} + \alpha_2 Exp\_ACE_{jt} + \alpha_3 DR_{jt}*Exp\_ACE_{jt} + \beta_0 RR-AllOrd_{jt} + \beta_1 RR-AllOrd_{jt}*DR_{jt} + \beta_2 RR-AllOrd_{jt}*Exp\_ACE_{jt} + \beta_3 RR-AllOrd_{jt}*DR_{jt}*Exp\_ACE_{jt} + \epsilon_{jt}$

Column IV Equation:  $X_{jt} = \alpha_0 + \alpha_1 DR_{jt} + \alpha_2 Dil\_ACE_{jt} + \alpha_3 DR_{jt}*Dil\_ACE_{jt} + \beta_0 RR-AllOrd_{jt} + \beta_1 RR-AllOrd_{jt}*DR_{jt} + \beta_2 RR-AllOrd_{jt}*Dil\_ACE_{jt} + \beta_3 RR-AllOrd_{jt}*DR_{jt}*Dil\_ACE_{jt} + \epsilon_{jt}$

Where:

$X_{jt}$  = Operating profit after tax of firm  $j$  deflated by market value of equity ( $MVE_{t,t}$  - Market value of equity of firm  $j$  at beginning of the fiscal year  $t$ ) of firm  $j$  at beginning of the fiscal year  $t$ ;  
 $DR_{jt}$  = Indicator variable where firm  $j$  is scored one (1) if  $RR-AllOrd_{jt}$  is negative, otherwise firm  $j$  is scored zero (0);

- $Ind\_ACE_{jt}$  = Indicator variable that takes the value of one (1) if the majority of the audit committee of firm  $j$  in time period  $t$  are independent directors, and zero (0) otherwise;
- $Expt\_ACE_{jt}$  = Indicator variable that takes the value of one (1) if at least one independent director of the audit committee of firm  $j$  in time period  $t$  has necessary expertise (based on educational, professional affiliations and/or non-for-profit role) to be financially qualified, and zero (0) otherwise;
- $Exp\_ACE_{jt}$  = Indicator variable that takes the value of one (1) if at least one independent director of the audit committee of firm  $j$  in time period  $t$  has prior audit committee experience, and zero (0) otherwise;
- $Dil\_ACE_{jt}$  = Indicator variable that takes the value of one (1) if the audit committee of firm  $j$  in time period  $t$  met four or more times during time period  $t$ , and zero (0) otherwise;
- $DR_{jt} * X\_ACE_{jt}$  = Two-way interaction between indicator variable where firm  $j$  is scored one (1) if  $RR\_AllOrd_{jt}$  is negative, otherwise firm  $j$  is scored zero (0), and each applicable individual component of audit committee effectiveness where  $X\_ACE_{jt}$  is: (a)  $Ind\_ACE_{jt}$  in Column I; (b)  $Expt\_ACE_{jt}$  in Column I; (c)  $Exp\_ACE_{jt}$  in Column III; and (d)  $Dil\_ACE_{jt}$  in Column IV;
- $RR\_AllOrd_{jt}$  = Annual share returns for firm  $j$  from three months after the previous fiscal year  $t-1$  to three months after the current fiscal year  $t$  (i.e.,  $(P_t - P_{t-1})/P_{t-1}$  where  $P_t$  is the price of shares for firm  $j$  three months after the end of the fiscal year  $t$  and  $P_{t-1}$  is the price of shares for firm  $j$  three months after the end of the fiscal year  $t-1$ ) adjusted for the All Ordinaries Index over the same period;
- $RR\_AllOrd_{jt} * DR_{jt}$  = Two-way interaction between annual share returns for firm  $j$  from three months after the previous fiscal year  $t-1$  to three months after the current fiscal year  $t$  (i.e.,  $(P_t - P_{t-1})/P_{t-1}$  where  $P_t$  is the price of shares for firm  $j$  three months after the end of the fiscal year  $t$  and  $P_{t-1}$  is the price of shares for firm  $j$  three months after the end of the fiscal year  $t-1$ ) adjusted for the All Ordinaries Index over the same period and indicator variable where firm  $j$  is scored one (1) if  $RR\_AllOrd_{jt}$  is negative, otherwise firm  $j$  is scored zero (0);
- $RR\_AllOrd_{jt} * X\_ACE_{jt}$  = Two-way interaction between annual share returns for firm  $j$  from three months after the previous fiscal year  $t-1$  to three months after the current fiscal year  $t$  (i.e.,  $(P_t - P_{t-1})/P_{t-1}$  where  $P_t$  is the price of shares for firm  $j$  three months after the end of the fiscal year  $t$  and  $P_{t-1}$  is the price of shares for firm  $j$  three months after the end of the fiscal year  $t-1$ ) adjusted for the All Ordinaries Index over the same period and each applicable individual component of audit committee effectiveness where  $X\_ACE_{jt}$  is: (a)  $Ind\_ACE_{jt}$  in Column I; (b)  $Expt\_ACE_{jt}$  in Column I; (c)  $Exp\_ACE_{jt}$  in Column III; and (d)  $Dil\_ACE_{jt}$  in Column IV;
- $RR\_AllOrd_{jt} * DR_{jt} * X\_ACE_{jt}$  = Three-way interaction between annual share returns for firm  $j$  from three months after the previous fiscal year  $t-1$  to three months after the current fiscal year  $t$  (i.e.,  $(P_t - P_{t-1})/P_{t-1}$  where  $P_t$  is the price of shares for firm  $j$  three months after the end of the fiscal year  $t$  and  $P_{t-1}$  is the price of shares for firm  $j$  three months after the end of the fiscal year  $t-1$ ) adjusted for the All Ordinaries Index over the same period, indicator variable where firm  $j$  is scored one (1) if  $R_{jt}$  is negative, otherwise firm  $j$  is scored zero (0), and each applicable individual component of audit committee effectiveness where  $X\_ACE_{jt}$  is: (a)  $Ind\_ACE_{jt}$  in Column I; (b)  $Expt\_ACE_{jt}$  in Column I; (c)  $Exp\_ACE_{jt}$  in Column III; and (d)  $Dil\_ACE_{jt}$  in Column IV;
- $\alpha_k, \beta_k$  = Coefficients;
- $\varepsilon_{jt}$  = Error term; and
- \*, \*\*, \*\*\* = Significant at the 0.01, 0.05 and 0.10 confidence levels respectively.

The coefficients on the two-way  $DR_{jt} * Ind\_ACE_{jt}$  interaction term (see Table 6.2 Column I) is positive and statistically significant ( $p < 0.01$ ). In contrast, the coefficients on the two-way  $DR_{jt} * Expt\_ACE_{jt}$ ,  $DR_{jt} * Exp\_ACE_{jt}$  and  $DR_{jt} * Dil\_ACE_{jt}$  interaction terms are positive but statistically insignificant (see Table 6.2 Columns II, III and IV). Findings related to the four two-way interaction terms (i.e.,  $DR_{jt} * Ind\_ACE_{jt}$ ,  $DR_{jt} * Expt\_ACE_{jt}$ ,  $DR_{jt} * Exp\_ACE_{jt}$  and  $DR_{jt} * Dil\_ACE_{jt}$ ) imply audit committees that are more independent are likely to report negative news quicker than audit committees with less independent members. Audit committee experience, financial expertise and diligence, however, were not factors of consequence in the reporting of negative news.

Finally, in respect to the key three-way interaction terms (i.e.,  $RR\_AllOrd_{jt} * DR_{jt} * Ind\_ACE_{jt}$ ,  $RR\_AllOrd_{jt} * DR_{jt} * Expt\_ACE_{jt}$ ,  $RR\_AllOrd_{jt} * DR_{jt} * Exp\_ACE_{jt}$  and  $RR\_AllOrd_{jt} * DR_{jt} * Dil\_ACE_{jt}$ ), the coefficients on  $RR\_AllOrd_{jt} * DR_{jt} * Ind\_ACE_{jt}$ ,  $RR\_AllOrd_{jt} * DR_{jt} * Exp\_ACE_{jt}$ ,  $RR\_AllOrd_{jt} * DR_{jt} * Exp\_ACE_{jt}$  and  $RR\_AllOrd_{jt} * DR_{jt} * Dil\_ACE_{jt}$  are positive (see Table 6.2 Columns I to IV). In addition, the coefficients on  $RR\_AllOrd_{jt} * DR_{jt} * Expt\_ACE_{jt}$  and  $RR\_AllOrd_{jt} * DR_{jt} * Exp\_ACE_{jt}$  are statistically significant (see Table 6.2 Columns II and III;  $p < 0.10$  and  $p < 0.001$  respectively). Three-way interaction results imply returns of reporting negative earnings are significantly higher amongst firms with audit committees composed of directors with financial expertise and prior corporate governance experience.

Finally, with respect to the adjusted- $R^2$ , Table 6.2 reveals that the adjusted- $R^2$  of the four different models (testing four different components of audit committee effectiveness) range from 20.3% (see Table 6.2 Column I, audit committee independence), 12.4% (see Table 6.2 Column II, audit committee expertise), 13.2% (see Table 6.2 Column III, audit committee experience) to 11.5% (see Table 6.2 Column IV, audit committee diligence). The explanatory power of the Basu (1997) earnings conservatism timeliness model is higher (20.3%) when testing the association between audit committee independence and earnings conservatism (see Table 6.2 Column I) indicating the variables entered into the regression model explain 20.3% of the variation in the dependent variable, earnings.

### **6.3 Audit Committee Effectiveness and Persistence of Earnings Conservatism**

Aside from timeliness, Basu (1997) also considered earnings conservatism in terms of persistence. The multivariate results testing the association between the Basu (1997) persistence model of earnings conservatism and audit committee effectiveness is discussed in the following subsection followed by the results examining the association between the Basu (1997) persistence model of earnings conservatism and the individual components of audit committee effectiveness.

### 6.3.1 Influence of overall audit committee effectiveness

Table 6.3 presents initial results testing the association between the Basu (1997) persistence model of earnings conservatism and audit committee effectiveness. Results in Table 6.3 Column I report univariate results of the association between the change in operating profit after tax of firm  $j$  for period  $t-1$  from operating profit after tax of firm  $j$  for period  $t$  as a proportion of market capitalization ( $BPX_{jt}$ ) and the change in operating profit after tax of firm  $j$  for period  $t-2$  from operating profit after tax of firm  $j$  for period  $t-1$  as a proportion of market capitalization ( $PX_{jt}$ ). Table 6.3 Column I results indicate the coefficient on  $PX_{jt}$  is negative and statistically significant ( $p < 0.10$ ). Meanwhile, the coefficient on  $PX_{jt}$  is also negative in the complete Basu (1997) base model specification of the persistence of earnings conservatism (see Table 6.3 Column II) when the indicator variable  $DPX_{jt}$  and two-way interaction term  $PX_{jt} * DPX_{jt}$  are included. However, the coefficient on  $PX_{jt}$  is insignificant from zero (see Table 6.3 Column II). Interestingly, when the influence of audit committee effectiveness is introduced into the base model (as defined by Table 6.3 Column II model equation), the coefficient on  $PX_{jt}$  is positive and statistically significant ( $p < 0.05$ ) (see Table 6.3 Column III).

In the test of the Basu (1997) base model of the persistence of earnings conservatism (see Table 6.3 Column II) and this study's full model (see Table 6.3 Column III), the coefficients on  $DPX_{jt}$  are negative and highly significant ( $p < 0.000$  respectively). Meanwhile, the coefficient on the two-way interaction term  $PX_{jt} * DPX_{jt}$  is positive and highly significant (see Table 6.3 Columns II and III;  $p < 0.001$  respectively).

The basic Basu (1997) base model testing the persistence of earnings management is extended for this study to include audit committee effectiveness (i.e.,  $ACE_{jt}$ ) and relevant interaction terms (i.e.,  $DPX_{jt} * ACE_{jt}$ ,  $PX_{jt} * ACE_{jt}$  and  $PX_{jt} * DPX_{jt} * ACE_{jt}$ ). Results are reported in Table 6.3 Column III where the coefficient on  $ACE_{jt}$  is negative and highly significant ( $p < 0.000$ ). Meanwhile, the coefficient on the two-way  $DPX_{jt} * ACE_{jt}$  interaction term is positive and highly significant ( $p < 0.000$ ) whilst the coefficient on  $PX_{jt} * ACE_{jt}$  is negative and highly significant ( $p < 0.001$ ). With respect to the main variable of interest defined by the three-way  $PX_{jt} * DPX_{jt} * ACE_{jt}$  interaction term, the coefficient is positive and statistically significant (see Table 6.3 Column III,  $p < 0.05$ ).

Finally, the adjusted- $R^2$  for Basu's (1997) persistence base model (see Table 6.3 Column II), is 37.4%. However, when audit committee effectiveness score is included in the model (i.e., this study's full model) there is an improvement in the adjusted- $R^2$ , from 37.4% to 43.5% (see Table 6.3 Column III). The adjusted- $R^2$  result is higher than similar results reported in prior US and Australian studies (Basu, 1997 Ruddock et al., 2006) but consistent with prior UK studies (Beekes et al., 2004). Moreover, the adjusted- $R^2$  from regression on persistence is much larger than that from regression on timeliness.

**Table 6.3 - Multiple regression analysis of audit committee effectiveness and Basu (1997) persistence model of earnings conservatism**

Variables	Column I: Univariate Model			Column II: Base Model			Column III: Full Model		
	Beta	t-Stat	P-value	Beta	t-Stat	P-value	Beta	t-Stat	P-value
Intercept	0.041	2.299	0.022**	0.182	10.088	0.000*	0.479	9.309	0.000*
$DPX_{jt}$				-0.181	-5.586	0.000*	-0.456	-6.383	0.000*
$ACE_{jt}$							-0.101	-6.530	0.000*
$DPX_{jt} * ACE_{jt}$							0.105	4.162	0.000*
$PX_{jt}$	-0.055	-1.695	0.091***	-0.011	-0.428	0.669	0.086	1.894	0.050**
$PX_{jt} * DPX_{jt}$				0.999	11.564	0.000*	1.001	11.727	0.000*
$PX_{jt} * ACE_{jt}$							-0.114	-3.291	0.001*
$PX_{jt} * DPX_{jt} * ACE_{jt}$							0.070	1.995	0.047**
Adjusted-R <sup>2</sup>	0.004			0.374			0.435		
N	494			494			494		
F-Statistic	2.873			98.191			35.132		

**Legend:**

Column I Equation:  $BPX_{jt} = \alpha_0 + \beta_0 PX_{jt} + \varepsilon_{jt}$

Column II Equation:  $BPX_{jt} = \alpha_0 + \beta_0 DPX_{jt} + \beta_1 PX_{jt} + \beta_2 PX_{jt} * DPX_{jt} + \varepsilon_{jt}$

Column III Equation:  $BPX_{jt} = \alpha_0 + \beta_0 DPX_{jt} + \beta_1 PX_{jt} + \beta_2 PX_{jt} * DPX_{jt} + \beta_3 ACE_{jt} + \beta_4 ACE_{jt} * PX_{jt} + \beta_5 ACE_{jt} * DPX_{jt} + \beta_6 ACE_{jt} * PX_{jt} * DPX_{jt} + \sum Year_{jkt} + \varepsilon_{jt}$

Where:

$BPX_{jt}$  = Change in operating profit after tax of firm *j* for period *t* from operating profit after tax of firm *j* for period *t-1* deflated by market capitalization of firm *j* at the end of period *t-1*;

$PX_{jt}$  = Change in operating profit after tax of firm *j* for period *t-1* from operating profit after tax of firm *j* for period *t-2* deflated by market capitalization of firm *j* at the end of period *t-2*;

$DPX_{jt}$  = Indicator variable where firm *j* is scored one (1) if  $PX_{jt}$  is negative; otherwise score of zero (0);

$PX_{jt} * DPX_{jt}$  = Two-way interaction between change in operating profit after tax of firm *j* for period *t* from operating profit after tax of firm *j* for period *t-1* deflated by market capitalization of firm *j* at the end of period *t-1* and indicator variable where firm *j* is scored one (1) if  $PX_{jt}$  is negative; otherwise score of zero (0);

$ACE_{jt}$  = A composite score for audit committee effectiveness based on the sub-committee's independence, expertise, experience and diligence (i.e.,  $Ind\_ACE_{jt} + Expt\_ACE_{jt} + Exp\_ACE_{jt} + Dil\_ACE_{jt}$ );

$ACE_{jt} * PX_{jt}$  = Two-way interaction between composite score for audit committee effectiveness based on the sub-committee's independence, expertise, experience and diligence (i.e.,  $Ind\_ACE_{jt} + Expt\_ACE_{jt} + Exp\_ACE_{jt} + Dil\_ACE_{jt}$ ) and change in operating profit after tax of firm *j* for period *t* from operating profit after tax of firm *j* for period *t-1* deflated by market capitalization of firm *j* at the end of period *t-1*;

$ACE_{jt} * DPX_{jt}$  = Two-way interaction between composite score for audit committee effectiveness based on the sub-committee's independence, expertise, experience and diligence (i.e.,  $Ind\_ACE_{jt} + Expt\_ACE_{jt} + Exp\_ACE_{jt} + Dil\_ACE_{jt}$ ) and indicator variable that takes the value of one (1) if  $DPX_{jt} < 0$ , otherwise scored zero (0);

$ACE_{jt} * PX_{jt} * DPX_{jt}$  = Three-way interaction between composite score for audit committee effectiveness based on the sub-committee's independence, expertise, experience and diligence (i.e.,  $Ind\_ACE_{jt} + Expt\_ACE_{jt} + Exp\_ACE_{jt} + Dil\_ACE_{jt}$ ), change in operating profit after tax of firm *j* for period *t* from operating profit after tax of firm *j* for period *t-1* deflated by market capitalization of firm *j* at the end of period *t-1* and indicator variable that takes the value of one (1) if  $DPX_{jt} < 0$ , otherwise scored zero (0);

$\alpha_k, \beta_k$  = Coefficients;

$\varepsilon_{jt}$  = Error term; and

\*, \*\*, \*\*\* = Significant at the 0.01, 0.05 and 0.10 confidence level respectively.

### 6.3.2 Influence of audit committee effectiveness components

Again, to further explore the association between audit committee effectiveness and the persistence of earnings conservatism, the regression model used in Table 6.3 Column III is re-run with the individual component scores of audit committee effectiveness replacing the composite score. Tests of the regressions performed again using individual scores of the four major components of audit committee effectiveness are reported in Table 6.4.

As shown in Table 6.4, results show the coefficient on  $PX_{jt}$  is positive and not significantly different from zero across the four regressions reported in Table 6.4 (see Columns I through IV). Contrary to the  $PX_{jt}$  results, the coefficients on  $DPX_{jt}$  is negative and highly significant ( $p < 0.000$ ) across the four regressions reported in Table 6.4 (see Columns I through IV). Meanwhile, the coefficient on two way  $PX_{jt} * DPX_{jt}$  interaction term is positive and highly significant ( $p < 0.000$ ) in all four regressions reported in Table 6.4 (see Columns I through IV).

With respect to the individual components of audit committee effectiveness, the coefficients on  $Ind\_ACE_{jt}$ ,  $Expt\_ACE_{jt}$  and  $Exp\_ACE_{jt}$  are negative and statistically significant (see Table 6.4 Columns I, II and III;  $p < 0.000$ ). Whilst the directional sign of the coefficient on  $Dil\_ACE_{jt}$  is also negative it is statistically insignificant (see Table 6.4 Column IV).

Meanwhile, coefficients on the two-way interaction terms  $PX_{jt} * Ind\_ACE_{jt}$ ,  $PX_{jt} * Expt\_ACE_{jt}$  and  $PX_{jt} * Dil\_ACE_{jt}$  are negative and statistically significant (see Table 6.4 Columns I, II and IV;  $p < 0.05$ ,  $p < 0.05$  and  $p < 0.002$  respectively). The coefficient on the two-way interaction term  $PX_{jt} * Exp\_ACE_{jt}$  is negative but statistically insignificant (see Table 6.4 Column III). Table 6.4 also shows that the coefficients on the two-way interaction terms  $PX_{jt} * Ind\_ACE_{jt}$ ,  $PX_{jt} * Expt\_ACE_{jt}$  and  $PX_{jt} * Exp\_ACE_{jt}$  are positive and statistically significant (see Table 6.4 Columns I, II and III;  $p < 0.000$ ,  $p < 0.000$  and  $p < 0.10$  respectively). However, the coefficient on the two-way interaction term  $PX_{jt} * Dil\_ACE_{jt}$  is negative but statistically insignificant from zero (see Table 6.4 Column IV).

**Table 6.4 - Multiple regression analysis of audit committee effectiveness components and Basu (1997) persistence model of earnings conservatism**

Variables	Column I: ACE Independence			Column II: ACE Expertise			Column III: ACE Experience			Column IV: ACE Diligence		
	Beta	t-Stat	P-value	Beta	t-Stat	P-value	Beta	t-Stat	P-value	Beta	t-Stat	P-value
Intercept	0.318	7.705	0.000*	0.383	8.071	0.000*	0.270	5.836	0.000*	0.233	6.306	0.000*
DPX <sub>jt</sub>	-0.325	-6.659	0.000*	-0.393	-6.706	0.000*	-0.280	-4.449	0.000*	-0.203	-5.181	0.000*
Ind_ ACE <sub>jt</sub>	-0.215	-5.808	0.000*									
Expt_ ACE <sub>jt</sub>				-0.268	-6.244	0.000*						
Exp_ ACE <sub>jt</sub>							-0.132	-3.183	0.002*			
Dil_ ACE <sub>jt</sub>										-0.053	-1.444	0.149
DPX <sub>jt</sub> *Ind_ ACE <sub>jt</sub>	0.212	3.610	0.000*									
DPX <sub>jt</sub> *Expt_ ACE <sub>jt</sub>				0.266	4.079	0.000*						
DPX <sub>jt</sub> *Exp_ ACE <sub>jt</sub>							0.130	1.901	0.058***			
DPX <sub>jt</sub> *Dil_ ACE <sub>jt</sub>										0.053	0.847	0.397
PX <sub>jt</sub>	0.000	-0.005	0.996	0.004	0.128	0.898	0.008	0.200	0.842	0.013	0.436	0.663
PX <sub>jt</sub> *DPX <sub>jt</sub>	1.000	11.329	0.000*	1.001	11.941	0.000*	1.001	11.466	0.000*	1.000	11.526	0.000*
PX <sub>jt</sub> *Ind_ ACE <sub>jt</sub>	-0.197	-2.073	0.039**									
PX <sub>jt</sub> *Expt_ ACE <sub>jt</sub>				-0.140	-2.049	0.041**						
PX <sub>jt</sub> *Exp_ ACE <sub>jt</sub>							-0.049	-0.900	0.369			
PX <sub>jt</sub> *Dil_ ACE <sub>jt</sub>										-0.309	-3.126	0.002*
PX <sub>jt</sub> *DPX <sub>jt</sub> *Ind_ ACE <sub>jt</sub>	0.204	1.418	0.157									
PX <sub>jt</sub> *DPX <sub>jt</sub> *Expt_ ACE <sub>jt</sub>				0.136	1.352	0.177						
PX <sub>jt</sub> *DPX <sub>jt</sub> *Exp_ ACE <sub>jt</sub>							0.043	0.458	0.647			
PX <sub>jt</sub> *DPX <sub>jt</sub> *Dil_ ACE <sub>jt</sub>										0.299	2.700	0.007*
Adjusted-R <sup>2</sup>	0.414			0.420			0.381			0.382		
N	494			494			494			494		
F-Statistic	32.357			33.149			28.334			28.372		

**Legend:**

Column I Equation:  $BPX_{jt} = \alpha_0 + \beta_0 DPX_{jt} + \beta_1 PX_{jt} + \beta_2 PX_{jt} * DPX_{jt} + \beta_3 Ind\_ ACE_{jt} + \beta_4 Ind\_ ACE_{jt} * PX_{jt} + \beta_5 Ind\_ ACE_{jt} * DPX_{jt} + \beta_6 Ind\_ ACE_{jt} * PD_{jt} * DPX_{jt} + \sum Year_{jkt} + \epsilon_{jt}$

Column II Equation:  $BPX_{jt} = \alpha_0 + \beta_0 DPX_{jt} + \beta_1 PX_{jt} + \beta_2 PX_{jt} * DPX_{jt} + \beta_3 Expt\_ ACE_{jt} + \beta_4 Expt\_ ACE_{jt} * PX_{jt} + \beta_5 Expt\_ ACE_{jt} * DPX_{jt} + \beta_6 Expt\_ ACE_{jt} * PX_{jt} * DPX_{jt} + \sum Year_{jkt} + \epsilon_{jt}$

Column III Equation:  $BPX_{jt} = \alpha_0 + \beta_0 DPX_{jt} + \beta_1 PX_{jt} + \beta_2 PX_{jt} * DPX_{jt} + \beta_3 Exp\_ ACE_{jt} + \beta_4 Exp\_ ACE_{jt} * PX_{jt} + \beta_5 Exp\_ ACE_{jt} * DPX_{jt} + \beta_6 Exp\_ ACE_{jt} * PX_{jt} * DPX_{jt} + \sum Year_{jkt} + \epsilon_{jt}$

Column IV Equation:  $BPX_{jt} = \alpha_0 + \beta_0 DPX_{jt} + \beta_1 PX_{jt} + \beta_2 PX_{jt} * DPX_{jt} + \beta_3 Dil\_ ACE_{jt} + \beta_4 Dil\_ ACE_{jt} * PX_{jt} + \beta_5 Dil\_ ACE_{jt} * DPX_{jt} + \beta_6 Dil\_ ACE_{jt} * PX_{jt} * DPX_{jt} + \sum Year_{jkt} + \epsilon_{jt}$

Where:

$BPX_{jt}$  = Change in operating profit after tax of firm  $j$  for period  $t$  from operating profit after tax of firm  $j$  for period  $t-1$  deflated by market capitalization of firm  $j$  at the end of period  $t-1$ ,

$DPX_{jt}$  = Indicator variable where firm  $j$  is scored one (1) if  $PX_{jt}$  is negative; otherwise score of zero (0);

- $PX_{jt}$  = Change in operating profit after tax of firm  $j$  for period  $t-1$  from operating profit after tax of firm  $j$  for period  $t-2$  deflated by market capitalization of firm  $j$  at the end of period  $t-2$ ;
- $Ind\_ACE_{jt}$  = Indicator variable that takes the value of one (1) if the majority of the audit committee of firm  $j$  in time period  $t$  are independent directors, and zero (0) otherwise;
- $Expt\_ACE_{jt}$  = Indicator variable that takes the value of one (1) if at least one independent director of the audit committee of firm  $j$  in time period  $t$  has necessary expertise (based on educational, professional affiliations and/or non-for-profit role) to be financially qualified, and zero (0) otherwise;
- $Exp\_ACE_{jt}$  = Indicator variable that takes the value of one (1) if at least one independent director of the audit committee of firm  $j$  in time period  $t$  has prior audit committee experience, and zero (0) otherwise;
- $Dil\_ACE_{jt}$  = Indicator variable that takes the value of one (1) if the audit committee of firm  $j$  in time period  $t$  met four or more times during time period  $t$ , and zero (0) otherwise;
- $PX_{jt} * DPX_{jt}$  = Two-way interaction between change in operating profit after tax of firm  $j$  for period  $t$  from operating profit after tax of firm  $j$  for period  $t-1$  deflated by market capitalization of firm  $j$  at the end of period  $t-1$  and Indicator variable where firm  $j$  is scored one (1) if  $PX_{jt}$  is negative; otherwise score of zero (0);
- $DPX_{jt} * X\_ACE_{jt}$  = Two-way interaction between indicator that takes the value of one [1] if  $PX_{jt} < 0$ , otherwise scored zero (0), and each applicable individual component of audit committee effectiveness where  $X\_ACE_{jt}$  is: (a)  $Ind\_ACE_{jt}$  in Column I; (b)  $Expt\_ACE_{jt}$  in Column I; (c)  $Exp\_ACE_{jt}$  in Column III; and (d)  $Dil\_ACE_{jt}$  in Column IV;
- $PX_{jt} * X\_ACE_{jt}$  = Two-way interaction between change in operating profit after tax of firm  $j$  for period  $t$  from operating profit after tax of firm  $j$  for period  $t-1$  deflated by market capitalization of firm  $j$  at the end of period  $t-1$  and each applicable individual component of audit committee effectiveness where  $X\_ACE_{jt}$  is: (a)  $Ind\_ACE_{jt}$  in Column I; (b)  $Expt\_ACE_{jt}$  in Column I; (c)  $Exp\_ACE_{jt}$  in Column III; and (d)  $Dil\_ACE_{jt}$  in Column IV;
- $PX_{jt} * DPX_{jt} * X\_ACE_{jt}$  = Three-way interaction between change in operating profit after tax of firm  $j$  for period  $t-1$  from operating profit after tax of firm  $j$  for period  $t-2$  deflated by market capitalization of firm  $j$  at the end of period  $t-2$ , indicator variable where firm  $j$  is scored one (1) if  $PX_{jt}$  is negative; otherwise score of zero (0) and each applicable individual component of audit committee effectiveness where  $X\_ACE_{jt}$  is: (a)  $Ind\_ACE_{jt}$  in Column I; (b)  $Expt\_ACE_{jt}$  in Column I; (c)  $Exp\_ACE_{jt}$  in Column III; and (d)  $Dil\_ACE_{jt}$  in Column IV;
- $\alpha_k, \beta_k$  = Coefficients;
- $\varepsilon_{jt}$  = Error term; and
- \*, \*\*, \*\*\* = Significant at the 0.01, 0.05 and 0.10 confidence levels respectively.

Finally, in respect to three-way interaction terms, the coefficients on  $X_{jt} * DPX_{jt} * Ind\_ACE_{jt}$ ,  $PX_{jt} * DPX_{jt} * Expt\_ACE_{jt}$ ,  $PX_{jt} * DPX_{jt} * Exp\_ACE_{jt}$  and  $PX_{jt} * DPX_{jt} * Dil\_ACE_{jt}$  interaction terms are all positive (see Table 6.4 Columns I through IV). However, only the coefficient on  $PX_{jt} * DPX_{jt} * Dil\_ACE_{jt}$  is statistically significant (see Table 6.4 Column IV;  $p < 0.05$ ).

In terms of the adjusted- $R^2$ , Table 6.4 reveals that the adjusted- $R^2$  of the four different models (testing four different components of audit committee effectiveness) range from 41.4% (see Table 6.4 Column I, audit committee independence), 42.0% (see Table 6.4 Column II, audit committee expertise), 38.1% (see Table 6.4 Column III, audit committee experience) to 38.2% (see Table 6.4 Column IV, audit committee diligence) indicating the explanatory power of the Basu (1997) earnings conservatism timeliness model is higher (42.0%) when testing the association between audit committee expertise and earnings conservatism (see Table 6.4 Column II).

#### **6.4 Audit Committee Effectiveness and Accruals-Based Earnings Conservatism**

Whilst the use of the timeliness and persistence models of earnings conservatism as prescribed by Basu (1997) are routinely used in prior empirical research, researchers have proposed alternative measures. A contemporaneous model gaining recent attention is developed by Ball and Shivakumar (2005). The Ball and Shivakumar (2005) model measures earnings conservatism in reference to accruals and operating cash flows. Regression results testing the association between the accruals-based perspective of earnings conservatism defined by Ball and Shivakumar (2005) and audit committee effectiveness are detailed and discussed in the following two subsections. In the first subsection the analysis reported focuses on the influence of audit committee effectiveness overall, whilst in the second subsection analysis concentrates on the individual components on audit committee effectiveness.

##### **6.4.1 Influence of overall audit committee effectiveness**

Table 6.5 presents results testing the association between earnings conservatism and audit committee effectiveness based on the Ball and Shivakumar (2005) model of earnings conservatism. Results in Table 6.5 Column I report the basic univariate association between the accruals and operating cash flows measure of earnings conservatism without considering other compounding influences. The coefficient on  $CFO_{jt}$  is negative and highly significant (see Table 6.5 Column I;  $p < 0.000$ ) indicating accruals and cash flow from operations are contemporaneously negatively related. This result is in line with other related research (Balkrishna et al. 2007; Ball and Shivakumar 2005; Dechow 1994; Dechow et al. 1998). When additional explanatory factors are introduced into the univariate model in line with Ball and Shivakumar (2005) and main model defined in this study (see Table 6.5 Columns II

and Column III), the coefficient on  $CFO_{jt}$  continues to be negative and highly significant ( $p < 0.000$ ) further supporting the view accruals and cash flow from operations are contemporaneously negatively related.

The indicator variable  $DCFO_{jt}$ , and two-way interaction term  $CFO_{jt} * DCFO_{jt}$ , included in accordance with the Ball and Shivakumar (2005) base model and extended model of this study to consider audit committee effectiveness. The coefficients on  $DCFO_{jt}$  in the two regressions reported in Table 6.5 Columns II and Column III are negative. The coefficient in the regression defining the Ball and Shivakumar (2005) base model (i.e., Table 6.5 Column II) is moderately significant ( $p < 0.10$ ) but insignificant from zero for the main model regression underlying this study (see Table 6.5 Column III). As for the coefficients on  $CFO_{jt} * DCFO_{jt}$ , the coefficients are positive and statistically significant ( $p < 0.001$ ) in both regressions shown in Table 6.5 Columns II and III. Findings related to the two-way interaction term  $CFO_{jt} * DCFO_{jt}$  is consistent with prior research (Balkrishna et al. 2007; Ball and Shivakumar 2005; Dechow 1994; Dechow et al. 1998) suggesting that when cash flows are negative, the inverse relationship between accruals and cash flows is mitigated, thereby, earnings conservatism exists.

Again, the Ball and Shivakumar (2005) base model of earnings conservatism is extended to include the audit committee effectiveness measure (i.e.,  $ACE_{jt}$ ) and relevant interaction terms (i.e.,  $DCFO_{jt} * ACE_{jt}$ ,  $CFO_{jt} * ACE_{jt}$  and  $CFO_{jt} * DCFO_{jt} * ACE_{jt}$ ). Results are presented in Table 6.5 Column III. The coefficient on  $ACE_{jt}$  is positive and statistically significant ( $p < 0.01$ ). This suggests a statistically significant association between effective audit committees and asymmetric timeliness of earnings after adjusting for other variables. Meanwhile, the coefficient on the two-way interaction term  $DCFO_{jt} * ACE_{jt}$  is negative and insignificant. In contrast, the coefficient on the two-way interaction term  $CFO_{jt} * ACE_{jt}$  is also negative but statistically significant ( $p < 0.05$ ). Finally, in respect to the three-way interaction term  $CFO_{jt} * DCFO_{jt} * ACE_{jt}$ , the coefficient is negative and statistically insignificant.

**Table 6.5 - Multiple regression analysis of audit committee effectiveness and Ball and Shivakumar (2005) model of earnings conservatism**

Variables	Column I: Univariate Model			Column II: Base Model			Column III: Full Model		
	Beta	t-Stat	P-value	Beta	t-Stat	P-value	Beta	t-Stat	P-value
Intercept	-0.130	-4.415	0.000*	-0.009	-0.262	0.793	-0.235	-2.455	0.014**
DCFO <sub>jt</sub>				-0.083	-1.731	0.084	-0.025	-0.209	0.834
ACE <sub>jt</sub>							.094	3.154	0.002*
DCFO <sub>jt</sub> *ACE <sub>jt</sub>							-0.017	-0.392	0.695
CFO <sub>jt</sub>	-1.106	-29.166	0.000*	-1.097	-32.364	0.000*	-0.947	-14.942	0.000*
CFO <sub>jt</sub> *DCFO <sub>jt</sub>				1.588	12.784	0.000*	1.479	11.499	0.000*
CFO <sub>jt</sub> *ACE <sub>jt</sub>							-0.081	-2.365	0.018**
CFO <sub>jt</sub> *DCFO <sub>jt</sub> *ACE <sub>jt</sub>							-0.073	-0.856	0.392
Adjusted-R <sup>2</sup>	0.634			0.727			0.732		
N	494			494			494		
F-Statistic	850.650			436.969			122.969		

**Legend:**

Column I Equation:  $ACC_{jt} = \alpha_0 + \beta_0 CFO_{jt} + \varepsilon_{jt}$

Column II Equation:  $ACC_{jt} = \alpha_0 + \beta_0 DCFO_{jt} + \beta_1 CFO_{jt} + \beta_2 CFO_{jt} * DCFO_{jt} + \varepsilon_{jt}$

Column III Equation:  $ACC_{jt} = \alpha_0 + \beta_0 DCFO_{jt} + \beta_1 CFO_{jt} + \beta_2 CFO_{jt} * DCFO_{jt} + \beta_3 ACE_{jt} + \beta_4 ACE_{jt} * CFO_{jt} + \beta_5 ACE_{jt} * DCFO_{jt} + \beta_6 ACE_{jt} * CFO_{jt} * DCFO_{jt} + \sum Year_{jkt} + \varepsilon_{jt}$

Where:

$ACC_{jt}$  = Accruals (i.e., difference between operating profit and cash flow from operations) of firm  $j$  in fiscal year  $t$  scaled by the book value of total assets of firm  $j$  at the beginning of the fiscal year  $t$  (i.e.,  $BVTA_{jt}$ );

$CFO_{jt}$  = Cash flow from operating activities of firm  $j$  in fiscal year  $t$  scaled by the book value of total assets of firm  $j$  at the beginning of the fiscal year  $t$  (i.e.,  $BVTA_{jt}$ );

$DCFO_{jt}$  = Indicator variable where firm  $j$  is scored one (1) if  $\Delta CFO_{jt}$  is negative, otherwise scored zero (0);

$CFO_{jt} * DCFO_{jt}$  = Two-way interaction between cash flow from operating activities of firm  $j$  in fiscal year  $t$  scaled by the book value of total assets of firm  $j$  at the beginning of the fiscal year  $t$  (i.e.,  $BVTA_{jt}$ ) and indicator variable where firm  $j$  is scored one (1) if  $\Delta CFO_{jt}$  is negative, otherwise scored zero (0);

$ACE_{jt}$  = A composite score for audit committee effectiveness based on the sub-committee's independence, expertise, experience and diligence (i.e.,  $Ind\_ACE_{jt} + Expt\_ACE_{jt} + Exp\_ACE_{jt} + Dil\_ACE_{jt}$ );

$ACE_{jt} * CFO_{jt}$  = Two-way interaction between composite score for audit committee effectiveness based on the sub-committee's independence, expertise, experience and diligence (i.e.,  $Ind\_ACE_{jt} + Expt\_ACE_{jt} + Exp\_ACE_{jt} + Dil\_ACE_{jt}$ ) and cash flow from operating activities of firm  $j$  in fiscal year  $t$  scaled by the book value of total assets of firm  $j$  at the beginning of the fiscal year  $t$  (i.e.,  $BVTA_{jt}$ );

$ACE_{jt} * DCFO_{jt}$  = Two-way interaction between composite score for audit committee effectiveness based on the sub-committee's independence, expertise, experience and diligence (i.e.,  $Ind\_ACE_{jt} + Expt\_ACE_{jt} + Exp\_ACE_{jt} + Dil\_ACE_{jt}$ ) and indicator variable that takes the value of one (1) if  $DCFO_{jt} < 0$ , otherwise scored zero (0);

$ACE_{jt} * CFO_{jt} * DCFO_{jt}$  = Three-way interaction between composite score for audit committee effectiveness based on the sub-committee's independence, expertise, experience and diligence (i.e.,  $Ind\_ACE_{jt} + Expt\_ACE_{jt} + Exp\_ACE_{jt} + Dil\_ACE_{jt}$ ), cash flow from operating activities of firm  $j$  in fiscal year  $t$  scaled by the book value of total assets of firm  $j$  at the beginning of the fiscal year  $t$  (i.e.,  $BVTA_{jt}$ ) and indicator variable that takes the value of one (1) if  $DCFO_{jt} < 0$ , otherwise scored zero (0);

$\alpha_k, \beta_k$  = Coefficients;

$\varepsilon_{jt}$  = Error term; and

\*, \*\*, \*\*\* = Significant at the 0.01, 0.05 and 0.10 confidence levels respectively.

Finally, the adjusted- $R^2$  for Ball and Shivakumar (2005) base model (see Table 6.5 Column II) is 72.7%. However, when audit committee effectiveness score is included in the model (i.e., this study's full model) the explanatory power increases from 72.7% to 73.2% (see Table 6.5 Column III). Moreover, the explanatory power of Ball and Shivakumar (2005) earnings conservatism model is much higher compared to earnings conservatism based on Basu's (1997) timeliness and persistence model (73.2% compared to 15.3% and 43.5% respectively, see Column III of Table 6.5, Table 6.1 and Table 6.3 respectively).

#### **6.4.2 Influence of audit committee effectiveness components**

To further explore the association between audit committee effectiveness and earnings conservatism, the regression model defined in Table 6.5 Column III is performed again with the composite score for audit committee effectiveness replaced systematically by individual audit committee component scores. The findings of the four resulting regressions are reported in Table 6.6.

Consistent with Table 6.5 results, the coefficient on  $CFO_{jt}$  is negative and highly significant ( $p < 0.000$ ) across the four regressions reported in Table 6.6 (see Columns I through IV). Also similar to Table 6.5 results the coefficients on  $DCFO_{jt}$  are insignificant in three of the four regressions reported in Table 6.6 (see Columns I, II and IV). The coefficient on  $DCFO_{jt}$  is statistically significant when testing for the association between the prior experience of the committee members and earnings conservatism (see Table 6.6 Column III). The directional sign on  $DCFO_{jt}$  coefficients are negative in three of the four regressions but positive for the regression focusing on audit committee independence (i.e., Table 6.6 Column I). Meanwhile, the coefficient on  $CFO_{jt} * DCFO_{jt}$  variables is positive and highly significant ( $p < 0.000$ ) across all four regressions reported in Table 6.6 (see Columns I through IV).

**Table 6.6 - Multiple regression analysis of audit committee effectiveness components and Ball and Shivakumar (2005) model of earnings conservatism**

Variables	Column I: ACE Independence			Column II: ACE Expertise			Column III: ACE Experience			Column IV: ACE Diligence		
	Beta	t-Stat	P-value	Beta	t-Stat	P-value	Beta	t-Stat	P-value	Beta	t-Stat	P-value
Intercept	-0.204	-2.832	0.005*	-0.069	-0.801	0.424	-0.003	-0.037	0.971	-0.049	-0.785	0.433
DCFO <sub>jt</sub>	0.034	0.458	0.647	-0.078	-0.749	0.454	-0.285	-2.838	0.005*	-0.041	-0.701	0.484
Ind_ ACE <sub>jt</sub>	0.305	4.185	0.000*									
Expt_ ACE <sub>jt</sub>				0.098	1.215	0.225						
Exp_ ACE <sub>jt</sub>							-0.013	-0.159	0.873			
Dil_ ACE <sub>jt</sub>										0.172	2.434	0.015
DCFO <sub>jt</sub> *Ind_ ACE <sub>jt</sub>	-0.143	-1.362	0.174									
DCFO <sub>jt</sub> *Expt_ ACE <sub>jt</sub>				0.003	0.025	0.980						
DCFO <sub>jt</sub> *Exp_ ACE <sub>jt</sub>							0.267	2.255	0.025**			
DCFO <sub>jt</sub> *Dil_ ACE <sub>jt</sub>										0.024	0.216	0.829
CFO <sub>jt</sub>	-1.046	-27.431	0.000*	-1.048	-24.061	0.000*	-1.200	-14.012	0.000*	-1.009	-27.268	0.000*
CFO <sub>jt</sub> *DCFO <sub>jt</sub>	1.459	11.242	0.000*	1.584	12.628	0.000*	1.556	12.429	0.000*	1.493	12.041	0.000*
CFO <sub>jt</sub> *Ind_ ACE <sub>jt</sub>	-0.078	-0.887	0.375									
CFO <sub>jt</sub> *Expt_ ACE <sub>jt</sub>				-0.108	-1.477	0.140						
CFO <sub>jt</sub> *Exp_ ACE <sub>jt</sub>							0.128	1.367	0.172			
CFO <sub>jt</sub> *Dil_ ACE <sub>jt</sub>										-0.404	-4.731	0.000*
CFO <sub>jt</sub> *DCFO <sub>jt</sub> *Ind_ ACE <sub>jt</sub>	0.360	1.181	0.238									
CFO <sub>jt</sub> *DCFO <sub>jt</sub> *Expt_ ACE <sub>jt</sub>				0.167	0.719	0.472						
CFO <sub>jt</sub> *DCFO <sub>jt</sub> *Exp_ ACE <sub>jt</sub>							0.112	0.488	0.626			
CFO <sub>jt</sub> *DCFO <sub>jt</sub> *Dil_ ACE <sub>jt</sub>										1.475	3.078	0.002*
Adjusted-R <sup>2</sup>	0.735			0.725			0.730			0.743		
N	494			494			494			494		
F-Statistic	125.114			118.873			121.449			129.929		

**Legend:**

Column I Equation:  $ACC_{jt} = \alpha_0 + \beta_0 DCFO_{jt} + \beta_1 CFO_{jt} + \beta_2 CFO_{jt} * DCFO_{jt} + \beta_3 Ind\_ ACE_{jt} + \beta_4 Ind\_ ACE_{jt} * CFO_{jt} + \beta_5 Ind\_ ACE_{jt} * DCFO_{jt} + \beta_6 Ind\_ ACE_{jt} * PD_{jt} * DCFO_{jt} + \sum Year_{jkt} + \epsilon_{jt}$

Column II Equation:  $ACC_{jt} = \alpha_0 + \beta_0 DCFO_{jt} + \beta_1 CFO_{jt} + \beta_2 CFO_{jt} * DCFO_{jt} + \beta_3 Expt\_ ACE_{jt} + \beta_4 Expt\_ ACE_{jt} * CFO_{jt} + \beta_5 Expt\_ ACE_{jt} * DCFO_{jt} + \beta_6 Expt\_ ACE_{jt} * CFO_{jt} * DCFO_{jt} + \sum Year_{jkt} + \epsilon_{jt}$

Column III Equation:  $ACC_{jt} = \alpha_0 + \beta_0 DCFO_{jt} + \beta_1 CFO_{jt} + \beta_2 CFO_{jt} * DCFO_{jt} + \beta_3 Exp\_ ACE_{jt} + \beta_4 Exp\_ ACE_{jt} * CFO_{jt} + \beta_5 Exp\_ ACE_{jt} * DCFO_{jt} + \beta_6 Exp\_ ACE_{jt} * CFO_{jt} * DCFO_{jt} + \sum Year_{jkt} + \epsilon_{jt}$

Column IV Equation:  $ACC_{jt} = \alpha_0 + \beta_0 DCFO_{jt} + \beta_1 CFO_{jt} + \beta_2 CFO_{jt} * DCFO_{jt} + \beta_3 Dil\_ ACE_{jt} + \beta_4 Dil\_ ACE_{jt} * CFO_{jt} + \beta_5 Dil\_ ACE_{jt} * DCFO_{jt} + \beta_6 Dil\_ ACE_{jt} * CFO_{jt} * DCFO_{jt} + \sum Year_{jkt} + \epsilon_{jt}$

Where:

$ACC_{jt}$  = Accruals (i.e., difference between operating profit and cash flow from operations) of firm  $j$  in fiscal year  $t$  scaled by the book value of total assets of firm  $j$  at the beginning of the fiscal year  $t$  (i.e.,  $BVTA_{jt}$ );

- $CFO_{jt}$  = Cash flow from operating activities of firm  $j$  in fiscal year  $t$  scaled by the book value of total assets of firm  $j$  at the beginning of the fiscal year  $t$  (i.e.,  $BVTA_{jt}$ );
- $DCFO_{jt}$  = Indicator variable where firm  $j$  is scored one (1) if  $\Delta CFO_{jt}$  is negative, otherwise scored zero (0);
- $CFO_{jt} * DCFO_{jt}$  = Two-way interaction between cash flow from operating activities of firm  $j$  in fiscal year  $t$  scaled by the book value of total assets of firm  $j$  at the beginning of the fiscal year  $t$  (i.e.,  $BVTA_{jt}$ ) and indicator variable where firm  $j$  is scored one (1) if  $\Delta CFO_{jt}$  is negative, otherwise scored zero (0);
- $Ind\_ACE_{jt}$  = Indicator variable that takes the value of one (1) if the majority of the audit committee of firm  $j$  in time period  $t$  are independent directors, and zero (0) otherwise;
- $Expt\_ACE_{jt}$  = Indicator variable that takes the value of one (1) if at least one independent director of the audit committee of firm  $j$  in time period  $t$  has necessary expertise (based on educational, professional affiliations and/or non-for-profit role) to be financially qualified, and zero (0) otherwise;
- $Exp\_ACE_{jt}$  = Indicator variable that takes the value of one (1) if at least one independent director of the audit committee of firm  $j$  in time period  $t$  has prior audit committee experience, and zero (0) otherwise;
- $Dil\_ACE_{jt}$  = Indicator variable that takes the value of one (1) if the audit committee of firm  $j$  in time period  $t$  met four or more times during time period  $t$ , and zero (0) otherwise;
- $DCFO_{jt} * X\_ACE_{jt}$  = Two-way interaction between Indicator variable where firm  $j$  is scored one (1) if  $\Delta CFO_{jt}$  is negative, otherwise scored zero (0) and each applicable individual component of audit committee effectiveness where  $X\_ACE_{jt}$  is: (a)  $Ind\_ACE_{jt}$  in Column I; (b)  $Expt\_ACE_{jt}$  in Column I; (c)  $Exp\_ACE_{jt}$  in Column III; and (d)  $Dil\_ACE_{jt}$  in Column IV;
- $CFO_{jt} * X\_ACE_{jt}$  = Two-way interaction between Cash flow from operating activities of firm  $j$  in fiscal year  $t$  scaled by the book value of total assets of firm  $j$  at the beginning of the fiscal year  $t$  (i.e.,  $BVTA_{jt}$ ) and each applicable individual component of audit committee effectiveness where  $X\_ACE_{jt}$  is: (a)  $Ind\_ACE_{jt}$  in Column I; (b)  $Expt\_ACE_{jt}$  in Column I; (c)  $Exp\_ACE_{jt}$  in Column III; and (d)  $Dil\_ACE_{jt}$  in Column IV;
- $CFO_{jt} * DCFO_{jt} * X\_ACE_{jt}$  = Three-way interaction between cash flow from operating activities of firm  $j$  in fiscal year  $t$  scaled by the book value of total assets of firm  $j$  at the beginning of the fiscal year  $t$  (i.e.,  $BVTA_{jt}$ ), indicator variable where firm  $j$  is scored one (1) if  $\Delta CFO_{jt}$  is negative, otherwise scored zero (0) and each applicable individual component of audit committee effectiveness where  $X\_ACE_{jt}$  is: (a)  $Ind\_ACE_{jt}$  in Column I; (b)  $Expt\_ACE_{jt}$  in Column I; (c)  $Exp\_ACE_{jt}$  in Column III; and (d)  $Dil\_ACE_{jt}$  in Column IV;
- $\alpha_k, \beta_k$  = Coefficients;
- $\varepsilon_{jt}$  = Error term; and
- \*, \*\*, \*\*\* = Significant at the 0.01, 0.05 and 0.10 confidence levels respectively.

With respect to the individual components of audit committee effectiveness, the coefficients on  $Ind\_ACE_{jt}$  and  $Dil\_ACE_{jt}$  are positive and statistically significant (Table 6.6 Columns I and IV;  $p < 0.000$ , and  $p < 0.05$  respectively). However, the coefficient on  $Expt\_ACE_{jt}$  is positive and statistically insignificant (see Table 6.6 Column II). Meanwhile, the coefficient on  $Exp\_ACE_{jt}$  is negative and insignificantly different from zero (see Table 6.6 Column III).

Coefficients on the two-way  $DCFO_{jt} * Ind\_ACE_{jt}$  and  $DCFO_{jt} * Dil\_ACE_{jt}$  interaction terms (see Table 6.6 Columns I and IV) are negative and statistically insignificant. In contrast, the coefficient on the two-way  $DCFO_{jt} * Expt\_ACE_{jt}$  interaction term (see Table 6.6 Column II) is positive and statistically insignificant whilst the coefficient on the two-way  $DCFO_{jt} * Exp\_ACE_{jt}$  interaction term is positive and statistically significant (see Table 6.6 Column III,  $p < 0.05$ ). Meanwhile, the coefficients on the two-way  $CFO_{jt} * Ind\_ACE_{jt}$  and  $CFO_{jt} * Expt\_ACE_{jt}$  interaction terms (see Table 6.6 Columns I and II) are negative and statistically insignificant. The coefficient on the two-way  $CFO_{jt} * Exp\_ACE_{jt}$  interaction term (see Table 6.6 Column III) is also statistically insignificant but the directional sign is positive. Finally, the coefficient on the two-way  $CFO_{jt} * Dil\_ACE_{jt}$  interaction term is negative and significant from zero (see Table 6.6 Column IV,  $p < 0.000$ ).

Finally, in respect to the key three-way interaction terms the coefficients on  $CFO_{jt} * DCFO_{jt} * Ind\_ACE_{jt}$ ,  $CFO_{jt} * DCFO_{jt} * Expt\_ACE_{jt}$  and  $CFO_{jt} * DCFO_{jt} * Exp\_ACE_{jt}$  are negative and statistically insignificant (see Table 6.6 Columns I through III). However, only the coefficient on  $CFO_{jt} * DCFO_{jt} * Dil\_ACE_{jt}$  is positive and statistically significant (see Table 6.6 Column IV,  $p < 0.001$ ).

In terms of the adjusted- $R^2$ , Table 6.6 reveals that the adjusted- $R^2$  of the four different models (testing four different components of audit committee effectiveness) range from 73.5% (see Table 6.6 Column I, audit committee independence), 72.5% (see Table 6.6 Column II, audit committee expertise), 73.0% (see Table 6.6 Column III, audit committee experience) to 74.3% (see Table 6.6 Column IV, audit committee diligence) indicating the explanatory power of Ball and Shivakumar (2005) earnings conservatism model is higher (74.3%) when testing the association between audit committee diligence and earnings conservatism (see Table 6.6 Column IV).

## **6.5 Summary of the Chapter**

This chapter reported the main empirical results of this study. Multivariate results analyzing the association between audit committee effectiveness and a number of key models of earnings conservatism were reported and discussed in this chapter.

Chapter Seven outlines additional tests and analysis performed to examine the robustness and sensitivity of the main findings reported in Chapter Six. The robustness tests

and sensitivity analysis includes: (a) partitioning of the sample by quartiles, years and corporate governance features; and (b) alternative measures of both audit committee effectiveness and earnings conservatism. Aside from seeking to provide reassurance and validity of the main results presented in Chapter Six, the robustness tests and sensitivity analysis reported in Chapter Seven aims to highlight additional insights into the association between audit committee effectiveness and earnings conservatism.

## **CHAPTER SEVEN: ROBUSTNESS AND SENSITIVITY TESTS**

### **7.1 Overview of the Chapter**

Chapter Six discussed the main empirical results of this study. Multivariate results testing the association between the Basu (1997) timeliness model of earnings conservatism and audit committee effectiveness are initially documented. This is followed by multivariate results examining the association between individual components of audit committee effectiveness and earnings conservatism based on the Basu (1997) timeliness model. Subsequently, multivariate results examining the relationship between the persistence of earnings conservatism (based on the Basu (1997) model) and audit committee effectiveness (and individual components) are presented. Results testing the association between earnings conservatism measured using Ball and Shivakumar's (2005) model and both the composite and individual components of audit committee effectiveness are then presented. Multivariate results analyzing the association between audit committee effectiveness and a number of key models of earnings conservatism were reported and discussed.

This chapter outlines the robustness and sensitivity tests undertaken to check the durability of the main results reported in Chapter Six. Initially, alternative market-adjusted returns underpinning the Basu (1997) timeliness earnings conservatism model are utilized (using three alternative indices) in an effort to better control for possible firm size and industry biases. Tests are then undertaken using two alternative earnings conservatism measures to verify the robustness of the results related to the Basu (1997) and Ball and Shivakumar (2005) models reported in Chapter Six. The audit committee effectiveness composite score is also recalculated, first, based on audit committee member independence and, second, using an alternative measure of audit committee diligence. The multivariate analysis is then re-performed using the alternative audit committee effectiveness scores. Finally, the analysis is re-performed after partitioning the sample in several alternative ways (including firm size, firm-years, audit quality and firm growth) to identify any cross-sectional biases and to draw additional insights.

### **7.2 Alternative Market-Adjusted Returns - Basu (1997) Timeliness Model**

Prior research (Ahmad-Zaluki, Campbell, and Goodacre 2007; Elgers, Callahan, and Strock 1987) highlights a number of contentious issues arising about the measurement of accounting/earnings conservatism that could influence empirical findings. For example, there is lengthy debate in the extant literature about difficulties in measuring market-adjusted returns (Ahmad-Zaluki et al. 2007; DuCharme et al. 2004; Elgers et al. 1987). Many studies (Balkrishna et al. 2007; Lara et al. 2009b; Ruddock et al. 2006) that require the calculation of

market-adjusted returns (such as required in the Basu (1997) timeliness earnings conservatism model) commonly use a single market-index. However, a number of researchers (Ahmad-Zaluki et al. 2007; Elgers et al. 1987) argue the use of a single market-index could bias empirical findings because the market-index used may not fairly represent the underlying characteristics of the study's sample. Often studies rely on major market indices (e.g., Dow Jones Index, FTSE 100 Index, DAX Index, SMI Index) that frequently include only well known large entities. However, this could introduce size biases if the size of firms in a study's sample is predominantly small and medium sized enterprises. Also, major market indices commonly used to calculate market-adjusted returns include firms spanning multiple industry sectors. Application of a major market index in calculating market-adjusted returns could, therefore, ignore (or deflate) nuances of the specific industry to which a sample firm belongs that would ultimately impact of returns for the time period under observation.

To ensure the main findings reported in Chapter Six associated with the Basu (1997) timeliness of earnings conservatism is not the subject of size and industry biases in the calculation of market-adjusted returns, this study follows the approach of Ahmad-Zaluki et al. (2007). Specifically, to examine for size bias, market-adjusted returns are recalculated using two alternative approaches. First, market-adjusted returns are calculated using the *ASX 200 Index*, a narrower index than the *All Ordinaries Index*. Second, market-adjusted returns are recalculated applying an index more indicative of a sample firm's size based on quartile classification. Specifically, market-adjusted returns of sample firms included in the: (a) 1<sup>st</sup> Quartile being recalculated based on the *All Ordinaries Index*; (b) 2<sup>nd</sup> Quartile being recalculated based on the *ASX 200 Index*; (c) 3<sup>rd</sup> Quartile being recalculated based on the *Mid-Cap 50 Index*; and (d) 4<sup>th</sup> Quartile being recalculated based on the *Small Ordinaries Index*. As for industry biases, market-adjusted returns for each sample firm are recalculated using an industry index relevant to the major industry sector of each firm.

Empirical tests using the alternative market-adjusted return calculations are then performed and reported in Table 7.1.<sup>45</sup>

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<sup>45</sup> When re-testing using the alternative approaches to measuring market-adjusted returns, regressions were conducted using the composite score for audit committee effectiveness (see Section 6.2.1 and Table 6.1 for corresponding reference), and for the individual components of audit committee effectiveness (i.e., audit committee independence, financial expertise of audit committee members, experience of the audit committee members and diligence of the committee) (see Section 6.2.2 and Table 6.2 for corresponding references). For brevity, regressions results based on only the composite score for audit committee effectiveness and full model (see Table 6.1 Column III) are formally reported.

**Table 7.1 - Regression results for the Basu (1997) timeliness model using alternative indices**

Variables	Column I: ASX 200 Index <sup>†</sup>			Column II: Size Specific Indices <sup>ψ</sup>			Column III: Industry Specific Indices <sup>¥</sup>		
	Beta	t-Stat	P-value	Beta	t-Stat	P-value	Beta	t-Stat	P-value
Intercept	-0.023	-0.341	0.734	-0.050	-0.751	0.481	-0.025	-0.355	0.723
$DR_{jt}$	-0.323	-3.151	0.002*	-0.262	-2.527	0.012**	-0.337	-3.250	0.001*
$ACE_{jt}$	0.023	0.976	0.329	0.025	1.082	0.280	0.016	0.691	0.490
$DR_{jt} * ACE_{jt}$	0.086	2.324	0.021**	0.075	1.995	0.047**	0.102	2.734	0.006*
$R_{jt}$	-0.161	-5.223	0.000*	-0.161	-5.181	0.000*	-0.166	-5.326	0.000*
$R_{jt} * DR_{jt}$	0.027	0.176	0.860	0.091	0.619	0.536	0.040	0.284	0.777
$R_{jt} * ACE_{jt}$	0.044	2.120	0.035**	0.045	2.183	0.029**	0.049	2.346	0.019**
$R_{jt} * DR_{jt} * ACE_{jt}$	0.052	0.789	0.430	0.038	0.588	0.557	0.066	1.085	0.279
Adjusted-R <sup>2</sup>	0.153			0.147			0.159		
N	494			494			494		
F-Statistic	9.085			8.697			9.472		

**Legend:**

† Market-adjusted returns are calculated using the ASX 200 Index;

ψ Market-adjusted returns for firms included in the: (a) 1<sup>st</sup> Quartile are based on the *All Ordinaries Index*; (b) 2<sup>nd</sup> Quartile are based on the ASX 200 Index; (c) 3<sup>rd</sup> Quartile are based on the *Mid-Cap 50 Index*; and (d) 4<sup>th</sup> Quartile are based on the *Small Ordinaries Index*;

¥ Market-adjusted returns are based on industry index relevant to the major industry sector each firm is classified under;

Column I, II and III Equation: 
$$X_{jt} = \alpha_0 + \alpha_1 DR_{jt} + \alpha_2 ACE_{jt} + \alpha_3 DR_{jt} * ACE_{jt} + \beta_0 R_{jt} + \beta_1 R_{jt} * DR_{jt} + \beta_2 R_{jt} * ACE_{jt} + \beta_3 R_{jt} * DR_{jt} * ACE_{jt} + \sum Year_k + \epsilon_{jt}$$

Where:

$X_{jt}$  = Operating profit after tax of firm  $j$  deflated by market value of equity ( $MVE_{t-1}$  - Market value of equity of firm  $j$  at beginning of the fiscal year  $t$ ) of firm  $j$  at beginning of the fiscal year  $t$ ;

$DR_{jt}$  = Indicator variable where firm  $j$  is scored one (1) if  $R_{jt}$  is negative, otherwise firm  $j$  is scored zero (0);

$ACE_{jt}$  = Composite audit committee effectiveness score of firm  $j$  in fiscal year  $t$ ;

$DR_{jt} * ACE_{jt}$  = Two-way interaction between indicator variable where firm  $j$  is scored one (1) if  $R_{jt}$  is negative, otherwise firm  $j$  is scored zero (0), and the composite audit committee effectiveness score of firm  $j$  in fiscal year  $t$ ;

$R_{jt}$  = Annual share returns for firm  $j$  from three months after the previous fiscal year  $t-1$  to three months after the current fiscal year  $t$  (i.e.,  $(P_t - P_{t-1})/P_{t-1}$  where  $P_t$  is the price of shares for firm  $j$  from three months after the fiscal year  $t$  and  $P_{t-1}$  is the price of shares for firm  $j$  from three months after the fiscal year  $t-1$ ) adjusted for the change in the *market index* between dates relevant to the buy-and-hold return period of firm  $j$ ;

$R_{jt} * DR_{jt}$  = Two-way interaction between annual share returns for firm  $j$  from three months after the previous fiscal year  $t-1$  to three months after the current fiscal year  $t$  (i.e.,  $(P_t - P_{t-1})/P_{t-1}$  where  $P_t$  is the price of shares for firm  $j$  from three months after the fiscal year  $t$  and  $P_{t-1}$  is the price of shares for firm  $j$  from three months after the fiscal year  $t-1$ ) adjusted for the change in the *market index* between dates relevant to the buy-and-hold return period of firm  $j$  and indicator variable where firm  $j$  is scored one (1) if  $R_{jt}$  is negative, otherwise firm  $j$  is scored zero (0);

$R_{jt} * ACE_{jt}$  = Two-way interaction between annual share returns for firm  $j$  from three months after the previous fiscal year  $t-1$  to three months after the current fiscal year  $t$  (i.e.,  $(P_t - P_{t-1})/P_{t-1}$  where  $P_t$  is the price of shares for firm  $j$  from three months after the fiscal year  $t$  and  $P_{t-1}$  is the price of shares for firm  $j$  from three months after the fiscal year  $t-1$ ) adjusted for the change in the *market index* between dates relevant to the buy-and-hold return period of firm  $j$  and the composite audit committee effectiveness score of firm  $j$  in fiscal year  $t$ ;

$R_{jt} * DR_{jt} * ACE_{jt}$  = Three-way interaction between annual share returns for firm  $j$  from three months after the previous fiscal year  $t-1$  to three months after the current fiscal year  $t$  (i.e.,  $(P_t - P_{t-1})/P_{t-1}$  where  $P_t$  is the price of shares for firm  $j$  from three months after the fiscal year  $t$  and  $P_{t-1}$  is the price of shares for firm  $j$  from three months after the fiscal year  $t-1$ ) adjusted for the change in the *market index* between dates relevant to the buy-and-hold return period of firm  $j$ , indicator variable where firm  $j$  is scored one (1) if  $R_{jt}$  is negative, otherwise firm  $j$  is scored zero (0), and the composite audit committee effectiveness score of firm  $j$  in fiscal year  $t$ ;

$\sum Year_k$  = Series of dummy variables for the individual observation years (formal results of dummy variables for years is not detailed in tables for brevity);

$\alpha_k, \beta_k$  = Coefficients;

$\epsilon_{jt}$  = Error term; and

\*, \*\*, \*\*\* = Significant at the 0.01, 0.05 and 0.10 confidence levels respectively.

Regression results shown in Table 7.1 support the main results of this study presented in Table 6.1 and Table 6.2 (see Sections 6.2.1 and 6.2.2 respectively). As reported in Table 7.1 Columns I, II and III, the coefficients on  $DR_{jt}$  ( $p < 0.01$ ,  $p < 0.05$  and  $p < 0.01$  respectively) and  $R_{jt}$  ( $p < 0.01$ ,  $p < 0.01$  and  $p < 0.01$  respectively) are negative and statistically

significant in the three reported regressions. The directionality and significance of the coefficients on  $DR_{jt}$  and  $R_{jt}$  are comparable to coefficients on corresponding variables reported in Table 6.1 Column III (i.e.,  $DR_{jt}$  and  $RR-AllOrd_{jt}$ ). Meanwhile, coefficients  $DR_{jt} * ACE_{jt}$  ( $p < 0.05$ ,  $p < 0.05$  and  $p < 0.01$  respectively) and  $R_{jt} * ACE_{jt}$  ( $p < 0.05$ ,  $p < 0.05$  and  $p < 0.05$  respectively) are positive and significant in the three regressions shown in Table 7.1 Columns I, II and III. Again, the directionality and significance on the two variables (i.e.,  $DR_{jt} * ACE_{jt}$  and  $R_{jt} * ACE_{jt}$ ) are consistent with findings of corresponding variables (i.e.,  $DR_{jt} * ACE_{jt}$  and  $RR-AllOrd_{jt} * ACE_{jt}$ ) as reported in Table 6.1 Column III. As for the three-way  $R_{jt} * DR_{jt} * ACE_{jt}$  interaction term, coefficients on the variable are positive but statistically insignificant in the three regressions reported in Table 7.1. The positive insignificance of the three-way  $R_{jt} * DR_{jt} * ACE_{jt}$  interaction term is similar to results on the three-way  $RR-AllOrd_{jt} * DR_{jt} * ACE_{jt}$  interaction term shown in Table 6.1 Column III. Relative to regression results shown in Table 6.1 Column III in which market-adjusted returns were calculated using the *All Ordinaries Index*, the explanatory power of the model tested (and reported) in Table 7.1 Column I that used a narrower market index (i.e., lower firm numbers but of larger size), the adjusted- $R^2$  is identical (i.e., 15.3%). When market-adjusted returns are calculated using size-quartile specific indices, the explanatory power of the regression model declines (see Table 7.1 Column II; adjusted- $R^2 = 14.7\%$ ). In contrast, when controlling for possible industry bias whilst calculating market-adjusted returns the explanatory power of the regression shown in Table 7.1 Column III is slightly higher (i.e., 15.9%) than the main results detailed in Table 6.1 Column III. Results presented in Table 7.1 suggest the main results reported in Table 6.1 (and also Table 6.2) are unlikely to have been unduly affected by biases (e.g., firm size and industry) associated with the specific index used in calculating market-adjusted returns necessary for use in the Basu (1997) timeliness of earnings conservatism model.

### 7.3 Alternative Measures of Earnings Conservatism

The three measures of earnings conservatism (i.e., timelines, persistence and accruals-based earnings conservatism) used in this study provide measure of conservatism on average, either across time or across firms. The measures do not consider firm specific characteristics. In order to capture both firm and year variation, this study uses an alternative measure developed by Khan and Watts (2009). Khan and Watts (2009) developed a firm-year specific measure of conservatism based on Basu's (1997) timeliness model of conservatism. By adding firm-specific characteristics (i.e., size, market to book ratio and leverage) into the Basu (1997) model, Khan and Watts' (2009) measure enables the analysis of variation of conservatism at firm level. Results of the regression are presented in Table 7.2 below.

**Table 7.2 - Regression results based on alternative measures of earnings conservatism**

Panel A: Earnings conservatism based on Khan and Watts (2009)						
Variables	Column I: Basic Model			Column II: Main Model		
	Beta	t-Stat	P-value	Beta	t-Stat	P-value
Intercept	-0.498	-2.158	0.031**	-0.584	-2.283	0.023**
$DR_{jt}$	-0.493	-1.368	0.172	-0.327	-0.831	0.407
$DR_{jt} * Size_{jt}$	0.021	1.106	0.269	0.004	0.162	0.871
$DR_{jt} * MTB_{jt}$	-0.002	-0.131	0.896	0.005	0.270	0.787
$DR_{jt} * Lev_{jt}$	0.010	0.388	0.698	0.008	0.334	0.738
$DR_{jt} * ACE_{jt}$				0.054	1.037	0.300
$ACE_{jt}$				-0.027	-0.748	0.455
$Size_{jt}$	0.032	2.625	0.009*	0.041	2.441	0.015**
$MTB_{jt}$	-0.022	-2.161	0.031**	-0.028	-2.450	0.015**
$Lev_{jt}$	-0.028	-1.235	0.217	-0.028	-1.208	0.228
$RR-AllOrd_{it}$	-0.113	-0.368	0.713	0.015	0.047	0.963
$RR-AllOrd_{it} * Size_{jt}$	0.002	0.142	0.887	-0.010	-0.530	0.596
$RR-AllOrd_{it} * MTB_{jt}$	-0.007	-1.957	0.051***	-0.005	-1.058	0.291
$RR-AllOrd_{it} * Lev_{jt}$	0.070	1.915	0.056***	0.071	1.926	0.055***
$RR-AllOrd_{it} * ACE_{jt}$				0.041	1.322	0.187
$RR-AllOrd_{it} * DR_{jt}$	0.834	1.150	0.251	0.810	1.077	0.282
$RR-AllOrd_{it} * DR_{jt} * Size_{jt}$	-0.047	-1.119	0.264	-0.044	-0.944	0.346
$RR-AllOrd_{it} * DR_{jt} * MTB_{jt}$	-0.009	-0.545	0.586	-0.011	-0.613	0.540
$RR-AllOrd_{it} * DR_{jt} * Lev_{jt}$	-0.078	-1.980	0.048**	-0.080	-2.010	0.045
$RR-AllOrd_{it} * DR_{jt} * ACE_{jt}$				-0.018	-0.238	0.812
Adjusted-R <sup>2</sup>	0.261			0.295		
N	472			472		
F-Statistic	9.786			8.166		

**Legend:**

$$X_{it} = \alpha_{it} + \beta_1 RR-AllOrd_{it} + \beta_2 RR-AllOrd_{it} * Size_{jt} + \beta_3 RR-AllOrd_{it} * MTB_{jt} + \beta_4 RR-AllOrd_{it} * Lev_{jt} + \beta_5 RR-AllOrd_{it} * ACE_{jt} + \beta_6 DR_{it} + \beta_7 DR_{it} * Size_{jt} + \beta_8 DR_{it} * MTB_{jt} + \beta_9 DR_{it} * Lev_{jt} + \beta_{10} DR_{it} * ACE_{jt} + \beta_{11} RR-AllOrd_{it} * DR_{it} * Size_{jt} + \beta_{12} RR-AllOrd_{it} * DR_{it} * MTB_{jt} + \beta_{13} RR-AllOrd_{it} * DR_{it} * Lev_{jt} + \beta_{14} RR-AllOrd_{it} * DR_{it} * ACE_{jt} + \gamma_1 Yr2003_{it} + \gamma_2 Yr2004_{it} + \gamma_3 Yr2005_{it} + \gamma_4 Yr2006_{it} + \gamma_5 Yr2007_{it} + \gamma_6 Yr2008_{it} + \epsilon_{it}$$

Where:

- $X_{jt}$  = Operating profit after tax of firm  $j$  deflated by market value of equity ( $MVE_{t-1}$  - Market value of equity of firm  $j$  at beginning of the fiscal year  $t$ ) of firm  $j$  at beginning of the fiscal year  $t$ ;
- $DR_{jt}$  = Indicator variable where firm  $j$  is scored one (1) if  $RR-AllOrd_{it}$  is negative, otherwise firm  $j$  is scored zero (0);
- $DR_{jt} * Size_{jt}$  = Two-way interaction between indicator variable where firm  $j$  is scored one (1) if  $RR-AllOrd_{it}$  is negative, otherwise firm  $j$  is scored zero (0), and the natural log of total assets of firm  $j$  in fiscal year  $t$ ;
- $DR_{jt} * MTB_{jt}$  = Two-way interaction between indicator variable where firm  $j$  is scored one (1) if  $RR-AllOrd_{it}$  is negative, otherwise firm  $j$  is scored zero (0), and market-to-book ratio measured as a ratio of market value of equity and book value of equity of firm  $j$  in fiscal year  $t$ ;
- $DR_{jt} * Lev_{jt}$  = Two-way interaction between indicator variable where firm  $j$  is scored one (1) if  $RR-AllOrd_{it}$  is negative, otherwise firm  $j$  is scored zero (0), and short term and long term debt deflated by market value of equity of firm  $j$  in fiscal year  $t$ ;
- $DR_{jt} * ACE_{jt}$  = Two-way interaction between indicator variable where firm  $j$  is scored one (1) if  $RR-AllOrd_{it}$  is negative, otherwise firm  $j$  is scored zero (0), and the composite audit committee effectiveness score of firm  $j$  in fiscal year  $t$ ;
- $ACE_{jt}$  = Composite audit committee effectiveness score of firm  $j$  in fiscal year  $t$ ;
- $Size_{jt}$  = The natural log of total assets of firm  $j$  in fiscal year  $t$ ;
- $MTB_{jt}$  = Market-to-book ratio measured as a ratio of market value of equity and book value of equity of firm  $j$  in fiscal year  $t$ ;
- $Lev_{jt}$  = Short term and long term debt deflated by market value of equity of firm  $j$  in fiscal year  $t$ ;
- $RR-AllOrd_{it}$  = Buy-and-hold return over the fiscal year  $t$  of firm  $j$  (i.e.,  $(P_t - P_{t-1})/P_{t-1}$  where  $P_t$  is the price of shares for firm  $j$  three months after the end of the fiscal year  $t$  and  $P_{t-1}$  is the price of shares for firm  $j$  three months after the end of the fiscal year  $t-1$ ) adjusted for the change in the market index between dates relevant to the buy-and-hold return period of firm  $j$ ;
- $RR-AllOrd_{it} * Size_{jt}$  = Two-way interaction between the buy-and-hold return over the fiscal year  $t$  of firm  $j$  (i.e.,  $(P_t - P_{t-1})/P_{t-1}$  where  $P_t$  is the price of shares for firm  $j$  three months after the end of the fiscal year  $t$  and  $P_{t-1}$  is the price of shares for firm  $j$  three months after the end of the fiscal year  $t-1$ ) adjusted for the change in the market index between dates relevant to the buy-and-hold return period of firm  $j$  and the natural log of total assets of firm  $j$  in fiscal year  $t$ ;

- $RR-AllOrd_{jt} * MTB_{jt}$  = Two-way interaction between the buy-and-hold return over the fiscal year  $t$  of firm  $j$  (i.e.,  $(P_t - P_{t-1})/P_{t-1}$  where  $P_t$  is the price of shares for firm  $j$  three months after the end of the fiscal year  $t$  and  $P_{t-1}$  is the price of shares for firm  $j$  three months after the end of the fiscal year  $t-1$ ) adjusted for the change in the *market index* between dates relevant to the buy-and-hold return period of firm  $j$  and market-to-book ratio measured as a ratio of market value of equity and book value of equity of firm  $j$  in fiscal year  $t$ ;
- $RR-AllOrd_{jt} * Lev_{jt}$  = Two-way interaction between the buy-and-hold return over the fiscal year  $t$  of firm  $j$  (i.e.,  $(P_t - P_{t-1})/P_{t-1}$  where  $P_t$  is the price of shares for firm  $j$  three months after the end of the fiscal year  $t$  and  $P_{t-1}$  is the price of shares for firm  $j$  three months after the end of the fiscal year  $t-1$ ) adjusted for the change in the *market index* between dates relevant to the buy-and-hold return period of firm  $j$  and long-term and short-term debt deflated by market value of equity of firm  $j$  in fiscal year  $t$ ;
- $RR-AllOrd_{jt} * ACE_{jt}$  = Two-way interaction between the buy-and-hold return over the fiscal year  $t$  of firm  $j$  (i.e.,  $(P_t - P_{t-1})/P_{t-1}$  where  $P_t$  is the price of shares for firm  $j$  three months after the end of the fiscal year  $t$  and  $P_{t-1}$  is the price of shares for firm  $j$  three months after the end of the fiscal year  $t-1$ ) adjusted for the change in the *market index* between dates relevant to the buy-and-hold return period of firm  $j$  and the composite audit committee effectiveness score of firm  $j$  in fiscal year  $t$ ;
- $RR-AllOrd_{jt} * DR_{jt}$  = Two-way interaction between the buy-and-hold return over the fiscal year  $t$  of firm  $j$  (i.e.,  $(P_t - P_{t-1})/P_{t-1}$  where  $P_t$  is the price of shares for firm  $j$  three months after the end of the fiscal year  $t$  and  $P_{t-1}$  is the price of shares for firm  $j$  three months after the end of the fiscal year  $t-1$ ) adjusted for the change in the *market index* between dates relevant to the buy-and-hold return period of firm  $j$  and indicator variable where firm  $j$  is scored one (1) if  $RR-AllOrd_{jt}$  is negative, otherwise firm  $j$  is scored zero (0);
- $RR-AllOrd_{jt} * DR_{jt} * Size_{jt}$  = Three-way interaction between the buy-and-hold return over the fiscal year  $t$  of firm  $j$  (i.e.,  $(P_t - P_{t-1})/P_{t-1}$  where  $P_t$  is the price of shares for firm  $j$  three months after the end of the fiscal year  $t$  and  $P_{t-1}$  is the price of shares for firm  $j$  three months after the end of the fiscal year  $t-1$ ) adjusted for the change in the *market index* between dates relevant to the buy-and-hold return period of firm  $j$ , indicator variable where firm  $j$  is scored one (1) if  $RR-AllOrd_{jt}$  is negative, otherwise firm  $j$  is scored zero (0), and the natural log of total assets of firm  $j$  in fiscal year  $t$ ;
- $RR-AllOrd_{jt} * DR_{jt} * MTB_{jt}$  = Three-way interaction between the buy-and-hold return over the fiscal year  $t$  of firm  $j$  (i.e.,  $(P_t - P_{t-1})/P_{t-1}$  where  $P_t$  is the price of shares for firm  $j$  three months after the end of the fiscal year  $t$  and  $P_{t-1}$  is the price of shares for firm  $j$  three months after the end of the fiscal year  $t-1$ ) adjusted for the change in the *market index* between dates relevant to the buy-and-hold return period of firm  $j$ , indicator variable where firm  $j$  is scored one (1) if  $RR-AllOrd_{jt}$  is negative, otherwise firm  $j$  is scored zero (0), and market-to-book ratio measured as a ratio of market value of equity and book value of equity of firm  $j$  in fiscal year  $t$ ;
- $RR-AllOrd_{jt} * DR_{jt} * Lev_{jt}$  = Three-way interaction between the buy-and-hold return over the fiscal year  $t$  of firm  $j$  (i.e.,  $(P_t - P_{t-1})/P_{t-1}$  where  $P_t$  is the price of shares for firm  $j$  three months after the end of the fiscal year  $t$  and  $P_{t-1}$  is the price of shares for firm  $j$  three months after the end of the fiscal year  $t-1$ ) adjusted for the change in the *market index* between dates relevant to the buy-and-hold return period of firm  $j$ , indicator variable where firm  $j$  is scored one (1) if  $RR-AllOrd_{jt}$  is negative, otherwise firm  $j$  is scored zero (0), and long-term and short-term debt deflated by market value of equity of firm  $j$  in fiscal year  $t$ ;
- $RR-AllOrd_{jt} * DR_{jt} * ACE_{jt}$  = Three-way interaction between the buy-and-hold return over the fiscal year  $t$  of firm  $j$  (i.e.,  $(P_t - P_{t-1})/P_{t-1}$  where  $P_t$  is the price of shares for firm  $j$  three months after the end of the fiscal year  $t$  and  $P_{t-1}$  is the price of shares for firm  $j$  three months after the end of the fiscal year  $t-1$ ) adjusted for the change in the *market index* between dates relevant to the buy-and-hold return period of firm  $j$ , indicator variable where firm  $j$  is scored one (1) if  $RR-AllOrd_{jt}$  is negative, otherwise firm  $j$  is scored zero (0), and the composite audit committee effectiveness score of firm  $j$  in fiscal year  $t$ ;
- $\Sigma Year_k$  = Series of dummy variables for the individual observation years (formal results of dummy variables for years is not detailed in tables for brevity);
- $\alpha_k, \beta_k$  = Coefficients;
- $\varepsilon_{jt}$  = Error term; and
- \*, \*\*, \*\*\* = Significant at the 0.01, 0.05 and 0.10 confidence levels respectively.

Regression results shown in Table 7.2 partially support the main results of this study presented in Table 6.1 (see Columns II and III respectively). As reported in Table 7.2 Columns I, II, the coefficients on  $DR_{jt}$  and  $RR-AllOrd_{jt}$  are negative (except Column II where the co-efficient on  $RR-AllOrd_{jt}$  is positive) and statistically significant in the two reported regressions. The directionality and significance of the coefficients on  $DR_{jt}$  and  $RR-AllOrd_{jt}$  are comparable to coefficients on corresponding variables reported in Table 6.1 Columns II and III (see  $DR_{jt}$  and  $RR-AllOrd_{jt}$ ). Meanwhile, consistent with Table 6.1 Column III results, coefficients  $DR_{jt} * ACE_{jt}$  and  $RR-AllOrd_{jt} * ACE_{jt}$  are positive in the regression shown in Table 7.2 Column II. However, the coefficients on  $DR_{jt} * ACE_{jt}$  and  $RR-$

$AllOrd_{jt} * ACE_{jt}$  are not significant. As for the three-way  $R_{jt} * DR_{jt} * ACE_{jt}$  interaction term, coefficients on the variable are negative and statistically insignificant in the regression reported in Table 7.2 Column II. The results suggests that the inclusion of control variables (i.e.,  $Size_{it}$ ,  $MTB_{it}$ ,  $Lev_{it}$ ) in Basu's (1997) timeliness model have impact on the three-way  $RR-AllOrd_{jt} * DR_{jt} * ACE_{jt}$  interaction. Relative to regression results shown in Table 6.1 Column II and III, the explanatory power of the models tested (and reported) in Table 7.2 Columns I and II are higher (i.e., the adjusted- $R^2$  is 26.1% and 29.5% respectively compared to 11.5% and 15.3%).

#### 7.4 Recalibration of Composite Score Based on Audit Committee Independence

Prior research (Abbott et al. 2000; Chen and Zhou 2007; DeZoort et al. 2002; Klein 2002b) highlights a number of contentious issues in developing a proxy to measure audit committee effectiveness. One issue of debate is whether the proxy measure considers audit committee effectiveness a product of the committee as a whole or select committee members. It is argued by some researchers (Chen and Zhou 2007; Klein 2002b) an audit committee member's effectiveness may be compromised unless independent of corporate management. Consequently, it is suggested that a proxy measure of audit committee effectiveness should be derived based on properties associated solely with independent members of the audit committee rather than the sub-committee as a whole (Abbott et al. 2000; Chen et al. 2005; Chen and Zhou 2007; Klein 2002b).

In light of the aforementioned arguments, the composite score for audit committee effectiveness is recalculated based on factors applicable solely to the independent directors on the audit committee. Specifically, the revised proxy termed  $ACE\_Ind_{jt}$  is defined as being the composite score where firm  $j$  is scored one (1), otherwise zero (0), if for time period  $t$ :

- All members of the audit committee are independent directors;
- At least one of the independent directors on the audit committee is a 'financial expert' with the necessary financial qualifications and credentials;<sup>46</sup>
- At least one of the independent directors on the audit committee has prior experience serving on the audit committee of a publicly listed firm; and
- The audit committee meets four or more times during time period  $t$  or the board of directors meets 10 or more times during time period  $t$ .<sup>47</sup>

<sup>46</sup> As discussed in Chapter Four, audit committee expertise is measured in two different ways: Audit committee members with experience as a public accountant, auditor, principal or chief financial officer, controller, principal or chief accounting officer is classified as accounting financial experts. Audit committee members with experience as a CEO or president of a for-profit firm is classified as non-accounting financial experts. Therefore, the variable,  $Expt\_ACE_{jt}$  is coded (1) if the audit committee has a member with accounting or non-accounting financial expertise, (0) otherwise.

Regressions reported in Table 6.1 Column III, Table 6.3 Column III and Table 6.5 Column III are then re-performed with  $ACE\_Ind_{jt}$  scores replacing  $ACE_{jt}$  scores where applicable. Results of the three main regressions performed using the alternative composite score of audit committee independence are reported in Table 7.3 with Panel A results associated with Table 6.1 Column III findings (i.e., timeliness of earnings conservatism), Panel B with Table 6.3 Column III (i.e., persistence of earnings conservatism) and Panel C with Table 6.5 Column III results (i.e., accruals-based earnings conservatism).<sup>48</sup>

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<sup>47</sup> In order to measure diligence for the main results reported in Chapter Six, a firm is given a score of one (1) if the number of actual audit committee meeting during year is at least four times a year. If a firm has formal audit committee but does not have formal audit committee meetings (i.e., all audit committee matters discussed in the board meetings), the firm is given a value of one (1) if the board meeting is at least 10 times or more a year, otherwise score of zero (0).

<sup>48</sup> Regressions reported in Table 6.2, 6.4 and 6.6 (Columns I, II, III and IV respectively) were also performed again to re-examine if re-calculated scores for individual components of audit committee effectiveness based on properties solely associated with independent directors influenced original findings. Due to similarity in findings the additional tests are not formally reported for brevity.

**Table 7.3 - Regression results using audit committee member independence (*ACE\_Ind<sub>jt</sub>*)**

<b>Panel A: Basu (1997) timeliness model of earnings conservatism</b>			
<b>Variables</b>	<i>Beta</i>	<i>t-Stat</i>	<i>P-value</i>
Intercept	-0.020	-0.376	0.707
<i>DR<sub>jt</sub></i>	-0.275	-3.678	0.000*
<i>ACE_Ind<sub>jt</sub></i>	0.031	1.640	0.100***
<i>DR<sub>jt</sub>*ACE_Ind<sub>jt</sub></i>	0.072	2.412	0.016**
<i>RR-AllOrd<sub>jt</sub></i>	-0.142	-4.920	0.000*
<i>RR-AllOrd<sub>jt</sub>*DR<sub>jt</sub></i>	0.088	0.830	0.407
<i>RR-AllOrd<sub>jt</sub>*ACE_Ind<sub>jt</sub></i>	0.030	1.505	0.133
<i>RR-AllOrd<sub>jt</sub>*DR<sub>jt</sub>*ACE_Ind<sub>jt</sub></i>	0.025	0.449	0.653
Adjusted-R <sup>2</sup>	0.184		
N	494		
F-Statistic	11.105		
<b>Panel B: Basu (1997) persistence model of earnings conservatism</b>			
<b>Variables</b>	<i>Beta</i>	<i>t-Stat</i>	<i>P-value</i>
Intercept	0.343	7.977	0.000*
<i>DPX<sub>jt</sub></i>	-0.347	-6.418	0.000*
<i>ACE_Ind<sub>jt</sub></i>	-0.074	-6.120	0.000*
<i>DPX<sub>jt</sub>*ACE_Ind<sub>jt</sub></i>	0.073	3.537	0.000*
<i>PX<sub>jt</sub></i>	0.014	0.441	0.659
<i>PX<sub>jt</sub>*DPX<sub>jt</sub></i>	1.002	11.428	0.000*
<i>PX<sub>jt</sub>*ACE_Ind<sub>jt</sub></i>	-0.115	-3.005	0.003*
<i>PX<sub>jt</sub>*DPX<sub>jt</sub>*ACE_Ind<sub>jt</sub></i>	0.109	2.272	0.024**
Adjusted-R <sup>2</sup>	0.426		
N	494		
F-Statistic	33.912		
<b>Panel C: Ball and Shivakumar (2005) accruals-based model of earnings conservatism</b>			
<b>Variables</b>	<i>Beta</i>	<i>t-Stat</i>	<i>P-value</i>
Intercept	-0.242	-3.096	0.002*
<i>DCFO<sub>jt</sub></i>	-0.011	-0.125	0.901
<i>ACE_Ind<sub>jt</sub></i>	0.082	3.329	0.001*
<i>DCFO<sub>jt</sub>*ACE_Ind<sub>jt</sub></i>	-0.019	-0.541	0.589
<i>CFO<sub>jt</sub></i>	-1.084	-19.683	0.000*
<i>CFO<sub>jt</sub>*DCFO<sub>jt</sub></i>	1.446	11.074	0.000*
<i>CFO<sub>jt</sub>*ACE_Ind<sub>jt</sub></i>	0.015	0.430	0.668
<i>CFO<sub>jt</sub>*DCFO<sub>jt</sub>*ACE_Ind<sub>jt</sub></i>	-0.085	-0.840	0.402
Adjusted-R <sup>2</sup>	0.734		
N	494		
F-Statistic	124.417		

**Legend:**

$$X_{jt} = \alpha_0 + \beta_0 DR_{jt} + \beta_1 RR-AllOrd_{jt} + \beta_2 RR-AllOrd_{jt} * DR_{jt} + \beta_3 ACE\_Ind_{jt} + \beta_4 ACE\_Ind_{jt} * RR-AllOrd_{jt} + \beta_5 ACE\_Ind_{jt} * DR_{jt} + \beta_6 ACE\_Ind_{jt} * RR-AllOrd_{jt} * DR_{jt} + \sum Year_{jkt} + \epsilon_{jt}$$

$$BPX_{jt} = \alpha_0 + \beta_0 DPX_{jt} + \beta_1 PX_{jt} + \beta_2 PX_{jt} * DPX_{jt} + \beta_3 ACE\_Ind_{jt} + \beta_4 ACE\_Ind_{jt} * PX_{jt} + \beta_5 ACE\_Ind_{jt} * DPX_{jt} + \beta_6 ACE\_Ind_{jt} * PX_{jt} * DPX_{jt} + \sum Year_{jkt} + \epsilon_{jt}$$

$$ACC_{jt} = \alpha_0 + \beta_0 DCFO_{jt} + \beta_1 CFO_{jt} + \beta_2 CFO_{jt} * DCFO_{jt} + \beta_3 ACE\_Ind_{jt} + \beta_4 ACE\_Ind_{jt} * CFO_{jt} + \beta_5 ACE\_Ind_{jt} * DCFO_{jt} + \beta_6 ACE\_Ind_{jt} * CFO_{jt} * DCFO_{jt} + \sum Year_{jkt} + \epsilon_{jt}$$

Where:

$X_{jt}$  = Operating profit after tax of firm *j* for period *t* deflated by market capitalization of firm *j* at beginning of the fiscal year *t*;

$RR-AllOrd_{jt}$  = Annual share returns for firm *j* from three months after the previous fiscal year *t-1* to three months after the current fiscal year *t* (i.e.,  $(P_t - P_{t-1})/P_{t-1}$  where  $P_t$  is the price of shares for firm *j* three months after the end of the fiscal year *t* and  $P_{t-1}$  is the price of shares for firm *j* three months after the end of the fiscal year *t-1*) adjusted for the All Ordinaries Index over the same period;

$DR_{jt}$  = Indicator variable that takes the value of one [1] if  $RR-AllOrd_{jt} < 0$ , otherwise scored 0;

$RR-AllOrd_{jt} * DR_{jt}$  = Two-way interaction between annual share returns for firm *j* from three months after the previous fiscal year *t-1* to three months after the current fiscal year *t* (i.e.,  $(P_t - P_{t-1})/P_{t-1}$

where  $P_t$  is the price of shares for firm  $j$  three months after the end of the fiscal year  $t$  and  $P_{t-1}$  is the price of shares for firm  $j$  three months after the end of the fiscal year  $t-1$  adjusted for the All Ordinaries Index over the same period and indicator variable where firm  $j$  is scored one (1) if  $RR-AllOrd_{jt}$  is negative, otherwise firm  $j$  is scored zero (0);

- $ACE\_Ind_{jt}$  = A composite score for audit committee effectiveness based on the sub-committee's independence, expertise, experience and diligence (i.e.,  $All\_Ind\_ACE_{jt} + Expt\_Ind\_ACE_{jt} + Exp\_Ind\_ACE_{jt} + Dil\_ACE_{jt}$ ) defined by independent directors;
- $ACE\_Ind_{jt}*RR-AllOrd_{jt}$  = Two-way interaction between composite score for audit committee effectiveness based on the sub-committee's independence, expertise, experience and diligence (i.e.,  $All\_Ind\_ACE_{jt} + Expt\_Ind\_ACE_{jt} + Exp\_Ind\_ACE_{jt} + Dil\_ACE_{jt}$ ) defined by independent directors and annual share returns for firm  $j$  from three months after the previous fiscal year  $t-1$  to three months after the current fiscal year  $t$  (i.e.,  $(P_t - P_{t-1})/P_{t-1}$  where  $P_t$  is the price of shares for firm  $j$  three months after the end of the fiscal year  $t$  and  $P_{t-1}$  is the price of shares for firm  $j$  three months after the end of the fiscal year  $t-1$  adjusted for the All Ordinaries Index over the same period);
- $ACE\_Ind_{jt}*DR_{jt}$  = Two-way interaction between composite score for audit committee effectiveness based on the sub-committee's independence, expertise, experience and diligence (i.e.,  $All\_Ind\_ACE_{jt} + Expt\_Ind\_ACE_{jt} + Exp\_Ind\_ACE_{jt} + Dil\_ACE_{jt}$ ) defined by independent directors and indicator variable that takes the value of one (1) if  $RR-AllOrd_{jt} < 0$ , otherwise scored zero (0);
- $ACE\_Ind_{jt}*RR-AllOrd_{jt}*DR_{jt}$  = Three-way interaction between composite score for audit committee effectiveness based on the sub-committee's independence, expertise, experience and diligence (i.e.,  $All\_Ind\_ACE_{jt} + Expt\_Ind\_ACE_{jt} + Exp\_Ind\_ACE_{jt} + Dil\_ACE_{jt}$ ) defined by independent directors, annual share returns for firm  $j$  from three months after the previous fiscal year  $t-1$  to three months after the current fiscal year  $t$  (i.e.,  $(P_t - P_{t-1})/P_{t-1}$  where  $P_t$  is the price of shares for firm  $j$  three months after the end of the fiscal year  $t$  and  $P_{t-1}$  is the price of shares for firm  $j$  three months after the end of the fiscal year  $t-1$  adjusted for the All Ordinaries Index over the same period and indicator variable that takes the value of one (1) if  $RR-AllOrd_{jt} < 0$ , otherwise scored zero (0);
- $BPX_{jt}$  = Change in operating profit after tax of firm  $j$  for period  $t$  from operating profit after tax of firm  $j$  for period  $t-1$  deflated by market capitalization of firm  $j$  at the end of period  $t-1$ ;
- $PX_{jt}$  = Change in operating profit after tax of firm  $j$  for period  $t-1$  from operating profit after tax of firm  $j$  for period  $t-2$  deflated by market capitalization of firm  $j$  at the end of period  $t-2$ ;
- $DPX_{jt}$  = Indicator variable where firm  $j$  is scored one (1) if  $PX_{jt}$  is negative; otherwise score of zero (0);
- $PX_{jt}*PDX_{jt}$  = Two-way interaction between change in operating profit after tax of firm  $j$  for period  $t$  from operating profit after tax of firm  $j$  for period  $t-1$  deflated by market capitalization of firm  $j$  at the end of period  $t-1$  and indicator variable where firm  $j$  is scored one (1) if  $PX_{jt}$  is negative; otherwise score of zero (0);
- $ACE\_Ind_{jt}$  = A composite score for audit committee effectiveness based on the sub-committee's independence, expertise, experience and diligence (i.e.,  $All\_Ind\_ACE_{jt} + Expt\_Ind\_ACE_{jt} + Exp\_Ind\_ACE_{jt} + Dil\_ACE_{jt}$ ) defined by independent directors;
- $ACE\_Ind_{jt}*PX_{jt}$  = Two-way interaction between composite score for audit committee effectiveness based on the sub-committee's independence, expertise, experience and diligence (i.e.,  $All\_Ind\_ACE_{jt} + Expt\_Ind\_ACE_{jt} + Exp\_Ind\_ACE_{jt} + Dil\_ACE_{jt}$ ) defined by independent directors and change in operating profit after tax of firm  $j$  for period  $t$  from operating profit after tax of firm  $j$  for period  $t-1$  deflated by market capitalization of firm  $j$  at the end of period  $t-1$ ;
- $ACE\_Ind_{jt}*PDX_{jt}$  = Two-way interaction between composite score for audit committee effectiveness based on the sub-committee's independence, expertise, experience and diligence (i.e.,  $All\_Ind\_ACE_{jt} + Expt\_Ind\_ACE_{jt} + Exp\_Ind\_ACE_{jt} + Dil\_ACE_{jt}$ ) defined by independent directors and indicator variable that takes the value of one (1) if  $PDX_{jt} < 0$ , otherwise scored zero (0);
- $ACE\_Ind_{jt}*PX_{jt}*PDX_{jt}$  = The three-way interaction between composite score for audit committee effectiveness based on the sub-committee's independence, expertise, experience and diligence (i.e.,  $All\_Ind\_ACE_{jt} + Expt\_Ind\_ACE_{jt} + Exp\_Ind\_ACE_{jt} + Dil\_ACE_{jt}$ ) defined by independent directors, change in operating profit after tax of firm  $j$  for period  $t$  from operating profit after tax of firm  $j$  for period  $t-1$  deflated by market capitalization of firm  $j$  at the end of period  $t-1$  and indicator variable that takes the value of one (1) if  $PDX_{jt} < 0$ , otherwise scored zero (0);
- $ACC_{jt}$  = Accruals (i.e., difference between operating profit and cash flow from operations) of firm  $j$  in fiscal year  $t$  scaled by the book value of total assets of firm  $j$  at the beginning of the fiscal year  $t$  (i.e.,  $BVTA_{jt}$ );
- $CFO_{jt}$  = Cash flow from operating activities of firm  $j$  in fiscal year  $t$  scaled by the book value of total assets of firm  $j$  at the beginning of the fiscal year  $t$  (i.e.,  $BVTA_{jt}$ );
- $DCFO_{jt}$  = Indicator variable where firm  $j$  is scored one (1) if  $\Delta CFO_{jt}$  is negative, otherwise scored zero (0);
- $CFO_{jt}*DCFO_{jt}$  = Two-way interaction between cash flow from operating activities of firm  $j$  in fiscal year  $t$  scaled by the book value of total assets of firm  $j$  at the beginning of the fiscal year  $t$  (i.e.,  $BVTA_{jt}$ ) and indicator variable where firm  $j$  is scored one (1) if  $\Delta CFO_{jt}$  is negative, otherwise scored zero (0);
- $ACE\_Ind_{jt}$  = A composite score for audit committee effectiveness based on the sub-committee's independence, expertise, experience and diligence (i.e.,  $All\_Ind\_ACE_{jt} + Expt\_Ind\_ACE_{jt} + Exp\_Ind\_ACE_{jt} + Dil\_ACE_{jt}$ ) defined by independent directors;

- $ACE\_Ind_{jt} * CFO_{jt}$  = Two-way interaction between composite score for audit committee effectiveness based on the sub-committee's independence, expertise, experience and diligence (i.e.,  $All\_Ind\_ACE_{jt} + Expt\_Ind\_ACE_{jt} + Exp\_Ind\_ACE_{jt} + Dil\_ACE_{jt}$ ) defined by independent directors and cash flow from operating activities of firm  $j$  in fiscal year  $t$  scaled by the book value of total assets of firm  $j$  at the beginning of the fiscal year  $t$  (i.e.,  $BVTA_{jt}$ );
- $ACE\_Ind_{jt} * DCFO_{jt}$  = Two-way interaction between composite score for audit committee effectiveness based on the sub-committee's independence, expertise, experience and diligence (i.e.,  $All\_Ind\_ACE_{jt} + Expt\_Ind\_ACE_{jt} + Exp\_Ind\_ACE_{jt} + Dil\_ACE_{jt}$ ) defined by independent directors and indicator variable that takes the value of one (1) if  $DCFO_{jt} < 0$ , otherwise scored zero (0);
- $ACE\_Ind_{jt} * CFO_{jt} * DCFO_{jt}$  = Three-way interaction between composite score for audit committee effectiveness based on the sub-committee's independence, expertise, experience and diligence (i.e.,  $All\_Ind\_ACE_{jt} + Expt\_Ind\_ACE_{jt} + Exp\_Ind\_ACE_{jt} + Dil\_ACE_{jt}$ ) defined by independent directors, cash flow from operating activities of firm  $j$  in fiscal year  $t$  scaled by the book value of total assets of firm  $j$  at the beginning of the fiscal year  $t$  (i.e.,  $BVTA_{jt}$ ) and indicator variable that takes the value of one (1) if  $DCFO_{jt} < 0$ , otherwise scored zero (0);
- $\alpha_k, \beta_k$  = Coefficients;
- $\varepsilon_{jt}$  = Error term; and
- \*, \*\*, \*\*\* = Significant at the 0.01, 0.05 and 0.10 confidence levels respectively.

With regards to the Basu (1997) timeliness model of earnings conservatism, all coefficients on variables listed in Table 7.3 Panel A are of the same directionality as that of corresponding variables in the regression reported in Table 6.1 Column III. In principal, the significance of the respective coefficients in the related regressions in Table 6.1 Column III and Table 7.3 Panel A are also identical aside for the variable pairings of: (a)  $ACE_{jt}$  and  $ACE\_Ind_{jt}$ ; and (b)  $RR-AllOrd_{jt} * ACE_{jt}$  and  $RR-AllOrd_{jt} * ACE\_Ind_{jt}$ . In the case of the  $ACE_{jt}/ACE\_Ind_{jt}$  pairing, the coefficient on the former is insignificant from zero in Table 6.1 Column III results whilst the latter is moderately significant (i.e.,  $p < 0.10$ ) in the regression reported in Table 7.3 Panel A. Meanwhile, in case of  $RR-AllOrd_{jt} * ACE_{jt}/RR-AllOrd_{jt} * ACE\_Ind_{jt}$ , coefficient on  $RR-AllOrd_{jt} * ACE_{jt}$  is significant (i.e.,  $p < 0.05$ ) in the regression reported in Table 6.1 Column III but  $RR-AllOrd_{jt} * ACE\_Ind_{jt}$  is insignificant from zero in the regression reported in Table 7.3 Panel A. Relative to Table 6.1 Column III results, the explanatory power of the regression reported in Table 7.3 Panel A using the alternative audit committee effectiveness proxy (i.e.,  $ACE\_Ind_{jt}$ ) is higher (i.e., 18.4% versus 15.3%).

In regards to the Basu (1997) persistence earnings conservatism model, results (reported in Table 7.3 Panel B) using the alternative proxy for audit committee effectiveness (i.e.,  $ACE\_Ind_{jt}$ ) yields highly similar results compared to the main results reported in Table 6.3 Column III. Specifically, directionality on the coefficients of the corresponding variables in the two regressions reported in Table 6.3 Column III and Table 7.3 Panel B are the same, with statistical significance of the corresponding coefficients also being closely matched aside for the coefficient on  $PX_{jt}$ . For the main results reported in Table 6.3 Column III the coefficient on  $PX_{jt}$  is statistically significant at conventional levels (i.e.,  $p < 0.05$ ). However, when the regression is re-performed using a narrower proxy measure of audit committee effectiveness (i.e.,  $ACE\_Ind_{jt}$ ) the coefficient on  $PX_{jt}$  is insignificant from zero (see Table 7.3 Panel B). Of major importance in comparing results from Table 6.3 Column III and Table 7.3 Panel B is the significance of the three-way  $PX_{jt} * DPX_{jt} * ACE\_Ind_{jt}$  interaction

term. Table 7.3 Panel B results indicate that, despite using a narrow proxy for audit committee effectiveness, the positive association between audit committee effectiveness and the persistence earnings conservatism as reported in Table 6.3 Column III is preserved. The explanatory power (i.e., adjusted-R<sup>2</sup>) of the Basu (1997) persistence of earnings conservatism model declined marginally when using  $ACE\_Ind_{jt}$  to proxy audit committee effectiveness rather than  $ACE_{jt}$  in the main findings; that is, 42.6% (see Table 7.3 Panel B) versus 43.5% (see Table 6.3 Column III).

The directionality and significance of coefficients of regression based on the Ball and Shivakumar (2005) earnings conservatism model and using the alternative narrower proxy for audit committee effectiveness (i.e.,  $ACE\_Ind_{jt}$ ) is virtually identical to the main results using the original proxy measure (i.e.,  $ACE_{jt}$ ) (see Table 7.3 Panel C versus Table 6.5 Column III). The only notable difference pertains to the coefficients on the corresponding variables  $CFO_{jt} * ACE_{jt}$  and  $CFO_{jt} * ACE\_Ind_{jt}$ . For the main results, the coefficient on the two-way  $CFO_{jt} * ACE_{jt}$  interaction term is negative and significant (see Table 6.5 Column III;  $p < 0.05$ ). However, when the alternative narrower proxy of audit committee effectiveness is used, the coefficient on the corresponding variable to the main results in the regression reported in Table 7.3 Panel C is positive and insignificant from zero. Finally, the explanatory power (i.e., adjusted-R<sup>2</sup>) of the two regressions based on Ball and Shivakumar (2005) but using alternative proxy measures of audit committee effectiveness is markedly similar (i.e., 73.2% - Table 6.5 Column III versus 73.4% - Table 7.3 Panel C).

Overall, the additional tests reported in Table 7.3 yield results predominantly consistent with the main results (see Table 6.1 Column III, Table 6.3 Column III and Table 6.5 Column III). This suggests the main results regarding the audit committee effectiveness/earnings conservatism association is necessarily driven by the proxy measure underlying audit committee effectiveness.

## 7.5 Diligence Based on Actual Number of Meetings Attended Annually

As discussed in Chapter Four, diligence of the audit committee has been measured in two different ways: (1) based on actual number of audit committee meetings; and (2) based on actual number of board of directors meetings. As a result, a firm has been given a score of one (1) if the audit committee meets four or more times a year or if the board of directors meets 10 or more times a year.<sup>49</sup> In order to verify the robustness of the main results, sample firm-years are partitioned based on two different measures of diligence: (1) actual number of audit committee meetings; and (2) actual number of board of directors meetings.

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<sup>49</sup> In order to measure diligence for the main results reported in Chapter Six, a firm is given a score of one (1) if the number of actual audit committee meeting during year is at least four times a year. If a firm has formal audit committee but does not have formal audit committee meetings (i.e., all audit committee matters discussed in the board meetings), the firm is given a value of one (1) if the board meeting is at least 10 times or more a year, otherwise score of zero (0).

A significant strand of the published literature has identified a positive relationship between the number of audit committee meetings (proxying for audit committee diligence) and the quality of a firm's reported earnings (McMullen and Raghunandan 1996; Menon and Williams 1994; Vafeas 2005; Xie et al. 2003). It is argued that an audit committee member's effectiveness may be compromised unless the audit committee meets regularly (Chen and Zhou 2007; Klein 2002b). Most of the past studies (Abbott et al. 2007; Beasley and Salterio 2001; Krishnan and Visvanathan 2007b) on audit committee diligence have found that if the audit committee meets four or more times in a year, the audit committee is better able to preserve higher quality reported earnings, maintain a better working relationship with the auditors and improved overall governance features.

In light of the aforementioned arguments, the composite score for audit committee effectiveness is firstly, recalculated based on actual number of audit committee meetings. As a result, the revised proxy termed  $ACE\_Dil_{jt}$  is defined as being the composite score where firm  $j$  is scored one (1), otherwise zero (0), if for time period  $t$ :

- A majority of the audit committee members are independent directors;
- At least one of the independent directors on the audit committee is a 'financial expert' with the necessary financial qualifications and credentials;
- At least one of the independent directors on the audit committee has prior experience serving on the audit committee of a publicly listed firm; and
- The audit committee meets four or more times during time period  $t$ .

Tests performed based on the measure of diligence (where number of audit committee meetings proxying for diligence) are reported in Column I of Table 7.4 Panel A, B and C.

The published literature (Carcello et al. 2002; Klein 2002a; Lara, Osma, and Penalva 2007; Vafeas 1999, 2005) has also identified a positive relationship between the number of board of directors meetings and the quality of a firm's reported earnings. As a result, the composite score for audit committee effectiveness is secondly, recalculated based on actual number of board of directors meetings. Therefore, the revised proxy termed  $ACE\_Dil_{jt}$  is defined as being the composite score where firm  $j$  is scored one (1), otherwise zero (0) if for time period  $t$ :

- A majority of the audit committee members are independent directors;
- At least one of the independent directors on the audit committee is a 'financial expert' with the necessary financial qualifications and credentials;

- At least one of the independent directors on the audit committee has prior experience serving on the audit committee of a publicly listed firm; and
- The board members meet 10 or more times during time period  $t$ .

Tests performed based on the measure of diligence (where number of Board meetings proxying for diligence) are reported in Column II of Table 7.4 Panel A, B and C.

Regressions reported in Table 6.1 Column III, Table 6.3 Column III and Table 6.5 Column III are re-performed with  $ACE\_Dil_{jt}$  scores replacing  $ACE_{jt}$  scores where applicable. Results of the three main regressions performed using the alternative composite score of audit committee independence are reported in Table 7.4 with Panel A results associated with Table 6.1 Column III findings (i.e., timeliness of earnings conservatism), Panel B with Table 6.3 Column III (i.e., persistence of earnings conservatism) and Panel C with Table 6.5 Column III results (i.e., accruals-based earnings conservatism).

**Table 7.4 - Regression results adjusting for audit committee diligence measure**

<b>Panel A: Basu (1997) timeliness model of earnings conservatism</b>						
<b>Variables</b>	<b>Column I: Actual AC</b>			<b>Column II: BoD = AC</b>		
	<i>Beta</i>	<i>t-Stat</i>	<i>P-value</i>	<i>Beta</i>	<i>t-Stat</i>	<i>P-value</i>
Intercept	-0.074	-1.026	0.305	0.020	0.276	0.782
$DR_{jt}$	-0.392	-3.377	0.001*	-0.419	-3.672	0.000*
$ACE\_Dil_{jt}$	0.032	1.460	0.145	0.008	0.307	0.759
$DR_{jt} * ACE\_Dil_{jt}$	0.094	2.523	0.012**	0.136	2.905	0.004*
$RR-AllOrd_{jt}$	-0.166	-6.054	0.000*	-0.167	-5.249	0.000*
$RR-AllOrd_{jt} * DR_{jt}$	0.010	0.060	0.952	-0.009	-0.059	0.953
$RR-AllOrd_{jt} * ACE\_Dil_{jt}$	0.044	2.733	0.007*	0.046	2.126	0.034**
$RR-AllOrd_{jt} * DR_{jt} * ACE\_Dil_{jt}$	0.029	0.483	0.629	0.080	1.087	0.277
Adjusted-R <sup>2</sup>	0.180			0.151		
N	494			494		
F-Statistic	10.865			8.947		
<b>Panel B: Basu (1997) persistence model of earnings conservatism</b>						
<b>Variables</b>	<b>Column I: Actual AC</b>			<b>Column II: BoD = AC</b>		
	<i>Beta</i>	<i>t-Stat</i>	<i>P-value</i>	<i>Beta</i>	<i>t-Stat</i>	<i>P-value</i>
Intercept	0.442	7.624	0.000*	0.389	6.891	0.000*
$DPX_{jt}$	-0.420	-5.191	0.000*	-0.353	-4.047	0.000*
$ACE\_Dil_{jt}$	-0.077	-4.658	0.000*	-0.074	-3.750	0.000*
$DPX_{jt} * ACE\_Dil_{jt}$	0.080	3.154	0.002*	0.074	2.030	0.043**
$PX_{jt}$	0.051	0.784	0.433	-0.001	-0.024	0.981
$PX_{jt} * DPX_{jt}$	0.998	11.480	0.000*	0.988	5.557	0.000*
$PX_{jt} * ACE\_Dil_{jt}$	-0.019	-0.926	0.355	0.001	0.054	0.957
$PX_{jt} * DPX_{jt} * ACE\_Dil_{jt}$	-0.001	-0.045	0.964	0.008	0.083	0.934
Adjusted-R <sup>2</sup>	0.395			0.385		
N	489			489		
F-Statistic	29.970			28.726		
<b>Panel C: Ball and Shivakumar (2005) accruals-based model of earnings conservatism</b>						
<b>Variables</b>	<b>Column I: Actual AC</b>			<b>Column II: BoD = AC</b>		
	<i>Beta</i>	<i>t-Stat</i>	<i>P-value</i>	<i>Beta</i>	<i>t-Stat</i>	<i>P-value</i>
Intercept	-0.345	-3.278	0.001*	-0.237	-2.397	0.017**
$DCFO_{jt}$	0.038	0.284	0.777	-0.058	-0.450	0.653
$ACE\_Dil_{jt}$	0.103	3.409	0.001*	0.085	2.308	0.021**
$DCFO_{jt} * ACE\_Dil_{jt}$	-0.033	-0.747	0.444	-0.009	-0.164	0.870
$CFO_{jt}$	-0.999	-16.960	0.000*	-1.006	-16.367	0.000*
$CFO_{jt} * DCFO_{jt}$	1.484	11.467	0.000*	2.408	8.426	0.000*
$CFO_{jt} * ACE\_Dil_{jt}$	-0.038	-1.389	0.189	-0.048	-1.308	0.192
$CFO_{jt} * DCFO_{jt} * ACE\_Dil_{jt}$	-0.083	-1.096	0.273	0.562	3.600	0.000*
Adjusted-R <sup>2</sup>	0.732			0.738		
N	492			492		
F-Statistic	122.926			126.800		

**Legend:**

Panel A Equation:  $X_{jt} = \alpha_0 + \beta_0 DR_{jt} + \beta_1 RR-AllOrd_{jt} + \beta_2 RR-AllOrd_{jt} * DR_{jt} + \beta_3 ACE_{jt} + \beta_4 ACE_{jt} * RR-AllOrd_{jt} + \beta_5 ACE_{jt} * DR_{jt} + \beta_6 ACE_{jt} * RR-AllOrd_{jt} * DR_{jt} + \sum Year_{jkt} + \epsilon_{jt}$

Panel B Equation:  $BPX_{jt} = \alpha_0 + \beta_0 DPX_{jt} + \beta_1 PX_{jt} + \beta_2 PX_{jt} * DPX_{jt} + \beta_3 ACE_{jt} + \beta_4 ACE_{jt} * PX_{jt} + \beta_5 ACE_{jt} * DPX_{jt} + \beta_6 ACE_{jt} * PX_{jt} * DPX_{jt} + \sum Year_{jkt} + \epsilon_{jt}$

Panel C Equation:  $ACC_{jt} = \alpha_0 + \beta_0 DCFO_{jt} + \beta_1 CFO_{jt} + \beta_2 CFO_{jt} * DCFO_{jt} + \beta_3 ACE_{jt} + \beta_4 ACE_{jt} * CFO_{jt} + \beta_5 ACE_{jt} * DCFO_{jt} + \beta_6 ACE_{jt} * CFO_{jt} * DCFO_{jt} + \sum Year_{jkt} + \epsilon_{jt}$

Where:

$X_{jt}$  = Operating profit after tax of firm *j* deflated by market value of equity ( $MVE_{t-1}$  - Market capitalization of firm *j* at beginning of the fiscal year *t*) of firm *j* at beginning of the fiscal year *t*;

$DR_{jt}$  = Indicator variable where firm *j* is scored one (1) if  $RR-AllOrd_{jt}$  is negative, otherwise firm *j* is scored zero (0);

$ACE_{jt}$  = A composite score for audit committee effectiveness based on the sub-committee's independence, expertise, experience and diligence (i.e.,  $Ind\_ACE_{jt} + Expt\_ACE_{jt} + Exp\_ACE_{jt} + Dil\_ACE_{jt}$ );

- $DR_{jt} * ACE_{jt}$  = Two-way interaction between indicator variable where firm  $j$  is scored one (1) if  $RR-AllOrd_{jt}$  is negative, otherwise firm  $j$  is scored zero (0), and the composite audit committee effectiveness score of firm  $j$  in fiscal year  $t$ ;
- $RR-AllOrd_{jt}$  = Annual share returns for firm  $j$  from three months after the previous fiscal year  $t-1$  to three months after the current fiscal year  $t$  (i.e.,  $(P_t - P_{t-1})/P_{t-1}$  where  $P_t$  is the price of shares for firm  $j$  three months after the end of the fiscal year  $t$  and  $P_{t-1}$  is the price of shares for firm  $j$  three months after the end of the fiscal year  $t-1$ ) adjusted for the All Ordinaries Index over the same period;
- $RR-AllOrd_{jt} * DR_{jt}$  = Two-way interaction between annual share returns for firm  $j$  from three months after the previous fiscal year  $t-1$  to three months after the current fiscal year  $t$  (i.e.,  $(P_t - P_{t-1})/P_{t-1}$  where  $P_t$  is the price of shares for firm  $j$  three months after the end of the fiscal year  $t$  and  $P_{t-1}$  is the price of shares for firm  $j$  three months after the end of the fiscal year  $t-1$ ) adjusted for the All Ordinaries Index over the same period and indicator variable where firm  $j$  is scored one (1) if  $RR-AllOrd_{jt}$  is negative, otherwise firm  $j$  is scored zero (0);
- $RR-AllOrd_{jt} * ACE_{jt}$  = Two-way interaction between annual share returns for firm  $j$  from three months after the previous fiscal year  $t-1$  to three months after the current fiscal year  $t$  (i.e.,  $(P_t - P_{t-1})/P_{t-1}$  where  $P_t$  is the price of shares for firm  $j$  three months after the end of the fiscal year  $t$  and  $P_{t-1}$  is the price of shares for firm  $j$  three months after the end of the fiscal year  $t-1$ ) adjusted for the All Ordinaries Index over the same period and the composite audit committee effectiveness score based on the sub-committee's independence, expertise, experience and diligence (i.e.,  $Ind\_ACE_{jt} + Expt\_ACE_{jt} + Exp\_ACE_{jt} + Dil\_ACE_{jt}$ ) of firm  $j$  in fiscal year  $t$ ;
- $RR-AllOrd_{jt} * DR_{jt} * ACE_{jt}$  = Three-way interaction between annual share returns for firm  $j$  from three months after the previous fiscal year  $t-1$  to three months after the current fiscal year  $t$  (i.e.,  $(P_t - P_{t-1})/P_{t-1}$  where  $P_t$  is the price of shares for firm  $j$  three months after the end of the fiscal year  $t$  and  $P_{t-1}$  is the price of shares for firm  $j$  three months after the end of the fiscal year  $t-1$ ) adjusted for the All Ordinaries Index over the same period, indicator variable where firm  $j$  is scored one (1) if  $RR-AllOrd_{jt}$  is negative, otherwise firm  $j$  is scored zero (0), and the composite audit committee effectiveness score based on the sub-committee's independence, expertise, experience and diligence (i.e.,  $Ind\_ACE_{jt} + Expt\_ACE_{jt} + Exp\_ACE_{jt} + Dil\_ACE_{jt}$ ) of firm  $j$  in fiscal year  $t$ ;
- $BPX_{jt}$  = Change in operating profit after tax of firm  $j$  for period  $t$  from operating profit after tax of firm  $j$  for period  $t-1$  deflated by market capitalization of firm  $j$  at the end of period  $t-1$ ;
- $PX_{jt}$  = Change in operating profit after tax of firm  $j$  for period  $t-1$  from operating profit after tax of firm  $j$  for period  $t-2$  deflated by market capitalization of firm  $j$  at the end of period  $t-2$ ;
- $DPX_{jt}$  = Indicator variable where firm  $j$  is scored one (1) if  $PX_{jt}$  is negative; otherwise score of zero (0);
- $PX_{jt} * DPX_{jt}$  = Two-way interaction between change in operating profit after tax of firm  $j$  for period  $t$  from operating profit after tax of firm  $j$  for period  $t-1$  deflated by market capitalization of firm  $j$  at the end of period  $t-1$  and Indicator variable where firm  $j$  is scored one (1) if  $PX_{jt}$  is negative; otherwise score of zero (0);
- $ACE_{jt}$  = A composite score for audit committee effectiveness based on the sub-committee's independence, expertise, experience and diligence (i.e.,  $Ind\_ACE_{jt} + Expt\_ACE_{jt} + Exp\_ACE_{jt} + Dil\_ACE_{jt}$ );
- $ACE_{jt} * PX_{jt}$  = Two-way interaction between composite score for audit committee effectiveness based on the sub-committee's independence, expertise, experience and diligence (i.e.,  $Ind\_ACE_{jt} + Expt\_ACE_{jt} + Exp\_ACE_{jt} + Dil\_ACE_{jt}$ ) and change in operating profit after tax of firm  $j$  for period  $t$  from operating profit after tax of firm  $j$  for period  $t-1$  deflated by market capitalization of firm  $j$  at the end of period  $t-1$ ;
- $ACE_{jt} * DPX_{jt}$  = Two-way interaction between composite score for audit committee effectiveness based on the sub-committee's independence, expertise, experience and diligence (i.e.,  $Ind\_ACE_{jt} + Expt\_ACE_{jt} + Exp\_ACE_{jt} + Dil\_ACE_{jt}$ ) and indicator variable that takes the value of one (1) if  $DPX_{jt} < 0$ , otherwise scored zero (0);
- $ACE_{jt} * PX_{jt} * DPX_{jt}$  = Three-way interaction between composite score for audit committee effectiveness based on the sub-committee's independence, expertise, experience and diligence (i.e.,  $Ind\_ACE_{jt} + Expt\_ACE_{jt} + Exp\_ACE_{jt} + Dil\_ACE_{jt}$ ), change in operating profit after tax of firm  $j$  for period  $t$  from operating profit after tax of firm  $j$  for period  $t-1$  deflated by market capitalization of firm  $j$  at the end of period  $t-1$  and indicator variable that takes the value of one (1) if  $DPX_{jt} < 0$ , otherwise scored zero (0);
- $ACC_{jt}$  = Accruals (i.e., difference between operating profit and cash flow from operations) of firm  $j$  in fiscal year  $t$  scaled by the book value of total assets of firm  $j$  at the beginning of the fiscal year  $t$  (i.e.,  $BVTA_{jt}$ );
- $CFO_{jt}$  = Cash flow from operating activities of firm  $j$  in fiscal year  $t$  scaled by the book value of total assets of firm  $j$  at the beginning of the fiscal year  $t$  (i.e.,  $BVTA_{jt}$ );
- $DCFO_{jt}$  = Indicator variable where firm  $j$  is scored one (1) if  $\Delta CFO_{jt}$  is negative, otherwise scored zero (0);
- $CFO_{jt} * DCFO_{jt}$  = Two-way interaction between cash flow from operating activities of firm  $j$  in fiscal year  $t$  scaled by the book value of total assets of firm  $j$  at the beginning of the fiscal year  $t$  (i.e.,  $BVTA_{jt}$ ) and indicator variable where firm  $j$  is scored one (1) if  $\Delta CFO_{jt}$  is negative, otherwise scored zero (0);
- $ACE_{jt}$  = A composite score for audit committee effectiveness based on the sub-committee's independence, expertise, experience and diligence (i.e.,  $Ind\_ACE_{jt} + Expt\_ACE_{jt} + Exp\_ACE_{jt} + Dil\_ACE_{jt}$ );
- $ACE_{jt} * CFO_{jt}$  = Two-way interaction between composite score for audit committee effectiveness based on the sub-committee's independence, expertise, experience and diligence (i.e.,  $Ind\_ACE_{jt} + Expt\_ACE_{jt} + Exp\_ACE_{jt} + Dil\_ACE_{jt}$ ) and cash flow from operating activities of firm  $j$  in fiscal year  $t$  scaled by the book value of total assets of firm  $j$  at the beginning of the fiscal year  $t$  (i.e.,  $BVTA_{jt}$ );

- $ACE_{jt} * DCF_{jt}$  = Two-way interaction between composite score for audit committee effectiveness based on the sub-committee's independence, expertise, experience and diligence (i.e.,  $Ind\_ACE_{jt} + Expt\_ACE_{jt} + Exp\_ACE_{jt} + Dil\_ACE_{jt}$ ) and indicator variable that takes the value of one (1) if  $DCF_{jt} < 0$ , otherwise scored zero (0);
- $ACE_{jt} * CFO_{jt} * DCF_{jt}$  = Three-way interaction between composite score for audit committee effectiveness based on the sub-committee's independence, expertise, experience and diligence (i.e.,  $Ind\_ACE_{jt} + Expt\_ACE_{jt} + Exp\_ACE_{jt} + Dil\_ACE_{jt}$ ), cash flow from operating activities of firm  $j$  in fiscal year  $t$  scaled by the book value of total assets of firm  $j$  at the beginning of the fiscal year  $t$  (i.e.,  $BVTA_{jt}$ ) and indicator variable that takes the value of one (1) if  $DCF_{jt} < 0$ , otherwise scored zero (0);
- $\alpha_k, \beta_k$  = Coefficients;  
 $\varepsilon_{jt}$  = Error term; and  
 \*, \*\*, \*\*\* = Significant at the 0.01, 0.05 and 0.10 confidence levels respectively.

With regards to the Basu (1997) timeliness model of earnings conservatism, all coefficients on variables listed in Table 7.4 Panel A Columns I and II are of the same directionality as that of corresponding variables in the regression reported in Table 6.1 Column III aside for the  $RR-AllOrd_{jt} * DR_{jt}$  variable. Coefficient on  $RR-AllOrd_{jt}$  is positive in Table 6.1 Column III but negative in Table 7.4 Panel A Column II. In principal the significance of the respective coefficients in the related regressions in Table 6.1 Column III and Table 7.4 Panel A Columns I and II are also identical. Relative to Table 6.1 Column III results, the explanatory power of the regression (see adjusted- $R^2$ ) reported in Table 7.4 Panel A Column I using the alternative audit committee effectiveness proxy (i.e.,  $ACE\_Dil_{jt}$ ) is higher (i.e., 18.0% versus 15.3%) whereas the explanatory power of the regression (see adjusted- $R^2$ ) reported in Table 7.4 Panel A Column II using the alternative audit committee effectiveness proxy (i.e.,  $ACE\_Dil_{jt}$ ) is largely similar (i.e., 15.1% versus 15.3%).

In regards to the Basu (1997) persistence earnings conservatism model, the respective coefficients in the related regressions in Table 6.3 Column III and Table 7.4 Panel B Columns I and II are identical aside for the variable pairings of: (a)  $PX_{jt}$  and  $PX_{jt}$ ; (b)  $PX_{jt} * ACE_{jt}$  and  $PX_{jt} * ACE\_Dil_{jt}$ ; and (c)  $PX_{jt} * DPX_{jt} * ACE_{jt}$  and  $PX_{jt} * DPX_{jt} * ACE\_Dil_{jt}$ . In the case of the  $PX_{jt}/PX_{jt}$  pairing, the coefficient on the former is significant (i.e.,  $p < 0.05$ ) in Table 6.3 Column III results whilst the latter is insignificant from zero in the regression reported in Table 7.4 Panel B Columns I and II respectively. Meanwhile, for the  $PX_{jt} * ACE_{jt}/PX_{jt} * ACE\_Dil_{jt}$  variables, the coefficient on  $PX_{jt} * ACE_{jt}$  is highly significant (i.e.,  $p < 0.001$ ) as reported in Table 6.3 Column III but  $PX_{jt} * ACE\_Dil_{jt}$  is insignificant from zero in the regressions reported in Table 7.4 Panel B Columns I and II respectively. For the  $PX_{jt} * DPX_{jt} * ACE_{jt}$  and  $PX_{jt} * DPX_{jt} * ACE\_Dil_{jt}$  variables, the coefficient on  $PX_{jt} * DPX_{jt} * ACE_{jt}$  is highly significant (i.e.,  $p < 0.000$ ) as reported in Table 6.3 Column III but  $PX_{jt} * DPX_{jt} * ACE\_Dil_{jt}$  is insignificant from zero in the regressions reported in Table 7.4 Panel B Columns I and II respectively. Finally, the explanatory power (see adjusted- $R^2$ ) of the Basu (1997) persistence of earnings conservatism model declined slightly when using alternative proxy for audit committee effectiveness rather than  $ACE_{jt}$  in the main findings; that is, 39.5% and 38.5% (see Table 7.4 Panel B Columns I and II respectively) versus 43.5% (see Table 6.3 Column III).

The directionality and significance of coefficients on regression based on the Ball and Shivakumar (2005) earnings conservatism model and using the alternative narrower proxy for audit committee effectiveness (i.e.,  $ACE_{Dil_{jt}}$ ) is virtually identical to the main results using the original proxy measure (i.e.,  $ACE_{jt}$ ) as shown in Table 7.4 Panel C Column I (see Table 7.4 Panel C Column I versus Table 6.5 Column III). The only notable differences pertain to the coefficients on the corresponding variables  $DCFO_{jt}$  and  $CFO_{jt} * ACE_{jt} / CFO_{jt} * ACE_{Dil_{jt}}$ . For the main results, the coefficient  $DCFO_{jt}$  ( $CFO_{jt} * ACE_{jt}$ ) is negative (significant) (see Table 6.5 Column III,  $p < 0.05$ ). However, when the alternative narrower proxy of audit committee effectiveness is used the coefficient on  $DCFO_{jt}$  ( $CFO_{jt} * ACE_{Dil_{jt}}$ ) in the regression reported in Table 7.4 Panel C Column I is positive (insignificant from zero). Again, the directionality and significance of the respective coefficients in the related regressions in Table 6.5 Column III and Table 7.4 Panel C Column II are identical aside for the variable pairings of: (a)  $CFO_{jt} * ACE_{jt}$  and  $CFO_{jt} * ACE_{Dil_{jt}}$ ; and (b)  $CFO_{jt} * DCFO_{jt} * ACE_{jt}$  and  $CFO_{jt} * DCFO_{jt} * ACE_{Dil_{jt}}$ . In the case of the  $CFO_{jt} * ACE_{jt} / CFO_{jt} * ACE_{Dil_{jt}}$  pairing the coefficient on the former is significant (i.e.,  $p < 0.05$ ) in Table 6.5 Column III results whilst the latter is insignificant from zero in the regression reported in Table 7.4 Panel C Column II. Meanwhile, for the  $CFO_{jt} * DCFO_{jt} * ACE_{jt}$  and  $CFO_{jt} * DCFO_{jt} * ACE_{Dil_{jt}}$  variables, coefficient on  $CFO_{jt} * DCFO_{jt} * ACE_{jt}$  is negative and insignificant in the regression reported in Table 6.5 Column III but  $CFO_{jt} * DCFO_{jt} * ACE_{Dil_{jt}}$  is positive and highly significant (i.e.,  $p < 0.000$ ) in the regression reported in Table 7.4 Panel C Column II. Finally, the explanatory power of the two regressions based on Ball and Shivakumar (2005) but using alternative proxy measures of audit committee effectiveness is quite noticeably similar (i.e., 73.2% - Table 6.5 Column III versus 73.2% and 73.8% - Table 7.4 Panel C Columns I and II respectively).

## 7.6 Partitioning by Quartiles

In order to verify the robustness of main results in Chapter Six, the sample firm-years are partitioned by quartiles with an aim to reduce size biases. Regressions reported in Table 6.1 Column III, Table 6.3 Column III and Table 6.5 Column III are then re-performed with the sample partitioned by Quartiles. Results of the three main regressions performed are reported in Table 7.5 with Panel A results associated with Table 6.1 Column III findings (i.e., timeliness of earnings conservatism), Panel B with Table 6.3 Column III (i.e., persistence of earnings conservatism) and Panel C with Table 6.5 Column III results (i.e., accruals-based earnings conservatism).<sup>50</sup>

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<sup>50</sup> Regressions reported in Table 6.2, 6.4 and 6.6 (Columns I, II, III and IV respectively) were also performed again to re-examine if re-calculated scores for individual components of audit committee effectiveness based on properties solely associated with independent directors influenced original findings. Due to similarity in findings the additional tests are not formally reported for brevity. Please see footnote 2 on page 7.

**Table 7.5 - Regression results partitioning by quartiles**

<b>Panel A: Basu (1997) timeliness model of earnings conservatism</b>												
	<i>Column I: 1<sup>st</sup> Quartile</i>			<i>Column II: 2<sup>nd</sup> Quartile</i>			<i>Column III: 3<sup>rd</sup> Quartile</i>			<i>Column IV: 4<sup>th</sup> Quartile</i>		
<b>Variables</b>	<i>Beta</i>	<i>t-Stat</i>	<i>P-value</i>	<i>Beta</i>	<i>t-Stat</i>	<i>P-value</i>	<i>Beta</i>	<i>t-Stat</i>	<i>P-value</i>	$\beta$	<i>t-Stat</i>	<i>p-value</i>
Intercept	-0.136	-1.306	0.194	-0.168	-1.147	0.254	0.205	1.198	0.234	-0.098	-0.385	0.701
$DR_{jt}$	-0.092	-0.531	0.596	-0.125	-0.632	0.528	-0.020	-0.084	0.933	-0.355	-1.114	0.268
$ACE_{jt}$	0.056	2.013	0.047**	0.080	1.661	0.100***	-0.095	-1.343	0.182	0.014	0.103	0.918
$DR_{jt} * ACE_{jt}$	0.023	0.470	0.639	0.022	0.308	0.759	0.061	0.567	0.572	0.034	0.197	0.844
$RR-AllOrd_{jt}$	0.096	1.519	0.132	-0.202	-3.917	0.000*	-0.083	-0.542	0.589	0.197	0.539	0.591
$RR-AllOrd_{jt} * DR_{jt}$	-0.761	-1.969	0.051***	-0.192	-0.595	0.553	0.708	2.018	0.046**	-0.482	-0.975	0.332
$RR-AllOrd_{jt} * ACE_{jt}$	-0.023	-1.206	0.230	0.079	1.688	0.094***	0.026	0.447	0.656	-0.081	-0.344	0.731
$RR-AllOrd_{jt} * DR_{jt} * ACE_{jt}$	0.251	2.094	0.038**	0.043	0.319	0.750	-0.140	-0.870	0.386	0.120	0.403	0.688
Adjusted-R <sup>2</sup>	0.388			0.062			0.053			-0.014		
N	125			123			123			123		
F-Statistic	8.034			1.748			1.624			0.850		
<b>Panel B: Basu (1997) persistence model of earnings conservatism</b>												
	<i>Column I: 1<sup>st</sup> Quartile</i>			<i>Column II: 2<sup>nd</sup> Quartile</i>			<i>Column III: 3<sup>rd</sup> Quartile</i>			<i>Column IV: 4<sup>th</sup> Quartile</i>		
<b>Variables</b>	<i>Beta</i>	<i>t-Stat</i>	<i>P-value</i>	<i>Beta</i>	<i>t-Stat</i>	<i>P-value</i>	<i>Beta</i>	<i>t-Stat</i>	<i>P-value</i>	$\beta$	<i>t-Stat</i>	<i>p-value</i>
Intercept	0.021	0.947	0.346	0.153	2.801	0.006*	0.252	2.993	0.003*	0.887	5.154	0.000*
$DPX_{jt}$	-0.025	-0.532	0.596	-0.196	-2.605	0.010*	-0.281	2.447	0.016**	-0.707	-3.353	0.001*
$ACE_{jt}$	0.009	1.505	0.135	-0.018	-1.077	0.284	-0.032	-0.967	0.335	-0.157	-2.140	0.035**
$DPX_{jt} * ACE_{jt}$	-0.004	-0.291	0.772	0.033	1.246	0.215	0.026	0.544	0.588	0.154	1.445	0.151
$PX_{jt}$	0.788	2.834	0.005*	0.107	2.324	0.022**	0.009	0.073	0.942	0.044	0.411	0.682
$PX_{jt} * DPX_{jt}$	1.043	19.557	0.000*	1.015	13.825	0.000*	0.994	8.398	0.000*	0.995	3.382	0.001*
$PX_{jt} * ACE_{jt}$	-0.431	-5.402	0.000*	-0.129	-3.998	0.000*	-0.042	-0.522	0.603	-0.092	-0.901	0.370
$PX_{jt} * DPX_{jt} * ACE_{jt}$	0.207	7.624	0.000*	0.054	1.108	0.270	0.047	0.811	0.419	0.071	0.641	0.523
Adjusted-R <sup>2</sup>	0.879			0.740			0.584			0.357		
N	125			122			122			121		
F-Statistic	82.567			32.032			16.445			7.048		

**Table 7.5 (continued) – Regression results partitioning by Quartiles**

<b>Panel C: Ball and Shivakumar (2005) accruals-based model of earnings conservatism</b>												
<b>Variables</b>	<b>Column I: 1<sup>st</sup> Quartile</b>			<b>Column II: 2<sup>nd</sup> Quartile</b>			<b>Column III: 3<sup>rd</sup> Quartile</b>			<b>Column IV: 4<sup>th</sup> Quartile</b>		
	<i>Beta</i>	<i>t-Stat</i>	<i>P-value</i>	<i>Beta</i>	<i>t-Stat</i>	<i>P-value</i>	<i>Beta</i>	<i>t-Stat</i>	<i>P-value</i>	$\beta$	<i>t-Stat</i>	<i>p-value</i>
Intercept	0.125	0.952	0.343	-0.160	-0.868	0.387	0.140	0.851	0.396	-0.141	-0.574	0.609
$DCFO_{jt}$	-0.295	-1.904	0.276	-0.133	-0.550	0.584	0.050	0.273	0.786	-0.431	-1.313	0.192
$ACE_{jt}$	-0.014	-0.379	0.705	0.072	1.245	0.216	-0.010	-0.146	0.885	-0.009	-0.072	0.943
$DCFO_{jt} * ACE_{jt}$	0.075	1.020	0.310	0.043	0.511	0.610	-0.075	-0.855	0.395	0.161	0.842	0.401
$CFO_{jt}$	-1.446	-4.584	0.000*	-0.917	-11.611	0.000*	-1.752	-7.536	0.000*	-0.985	-6.059	0.000*
$CFO_{jt} * DCFO_{jt}$	-0.329	-0.176	0.861	2.546	12.085	0.000*	1.063	6.170	0.000*	0.660	1.968	0.052***
$CFO_{jt} * ACE_{jt}$	0.197	1.798	0.075***	-0.003	-0.067	0.946	0.152	1.434	0.154	-0.109	-1.030	0.305
$CFO_{jt} * DCFO_{jt} * ACE_{jt}$	0.060	0.108	0.914	-0.230	-1.576	0.118	0.094	0.822	0.413	0.089	0.342	0.733
Adjusted-R <sup>2</sup>	0.518			0.855			0.879			0.490		
N	125			123			123			121		
F-Statistic	13.102			66.853			81.286			11.474		

**Legend:**

*Panel A Equation:*  $X_{jt} = \alpha_0 + \beta_0 DR_{jt} + \beta_1 RR-AllOrd_{jt} + \beta_2 RR-AllOrd_{jt} * DR_{jt} + \beta_3 ACE_{jt} + \beta_4 ACE_{jt} * RR-AllOrd_{jt} + \beta_5 ACE_{jt} * DR_{jt} + \beta_6 ACE_{jt} * RR-AllOrd_{jt} * DR_{jt} + \sum Year_{jkt} + \epsilon_{jt}$

*Panel B Equation:*  $BPX_{jt} = \alpha_0 + \beta_0 DPX_{jt} + \beta_1 PX_{jt} + \beta_2 PX_{jt} * DPX_{jt} + \beta_3 ACE_{jt} + \beta_4 ACE_{jt} * PX_{jt} + \beta_5 ACE_{jt} * DPX_{jt} + \beta_6 ACE_{jt} * PX_{jt} * DPX_{jt} + \sum Year_{jkt} + \epsilon_{jt}$

*Panel C Equation:*  $ACC_{jt} = \alpha_0 + \beta_0 DCFO_{jt} + \beta_1 CFO_{jt} + \beta_2 CFO_{jt} * DCFO_{jt} + \beta_3 ACE_{jt} + \beta_4 ACE_{jt} * CFO_{jt} + \beta_5 ACE_{jt} * DCFO_{jt} + \beta_6 ACE_{jt} * CFO_{jt} * DCFO_{jt} + \sum Year_{jkt} + \epsilon_{jt}$

Where:

- $X_{jt}$  = Operating profit after tax of firm *j* deflated by market value of equity (MVE<sub>t-1</sub> - Market capitalization of firm *j* at beginning of the fiscal year *t*) of firm *j* at beginning of the fiscal year *t*;
- $DR_{jt}$  = Indicator variable where firm *j* is scored one (1) if  $RR-AllOrd_{jt}$  is negative, otherwise firm *j* is scored zero (0);
- $ACE_{jt}$  = A composite score for audit committee effectiveness based on the sub-committee's independence, expertise, experience and diligence (i.e.,  $Ind\_ACE_{jt} + Expt\_ACE_{jt} + Exp\_ACE_{jt} + Dil\_ACE_{jt}$ );
- $DR_{jt} * ACE_{jt}$  = Two-way interaction between indicator variable where firm *j* is scored one (1) if  $RR-AllOrd_{jt}$  is negative, otherwise firm *j* is scored zero (0), and the composite audit committee effectiveness score of firm *j* in fiscal year *t*;
- $RR-AllOrd_{jt}$  = Annual share returns for firm *j* from three months after the previous fiscal year *t-1* to three months after the current fiscal year *t* (i.e.,  $(P_t - P_{t-1})/P_{t-1}$  where  $P_t$  is the price of shares for firm *j* three months after the end of the fiscal year *t* and  $P_{t-1}$  is the price of shares for firm *j* three months after the end of the fiscal year *t-1*) adjusted for the All Ordinaries Index over the same period;
- $RR-AllOrd_{jt} * DR_{jt}$  = Two-way interaction between annual share returns for firm *j* from three months after the previous fiscal year *t-1* to three months after the current fiscal year *t* (i.e.,  $(P_t - P_{t-1})/P_{t-1}$  where  $P_t$  is the price of shares for firm *j* three months after the end of the fiscal year *t* and  $P_{t-1}$  is the price of shares for firm *j* three months after the end of the fiscal year *t-1*) adjusted for the All Ordinaries Index over the same period and indicator variable where firm *j* is scored one (1) if  $RR-AllOrd_{jt}$  is negative, otherwise firm *j* is scored zero (0);
- $RR-AllOrd_{jt} * ACE_{jt}$  = Two-way interaction between annual share returns for firm *j* from three months after the previous fiscal year *t-1* to three months after the current fiscal year *t* (i.e.,  $(P_t - P_{t-1})/P_{t-1}$  where  $P_t$  is the price of shares for firm *j* three months after the end of the fiscal year *t* and  $P_{t-1}$  is the price of shares for firm *j* three months after the end of the fiscal year *t-1*) adjusted for the All

- Ordinaries Index over the same period and the composite audit committee effectiveness score based on the sub-committee's independence, expertise, experience and diligence (i.e.,  $Ind\_ACE_{jt} + Expt\_ACE_{jt} + Exp\_ACE_{jt} + Dil\_ACE_{jt}$ ) of firm  $j$  in fiscal year  $t$ ;
- $RR-AllOrd_{jt} * DR_{jt} * ACE_{jt} =$  Three-way interaction between annual share returns for firm  $j$  from three months after the previous fiscal year  $t-1$  to three months after the current fiscal year  $t$  (i.e.,  $(P_t - P_{t-1})/P_{t-1}$  where  $P_t$  is the price of shares for firm  $j$  three months after the end of the fiscal year  $t$  and  $P_{t-1}$  is the price of shares for firm  $j$  three months after the end of the fiscal year  $t-1$ ) adjusted for the All Ordinaries Index over the same period, indicator variable where firm  $j$  is scored one (1) if  $RR-AllOrd_{jt}$  is negative, otherwise firm  $j$  is scored zero (0), and the composite audit committee effectiveness score based on the sub-committee's independence, expertise, experience and diligence (i.e.,  $Ind\_ACE_{jt} + Expt\_ACE_{jt} + Exp\_ACE_{jt} + Dil\_ACE_{jt}$ ) of firm  $j$  in fiscal year  $t$ ;
- $BPX_{jt} =$  Change in operating profit after tax of firm  $j$  for period  $t$  from operating profit after tax of firm  $j$  for period  $t-1$  deflated by market capitalization of firm  $j$  at the end of period  $t-1$ ;
- $PX_{jt} =$  Change in operating profit after tax of firm  $j$  for period  $t-1$  from operating profit after tax of firm  $j$  for period  $t-2$  deflated by market capitalization of firm  $j$  at the end of period  $t-2$ ;
- $DPX_{jt} =$  Indicator variable where firm  $j$  is scored one (1) if  $PX_{jt}$  is negative; otherwise score of zero (0);
- $PX_{jt} * DPX_{jt} =$  Two-way interaction between change in operating profit after tax of firm  $j$  for period  $t$  from operating profit after tax of firm  $j$  for period  $t-1$  deflated by market capitalization of firm  $j$  at the end of period  $t-1$  and indicator variable where firm  $j$  is scored one (1) if  $PX_{jt}$  is negative; otherwise score of zero (0);
- $ACE_{jt} =$  A composite score for audit committee effectiveness based on the sub-committee's independence, expertise, experience and diligence (i.e.,  $Ind\_ACE_{jt} + Expt\_ACE_{jt} + Exp\_ACE_{jt} + Dil\_ACE_{jt}$ );
- $ACE_{jt} * PX_{jt} =$  Two-way interaction between composite score for audit committee effectiveness based on the sub-committee's independence, expertise, experience and diligence (i.e.,  $Ind\_ACE_{jt} + Expt\_ACE_{jt} + Exp\_ACE_{jt} + Dil\_ACE_{jt}$ ) and change in operating profit after tax of firm  $j$  for period  $t$  from operating profit after tax of firm  $j$  for period  $t-1$  deflated by market capitalization of firm  $j$  at the end of period  $t-1$ ;
- $ACE_{jt} * DPX_{jt} =$  Two-way interaction between composite score for audit committee effectiveness based on the sub-committee's independence, expertise, experience and diligence (i.e.,  $Ind\_ACE_{jt} + Expt\_ACE_{jt} + Exp\_ACE_{jt} + Dil\_ACE_{jt}$ ) and indicator variable that takes the value of one (1) if  $DPX_{jt} < 0$ , otherwise scored zero (0);
- $ACE_{jt} * PX_{jt} * DPX_{jt} =$  Three-way interaction between composite score for audit committee effectiveness based on the sub-committee's independence, expertise, experience and diligence (i.e.,  $Ind\_ACE_{jt} + Expt\_ACE_{jt} + Exp\_ACE_{jt} + Dil\_ACE_{jt}$ ), change in operating profit after tax of firm  $j$  for period  $t$  from operating profit after tax of firm  $j$  for period  $t-1$  deflated by market capitalization of firm  $j$  at the end of period  $t-1$  and indicator variable that takes the value of one (1) if  $DPX_{jt} < 0$ , otherwise scored zero (0);
- $ACC_{jt} =$  Accruals (i.e., difference between operating profit and cash flow from operations) of firm  $j$  in fiscal year  $t$  scaled by the book value of total assets of firm  $j$  at the beginning of the fiscal year  $t$  (i.e.,  $BVTA_{jt}$ );
- $CFO_{jt} =$  Cash flow from operating activities of firm  $j$  in fiscal year  $t$  scaled by the book value of total assets of firm  $j$  at the beginning of the fiscal year  $t$  (i.e.,  $BVTA_{jt}$ );
- $DCFO_{jt} =$  Indicator variable where firm  $j$  is scored one (1) if  $\Delta CFO_{jt}$  is negative, otherwise scored zero (0);
- $CFO_{jt} * DCFO_{jt} =$  Two-way interaction between cash flow from operating activities of firm  $j$  in fiscal year  $t$  scaled by the book value of total assets of firm  $j$  at the beginning of the fiscal year  $t$  (i.e.,  $BVTA_{jt}$ ) and indicator variable where firm  $j$  is scored one (1) if  $\Delta CFO_{jt}$  is negative, otherwise scored zero (0);
- $ACE_{jt} =$  A composite score for audit committee effectiveness based on the sub-committee's independence, expertise, experience and diligence (i.e.,  $Ind\_ACE_{jt} + Expt\_ACE_{jt} + Exp\_ACE_{jt} + Dil\_ACE_{jt}$ );
- $ACE_{jt} * CFO_{jt} =$  Two-way interaction between composite score for audit committee effectiveness based on the sub-committee's independence, expertise, experience and diligence (i.e.,  $Ind\_ACE_{jt} + Expt\_ACE_{jt} + Exp\_ACE_{jt} + Dil\_ACE_{jt}$ ) and cash flow from operating activities of firm  $j$  in fiscal year  $t$  scaled by the book value of total assets of firm  $j$  at the beginning of the fiscal year  $t$  (i.e.,  $BVTA_{jt}$ );
- $ACE_{jt} * DCFO_{jt} =$  Two-way interaction between composite score for audit committee effectiveness based on the sub-committee's independence, expertise, experience and diligence (i.e.,  $Ind\_ACE_{jt} + Expt\_ACE_{jt} + Exp\_ACE_{jt} + Dil\_ACE_{jt}$ ) and indicator variable that takes the value of one (1) if  $DCFO_{jt} < 0$ , otherwise scored zero (0);
- $ACE_{jt} * CFO_{jt} * DCFO_{jt} =$  Three-way interaction between composite score for audit committee effectiveness based on the sub-committee's independence, expertise, experience and diligence (i.e.,  $Ind\_ACE_{jt} + Expt\_ACE_{jt} + Exp\_ACE_{jt} + Dil\_ACE_{jt}$ ), cash flow from operating activities of firm  $j$  in fiscal year  $t$  scaled by the book value of total assets of firm  $j$  at the beginning of the fiscal year  $t$  (i.e.,  $BVTA_{jt}$ ) and indicator variable that takes the value of one (1) if  $DCFO_{jt} < 0$ , otherwise scored zero (0);
- $\alpha_k, \beta_k =$  Coefficients;
- $\varepsilon_{jt} =$  Error term; and
- \*, \*\*, \*\*\* = Significant at the 0.01, 0.05 and 0.10 confidence levels respectively.

With regards to the Basu (1997) timeliness model of earnings conservatism, coefficients on  $DR_{jt}$  and  $DR_{jt} * ACE_{jt}$  variables listed in Table 7.5 Panel A Columns I through IV are of same directionality as that of corresponding variables in the regression reported in Table 6.1 Column III. However, coefficients on  $DR_{jt}$  and  $DR_{jt} * ACE_{jt}$  variables are not significant for any of the quartiles (see Table 7.5 Panel A Columns I through IV). This result is inconsistent with the main results reported in Table 6.1 Column III (see  $DR_{jt}$  and  $ACE_{jt} * DR_{jt}$ ,  $p < 0.01$  and  $p < 0.05$  respectively). Consistent with Table 6.1 Column III results, coefficients on  $RR-AllOrd_{jt}$  ( $RR-AllOrd_{jt} * ACE_{jt}$ ) is negative (positive) for 2<sup>nd</sup> and 3<sup>rd</sup> Quartiles firms (see Table 7.5 Panel A Columns II and III respectively). However, the coefficients on  $RR-AllOrd_{jt}$  ( $RR-AllOrd_{jt} * ACE_{jt}$ ) is positive (negative) for 1<sup>st</sup> and 4<sup>th</sup> Quartiles firms (see Table 7.5 Panel A Columns I and IV respectively). In terms of significance, the coefficients on  $RR-AllOrd_{jt}$  and  $RR-AllOrd_{jt} * ACE_{jt}$  are significant only for 2<sup>nd</sup> Quartile firms (see Table 7.5 Panel A Column II,  $p < 0.01$  and  $p < 0.10$  respectively). Meanwhile coefficient on  $RR-AllOrd_{jt} * DR_{jt}$  are negative (positive) for 1<sup>st</sup>, 2<sup>nd</sup> and 4<sup>th</sup> Quartiles (3<sup>rd</sup> Quartile) firms (see Table 7.5 Panel A Columns I, II, IV respectively). The coefficients are significant for 1<sup>st</sup> and 3<sup>rd</sup> Quartiles firms as shown in Table 7.5 Panel A Columns I and III ( $p < 0.10$  and  $0.05$  respectively). Coefficients on  $ACE_{jt}$  and  $RR-AllOrd_{jt} * DR_{jt} * ACE_{jt}$  variables listed in Table 7.5 Panel A Columns I through IV are of the same directionality (i.e., positive) as that of corresponding variables in the regression reported in Table 6.1 Column III aside for the variables listed in Table 7.5 Panel A Column III (i.e., coefficients on  $ACE_{jt}$  and  $RR-AllOrd_{jt} * DR_{jt} * ACE_{jt}$  are negative). The coefficient on  $RR-AllOrd_{jt} * DR_{jt} * ACE_{jt}$  is insignificant from zero for Table 7.5 Panel A Columns II through IV. This result is consistent with the main result reported in Table 6.1 Column III. Interestingly, the coefficient on  $RR-AllOrd_{jt} * DR_{jt} * ACE_{jt}$  ( $ACE_{jt}$ ) is significant for 1<sup>st</sup> Quartile (1<sup>st</sup> and 2<sup>nd</sup> Quartiles) firms (i.e., larger firms) only (see Table 7.5 Panel A Column I,  $p < 0.05$ ). The explanatory power of Basu (1997) timeliness model is higher (i.e., adjusted- $R^2$  38.8%) in Column I compared to Columns II to IV (see Table 7.5 Panel A). More importantly, the explanatory power of Basu (1997) timeliness model increases significantly when using only 1<sup>st</sup> Quartile firms rather than the pooled sample in the main findings; that is, 38.8% (see Table 7.5 Panel A Column I) versus 15.3% (see Table 6.1 Column III).

In regards to Basu (1997) persistence earnings conservatism model, results reported in Table 7.5 Panel B Columns I through IV yield highly similar results compared to the main results reported in Table 6.3 Column III. Specifically, the directionality on the coefficients of the corresponding variables in the regressions reported in Table 6.3 Column III and Table 7.5 Panel B Columns I to IV are the same aside from results reported in Table 7.5 Panel B Column I with regards to  $ACE_{jt}$  and  $DPX_{jt} * ACE_{jt}$  variables. Inconsistent with results reported in Table 6.3 Column III, the coefficient on  $ACE_{jt}$  ( $DPX_{jt} * ACE_{jt}$ ) is positive

(negative) for 1<sup>st</sup> Quartile firms (see Table 7.5 Panel B Column I). In terms of significance, coefficient on  $DPX_{jt}$  is significant for all Quartiles except 1<sup>st</sup> Quartile firms (see Table 7.5 Panel B Columns I to IV). The coefficient on  $ACE_{jt}$  is significant only for 4<sup>th</sup> Quartile firms (see Table 7.5 Panel B Column IV,  $p < 0.05$ ). The coefficient on  $DPX_{jt} * ACE_{jt}$  is insignificant from zero across all Quartiles (see Table 7.5 Panel B Columns I to IV). Meanwhile, coefficients on  $PX_{jt}$ ,  $PX_{jt} * DPX_{jt}$ ,  $PX_{jt} * ACE_{jt}$  are significant for 1<sup>st</sup> and 2<sup>nd</sup> Quartile firms (see Table 7.5 Panel B Columns I and II). Interestingly, the coefficient on the  $PX_{jt} * DPX_{jt} * ACE_{jt}$  variable is significant only for 1<sup>st</sup> Quartile firms (see Table 7.5 Panel B Column I,  $p < 0.000$ ). The explanatory power of Basu (1997) persistence model is higher (i.e., adjusted- $R^2$  87.9%) in Column I compared to Columns II to IV (see Table 7.5 Panel B). More importantly, the explanatory power of Basu (1997) Persistence model increases significantly when the pooled sample is partitioned into Quartiles. Specifically, the explanatory power of Basu (1997) persistence model increases when using 1<sup>st</sup> and 2<sup>nd</sup> Quartile firms rather than the pooled sample in the main findings; that is, 87.9% and 74.0% respectively (see Table 7.5 Panel B Columns I and II) versus 43.5% (see Table 6.3 Column III).

With regards to Ball and Shivakumar (2005) model, coefficients on  $DCFO_{jt}$  and  $CFO_{jt} * DCFO_{jt}$  variables listed in Table 7.5 Panel C Columns I through IV are virtually of same directionality and significance as that of corresponding variables in the regression reported in Table 6.5 Column III aside from result reported in Table 7.5 Panel C Column III with regards to  $DCFO_{jt}$  and result reported in Table 7.5 Panel C Column I with regards to  $CFO_{jt} * DCFO_{jt}$ . Consistent with results reported in Table 6.5 Column III, coefficients on  $ACE_{jt}$  is positive for 2<sup>nd</sup> and 3<sup>rd</sup> Quartile firms but negative for 1<sup>st</sup> and 4<sup>th</sup> Quartile firms (see Table 7.5 Panel C Columns I to IV). However, the coefficient on  $ACE_{jt}$  is insignificant across Quartiles (see Table 7.5 Panel C Columns I to IV). Consistent with results reported in Table 6.5 Column III, the coefficient on  $DCFO_{jt} * ACE_{jt}$  ( $CFO_{jt} * DCFO_{jt} * ACE_{jt}$ ) is negative only for 3<sup>rd</sup> Quartile firms (2<sup>nd</sup> Quartile firms). Meanwhile, coefficients on  $DCFO_{jt} * ACE_{jt}$  and  $CFO_{jt} * DCFO_{jt} * ACE_{jt}$  are not significant across Quartiles. Again, this result is consistent with results reported in Table 6.5 Column III. The directionality and significance of coefficient on  $CFO_{jt}$  is virtually identical to the main results (see Table 7.5 Panel C Columns I to IV versus Table 6.5 Column III). The directionality of coefficients on  $CFO_{jt} * ACE_{jt}$  is consistent with the main results only for 2<sup>nd</sup> and 4<sup>th</sup> Quartile firms (see Table 7.5 Panel C Columns II and IV versus Table 6.5 Column III). However, the coefficient on  $CFO_{jt} * ACE_{jt}$  is significant only for 1<sup>st</sup> Quartile firms (see Table 7.5 Panel C Column I,  $p < 0.10$ ). The explanatory power of Ball and Shivakumar (2005) model is higher in Column III followed by Column II (see Table 7.5 Panel C, adjusted- $R^2$  87.9% and 85.5% respectively). More importantly, the explanatory power of Ball and Shivakumar (2005) model increases significantly when using 2<sup>nd</sup> and 3<sup>rd</sup> Quartile firms rather than the pooled

sample in the main findings; that is, 85.5% and 87.9% respectively (see Table 7.5 Panel C Columns II and III) versus 73.2% (see Table 6.5 Column III).

Overall, the results suggest that audit committees of larger firms are more effective in improving the financial reporting process through conservative accounting practices. The most likely explanation of the result is that larger firms have more resources available for the monitoring process. In addition, larger firms are subject to greater political scrutiny.

### **7.7 Partitioning by Year**

This section investigates whether the relationship between audit committee effectiveness and earnings conservatism varies with the choice of year in the sample. The sample is, therefore, is partitioned by years to control for year-effects.

Regressions reported in Table 6.1 Column III, Table 6.3 Column III and Table 6.5 Column III are then performed again with sample size partitioned by years. Results of the three main regressions performed are reported in Table 7.6 with Panel A results associated with Table 6.1 Column III findings (i.e., timeliness of earnings conservatism), Panel B with Table 6.3 Column III (i.e., persistence of earnings conservatism) and Panel C with Table 6.5 Column III results (i.e., accruals-based earnings conservatism).<sup>51</sup>

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<sup>51</sup> Regressions reported in Table 6.2, 6.4 and 6.6 (Columns I, II, III and IV respectively) were also performed again to re-examine if re-calculated scores for individual components of audit committee effectiveness based on properties solely associated with independent directors influenced original findings. Due to similarity in findings the additional tests are not formally reported for brevity.

**Table 7.6 - Regression results based on partitioning years**

<b>Panel A: Basu (1997) timeliness model of earnings conservatism</b>															
	<i>Column I: 2004</i>			<i>Column II: 2005</i>			<i>Column III: 2006</i>			<i>Column IV: 2007</i>			<i>Column V: 2008</i>		
<b>Variables</b>	<i>Beta</i>	<i>t-Stat</i>	<i>P-value</i>	<i>Beta</i>	<i>t-Stat</i>	<i>P-value</i>	<i>Beta</i>	<i>t-Stat</i>	<i>P-value</i>	<i>Beta</i>	<i>t-Stat</i>	<i>P-value</i>	<i>Beta</i>	<i>t-Stat</i>	<i>P-value</i>
Intercept	-0.389	-1.821	0.072***	-0.561	-2.660	0.009*	0.086	0.727	0.469	-0.055	-0.348	0.729	-0.294	-1.991	0.049**
$DR_{jt}$	-0.282	-1.034	0.304	0.427	1.545	0.126	-0.330	-1.720	0.089***	-0.237	-0.940	0.349	0.333	1.188	0.238
$ACE_{jt}$	0.124	1.552	0.124	0.207	2.921	0.004*	-0.014	-0.310	0.757	0.019	0.356	0.723	0.091	1.855	0.067***
$DR_{jt} * ACE_{jt}$	0.085	0.813	0.418	-0.183	-1.882	0.063***	0.118	1.669	0.099***	0.053	0.618	0.977	-0.101	-1.069	0.288
$RR-AllOrd_{jt}$	0.022	0.108	0.915	0.223	1.274	0.206	-0.164	-2.647	0.010***	-0.031	-0.186	0.852	0.615	2.839	0.006*
$RR-AllOrd_{jt} * DR_{jt}$	-0.811	-1.988	0.050**	0.217	0.599	0.551	0.090	0.329	0.743	-0.016	-0.047	0.963	0.174	0.306	0.760
$RR-AllOrd_{jt} * ACE_{jt}$	0.066	0.482	0.631	-0.139	-1.713	0.090***	0.024	0.416	0.679	0.009	0.152	0.880	-0.169	-2.427	0.017**
$RR-AllOrd_{jt} * DR_{jt} * ACE_{jt}$	0.301	1.420	0.159	-0.066	-0.397	0.692	0.135	1.085	0.281	0.004	0.029	0.977	-0.014	-0.066	0.947
Adjusted-R <sup>2</sup>	0.137			0.112			0.488			-0.018			0.113		
N	96			98			100			100			100		
F-Statistic	3.147			2.747			14.491			0.752			2.809		

<b>Panel B: Basu (1997) persistence model of earnings conservatism</b>															
	<i>Column I: 2004</i>			<i>Column II: 2005</i>			<i>Column III: 2006</i>			<i>Column IV: 2007</i>			<i>Column V: 2008</i>		
<b>Variables</b>	<i>Beta</i>	<i>t-Stat</i>	<i>P-value</i>	<i>Beta</i>	<i>t-Stat</i>	<i>P-value</i>	<i>Beta</i>	<i>t-Stat</i>	<i>P-value</i>	<i>Beta</i>	<i>t-Stat</i>	<i>P-value</i>	<i>Beta</i>	<i>t-Stat</i>	<i>P-value</i>
Intercept	0.326	4.074	0.000*	0.295	5.352	0.000*	0.656	4.243	0.000	0.380	6.426	0.000*	0.514	4.908	0.000*
$DPX_{jt}$	-0.357	-2.319	0.023**	-0.300	-3.305	0.001*	-0.506	-1.696	0.093***	-0.361	-4.096	0.000*	-0.574	-3.701	0.021**
$ACE_{jt}$	-0.063	-2.044	0.044**	-0.054	-2.776	0.007*	-0.164	-3.034	0.003*	-0.083	-4.177	0.000*	-0.129	-3.659	0.000*
$DPX_{jt} * ACE_{jt}$	0.078	1.317	0.191	0.057	1.548	0.125	0.118	1.203	0.232	0.075	2.381	0.019**	0.151	2.981	0.004*
$PX_{jt}$	0.163	2.687	0.009*	0.070	0.597	0.552	-0.976	-2.145	0.035**	-0.066	-1.008	0.316	0.590	2.354	0.021**
$PX_{jt} * DPX_{jt}$	1.028	4.372	0.000*	1.001	11.924	0.000*	1.109	3.327	0.002*	0.999	7.828	0.000*	1.055	6.519	0.000*
$PX_{jt} * ACE_{jt}$	-0.145	-2.631	0.010*	-0.127	-2.369	0.020**	0.324	1.517	0.133	-0.037	-0.691	0.491	-0.350	-2.768	0.007*
$PX_{jt} * DPX_{jt} * ACE_{jt}$	0.077	1.244	0.217	0.083	1.264	0.210	0.071	0.490	0.625	0.087	1.603	0.112	0.122	1.301	0.197
Adjusted-R <sup>2</sup>	0.410			0.753			0.284			0.624			0.506		
N	96			96			100			100			100		
F-Statistic	10.134			42.318			6.618			24.500			15.499		

**Table 7.6 (continued) – Regression results based on partitioning years**

<b>Panel C: Ball and Shivakumar (2005) accruals-based model of earnings conservatism</b>															
	<i>Column I: 2004</i>			<i>Column II: 2005</i>			<i>Column III: 2006</i>			<i>Column IV: 2007</i>			<i>Column V: 2008</i>		
<b>Variables</b>	<i>Beta</i>	<i>t-Stat</i>	<i>P-value</i>	<i>Beta</i>	<i>t-Stat</i>	<i>P-value</i>	<i>Beta</i>	<i>t-Stat</i>	<i>P-value</i>	<i>Beta</i>	<i>t-Stat</i>	<i>P-value</i>	<i>Beta</i>	<i>t-Stat</i>	<i>P-value</i>
Intercept	-0.349	-2.963	0.004*	-0.180	-0.534	0.595	0.108	0.606	0.546	-0.653	-3.253	0.002*	0.054	0.218	0.828
$DCFO_{jt}$	0.083	0.408	0.684	0.089	0.240	0.811	-0.038	-0.156	0.876	-0.036	-0.123	0.903	-0.326	-1.302	0.196
$ACE_{jt}$	0.102	2.339	0.022**	0.042	0.364	0.717	0.007	0.106	0.916	0.198	2.670	0.009*	0.036	0.511	0.611
$DCFO_{jt} * ACE_{jt}$	-0.044	-0.527	0.599	-0.027	-0.207	0.837	-0.041	-0.462	0.645	0.028	0.266	0.791	0.024	0.285	0.777
$CFO_{jt}$	-1.012	-13.021	0.000*	-1.195	-1.757	0.082***	-1.489	-4.656	0.000*	-0.776	-7.903	0.000*	-1.460	-4.094	0.000*
$CFO_{jt} * DCFO_{jt}$	0.840	3.302	0.001*	2.153	7.843	0.000*	1.676	5.948	0.000*	0.850	2.078	0.041**	0.727	3.027	0.003*
$CFO_{jt} * ACE_{jt}$	0.070	1.104	0.272	0.150	0.511	0.611	0.029	0.196	0.845	-0.105	-1.938	0.056***	-0.023	-0.167	0.868
$CFO_{jt} * DCFO_{jt} * ACE_{jt}$	-0.199	-0.801	0.425	0.097	0.335	0.739	0.042	0.273	0.786	-0.079	-0.386	0.700	-0.032	-0.241	0.810
Adjusted-R <sup>2</sup>	0.760			0.519			0.855			0.812			0.582		
N	95			97			100			100			100		
F-Statistic	43.561			15.827			84.359			62.121			20.730		

**Legend:**

*Panel A Equation:*  $X_{jt} = \alpha_0 + \beta_0 DR_{jt} + \beta_1 RR-AllOrd_{jt} + \beta_2 RR-AllOrd_{jt} * DR_{jt} + \beta_3 ACE_{jt} + \beta_4 ACE_{jt} * RR-AllOrd_{jt} + \beta_5 ACE_{jt} * DR_{jt} + \beta_6 ACE_{jt} * RR-AllOrd_{jt} * DR_{jt} + \sum Year_{jkt} + \varepsilon_{jt}$

*Panel B Equation:*  $BPX_{jt} = \alpha_0 + \beta_0 DPX_{jt} + \beta_1 PX_{jt} + \beta_2 PX_{jt} * DPX_{jt} + \beta_3 ACE_{jt} + \beta_4 ACE_{jt} * PX_{jt} + \beta_5 ACE_{jt} * DPX_{jt} + \beta_6 ACE_{jt} * PX_{jt} * DPX_{jt} + \sum Year_{jkt} + \varepsilon_{jt}$

*Panel C Equation:*  $ACC_{jt} = \alpha_0 + \beta_0 DCFO_{jt} + \beta_1 CFO_{jt} + \beta_2 CFO_{jt} * DCFO_{jt} + \beta_3 ACE_{jt} + \beta_4 ACE_{jt} * CFO_{jt} + \beta_5 ACE_{jt} * DCFO_{jt} + \beta_6 ACE_{jt} * CFO_{jt} * DCFO_{jt} + \sum Year_{jkt} + \varepsilon_{jt}$

Where:

$X_{jt}$  = Operating profit after tax of firm  $j$  deflated by market value of equity ( $MVE_{t-1}$  - Market capitalization of firm  $j$  at beginning of the fiscal year  $t$ ) of firm  $j$  at beginning of the fiscal year  $t$ ;

$DR_{jt}$  = Indicator variable where firm  $j$  is scored one (1) if  $RR-AllOrd_{jt}$  is negative, otherwise firm  $j$  is scored zero (0);

$ACE_{jt}$  = A composite score for audit committee effectiveness based on the sub-committee's independence, expertise, experience and diligence (i.e.,  $Ind\_ACE_{jt} + Expt\_ACE_{jt} + Exp\_ACE_{jt} + Dil\_ACE_{jt}$ );

$DR_{jt} * ACE_{jt}$  = Two-way interaction between indicator variable where firm  $j$  is scored one (1) if  $RR-AllOrd_{jt}$  is negative, otherwise firm  $j$  is scored zero (0), and the composite audit committee effectiveness score of firm  $j$  in fiscal year  $t$ ;

$RR-AllOrd_{jt}$  = Annual share returns for firm  $j$  from three months after the previous fiscal year  $t-1$  to three months after the current fiscal year  $t$  (i.e.,  $(P_t - P_{t-1})/P_{t-1}$  where  $P_t$  is the price of shares for firm  $j$  three months after the end of the fiscal year  $t$  and  $P_{t-1}$  is the price of shares for firm  $j$  three months after the end of the fiscal year  $t-1$ ) adjusted for the All Ordinaries Index over the same period;

$RR-AllOrd_{jt} * DR_{jt}$  = Two-way interaction between annual share returns for firm  $j$  from three months after the previous fiscal year  $t-1$  to three months after the current fiscal year  $t$  (i.e.,  $(P_t - P_{t-1})/P_{t-1}$  where  $P_t$  is the price of shares for firm  $j$  three months after the end of the fiscal year  $t$  and  $P_{t-1}$  is the price of shares for firm  $j$  three months after the end of the fiscal year  $t-1$ ) adjusted for the All Ordinaries Index over the same period and indicator variable where firm  $j$  is scored one (1) if  $RR-AllOrd_{jt}$  is negative, otherwise firm  $j$  is scored zero (0);

$RR-AllOrd_{jt} * ACE_{jt}$  = Two-way interaction between annual share returns for firm  $j$  from three months after the previous fiscal year  $t-1$  to three months after the current fiscal year  $t$  (i.e.,  $(P_t - P_{t-1})/P_{t-1}$  where  $P_t$  is the price of shares for firm  $j$  three months after the end of the fiscal year  $t$  and  $P_{t-1}$  is the price of shares for firm  $j$  three months after the end of the fiscal year  $t-1$ ) adjusted for the All

- Ordinaries Index over the same period and the composite audit committee effectiveness score based on the sub-committee's independence, expertise, experience and diligence (i.e.,  $Ind\_ACE_{jt} + Expt\_ACE_{jt} + Exp\_ACE_{jt} + Dil\_ACE_{jt}$ ) of firm  $j$  in fiscal year  $t$ ;
- $RR-AllOrd_{jt} * DR_{jt} * ACE_{jt}$  = Three-way interaction between annual share returns for firm  $j$  from three months after the previous fiscal year  $t-1$  to three months after the current fiscal year  $t$  (i.e.,  $(P_t - P_{t-1})/P_{t-1}$  where  $P_t$  is the price of shares for firm  $j$  three months after the end of the fiscal year  $t$  and  $P_{t-1}$  is the price of shares for firm  $j$  three months after the end of the fiscal year  $t-1$ ) adjusted for the All Ordinaries Index over the same period, indicator variable where firm  $j$  is scored one (1) if  $RR-AllOrd_{jt}$  is negative, otherwise firm  $j$  is scored zero (0), and the composite audit committee effectiveness score based on the sub-committee's independence, expertise, experience and diligence (i.e.,  $Ind\_ACE_{jt} + Expt\_ACE_{jt} + Exp\_ACE_{jt} + Dil\_ACE_{jt}$ ) of firm  $j$  in fiscal year  $t$ ;
- $BPX_{jt}$  = Change in operating profit after tax of firm  $j$  for period  $t$  from operating profit after tax of firm  $j$  for period  $t-1$  deflated by market capitalization of firm  $j$  at the end of period  $t-1$ ;
- $PX_{jt}$  = Change in operating profit after tax of firm  $j$  for period  $t-1$  from operating profit after tax of firm  $j$  for period  $t-2$  deflated by market capitalization of firm  $j$  at the end of period  $t-2$ ;
- $DPX_{jt}$  = Indicator variable where firm  $j$  is scored one (1) if  $PX_{jt}$  is negative; otherwise score of zero (0);
- $PX_{jt} * DPX_{jt}$  = Two-way interaction between change in operating profit after tax of firm  $j$  for period  $t$  from operating profit after tax of firm  $j$  for period  $t-1$  deflated by market capitalization of firm  $j$  at the end of period  $t-1$  and Indicator variable where firm  $j$  is scored one (1) if  $PX_{jt}$  is negative; otherwise score of zero (0);
- $ACE_{jt}$  = A composite score for audit committee effectiveness based on the sub-committee's independence, expertise, experience and diligence (i.e.,  $Ind\_ACE_{jt} + Expt\_ACE_{jt} + Exp\_ACE_{jt} + Dil\_ACE_{jt}$ );
- $ACE_{jt} * PX_{jt}$  = Two-way interaction between composite score for audit committee effectiveness based on the sub-committee's independence, expertise, experience and diligence (i.e.,  $Ind\_ACE_{jt} + Expt\_ACE_{jt} + Exp\_ACE_{jt} + Dil\_ACE_{jt}$ ) and change in operating profit after tax of firm  $j$  for period  $t$  from operating profit after tax of firm  $j$  for period  $t-1$  deflated by market capitalization of firm  $j$  at the end of period  $t-1$ ;
- $ACE_{jt} * DPX_{jt}$  = Two-way interaction between composite score for audit committee effectiveness based on the sub-committee's independence, expertise, experience and diligence (i.e.,  $Ind\_ACE_{jt} + Expt\_ACE_{jt} + Exp\_ACE_{jt} + Dil\_ACE_{jt}$ ) and indicator variable that takes the value of one (1) if  $DPX_{jt} < 0$ , otherwise scored zero (0);
- $ACE_{jt} * PX_{jt} * DPX_{jt}$  = Three-way interaction between composite score for audit committee effectiveness based on the sub-committee's independence, expertise, experience and diligence (i.e.,  $Ind\_ACE_{jt} + Expt\_ACE_{jt} + Exp\_ACE_{jt} + Dil\_ACE_{jt}$ ), change in operating profit after tax of firm  $j$  for period  $t$  from operating profit after tax of firm  $j$  for period  $t-1$  deflated by market capitalization of firm  $j$  at the end of period  $t-1$  and indicator variable that takes the value of one (1) if  $DPX_{jt} < 0$ , otherwise scored zero (0);
- $ACC_{jt}$  = Accruals (i.e., difference between operating profit and cash flow from operations) of firm  $j$  in fiscal year  $t$  scaled by the book value of total assets of firm  $j$  at the beginning of the fiscal year  $t$  (i.e.,  $BVTA_{jt}$ );
- $CFO_{jt}$  = Cash flow from operating activities of firm  $j$  in fiscal year  $t$  scaled by the book value of total assets of firm  $j$  at the beginning of the fiscal year  $t$  (i.e.,  $BVTA_{jt}$ );
- $DCFO_{jt}$  = Indicator variable where firm  $j$  is scored one (1) if  $\Delta CFO_{jt}$  is negative, otherwise scored zero (0);
- $CFO_{jt} * DCFO_{jt}$  = Two-way interaction between cash flow from operating activities of firm  $j$  in fiscal year  $t$  scaled by the book value of total assets of firm  $j$  at the beginning of the fiscal year  $t$  (i.e.,  $BVTA_{jt}$ ) and indicator variable where firm  $j$  is scored one (1) if  $\Delta CFO_{jt}$  is negative, otherwise scored zero (0);
- $ACE_{jt}$  = A composite score for audit committee effectiveness based on the sub-committee's independence, expertise, experience and diligence (i.e.,  $Ind\_ACE_{jt} + Expt\_ACE_{jt} + Exp\_ACE_{jt} + Dil\_ACE_{jt}$ );
- $ACE_{jt} * CFO_{jt}$  = Two-way interaction between composite score for audit committee effectiveness based on the sub-committee's independence, expertise, experience and diligence (i.e.,  $Ind\_ACE_{jt} + Expt\_ACE_{jt} + Exp\_ACE_{jt} + Dil\_ACE_{jt}$ ) and cash flow from operating activities of firm  $j$  in fiscal year  $t$  scaled by the book value of total assets of firm  $j$  at the beginning of the fiscal year  $t$  (i.e.,  $BVTA_{jt}$ );
- $ACE_{jt} * DCFO_{jt}$  = Two-way interaction between composite score for audit committee effectiveness based on the sub-committee's independence, expertise, experience and diligence (i.e.,  $Ind\_ACE_{jt} + Expt\_ACE_{jt} + Exp\_ACE_{jt} + Dil\_ACE_{jt}$ ) and indicator variable that takes the value of one (1) if  $DCFO_{jt} < 0$ , otherwise scored zero (0);
- $ACE_{jt} * CFO_{jt} * DCFO_{jt}$  = Three-way interaction between composite score for audit committee effectiveness based on the sub-committee's independence, expertise, experience and diligence (i.e.,  $Ind\_ACE_{jt} + Expt\_ACE_{jt} + Exp\_ACE_{jt} + Dil\_ACE_{jt}$ ), cash flow from operating activities of firm  $j$  in fiscal year  $t$  scaled by the book value of total assets of firm  $j$  at the beginning of the fiscal year  $t$  (i.e.,  $BVTA_{jt}$ ) and indicator variable that takes the value of one (1) if  $DCFO_{jt} < 0$ , otherwise scored zero (0);
- $\alpha_k, \beta_k$  = Coefficients;
- $\varepsilon_{jt}$  = Error term; and
- \*, \*\*, \*\*\* = Significant at the 0.01, 0.05 and 0.10 confidence levels respectively.

With regards to the Basu (1997) timeliness model of earnings conservatism, all coefficients on variables listed in Table 7.6 Panel A Column I are of the same directionality as that of corresponding variables in the regression reported in Table 6.1 Column III aside for  $RR-AllOrd_{jt}$  and  $RR-AllOrd_{jt}*DR_{jt}$  variables. In terms of significance of the respective coefficients in the related regressions in Table 6.1 Column III and Table 7.6 Panel A Column I, the coefficient only on one variable (i.e.,  $RR-AllOrd_{jt}$ ) is significant ( $p<0.05$ ). Meanwhile, the directionality of coefficients on variables based on the Basu (1997) timeliness model is virtually dissimilar to the main results for 2005 and 2008 (see Table 7.6 Panel A Columns II and V versus Table 6.1 Column III). The only notable similarity pertains to the coefficients on the corresponding variables,  $ACE_{jt}$  and  $RR-AllOrd_{jt}*DR_{jt}$ . However, consistent with the main results reported in Table 6.1 Column III, coefficients on  $RR-AllOrd_{jt}*ACE_{jt}$  and  $DR_{jt}*ACE_{jt}$  is significant for 2005 firms (see Table 7.6 Panel A Column II,  $p<0.10$  and  $p<0.10$  respectively) and coefficients on  $RR-AllOrd_{jt}$  and  $RR-AllOrd_{jt}*ACE_{jt}$  is significant for 2008 firms (see Table 7.6 Panel A Column V,  $p<0.01$  respectively). The coefficient on  $ACE_{jt}$  is significant for both 2005 and 2008. This result is inconsistent with the main results reported in Table 6.1 Column III. Meanwhile, directionality on the coefficients of the corresponding variables in the two regressions reported in Table 6.1 Column III and Table 7.6 Panel A Column III are the same (except coefficient on  $ACE_{jt}$ , which is positive for the main result but negative for Table 7.6 Panel A Column III results), with statistical significance of the corresponding coefficients also being closely matched aside from significance on  $RR-AllOrd_{jt}*ACE_{jt}$ . For the main results reported in Table 6.1 Column III, the coefficient on  $RR-AllOrd_{jt}*ACE_{jt}$  is statistically significant at conventional levels (i.e.,  $p<0.05$ ). However, when the regression is re-performed using narrower sample size (i.e., only 2006 firms) the coefficient on  $RR-AllOrd_{jt}*ACE_{jt}$  is insignificant from zero (see Table 7.6 Panel A Column III). In terms of 2007, the directionality on the coefficients of the corresponding variables in the two regressions reported in Table 6.1 Column III and Table 7.6 Panel A Column IV are the same aside from the coefficient on  $RR-AllOrd_{jt}*DR_{jt}$ . However, coefficients on none of the variables are significant for 2007 firms (see Table 7.6 Panel A Column IV). The explanatory power of Basu (1997) timeliness model is higher (i.e., adjusted- $R^2$  48.8%) in Column III compared to other Columns (see Table 7.6 Panel A). More importantly, the explanatory power of Basu (1997) timeliness model increases significantly when using only 2006 firms rather than the pooled sample in the main findings; that is, 48.8% (see Table 7.6 Panel A Column I) versus 15.3% (see Table 6.1 Column III).

In regards to the Basu (1997) persistence earnings conservatism model, results reported in Table 7.6 Panel B yield highly similar results compared to the main results reported in Table 6.3 Column III. Specifically, directionality on the coefficients of the corresponding variables in the regressions reported in Table 6.3 Column III and Table 7.6

Panel B Columns I through V are the same. The only notable difference pertains to the coefficients on the corresponding variables  $PX_{jt}$  in Columns III and IV respectively and  $PX_{jt} * ACE_{jt}$  in Column IV of Table 7.6 Panel B. In terms of significance, coefficients on  $PX_{jt} * DPX_{jt}$  are significant for each of the years (see Table 7.6 Panel B Columns I to V). This result is consistent with the main results reported in Table 6.3 Column III. The coefficient on  $DPX_{jt} * ACE_{jt}$  is significant in Columns IV and V but insignificant for Columns I through III (see Table 7.6 Panel B). The coefficient on  $PX_{jt}$  is insignificant in Columns II and IV whilst coefficient on  $PX_{jt} * ACE_{jt}$  is insignificant in I, III and IV. Finally, the coefficient on the three way interaction  $PX_{jt} * DPX_{jt} * ACE_{jt}$  is insignificant across the years (see Table 7.6 Panel B Columns I to V). The explanatory power of Basu (1997) Persistence model is higher (i.e., Adjusted-R<sup>2</sup> 75.3%) in Column II compared to other Columns (see Table 7.6 Panel B). More importantly, the explanatory power of Basu (1997) persistence model increases significantly when using the 2005, 2007 and 2008 firms individually rather than the pooled sample in the main findings; that is, 75.3%, 62.4% and 50.6% respectively (see Table 7.6 Panel B Columns II, IV and V) versus 43.5% (see Table 6.3 Column III).

With regards to the Ball and Shivakumar (2005) model, coefficients on  $ACE_{jt}$ ,  $CFO_{jt}$  and  $CFO_{jt} * DCFO_{jt}$  variables listed in Table 7.6 Panel C Columns I through V are virtually of the same directionality and significance as that of corresponding variables in the regression reported in Table 6.5 Column III aside from the significance on the coefficient on  $ACE_{jt}$ . Consistent with main results reported in Table 6.5 Column III, coefficient on  $ACE_{jt}$  is significant in Columns I and IV ( $p < 0.05$  and  $0.01$  respectively) of Table 7.6 Panel C but insignificant in Columns II, III and V. Coefficients on  $DCFO_{jt} * ACE_{jt}$  ( $CFO_{jt} * ACE_{jt}$ ) is negative (positive) for Columns I to III but positive (negative) for Columns IV and V. Consistent with the main results the coefficient on  $DCFO_{jt}$  is negative and insignificant for Columns III to V (see Table 7.6 Panel C). Finally the coefficient on  $CFO_{jt} * DCFO_{jt} * ACE_{jt}$  is negative for Columns I and V and insignificant across the years (see Table 7.6 Panel C Columns I to V). This result is consistent with the main results reported in Table 6.5 Column III. The explanatory power of Ball and Shivakumar (2005) model is higher (i.e., adjusted-R<sup>2</sup> 85.5%) in Column III compared to other Columns (see Table 7.6 Panel C). More importantly, the explanatory power of the Ball and Shivakumar (2005) model increases significantly when using 2006 and 2007 firms individually rather than the pooled sample in the main findings; that is, 85.5% and 81.2% respectively (see Table 7.6 Panel C Columns III and IV) versus 73.2% (see Table 6.5 Column III).

## 7.8 Partitioning by Auditor Brand

Prior research (Lara et al. 2009a; Lee et al. 2003) reports that audit quality (as defined by *Big-4* auditor versus *non-Big-4* auditor) influences earnings conservatism. Also,

corporate governance advocates (Basu et al. 2000; Behn, Carcello, Hermanson, and Hermanson 1997; Ferguson and Stokes 2002) have frequently noted the close working relationship between the audit committee and external auditor in the financial reporting process and monitoring corporate management. Thus, the sample is partitioned to determine if the association between audit committee effectiveness and earnings conservatism varies between firms audited by a *Big-4* auditor and firms audited by a *non-Big-4* auditor (i.e., to control for audit quality). Regressions reported in Table 6.1 Column III, Table 6.3 Column III and Table 6.5 Column III are re-performed for each sample group (i.e., for firms audited by a *Big-4* auditor and firms audited by a *non-Big-4* auditor).

Results from the three main regressions performed (using a partitioned sample based on audit quality) are reported in Table 7.7 with Panel A results associated with Table 6.1 Column III findings (i.e., timeliness of earnings conservatism), Panel B with Table 6.3 Column III (i.e., persistence of earnings conservatism) and Panel C with Table 6.5 Column III results (i.e., accruals-based earnings conservatism).

**Table 7.7 - Regression results partitioning by auditor brand**

<b>Panel A: Basu (1997) timeliness model of earnings conservatism</b>						
	<b>Column I: Big-4 auditor</b>			<b>Column II: Non-Big-4 auditor</b>		
<b>Variables</b>	<i>Beta</i>	<i>t-Stat</i>	<i>P-value</i>	<i>Beta</i>	<i>t-Stat</i>	<i>P-value</i>
Intercept	-0.147	-1.218	0.224	-0.090	-0.796	0.427
$DR_{jt}$	-0.370	-2.241	0.026**	-0.230	-1.372	0.171
$ACE_{jt}$	0.056	1.572	0.117	0.034	0.752	0.453
$DR_{jt} * ACE_{jt}$	0.093	1.804	0.072***	0.080	0.957	0.340
$RR-AllOrd_{jt}$	0.065	0.767	0.444	-0.153	-3.134	0.002*
$RR-AllOrd_{jt} * DR_{jt}$	-0.629	-2.456	0.015**	0.070	0.302	0.763
$RR-AllOrd_{jt} * ACE_{jt}$	-0.015	-0.486	0.628	0.027	0.695	0.488
$RR-AllOrd_{jt} * DR_{jt} * ACE_{jt}$	0.201	2.148	0.033**	0.127	0.975	0.331
Adjusted-R <sup>2</sup>	0.162			0.115		
N	283			211		
F-Statistic	4.969			3.195		

<b>Panel B: Basu (1997) persistence model of earnings conservatism</b>						
	<b>Column I: Big-4 auditor</b>			<b>Column II: Non-Big-4 auditor</b>		
<b>Variables</b>	<i>Beta</i>	<i>t-Stat</i>	<i>P-value</i>	<i>Beta</i>	<i>t-Stat</i>	<i>P-value</i>
Intercept	0.342	6.605	0.000*	0.593	6.138	0.000*
$DPX_{jt}$	-0.350	-4.485	0.000*	-0.499	-3.968	0.000*
$ACE_{jt}$	-0.076	-5.316	0.000*	-0.105	-2.924	0.004*
$DPX_{jt} * ACE_{jt}$	0.079	3.182	0.002*	0.107	1.895	0.060***
$PX_{jt}$	0.034	0.263	0.793	0.088	1.259	0.209
$PX_{jt} * DPX_{jt}$	1.011	8.056	0.000*	1.009	7.750	0.000*
$PX_{jt} * ACE_{jt}$	-0.132	-2.371	0.018**	-0.099	-1.755	0.081***
$PX_{jt} * DPX_{jt} * ACE_{jt}$	0.118	3.250	0.001*	0.046	0.720	0.472
Adjusted-R <sup>2</sup>	0.459			0.429		
N	283			208		
F-Statistic	21.547			15.145		

<b>Panel C: Ball and Shivakumar's (2005) accruals-based model of earnings conservatism</b>						
	<b>Column I: Big-4 auditor</b>			<b>Column II: Non-Big-4 auditor</b>		
<b>Variables</b>	<i>Beta</i>	<i>t-Stat</i>	<i>P-value</i>	<i>Beta</i>	<i>t-Stat</i>	<i>P-value</i>
Intercept	-0.132	-0.915	0.361	-0.180	1.050	0.295
$DCFO_{jt}$	0.051	0.313	0.754	-0.101	-0.501	0.617
$ACE_{jt}$	0.067	1.667	0.100***	0.098	1.505	0.134
$DCFO_{jt} * ACE_{jt}$	-0.041	-0.816	0.415	0.019	0.193	0.847
$CFO_{jt}$	-1.061	-3.736	0.000*	-0.941	-10.483	0.000*
$CFO_{jt} * DCFO_{jt}$	1.467	6.541	0.000*	1.476	7.917	0.000*
$CFO_{jt} * ACE_{jt}$	-0.062	-0.703	0.482	-0.079	-1.453	0.148
$CFO_{jt} * DCFO_{jt} * ACE_{jt}$	-0.115	-1.214	0.226	-0.042	-0.273	0.785
Adjusted-R <sup>2</sup>	0.534			0.749		
N	283			209		
F-Statistic	30.372			57.335		

**Legend:**

Panel A Equation:  $X_{jt} = \alpha_0 + \beta_0 DR_{jt} + \beta_1 RR-AllOrd_{jt} + \beta_2 RR-AllOrd_{jt} * DR_{jt} + \beta_3 ACE_{jt} + \beta_4 ACE_{jt} * RR-AllOrd_{jt} + \beta_5 ACE_{jt} * DR_{jt} + \beta_6 ACE_{jt} * RR-AllOrd_{jt} * DR_{jt} + \sum Year_{jkt} + \epsilon_{jt}$

Panel B Equation:  $BPX_{jt} = \alpha_0 + \beta_0 DPX_{jt} + \beta_1 PX_{jt} + \beta_2 PX_{jt} * DPX_{jt} + \beta_3 ACE_{jt} + \beta_4 ACE_{jt} * PX_{jt} + \beta_5 ACE_{jt} * DPX_{jt} + \beta_6 ACE_{jt} * PX_{jt} * DPX_{jt} + \sum Year_{jkt} + \epsilon_{jt}$

Panel C Equation:  $ACC_{jt} = \alpha_0 + \beta_0 DCFO_{jt} + \beta_1 CFO_{jt} + \beta_2 CFO_{jt} * DCFO_{jt} + \beta_3 ACE_{jt} + \beta_4 ACE_{jt} * CFO_{jt} + \beta_5 ACE_{jt} * DCFO_{jt} + \beta_6 ACE_{jt} * CFO_{jt} * DCFO_{jt} + \sum Year_{jkt} + \epsilon_{jt}$

Where:

$X_{jt}$  = Operating profit after tax of firm *j* deflated by market value of equity ( $MVE_{t-1}$  - Market capitalization of firm *j* at beginning of the fiscal year *t*) of firm *j* at beginning of the fiscal year *t*;

$DR_{jt}$  = Indicator variable where firm *j* is scored one (1) if  $RR-AllOrd_{jt}$  is negative, otherwise firm *j* is scored zero (0);

$ACE_{jt}$  = A composite score for audit committee effectiveness based on the sub-committee's independence, expertise, experience and diligence (i.e.,  $Ind\_ACE_{jt} + Exp_t\_ACE_{jt} + Exp\_ACE_{jt} + Dil\_ACE_{jt}$ );

- $DR_{jt} * ACE_{jt}$  = Two-way interaction between indicator variable where firm  $j$  is scored one (1) if  $RR-AllOrd_{jt}$  is negative, otherwise firm  $j$  is scored zero (0), and the composite audit committee effectiveness score of firm  $j$  in fiscal year  $t$ ;
- $RR-AllOrd_{jt}$  = Annual share returns for firm  $j$  from three months after the previous fiscal year  $t-1$  to three months after the current fiscal year  $t$  (i.e.,  $(P_t - P_{t-1})/P_{t-1}$  where  $P_t$  is the price of shares for firm  $j$  three months after the end of the fiscal year  $t$  and  $P_{t-1}$  is the price of shares for firm  $j$  three months after the end of the fiscal year  $t-1$ ) adjusted for the All Ordinaries Index over the same period;
- $RR-AllOrd_{jt} * DR_{jt}$  = Two-way interaction between annual share returns for firm  $j$  from three months after the previous fiscal year  $t-1$  to three months after the current fiscal year  $t$  (i.e.,  $(P_t - P_{t-1})/P_{t-1}$  where  $P_t$  is the price of shares for firm  $j$  three months after the end of the fiscal year  $t$  and  $P_{t-1}$  is the price of shares for firm  $j$  three months after the end of the fiscal year  $t-1$ ) adjusted for the All Ordinaries Index over the same period and indicator variable where firm  $j$  is scored one (1) if  $RR-AllOrd_{jt}$  is negative, otherwise firm  $j$  is scored zero (0);
- $RR-AllOrd_{jt} * ACE_{jt}$  = Two-way interaction between annual share returns for firm  $j$  from three months after the previous fiscal year  $t-1$  to three months after the current fiscal year  $t$  (i.e.,  $(P_t - P_{t-1})/P_{t-1}$  where  $P_t$  is the price of shares for firm  $j$  three months after the end of the fiscal year  $t$  and  $P_{t-1}$  is the price of shares for firm  $j$  three months after the end of the fiscal year  $t-1$ ) adjusted for the All Ordinaries Index over the same period and the composite audit committee effectiveness score based on the sub-committee's independence, expertise, experience and diligence (i.e.,  $Ind\_ACE_{jt} + Expt\_ACE_{jt} + Exp\_ACE_{jt} + Dil\_ACE_{jt}$ ) of firm  $j$  in fiscal year  $t$ ;
- $RR-AllOrd_{jt} * DR_{jt} * ACE_{jt}$  = Three-way interaction between annual share returns for firm  $j$  from three months after the previous fiscal year  $t-1$  to three months after the current fiscal year  $t$  (i.e.,  $(P_t - P_{t-1})/P_{t-1}$  where  $P_t$  is the price of shares for firm  $j$  three months after the end of the fiscal year  $t$  and  $P_{t-1}$  is the price of shares for firm  $j$  three months after the end of the fiscal year  $t-1$ ) adjusted for the All Ordinaries Index over the same period, indicator variable where firm  $j$  is scored one (1) if  $RR-AllOrd_{jt}$  is negative, otherwise firm  $j$  is scored zero (0), and the composite audit committee effectiveness score based on the sub-committee's independence, expertise, experience and diligence (i.e.,  $Ind\_ACE_{jt} + Expt\_ACE_{jt} + Exp\_ACE_{jt} + Dil\_ACE_{jt}$ ) of firm  $j$  in fiscal year  $t$ ;
- $BPX_{jt}$  = Change in operating profit after tax of firm  $j$  for period  $t$  from operating profit after tax of firm  $j$  for period  $t-1$  deflated by market capitalization of firm  $j$  at the end of period  $t-1$ ;
- $PX_{jt}$  = Change in operating profit after tax of firm  $j$  for period  $t-1$  from operating profit after tax of firm  $j$  for period  $t-2$  deflated by market capitalization of firm  $j$  at the end of period  $t-2$ ;
- $DPX_{jt}$  = Indicator variable where firm  $j$  is scored one (1) if  $PX_{jt}$  is negative; otherwise score of zero (0);
- $PX_{jt} * DPX_{jt}$  = Two-way interaction between change in operating profit after tax of firm  $j$  for period  $t$  from operating profit after tax of firm  $j$  for period  $t-1$  deflated by market capitalization of firm  $j$  at the end of period  $t-1$  and Indicator variable where firm  $j$  is scored one (1) if  $PX_{jt}$  is negative; otherwise score of zero (0);
- $ACE_{jt}$  = A composite score for audit committee effectiveness based on the sub-committee's independence, expertise, experience and diligence (i.e.,  $Ind\_ACE_{jt} + Expt\_ACE_{jt} + Exp\_ACE_{jt} + Dil\_ACE_{jt}$ );
- $ACE_{jt} * PX_{jt}$  = Two-way interaction between composite score for audit committee effectiveness based on the sub-committee's independence, expertise, experience and diligence (i.e.,  $Ind\_ACE_{jt} + Expt\_ACE_{jt} + Exp\_ACE_{jt} + Dil\_ACE_{jt}$ ) and change in operating profit after tax of firm  $j$  for period  $t$  from operating profit after tax of firm  $j$  for period  $t-1$  deflated by market capitalization of firm  $j$  at the end of period  $t-1$ ;
- $ACE_{jt} * DPX_{jt}$  = Two-way interaction between composite score for audit committee effectiveness based on the sub-committee's independence, expertise, experience and diligence (i.e.,  $Ind\_ACE_{jt} + Expt\_ACE_{jt} + Exp\_ACE_{jt} + Dil\_ACE_{jt}$ ) and indicator variable that takes the value of one (1) if  $DPX_{jt} < 0$ , otherwise scored zero (0);
- $ACE_{jt} * PX_{jt} * DPX_{jt}$  = Three-way interaction between composite score for audit committee effectiveness based on the sub-committee's independence, expertise, experience and diligence (i.e.,  $Ind\_ACE_{jt} + Expt\_ACE_{jt} + Exp\_ACE_{jt} + Dil\_ACE_{jt}$ ), change in operating profit after tax of firm  $j$  for period  $t$  from operating profit after tax of firm  $j$  for period  $t-1$  deflated by market capitalization of firm  $j$  at the end of period  $t-1$  and indicator variable that takes the value of one (1) if  $DPX_{jt} < 0$ , otherwise scored zero (0);
- $ACC_{jt}$  = Accruals (i.e., difference between operating profit and cash flow from operations) of firm  $j$  in fiscal year  $t$  scaled by the book value of total assets of firm  $j$  at the beginning of the fiscal year  $t$  (i.e.,  $BVTA_{jt}$ );
- $CFO_{jt}$  = Cash flow from operating activities of firm  $j$  in fiscal year  $t$  scaled by the book value of total assets of firm  $j$  at the beginning of the fiscal year  $t$  (i.e.,  $BVTA_{jt}$ );
- $DCFO_{jt}$  = Indicator variable where firm  $j$  is scored one (1) if  $\Delta CFO_{jt}$  is negative, otherwise scored zero (0);
- $CFO_{jt} * DCFO_{jt}$  = Two-way interaction between cash flow from operating activities of firm  $j$  in fiscal year  $t$  scaled by the book value of total assets of firm  $j$  at the beginning of the fiscal year  $t$  (i.e.,  $BVTA_{jt}$ ) and indicator variable where firm  $j$  is scored one (1) if  $\Delta CFO_{jt}$  is negative, otherwise scored zero (0);
- $ACE_{jt}$  = A composite score for audit committee effectiveness based on the sub-committee's independence, expertise, experience and diligence (i.e.,  $Ind\_ACE_{jt} + Expt\_ACE_{jt} + Exp\_ACE_{jt} + Dil\_ACE_{jt}$ );
- $ACE_{jt} * CFO_{jt}$  = Two-way interaction between composite score for audit committee effectiveness based on the sub-committee's independence, expertise, experience and diligence (i.e.,  $Ind\_ACE_{jt} + Expt\_ACE_{jt} + Exp\_ACE_{jt} + Dil\_ACE_{jt}$ ) and cash flow from operating activities of firm  $j$  in fiscal year  $t$  scaled by the book value of total assets of firm  $j$  at the beginning of the fiscal year  $t$  (i.e.,  $BVTA_{jt}$ );
- $ACE_{jt} * DCFO_{jt}$  = Two-way interaction between composite score for audit committee effectiveness based on the sub-committee's independence, expertise, experience and diligence (i.e.,  $Ind\_ACE_{jt} + Expt\_ACE_{jt} +$

$Exp\_ACE_{jt} + Dil\_ACE_{jt}$ ) and indicator variable that takes the value of one (1) if  $DCFO_{jt} < 0$ , otherwise scored zero (0);

$ACE_{jt} * CFO_{jt} * DCFO_{jt}$  = Three-way interaction between composite score for audit committee effectiveness based on the sub-committee's independence, expertise, experience and diligence (i.e.,  $Ind\_ACE_{jt} + ExpL\_ACE_{jt} + Exp\_ACE_{jt} + Dil\_ACE_{jt}$ ), cash flow from operating activities of firm  $j$  in fiscal year  $t$  scaled by the book value of total assets of firm  $j$  at the beginning of the fiscal year  $t$  (i.e.,  $BVTA_{jt}$ ) and indicator variable that takes the value of one (1) if  $DCFO_{jt} < 0$ , otherwise scored zero (0);

$\alpha_k, \beta_k$  = Coefficients;

$\varepsilon_{jt}$  = Error term; and

\*, \*\*, \*\*\* = Significant at the 0.01, 0.05 and 0.10 confidence levels respectively.

With regards to the Basu (1997) timeliness earnings conservatism model, results (reported in Table 7.7 Panel A Column I) for the firms that are audited by a *Big-4* Auditor are partially similar to the main results reported in Table 6.1 Column III. Specifically, coefficients on  $DR_{jt}$ ,  $ACE_{jt}$  and  $DR_{jt} * ACE_{jt}$  variables are of the same directionality as that of the corresponding variables in the regression reported in Table 6.1 Column III, with the statistical significance of the corresponding coefficients also closely matched. However, the directionality and significance of coefficients on  $RR-AllOrd_{jt}$ ,  $RR-AllOrd_{jt} * DR_{jt}$  and  $RR-AllOrd_{jt} * ACE_{jt}$  variables in the related regressions in Table 6.1 Column III and Table 7.7 Panel A are not identical. Interestingly, the coefficient on  $RR-AllOrd_{jt} * DR_{jt} * ACE_{jt}$  is positive for both of the regressions (see Table 6.1 Column III versus Table 7.7 Panel A Column I). However, the coefficient is insignificant from zero in Table 6.1 Column III results whilst the coefficient is significant (i.e.,  $p < 0.05$ ) in the regression reported in Table 7.7 Panel A Column I. Meanwhile, the directionality of all coefficients on variables listed in Table 7.7 Panel A Column II are the same as that of corresponding variables in the regression reported in Table 6.1 Column III. In principal, the significance of respective coefficients are also identical aside for  $DR_{jt}$ ,  $DR_{jt} * ACE_{jt}$ , and  $RR-AllOrd_{jt} * ACE_{jt}$ . The coefficients on  $DR_{jt}$ ,  $DR_{jt} * ACE_{jt}$ , and  $RR-AllOrd_{jt} * ACE_{jt}$  are significant (i.e.,  $p < 0.01$ ,  $p < 0.05$  and  $p < 0.05$  respectively) in Table 6.1 Column III results whilst coefficients are insignificant from zero in the regression reported in Table 7.7 Panel A Column II. Finally, explanatory power of the Basu (1997) timeliness model of earnings conservatism increases (for the firms audited by a *Big-4* auditor) in the main findings; that is, 16.2% (see Table 7.7 Panel A Column I) versus 15.3% (see Table 6.1 Column III). However, explanatory power of the Basu (1997) timeliness model of earnings conservatism declines (for the firms audited by a *non-Big-4* auditor) in the main findings; that is, 11.5% (see Table 7.7 Panel A Column II) versus 15.3% (see Table 6.1 Column III).

In regards to the Basu (1997) persistence earnings conservatism model, results reported in Table 7.7 Panel B Columns I and II yield highly similar results compared to the main results reported in Table 6.3 Column III. Specifically, the directionality and significance of coefficients of regression based on the Basu (1997) persistence earnings conservatism model is virtually identical to the main results as shown in Table 7.7 Panel B Columns I and II (see Table 7.7 Panel B Columns I and II versus Table 6.3 Column III). The

only notable difference pertains to the coefficients on the corresponding variables  $PX_{jt}$  and  $PX_{jt} * DPX_{jt} * ACE_{jt}$ . For the main results, the coefficient on the  $PX_{jt}$  is significant (see Table 6.3 Column III;  $p < 0.05$ ). However, when a narrower sample size (based on firms audited by a *Big-4* auditor) is used, the coefficient on the corresponding variable is insignificant from zero for both of the Columns of Table 7.7 Panel B. Meanwhile, for the main results, the coefficient on the  $PX_{jt} * DPX_{jt} * ACE_{jt}$  is significant (see Table 6.3 Column III;  $p < 0.05$ ) but when a narrower sample size (based on firms audited by a *Big-4* auditor) is used the coefficient on the corresponding variable to the results (reported in Table 7.7 Panel B Column II) is insignificant from zero. Finally, explanatory power of the Basu (1997) persistence model of earnings conservatism increases (for the firms audited by a *Big-4* auditor) from the main findings; that is, 45.9% (see Table 7.7 Panel B Column I) versus 43.5% (see Table 6.3 Column III). However, explanatory power of the Basu (1997) persistence model of earnings conservatism declines (for the firms audited by a *non-Big-4* auditor); that is, 42.9% (see Table 7.7 Panel B Column II) versus 43.5% (see Table 6.3 Column III).

The directionality and significance of coefficients of regression based on the Ball and Shivakumar (2005) earnings conservatism model and audit committee effectiveness using a narrower sample size (based on the firms audited by a *Big-4* auditor) is virtually identical to the main results (see Table 7.7 Panel C Column I versus Table 6.5 Column III). The only notable difference pertains to the coefficients on the corresponding variables  $DCFO_{jt}$  and  $CFO_{jt} * ACE_{jt}$  in the case of Table 7.7 Panel C Column I and  $ACE_{jt}$  and  $CFO_{jt} * ACE_{jt}$  in the case of Table 7.7 Panel C Column II. For the main results, the coefficient on  $DCFO_{jt}$  is negative but the coefficient on the corresponding variable to the main results is positive in the regression reported in Table 7.7 Panel C Column I. For the main results, the coefficient on the two-way  $CFO_{jt} * ACE_{jt}$  interaction term is significant (see Table 6.5 Column III;  $p < 0.05$ ). However, when a narrower sample size is used the coefficient on the corresponding variable to the main results in the regression reported in Table 7.7 Panel C Column I is insignificant from zero. Similarly, for the main results, the coefficient on  $ACE_{jt}$  interaction term is significant (see Table 6.5 Column III;  $p < 0.05$ ) but the coefficient on the corresponding variable to the main results in the regression reported in Table 7.7 Panel C Column II is insignificant from zero. Meanwhile, the coefficient on the two-way  $DCFO_{jt} * ACE_{jt}$  interaction term is negative in Table 6.5 Column III. However, when a narrower sample size is used, the coefficient on the corresponding variable to the main results in the regression reported in Table 7.7 Panel C Column I is positive. Finally, explanatory power of the Ball and Shivakumar (2005) earnings conservatism model declines when using firms audited by a *Big-4* auditor rather than the pooled sample in the main findings; that is, 53.4% (see Table 7.7 Panel C Column I) versus 73.2% (see Table 6.5

Column III). Alternatively, explanatory power of the Ball and Shivakumar (2005) earnings conservatism model increase when using firms audited by a *non-Big 4* auditor rather than the pooled sample in the main findings; that is, 74.9% (see Table 7.7 Panel C Column II) versus 73.2% (see Table 6.5 Column III).

Overall, the additional tests reported in Table 7.7 yield results predominantly consistent with the main results (see Table 6.1 Column III, Table 6.3 Column III and Table 6.5 Column III). Findings suggest that the main results regarding the audit committee effectiveness/earnings conservatism association is driven by the proxy measure underlying audit committee effectiveness. Moreover, the Table 7.7 results also indicate that the earnings conservatism and audit committee effectiveness association is stronger for firms that are audited by a *Big-4* auditor.

## **7.9 Partitioning by Growth**

Prior literature (Roychowdhury and Watts 2007) indicates that it is important to control for differences in growth opportunities when measuring conservatism. To ensure that our results are not driven by differences in growth opportunities, the sample is partitioned into low and high growth firms based on the market to book ratio and regression is re-run to investigate whether the relationship between audit committee effectiveness and earnings conservatism varies with the magnitude of growth opportunities for firms.<sup>52</sup> Results from the three main regressions performed (using low and high growth firms) are reported in Table 7.8 with Panel A results associated with Table 6.1 Column III findings (i.e., timeliness of earnings conservatism), Panel B with Table 6.3 Column III (i.e., persistence of earnings conservatism) and Panel C with Table 6.5 Column III results (i.e., accruals-based earnings conservatism).

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<sup>52</sup> Sample firms below the 25<sup>th</sup> percentile are considered as low growth firms whereas sample firms above the 75<sup>th</sup> percentile are considered as high growth firms (Roychowdhury and Watts 2007).

**Table 7.8 - Regression results partitioning sample by high and low growth**

<b>Panel A: Basu (1997) timeliness model of earnings conservatism</b>						
	<i>Column I: High Growth</i>			<i>Column II: Low Growth</i>		
<b>Variables</b>	<i>Beta</i>	<i>t-Stat</i>	<i>P-value</i>	<i>Beta</i>	<i>t-Stat</i>	<i>P-value</i>
Intercept	-0.125	-0.799	0.426	0.321	-1.351	0.179
$DR_{jt}$	-0.233	-0.834	0.406	-0.023	-0.086	0.932
$ACE_{jt}$	0.033	0.621	0.536	0.057	0.543	0.588
$DR_{jt} * ACE_{jt}$	0.040	0.417	0.677	0.030	0.246	0.806
$RR-AllOrd_{jt}$	-0.174	-3.827	0.000*	-0.157	-0.208	0.835
$RR-AllOrd_{jt} * DR_{jt}$	0.370	0.809	0.420	0.128	0.160	0.873
$RR-AllOrd_{jt} * ACE_{jt}$	0.053	1.604	0.111	0.242	0.695	0.489
$RR-AllOrd_{jt} * DR_{jt} * ACE_{jt}$	-0.100	-0.505	0.615	-0.192	-0.514	0.609
Adjusted-R <sup>2</sup>	0.216			0.028		
N	124			123		
F-Statistic	4.083			1.324		

<b>Panel B: Basu (1997) persistence model of earnings conservatism</b>						
	<i>Column I: High Growth</i>			<i>Column II: Low Growth</i>		
<b>Variables</b>	<i>Beta</i>	<i>t-Stat</i>	<i>P-value</i>	<i>Beta</i>	<i>t-Stat</i>	<i>P-value</i>
Intercept	0.194	3.595	0.000*	0.459	3.063	0.003*
$DPX_{jt}$	-0.193	-2.465	0.015**	-0.519	-2.497	0.014**
$ACE_{jt}$	-0.031	-2.129	0.035**	-0.115	-1.879	0.063***
$DPX_{jt} * ACE_{jt}$	0.030	1.137	0.258	0.110	1.242	0.217
$PX_{jt}$	0.098	1.078	0.284	-0.022	-0.153	0.879
$PX_{jt} * DPX_{jt}$	1.003	14.415	0.000*	0.977	3.740	0.000*
$PX_{jt} * ACE_{jt}$	-0.093	-1.530	0.129	-0.042	-0.365	0.716
$PX_{jt} * DPX_{jt} * ACE_{jt}$	0.058	1.500	0.136	0.020	0.160	0.873
Adjusted-R <sup>2</sup>	0.752			0.293		
N	123			122		
F-Statistic	34.633			5.549		

<b>Panel C: Ball and Shivakumar (2005) accruals-based model of earnings conservatism</b>						
	<i>Column I: High Growth</i>			<i>Column II: Low Growth</i>		
<b>Variables</b>	<i>Beta</i>	<i>t-Stat</i>	<i>P-value</i>	<i>Beta</i>	<i>t-Stat</i>	<i>P-value</i>
Intercept	-0.724	-3.623	0.000*	-0.183	-0.891	0.375
$DCFO_{jt}$	-0.052	-0.170	0.865	-0.174	-0.766	0.445
$ACE_{jt}$	0.255	3.772	0.000*	0.071	0.843	0.401
$DCFO_{jt} * ACE_{jt}$	-0.070	-0.677	0.500	0.029	0.288	0.774
$CFO_{jt}$	-0.687	-5.788	0.000*	-0.400	-0.532	0.596
$CFO_{jt} * DCFO_{jt}$	2.607	10.972	0.000*	0.595	2.639	0.010*
$CFO_{jt} * ACE_{jt}$	-0.202	-2.458	0.015**	-0.465	-1.606	0.111
$CFO_{jt} * DCFO_{jt} * ACE_{jt}$	-0.018	-0.087	0.930	0.185	0.744	0.458
Adjusted-R <sup>2</sup>	0.842			0.384		
N	124			122		
F-Statistic	60.383			7.845		

**Legend:**

*Panel A Equation:*  $X_{jt} = \alpha_0 + \beta_0 DR_{jt} + \beta_1 RR-AllOrd_{jt} + \beta_2 RR-AllOrd_{jt} * DR_{jt} + \beta_3 ACE_{jt} + \beta_4 ACE_{jt} * RR-AllOrd_{jt} + \beta_5 ACE_{jt} * DR_{jt} + \beta_6 ACE_{jt} * RR-AllOrd_{jt} * DR_{jt} + \sum Year_{jkt} + \epsilon_{jt}$

*Panel B Equation:*  $BPX_{jt} = \alpha_0 + \beta_0 DPX_{jt} + \beta_1 PX_{jt} + \beta_2 PX_{jt} * DPX_{jt} + \beta_3 ACE_{jt} + \beta_4 ACE_{jt} * PX_{jt} + \beta_5 ACE_{jt} * DPX_{jt} + \beta_6 ACE_{jt} * PX_{jt} * DPX_{jt} + \sum Year_{jkt} + \epsilon_{jt}$

*Panel C Equation:*  $ACC_{jt} = \alpha_0 + \beta_0 DCFO_{jt} + \beta_1 CFO_{jt} + \beta_2 CFO_{jt} * DCFO_{jt} + \beta_3 ACE_{jt} + \beta_4 ACE_{jt} * CFO_{jt} + \beta_5 ACE_{jt} * DCFO_{jt} + \beta_6 ACE_{jt} * CFO_{jt} * DCFO_{jt} + \sum Year_{jkt} + \epsilon_{jt}$

Where:

$X_{jt}$  = Operating profit after tax of firm  $j$  deflated by market value of equity ( $MVE_{t-1}$  - Market capitalization of firm  $j$  at beginning of the fiscal year  $t$ ) of firm  $j$  at beginning of the fiscal year  $t$ ;

$DR_{jt}$  = Indicator variable where firm  $j$  is scored one (1) if  $RR-AllOrd_{jt}$  is negative, otherwise firm  $j$  is scored zero (0);

$ACE_{jt}$  = A composite score for audit committee effectiveness based on the sub-committee's independence, expertise, experience and diligence (i.e.,  $Ind\_ACE_{jt} + Expt\_ACE_{jt} + Exp\_ACE_{jt} + Dil\_ACE_{jt}$ );

- $DR_{jt} * ACE_{jt}$  = Two-way interaction between indicator variable where firm  $j$  is scored one (1) if  $RR-AllOrd_{jt}$  is negative, otherwise firm  $j$  is scored zero (0), and the composite audit committee effectiveness score of firm  $j$  in fiscal year  $t$ ;
- $RR-AllOrd_{jt}$  = Annual share returns for firm  $j$  from three months after the previous fiscal year  $t-1$  to three months after the current fiscal year  $t$  (i.e.,  $(P_t - P_{t-1})/P_{t-1}$  where  $P_t$  is the price of shares for firm  $j$  three months after the end of the fiscal year  $t$  and  $P_{t-1}$  is the price of shares for firm  $j$  three months after the end of the fiscal year  $t-1$ ) adjusted for the All Ordinaries Index over the same period;
- $RR-AllOrd_{jt} * DR_{jt}$  = Two-way interaction between annual share returns for firm  $j$  from three months after the previous fiscal year  $t-1$  to three months after the current fiscal year  $t$  (i.e.,  $(P_t - P_{t-1})/P_{t-1}$  where  $P_t$  is the price of shares for firm  $j$  three months after the end of the fiscal year  $t$  and  $P_{t-1}$  is the price of shares for firm  $j$  three months after the end of the fiscal year  $t-1$ ) adjusted for the All Ordinaries Index over the same period and indicator variable where firm  $j$  is scored one (1) if  $RR-AllOrd_{jt}$  is negative, otherwise firm  $j$  is scored zero (0);
- $RR-AllOrd_{jt} * ACE_{jt}$  = Two-way interaction between annual share returns for firm  $j$  from three months after the previous fiscal year  $t-1$  to three months after the current fiscal year  $t$  (i.e.,  $(P_t - P_{t-1})/P_{t-1}$  where  $P_t$  is the price of shares for firm  $j$  three months after the end of the fiscal year  $t$  and  $P_{t-1}$  is the price of shares for firm  $j$  three months after the end of the fiscal year  $t-1$ ) adjusted for the All Ordinaries Index over the same period and the composite audit committee effectiveness score based on the sub-committee's independence, expertise, experience and diligence (i.e.,  $Ind\_ACE_{jt} + Expt\_ACE_{jt} + Exp\_ACE_{jt} + Dil\_ACE_{jt}$ ) of firm  $j$  in fiscal year  $t$ ;
- $RR-AllOrd_{jt} * DR_{jt} * ACE_{jt}$  = Three-way interaction between annual share returns for firm  $j$  from three months after the previous fiscal year  $t-1$  to three months after the current fiscal year  $t$  (i.e.,  $(P_t - P_{t-1})/P_{t-1}$  where  $P_t$  is the price of shares for firm  $j$  three months after the end of the fiscal year  $t$  and  $P_{t-1}$  is the price of shares for firm  $j$  three months after the end of the fiscal year  $t-1$ ) adjusted for the All Ordinaries Index over the same period, indicator variable where firm  $j$  is scored one (1) if  $RR-AllOrd_{jt}$  is negative, otherwise firm  $j$  is scored zero (0), and the composite audit committee effectiveness score based on the sub-committee's independence, expertise, experience and diligence (i.e.,  $Ind\_ACE_{jt} + Expt\_ACE_{jt} + Exp\_ACE_{jt} + Dil\_ACE_{jt}$ ) of firm  $j$  in fiscal year  $t$ ;
- $BPX_{jt}$  = Change in operating profit after tax of firm  $j$  for period  $t$  from operating profit after tax of firm  $j$  for period  $t-1$  deflated by market capitalization of firm  $j$  at the end of period  $t-1$ ;
- $PX_{jt}$  = Change in operating profit after tax of firm  $j$  for period  $t-1$  from operating profit after tax of firm  $j$  for period  $t-2$  deflated by market capitalization of firm  $j$  at the end of period  $t-2$ ;
- $DPX_{jt}$  = Indicator variable where firm  $j$  is scored one (1) if  $PX_{jt}$  is negative; otherwise score of zero (0);
- $PX_{jt} * DPX_{jt}$  = Two-way interaction between change in operating profit after tax of firm  $j$  for period  $t$  from operating profit after tax of firm  $j$  for period  $t-1$  deflated by market capitalization of firm  $j$  at the end of period  $t-1$  and Indicator variable where firm  $j$  is scored one (1) if  $PX_{jt}$  is negative; otherwise score of zero (0);
- $ACE_{jt}$  = A composite score for audit committee effectiveness based on the sub-committee's independence, expertise, experience and diligence (i.e.,  $Ind\_ACE_{jt} + Expt\_ACE_{jt} + Exp\_ACE_{jt} + Dil\_ACE_{jt}$ );
- $ACE_{jt} * PX_{jt}$  = Two-way interaction between composite score for audit committee effectiveness based on the sub-committee's independence, expertise, experience and diligence (i.e.,  $Ind\_ACE_{jt} + Expt\_ACE_{jt} + Exp\_ACE_{jt} + Dil\_ACE_{jt}$ ) and change in operating profit after tax of firm  $j$  for period  $t$  from operating profit after tax of firm  $j$  for period  $t-1$  deflated by market capitalization of firm  $j$  at the end of period  $t-1$ ;
- $ACE_{jt} * DPX_{jt}$  = Two-way interaction between composite score for audit committee effectiveness based on the sub-committee's independence, expertise, experience and diligence (i.e.,  $Ind\_ACE_{jt} + Expt\_ACE_{jt} + Exp\_ACE_{jt} + Dil\_ACE_{jt}$ ) and indicator variable that takes the value of one (1) if  $DPX_{jt} < 0$ , otherwise scored zero (0);
- $ACE_{jt} * PX_{jt} * DPX_{jt}$  = Three-way interaction between composite score for audit committee effectiveness based on the sub-committee's independence, expertise, experience and diligence (i.e.,  $Ind\_ACE_{jt} + Expt\_ACE_{jt} + Exp\_ACE_{jt} + Dil\_ACE_{jt}$ ), change in operating profit after tax of firm  $j$  for period  $t$  from operating profit after tax of firm  $j$  for period  $t-1$  deflated by market capitalization of firm  $j$  at the end of period  $t-1$  and indicator variable that takes the value of one (1) if  $DPX_{jt} < 0$ , otherwise scored zero (0);
- $ACC_{jt}$  = Accruals (i.e., difference between operating profit and cash flow from operations) of firm  $j$  in fiscal year  $t$  scaled by the book value of total assets of firm  $j$  at the beginning of the fiscal year  $t$  (i.e.,  $BVTA_{jt}$ );
- $CFO_{jt}$  = Cash flow from operating activities of firm  $j$  in fiscal year  $t$  scaled by the book value of total assets of firm  $j$  at the beginning of the fiscal year  $t$  (i.e.,  $BVTA_{jt}$ );
- $DCFO_{jt}$  = Indicator variable where firm  $j$  is scored one (1) if  $\Delta CFO_{jt}$  is negative, otherwise scored zero (0);
- $CFO_{jt} * DCFO_{jt}$  = Two-way interaction between cash flow from operating activities of firm  $j$  in fiscal year  $t$  scaled by the book value of total assets of firm  $j$  at the beginning of the fiscal year  $t$  (i.e.,  $BVTA_{jt}$ ) and indicator variable where firm  $j$  is scored one (1) if  $\Delta CFO_{jt}$  is negative, otherwise scored zero (0);
- $ACE_{jt}$  = A composite score for audit committee effectiveness based on the sub-committee's independence, expertise, experience and diligence (i.e.,  $Ind\_ACE_{jt} + Expt\_ACE_{jt} + Exp\_ACE_{jt} + Dil\_ACE_{jt}$ );
- $ACE_{jt} * CFO_{jt}$  = Two-way interaction between composite score for audit committee effectiveness based on the sub-committee's independence, expertise, experience and diligence (i.e.,  $Ind\_ACE_{jt} + Expt\_ACE_{jt} + Exp\_ACE_{jt} + Dil\_ACE_{jt}$ ) and cash flow from operating activities of firm  $j$  in fiscal year  $t$  scaled by the book value of total assets of firm  $j$  at the beginning of the fiscal year  $t$  (i.e.,  $BVTA_{jt}$ );
- $ACE_{jt} * DCFO_{jt}$  = Two-way interaction between composite score for audit committee effectiveness based on the sub-committee's independence, expertise, experience and diligence (i.e.,  $Ind\_ACE_{jt} + Expt\_ACE_{jt} +$

$Exp\_ACE_{jt} + Dil\_ACE_{jt}$ ) and indicator variable that takes the value of one (1) if  $DCFO_{jt} < 0$ , otherwise scored zero (0);

$ACE_{jt} * CFO_{jt} * DCFO_{jt}$  = Three-way interaction between composite score for audit committee effectiveness based on the sub-committee's independence, expertise, experience and diligence (i.e.,  $Ind\_ACE_{jt} + Exp\_ACE_{jt} + Dil\_ACE_{jt}$ ), cash flow from operating activities of firm  $j$  in fiscal year  $t$  scaled by the book value of total assets of firm  $j$  at the beginning of the fiscal year  $t$  (i.e.,  $BVTA_{jt}$ ) and indicator variable that takes the value of one (1) if  $DCFO_{jt} < 0$ , otherwise scored zero (0);

$\alpha_k, \beta_k$  = Coefficients;

$\varepsilon_{jt}$  = Error term; and

\*, \*\*, \*\*\* = Significant at the 0.01, 0.05 and 0.10 confidence levels respectively.

With regards to the Basu (1997) timeliness model of earnings conservatism, all coefficients on variables listed in Table 7.8 Panel A Columns I and II are of the same directionality as that of corresponding variables in the regression reported in Table 6.1 Column III aside for  $RR-AllOrd_{jt} * DR_{jt} * ACE_{jt}$ . The coefficient on  $RR-AllOrd_{jt} * DR_{jt} * ACE_{jt}$  is positive in Table 6.1 Column III but negative in Table 7.8 Panel A Columns I and II. However, the significance level of the respective coefficients in the related regressions in Table 6.1 Column III and Table 7.8 Panel A Columns I and II are different. Specifically, coefficient on only one variable,  $RR-AllOrd_{jt}$  is significant for high growth firms (see Table 7.8 Panel A Column I,  $p < 0.01$ ). Moreover, coefficients on none of the variables are significant for low growth firms (see Table 7.8 Panel A Column II). Relative to Table 6.1 Column III results, the explanatory power of the regression (see adjusted- $R^2$ ) reported in Table 7.8 Panel A Column I is higher (i.e., 21.6.0% versus 15.3%) whereas the explanatory power of the regression (see adjusted- $R^2$ ) reported in Table 7.8 Panel A Column II using is lower (i.e., 2.8% versus 15.3%).

With regards to the Basu (1997) persistence model of earnings conservatism, all coefficients on variables listed in Table 7.8 Panel B Columns I and II are of the same directionality as that of corresponding variables in the regression reported in Table 6.3 Column III aside from one variable,  $PX_{jt}$ . The coefficient on  $PX_{jt}$  is positive in Table 6.3 Column III results whilst the coefficient is negative in the regression reported in Table 7.8 Panel B Column II. Consistent with results in the related regressions in Table 6.3 Column III, coefficients on  $DPX_{jt}$ ,  $ACE_{jt}$ ,  $PX_{jt} * DPX_{jt}$  are significant in the regressions reported in both Columns I and II of Table 7.8 Panel B. However, coefficient on  $DPX_{jt} * ACE_{jt}$ ,  $PX_{jt} * ACE_{jt}$  and  $PX_{jt} * DPX_{jt} * ACE_{jt}$  variables are insignificant (see Table 7.8 Panel B Columns I and II). This result is not consistent with results reported in Table 6.3 Column III. Relative to Table 6.3 Column III results, the explanatory power of the regression (see adjusted- $R^2$ ) reported in Table 7.8 Panel B Column I is higher (i.e., 75.2% versus 43.5%) whereas the explanatory power of the regression (see adjusted- $R^2$ ) reported in Table 7.8 Panel B Column II is lower (i.e., 29.3% versus 43.5%).

With regards to Ball and Shivakumar (2005) model of earnings conservatism, results reported in Table 7.8 Panel C Column I (i.e., results for high growth firms) yields exactly similar results compared to the main results reported in Table 6.5 Column III. Specifically,

the directionality and significance on the coefficients of the corresponding variables in the regressions reported in Table 6.5 Column III and Table 7.8 Panel C Column I are identical. The directionality on the coefficients of the corresponding variables in the regressions reported in Table 6.5 Column III and Table 7.8 Panel C Column II are also identical aside from  $DCFO_{jt} * ACE_{jt}$  and  $CFO_{jt} * DCFO_{jt} * ACE_{jt}$ . In the case of Table 6.5 Column III, coefficients on  $DCFO_{jt} * ACE_{jt}$  and  $CFO_{jt} * DCFO_{jt} * ACE_{jt}$  are negative. Whilst for Table 7.8 Panel C Column II, the coefficient on  $DCFO_{jt} * ACE_{jt}$  and  $CFO_{jt} * DCFO_{jt} * ACE_{jt}$  are positive. Meanwhile, the coefficient on only one variable,  $CFO_{jt} * DCFO_{jt}$  is significant in the regression reported in Table 78 Panel C Column II. Relative to Table 6.5 Column III results, the explanatory power of the regression (see adjusted- $R^2$ ) reported in Table 7.8 Panel C Column I is higher (i.e., 84.2% versus 73.2%) whereas the explanatory power of the regression (see adjusted- $R^2$ ) reported in Table 7.8 Panel C Column II is lower (i.e., 38.4% versus 73.2%).

Overall, the additional tests reported in Table 7.8 suggests that the main results reported in Table 6.1, 6.3 and 6.5 are not driven by differences in growth opportunities rather, the main results regarding the audit committee effectiveness/earnings conservatism association is necessarily driven by the proxy measure underlying audit committee effectiveness.

## **7.10 Summary of the Chapter**

This chapter investigated the robustness and sensitivity of the main results in Chapter Six. Alternative measures are used for both audit committee effectiveness and earnings conservatism to check the sensitivity of the results in Chapter Six. In order to check the robustness of the main results, the sample is partitioned a number of different ways to reduce potential biases arising from firm size, firm-years, audit quality and firm growth.

Chapter Eight will outline the overall conclusion of this study. First, the major hypotheses of this study will be answered. Subsequently, the overall implications, contributions and limitations of this study will be specified.

## **CHAPTER EIGHT: IMPLICATIONS AND CONCLUSIONS**

### **8.1 Study Overview**

Using agency theory (due to the close affinity with corporate governance and earnings quality issues) as the underpinning theoretical framework, this study's pivotal objective is to examine the association between audit committee effectiveness and earnings conservatism within the Australian capital market setting. Whilst a major aim is to examine the audit committee effectiveness/earnings conservatism linkage in a holistic manner, this study also tests the association of four prime components underlying audit committee effectiveness (i.e., the sub-committee's independence; member's financial expertise; member's experience; and the sub-committee's diligence) with earnings conservatism. Furthermore, the study examines the influence of audit committee effectiveness across three different perspectives of earnings conservatism (i.e., timeliness (Basu 1997); persistence (Basu 1997); and, accruals-based (i.e., differential in accruals and cash flows) (Ball and Shivakumar 2005)).

Drawing on the fundamental tenets of the underlying theoretical perspective, hypotheses reflecting the study's main and secondary objectives were developed. In general terms, it is postulated an Australian publicly listed firm with an effective audit committee is more likely to readily exhibit earnings conservatism (in respect to timeliness, persistence and accruals-based earnings conservatism) than a counterpart with an ineffective audit committee. The positive association with earnings conservatism is also postulated where: (a) the audit committee is more independent; (b) at least one member of the audit committee has financial expertise; (c) at least one member of the audit committee has prior experience; and (d) the audit committee meets more frequently during the financial period.

Consistent with the positivist perspective adopted in this study, multivariate statistical techniques (i.e., multiple regression analysis) are the primary analytical approach applied to test the hypotheses. In line with prior literature (Balkrishna et al. 2007; Lafond and Watts 2008; Lara et al. 2009a; Ruddock et al. 2006), this study uses the approach of Basu (1997) to determine the timeliness and persistence of earnings conservatism, and the model of Ball and Shivakumar (2005) for accruals-based earnings conservatism.<sup>53</sup> The respective Basu (1997) and Ball and Shivakumar (2005) models are adjusted to incorporate the possible influence of audit committee effectiveness (and the four major components of this construct). Data necessary to operationalize the Basu (1997) and Ball and Shivakumar (2005) base models is obtained from DataStream and the Aspect Huntleys Financial

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<sup>53</sup> See Section 4.3 for the detailed discussion of Basu (1997) and Ball and Shivakumar (2005) models.

Database (specifically, *FinAnalysis* and *DatAnalysis*). A composite score based on four major components characterizing audit committee features (i.e., audit committee independence, audit committee financial expertise, audit committee experience and audit committee diligence) forms the proxy for audit committee effectiveness. Data to measure audit committee effectiveness is obtained from the *Annual Reports Collection* (Connect 4 Pty Ltd) and *DatAnalysis*.

The main statistical analysis is performed using a sample of 494 firm-year observations spanning the 2004 to 2008 calendar years. The initial sample pool comprised all Australian publicly listed and incorporated firms on the ASX as at January 1, 2004, and that were listed continuous till December 31, 2008. The initial sample is then stratified into quartiles based on market capitalization as at January 1, 2004. Twenty-five (25) firms are then randomly selected from each quartile, thereby, generating a sample of 100 firms. With data collected from each firm across the five-year observation window, 500 firm-year data points are collected. Six (6) firm-year observations are excluded due to the unreliability, or unavailability of data, thereby, the final useable sample comprises 494 firm-year observations. Aside from the main analysis, a series of robustness and sensitivity tests are performed. Conclusions of the statistical analysis on the testable hypotheses are summarized in the next section.

## **8.2 Major Conclusions of the Study**

For this study, a general proposition is formed speculating as to the underlying association between audit committee effectiveness (and each of the four major components) and earnings conservatism. Testable hypotheses related to the three forms of earnings conservatism (i.e., timelines, persistence and accruals-based earnings conservatism) examined in this study are subsequently formed from each general proposition. Table 8.1 summarizes the propositions and related testable hypotheses, and the acceptance or rejection of each hypothesis based on the statistical analysis conducted.

**Table 8.1 - Acceptance/rejection of hypotheses**

<b>Panel A: Audit committee effectiveness and earnings conservatism</b> <i>GP<sub>EAC</sub></i> – Australian publicly listed firms with more effective audit committees are more likely to be associated with higher levels of earnings conservatism.		
Hypothesis	Description	Accept/Reject
$H_1$	Australian publicly listed firms with more effective audit committees are more likely to be associated with timelier recognition of negative news in reported earnings.	Reject
$H_2$	Australian publicly listed firms with more effective audit committees are more likely to be associated with the persistence of earnings.	Reject
$H_3$	Australian publicly listed firms with more effective audit committees are more likely to be associated with accruals-based earnings conservatism (i.e., recognition negative operating cash flows quicker than positive operating cash flows).	Reject
<b>Panel B: Audit committee independence and earnings conservatism</b> <i>GP<sub>Ind</sub></i> - Australian publicly listed firms with more independent audit committees are more likely to be associated with higher levels of earnings conservatism.		
Hypothesis	Description	Accept/Reject
$H_{1a}$	Australian publicly listed firms with more independent audit committees are more likely to be associated with timelier recognition of negative news in reported earnings.	Reject
$H_{2a}$	Australian publicly listed firms with more independent audit committees are more likely to be associated with the persistence of earnings.	Reject
$H_{3a}$	Australian publicly listed firms with more independent audit committees are more likely to be associated with accruals-based earnings conservatism (i.e., recognition negative operating cash flows quicker than positive operating cash flows).	Reject
<b>Panel C: Audit committee financial expertise and earnings conservatism</b> <i>GP<sub>Exp</sub></i> – Australian publicly listed firms with more financially astute audit committees are more likely to be associated with higher levels of earnings conservatism.		
Hypothesis	Description	Accept/Reject
$H_{1b}$	Australian publicly listed firms with more financially astute audit committees are more likely to be associated with timelier recognition of negative news in reported earnings.	Accept
$H_{2b}$	Australian publicly listed firms with more financially astute audit committees are more likely to be associated with the persistence of earnings.	Reject
$H_{3b}$	Australian publicly listed firms with more financially astute audit committees are more likely to be associated with accruals-based earnings conservatism (i.e., recognition negative operating cash flows quicker than positive operating cash flows).	Reject
<b>Panel D: Audit committee experience and earnings conservatism</b> <i>GP<sub>Exp</sub></i> – Australian publicly listed firms with more experienced audit committees are more likely to be associated with higher levels of earnings conservatism.		
Hypothesis	Description	Accept/Reject
$H_{1c}$	Australian publicly listed firms with more experienced audit committees are more likely to be associated with timelier recognition of negative news in reported earnings.	Accept
$H_{2c}$	Australian publicly listed firms with more experienced audit committees are more likely to be associated with the persistence of earnings.	Reject
$H_{3c}$	Australian publicly listed firms with more experienced audit committees are more likely to be associated with accruals-based earnings conservatism (i.e., recognition negative operating cash flows quicker than positive operating cash flows).	Reject
<b>Panel E: Audit committee diligence and earnings conservatism</b> <i>GP<sub>Dil</sub></i> - Australian publicly listed firms with more diligent audit committees are more likely to be associated with higher levels of earnings conservatism.		
Hypothesis	Description	Accept/Reject
$H_{1d}$	Australian publicly listed firms with more diligent audit committees are more likely to be associated with timelier recognition of negative news in reported earnings.	Reject
$H_{2d}$	Australian publicly listed firms with more diligent audit committees are more likely to be associated with the persistence of earnings.	Reject
$H_{3d}$	Australian publicly listed firms with more diligent audit committees are more likely to be associated with accruals-based earnings conservatism (i.e., recognition negative operating cash flows quicker than positive operating cash flows).	Accept

As indicated in Table 8.1, five testable hypotheses are related to the Basu (1997) timeliness of earnings conservatism (i.e.,  $H_1$ ,  $H_{1a}$ ,  $H_{1b}$ ,  $H_{1c}$  and  $H_{1d}$ ), with another five ( $H_2$ ,  $H_{2a}$ ,  $H_{2b}$ ,  $H_{2c}$  and  $H_{2d}$ ) concentrated on the Basu (1997) persistence of earnings

conservatism. Finally, five testable hypotheses ( $H_3$ ,  $H_{3a}$ ,  $H_{3b}$ ,  $H_{3c}$  and  $H_{3d}$ ) consider the association with accruals-based earnings conservatism (Ball and Shivakumar (2005)). In discussing the acceptance or rejection of the hypotheses, consideration in the next three subsections is first given to hypotheses affiliated with timeliness followed by persistence and finally accruals-based earnings conservatism. Discussion related to the main propositions is provided in the last subsection.

### **8.2.1 Hypotheses Conclusion – Basu (1997) Timeliness Model**

Hypothesis  $H_1$  stipulates an Australian publicly listed firm with a more effective audit committee is more likely to be associated with the timelier recognition of negative news in reported earnings. Empirical results (see Table 6.1 Column III) however, show the influence of audit committee effectiveness on earnings conservatism is statistically insignificant. Robust and sensitivity tests (i.e., using alternative market indices, alternative proxy measures for earnings conservatism and audit committee effectiveness, partitioning sample by years and growth opportunities) generally support the statistically insignificant association of the main findings related to  $H_1$  (see Table 7.1, 7.2, 7.3, 7.4, 7.6 and 7.8). It is noted, however, that if the sample is limited to larger firms only, there is a positive and statistically significant association (see Table 7.5 Column I). This suggests larger firms having more effective audit committees are more likely to incorporate negative news into earnings significantly faster (i.e., more timely) than smaller firms. Also, as reported in Table 7.7 Column I, additional tests indicate a significant positive association between audit committee effectiveness and timeliness of earnings conservatism for firms audited by a *Big-4* auditor firms. This result suggests a firm audited by a *Big-4* firm, is more likely to incorporate negative news into earnings significantly faster (i.e., more timely) than a firm audited by a *non-Big-4* auditor. Despite the significant association between audit committee effective and timeliness of earnings conservatism when limiting the sample to large firms, or those audited by a *Big-4* firm, the main results, and majority of robustness tests, fail to support  $H_1$ . Hence,  $H_1$  is rejected.

With regards to hypotheses for the four major components of audit committee effectiveness, results of the main tests (see Table 6.2 Columns II and III) indicate a significant positive association between the timeliness of earnings conservatism and audit committees with members with financial expertise and prior experience. Specifically, results indicate audit committees that have financial qualified expert members, or prior governance experience, are more likely to be associated with the disclosure of negative news in a timely manner, relative to counterparts without having members with financial expertise or prior governance experience. Thus,  $H_{1b}$  and  $H_{1c}$  are accepted. In contrast, the main empirical results (see Table 6.2 Columns I and IV) indicate no significant association between the level

of independence and diligence of the audit committee and the timeliness of earnings conservatism. Therefore,  $H_{1a}$  and  $H_{1d}$  are rejected.

### **8.2.2 Hypotheses Conclusion – Basu (1997) Persistence Model**

The second major hypothesis (i.e.,  $H_2$ ) proposes a negative association between persistence of earnings conservatism and audit committee effectiveness. The main empirical results (see Table 6.3 Column III), however, fails to indicate a negative and statistically significant association. On the contrary, the main results indicate a positive and statistically significant relationship between persistence of earnings conservatism and audit committee effectiveness. Results suggest a firm with a less effective audit committee is more likely to exhibit persistence of earnings conservatism than a firm with a more effective audit committee (i.e., findings are contradictory to that predicted). In the main, additional robustness and sensitivity tests support the presence of a positive and statistically significant association between audit committee effectiveness and persistence of earnings conservatism. Therefore,  $H_2$  is rejected.

Aside from the general hypothesis, four individual hypotheses were formulated examining the relationship between the persistence of earnings conservatism and four key components underpinning audit committee effectiveness: (1) independence ( $H_{2a}$ ); (2) financial expertise ( $H_{2b}$ ); (3) experience ( $H_{2c}$ ); and (4) diligence ( $H_{2d}$ ). Similar to the main results, findings in relation to independence, expertise, experience, and diligence also contradict the predicted association (see Table 6.4 Columns I to IV for main finding results). Therefore,  $H_{2a}$ ,  $H_{2b}$ ,  $H_{2c}$  and  $H_{2d}$  are rejected.

### **8.2.3 Hypotheses Conclusion – Ball and Shivakumar (2005) Model**

The third major hypothesis (i.e.,  $H_3$ ) proposes a positive association between accruals-based earnings conservatism (i.e., recognition negative operating cash flows quicker than positive operating cash flows) and audit committee effectiveness. The main empirical results (see Table 6.5 Column III) fail to indicate a statistically significant association. In rejecting  $H_3$ , results suggest a firm with an effective audit committee is just as likely to be associated with accruals-based earnings conservatism as a firm with a less effective audit committee. In the main, additional robustness and sensitivity tests conducted support the lack of a statistically significant association between audit committee effectiveness and accruals-based earnings conservatism. However, it is noted that when the audit committee effectiveness proxy is adjusted for an alternative diligence measure (based on number of board meetings) there is a statistically significant positive association (see Table 7.4 Panel C

Column II).<sup>54</sup> As the result appears an isolated case,  $H_3$  is still rejected, though with some minor caution.

In the case of the four key components of audit committee effectiveness, main results (supported by robustness and sensitivity tests) infer  $H_{3a}$ ,  $H_{3b}$  and  $H_{3c}$  (i.e., independence, expertise and experience) be rejected (see Table 6.6 Columns I, II and III for main finding results). However, main results detailing testing of the earnings conservatism and audit committee diligence association show a positive significant relationship (see Table 6.6 Column IV). This suggests a firm with extra audit committee meetings is more likely to be associated with accruals-based earnings conservatism than counterparts with less frequent audit committee meeting. Thus,  $H_{3d}$  is accepted.

#### **8.2.4 Summary of Conclusions on General Propositions**

Overall, results associated with  $H_1$ ,  $H_2$  and  $H_3$  do not support the general proposition (i.e.,  $GP_{EAC}$ ) that Australian publicly listed firms with more effective audit committees are more likely to be associated with higher levels of earnings conservatism. Furthermore, results associated with  $H_{1a}$ ,  $H_{2a}$ , and  $H_{3a}$  suggest a lack of clear support for the proposition ( $GP_{Ind}$ ) that Australian publicly listed firms with more independent audit committees are more likely to be associated with higher levels of earnings conservatism. Meanwhile, based on the results associated with  $H_{1b}$ ,  $H_{2b}$  and  $H_{3b}$ , and  $H_{1c}$ ,  $H_{2c}$  and  $H_{3c}$ , there is limited support for the propositions,  $GP_{Expt}$  and  $GP_{Exp}$ , that is, Australian publicly listed firms with more financially qualified and experienced audit committees members are more likely to be associated with higher levels of earnings conservatism. Finally, results associated with  $H_{1d}$ ,  $H_{2d}$  and  $H_{3d}$  provide limited support for the proposition Australian publicly listed firms with more diligent audit committees are more likely to be associated with higher levels of earnings conservatism.

### **8.3 Implications of the Study**

Findings provide valuable insights into understanding the determinants of earnings conservatism, and the influence of audit committee effectiveness on key financial accounting issues. Results provide important inferences for key stakeholders including regulators, investors, scholars and corporate management. Implications for key stakeholders are discussed in the following subsections.

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<sup>54</sup> Diligence of the audit committee is measured in two different ways: (1) based on actual number of audit committee meetings; and (2) based on actual number of board of directors meetings. As a result, a firm has been given a score of one (1) if the audit committee meets four (4) or more times a year or if the board of directors meets 10 or more times a year. In order to verify the robustness of the main results, sample firm-years are partitioned based on two different measures of diligence: (1) actual number of audit committee meetings; and (2) actual number of board of directors meetings.

### 8.3.1 Regulators

Over the past two decades the audit committee has become a central focus, and has been recognized as an important mechanism strengthening the corporate governance structure of firms worldwide (including Australia) (Abbott and Parker 2000; Abdolmohammadi and Levy 1992; Beasley and Salterio 2001; Collier 1993; McMullen and Raghunandan 1996; Munro and Buckby 2008). Audit committees are commonly viewed as monitoring mechanisms that enhance the audit attestation of external financial reporting and external auditor independence by establishing formal communication links between the board of directors, the internal monitoring system, and the internal and external auditors (BRC 1999; Munro and Buckby 2008). Regulators have formed the view that the primary responsibility of an audit committee is to “review the integrity of the company’s financial reporting and oversee the independence of external auditors” (ASX CGC 2003, p.26).<sup>55</sup> In Australia, audit committees are at an early stage of evolution, and under continuous reform.<sup>56</sup> Key regulations governing audit committee formation and operation are the ASX Corporate Governance Listing Rules and Best Practices Recommendations issued by ASX (ASX CGC 2003).<sup>57</sup> The ASX 2003, however, are mandatory only for the top 300 ASX-listed firms.

In relation to timeliness of earnings conservatism, results from this study show that earnings conservatism exists among Australian publicly listed firms. (i.e., firms recognize bad news in a timelier manner than good news). Tests, however, show no statistically significant association between earnings conservatism and audit committee effectiveness. When audit committee effectiveness is disaggregated into four components (i.e., audit committee independence, financial expertise, experience and diligence) a statistically significant association between timeliness of earnings conservatism and: (a) audit committee financial expertise; and (b) experience emerges. The findings are consistent with prior literature (Defond et al. 2005; Dhaliwal et al. 2006; Krishnan and Visvanathan 2007a, 2007b).

An implication of findings related to timeliness and audit committee effectiveness is that if regulators want to improve the quality of reported earnings (by encouraging

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<sup>55</sup> Audit committees have also been identified as a mechanism for monitoring and protecting the interests of shareholders (DeZoort et al. 2002; Menon and Williams 1994).

<sup>56</sup> Please refer to Chapter Three for detailed discussion on history of audit committee in Australia.

<sup>57</sup> Prior to 2003, there were no formal requirements for Australian firms to form an audit committee. Nonetheless, the importance of the audit committee as a fundamental component in ensuring the integrity of a firm’s financial report was recognized by Australian regulators (ASX Corporate Governance Council 2003; Watts and Zimmerman 1990). Regulations introduced in Australia in 2003 – in the form of the ASX 2003 and the CLERP 9 – formally sought to enforce a need on Australian firms to create an audit committee. The guidelines in ASX 2003 and CLERP 9 also defined the audit committee’s role and responsibilities. Recommendations on structural and operational procedures to ensure the audit committee’s integrity are also outlined in ASX 2003 and CLERP 9. ASX 2003 Recommendation 4.3, for example, requires the audit committee to comprise of at least three directors. Additionally, all members of the audit committee must be non-executive directors with the majority being independent of the firm’s management (i.e., independent directors). Furthermore, all audit committee members must be financially literate with at least one member having financial expertise (ASX Corporate Governance Council 2003). Like ASX 2003, CLERP 9 was introduced to improve the quality of the financial reporting process in Australia.

conservative accounting practices) by seeking to formalize audit committee composition and practices, regulators should not focus on independence and meeting frequency. Rather, regulators need to consider the audit committee member's financial expertise and experience as key features which can improve the effectiveness of audit committees.

*ASX 2003 Recommendation 4.3* currently requires all members of the audit committee to be non-executive with a majority of independent directors. Also, *ASX 2003 Recommendation 4.3* requires all members of the audit committee to be financially literate with at least one having financial expertise (ASX CGC 2003). Findings of this study support the influence and importance of *ASX 2003 Recommendation 4.3* requirements on financial expertise, but not independence, in respect to an impact on earnings conservatism. One possible reason why financial expertise may improve the quality of financial reporting via greater timeliness of earnings conservatism is audit committee members with financial expertise are better able to understand and analyze financial information and influence the quality of reported earnings. Aside from potentially reinforcing the importance of structuring the audit committee with members with financial expertise in a drive to improve the timeliness of earnings conservatism, regulators may also seek to introduce rules (or recommendations) supporting appointment of audit committee members with prior corporate governance experience.

Sensitivity analysis (in respect to timeliness of earnings conservatism especially) indicated a significant association between earnings conservatism and audit committee effectiveness for: (a) larger firms (by market capitalization); and (b) firms engaging a *Big-4* audit firm. Descriptive statistics indicate larger firms (by market capitalization) and firms engaging a *Big-4* audit firm tend to have higher compliance with *ASX 2003* (such as it relates to independence, financial expertise of members and diligence).<sup>58</sup> The higher compliance with *ASX 2003* amongst larger firms is likely due to recommendations being mandatory. As for firms engaging *Big-4* having greater compliance with *ASX 2003*, this could be due to *Big-4* auditors asserting pressure on clients to comply due to concerns about their (*Big-4* audit firm) reputational cost (Beatty 1989; Craswell, Francis, and Taylor 1995; Karuna 2010). If looking to increase the timeliness of earnings conservatism across a larger proportion of the ASX-listed firms, regulators may have to re-consider the scope of the mandatory requirements of *ASX 2003*, or incentives for firms to engage a *Big-4* audit firm.

Finally, though results pertaining to the timeliness of earnings conservatism indicate diligence is not an important determinant, this factor is found to be relevant in regards to accruals-based earnings conservatism. If regulators deem the recognition of negative

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<sup>58</sup> *ASX 2003 Recommendation 4.3* requires that all members of the audit committee must be non-executive directors with the majority being independent of the firm's management (i.e., independent directors). Furthermore, all audit committee members must be financially literate with at least one having financial expertise (ASX Corporate Governance Council 2003).

operating cash flows quicker than positive operating cash flows to be of greater importance than timeliness of bad/good news, they (regulators) may consider reassessing the current Listing Rules (i.e., *ASX Listing Rules 4.4*) and recommendations on the frequency of meeting of the audit committee and board of directors.

### 8.3.2 Investors

The accounting and finance literature widely recognizes a significant asymmetrical information gap between insiders (commonly noted as corporate management) and outsiders (often cited as investors) (Hillman and Dalziel 2003; Klein 1998; Udayasankar and Das 2007; Vafeas 1999; Vafeas and Theodorou 1998).<sup>59</sup> The asymmetrical information gap presents investors with enormous difficulties in establishing the ‘true’ value of a firm’s shares whilst simultaneously increasing the cost-of-capital to insiders. Thus, it is in the interests of both insiders and outsiders to establish indicators and mechanisms which aid in determining a firm’s share value.

Investors commonly rely on earnings and associated accounting information to value a firm’s shares, and to make decisions on buying, selling or holding of that investment (Agrawal and Chadha 2005; Ahmed and Courtis 1999; Dechow 1994; Hillman and Dalziel 2003; Klein 1998; Udayasankar and Das 2007; Vafeas 1999; Vafeas and Theodorou 1998). Whilst earnings and associated accounting information is an integral aspect to valuing a firm’s shares, many questions and concerns persist about the quality of such details.<sup>60</sup>

Past literature (and as argued in this thesis) suggests that an effective audit committee provides increased assurance about the quality of earnings and information (Abbott, Park, and Parker 2000; Abbott, Parker, and Peters 2004; Baxter and Pragasam 1999; Carcello, Hollingsworth, Klein, and Neal 2006; Carcello and Neal 2000; Chen, Moroney, and Houghton 2005; DeZoort 1998; Karamanou and Vafeas 2005; Krishnan and Visvanathan 2007a). An effective audit committee, therefore, may provide investors with a signal as to the underlying quality of reported earnings and accounting information and, by association, the firm’s share value.

Earnings conservatism is frequently perceived to be a pivotal underlying property of earnings quality. Overall results (i.e., using the full sample and composite score to proxy audit committee effectiveness) did not indicate a significant association between earnings

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<sup>59</sup> The terms ‘insider’ and ‘outsider’ are often used loosely in the literature to classify specific groups due to the lack of any precise definitions. Whilst it is implicitly accepted that corporate management are insiders, there is lack of clarity surrounding the broad term of ‘investors’. For instance, *well-informed* investors (i.e., banks and stock brokers) are sometimes perceived to be ‘insiders’ rather than ‘outsiders’ so as to draw a distinction from *less-informed* investors. Though *well-informed* (also termed *informed*) investors are likely to have closer links to corporate management, a level of asymmetrical information is still likely to exist, though to a lesser extent than between corporate management and *less-informed* (also termed *uninformed*) investors. For purposes of this discussion, the term ‘insiders’ is used to describe corporate management whilst ‘outsiders’ covers all investors (i.e., *well-informed* and/or *less-informed*).

<sup>60</sup> Accounting profit is commonly used along with the share values in remunerating managers. Thus, managers have incentives to manipulate accounting profits by modifying accounting policies to determine the contractual payoffs to managers (Godfrey, Hodgson, Holmes, and Tarca 2006).

quality (i.e., earnings conservatism) and audit committee effectiveness. These results imply investors seeking to use audit committee effectiveness as a signal of a firm's earnings conservatism (and quality), and therein share value, are unlikely to derive much benefit when seeking to differentiate between firms. That is, results imply that an investor seeking to invest in a firm with a more effective audit committee in the belief that earnings conservatism is greater (leading to higher share value), is just as likely to purchase shares in 'lemon' as when acquiring shares in a counterpart with a less effective audit committee.

Findings do, however, imply investors could potentially use audit committee effectiveness as a signal to assist in differentiating between: (a) larger firms; and (b) firms engaging *Big-4* auditor. Specifically, if the audit committee effectiveness signal (of a firm's share value via earnings conservatism) holds sway, results imply investors are less likely to purchase a 'lemon' if investing into a large firm (firm engaging a *Big4* audit firm) with an effective audit committee relative to a large firm (firm engaging a *Big4* audit firm) with an ineffective audit committee. Also, whilst results generally imply that a holistic perception of audit committee effectiveness may not provide an effective signal of a firm's earnings conservatism/quality, and ultimately the firm's share value, findings indicate specific components may provide greater signaling benefit. This study implies that financial expertise and prior corporate governance experience of audit committee members (and to a lesser degree the committee's diligence) are potential components of audit committee effectiveness that may aid investors to differentiate between firms by signaling firms with a higher likelihood of strong underlying value (as evidenced by greater earnings conservatism and quality).

Although results appear to yield little (if any) benefit to investors of audit committee effectiveness as a signal of earnings quality and firm share value, the results does not negate the potential for this corporate governance mechanism (i.e., audit committee) to act within such a capacity. If investors perceive audit committee effectiveness as a viable signaling mechanism to differentiate between firms, results of this study imply Australian investors need to further lobby regulators to adjust and/or strengthen existing audit committee regulations to ensure a more conducive environment, whereby, firms with less effective audit committees can be identified and penalized (by discounting of share value) by investors. To this end, results indicate investors should lobby for adjustments to, and greater enforcement, of *ASX 2003* related to audit committee member's financial expertise, prior corporate governance experience, and the audit committee's diligence. For example, investors should urge for the introduction of rules (or recommendations) supporting the appointment of audit committee members with prior corporate governance experience. Finally, findings imply investors should also lobby the *ASX CGC* to make the *ASX 2003* compulsory for all publicly listed firms in Australia rather than just limiting it (*ASX 2003*) to the top 300 firms.

### **8.3.3 Corporate management**

A pivotal underlying principle of agency theory (that forms the theoretical framework of this thesis and majority of corporate governance studies) is that due to the separation between ownership and control, the agent (i.e., corporate management) may not be inclined to act in the best interests of the principal (i.e., shareholders) (Abbott et al. 2000; Ahmed and Duellman 2007; Carcello, Neal, Palmrose, and Scholz 2006; Cohen, Krishnamoorthy, and Wright 2004). To prevent agents from engaging in opportunistic behavior to further their (agents) own self-interests, principals often rely on monitoring controls (Abbott and Parker 2000, 2001; Beasley and Salterio 2001; Collier and Gregory 1999). Such monitoring controls are intended to align the agents and shareholders' interests, and to reduce agency costs (Bedard, Chtourou, and Courteau 2004; Carcello, Neal, Palmrose, and Scholz 2006; Cohen, Krishnamoorthy, and Wright 2004). As noted in this thesis, the audit committee is one monitoring mechanism widely touted in past literature as a potential effective means of improving the quality of reported earnings and reducing opportunistic behavior by corporate management (Abbott et al. 2004; Beasley and Salterio 2001; Carcello and Neal 2000; Chen and Zhou 2007; Dhaliwal et al. 2006; Goodwin 2003).

In the context of earnings conservatism, corporate management seeking to engage in opportunistic behavior to further their (corporate management's) self-interests (such as to boost personal reputation, achieve higher contractual bonuses etc.) may choose accounting policies that inflate or misrepresent the true underlying economic position of the firm (Godfrey et al. 2006). Whilst monitoring mechanisms like an audit committee 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.

Given the study's overall results fail to indicate a significant audit committee effectiveness/earnings conservatism association, results implies corporate management are unlikely to have much to be alarmed about from the audit committee actively seeking to enforce the adoption of less aggressive (i.e., more conservative) accounting policies. Specifically, results imply corporate management of Australian firms may not be interested to increase the firm value (by increasing the quality of reported earnings), rather, they (corporate management) will have the opportunity to inflate accounting earnings (by manipulating accounting policies), thus, ensuring their self-interest activities are preserved. Two main reasons support this view. First, results imply that corporate management of a firm with a less effective audit committee will have less trepidation that their personal reputation capital will be diminished relative to corporate management counterpart in a firm with a more effective audit committee. This is because both an effective and ineffective audit committee are (based on results of this study) likely to insist on similar earnings

conservatism policies and standards. Consequently, this will lead to little differentiation between firms in respect to earnings conservatism such that corporate management in both firms will be considered comparable. Corporate management of a firm with a less effective audit committee, therefore, has less incentive to refrain from pursuing opportunistic behavior. Second, corporate management of a firm with an effective audit committee need not necessarily be alarmed about loss of financial rewards (e.g., bonuses) relative to corporate management of a firm with a less effective audit committee. As results of this study indicate, Australian publicly listed firms do exhibit earnings conservatism but the level of earnings conservatism does not have any association with audit committee effectiveness. If corporate management's financial rewards are pegged to earnings, then adoption of earnings conservatism practices regardless of the audit committee's effectiveness should yield similar financial bonuses for corporate management.

Lack of an overall audit committee effectiveness/earnings conservatism association as highlighted in this study, implies that this corporate governance mechanism (audit committee) is potentially not effective in generating an environment in the Australian corporate sector that convinces corporate management to voluntarily cease from pursuing opportunistic behavior. Thus, agency costs continue to impinge on principals. To rectify this situation, Australian regulators may need to reinforce current *ASX 2003*. In particular, results imply regulators could focus recommendations to strengthen the importance of audit committee member's financial expertise and prior corporate governance experience (and to a lesser extent the audit committee's diligence). Introduction (or strengthening) of further recommendations governing the aforementioned attributes of the audit committee may assist in differentiating policies toward earnings conservatism of effective and ineffective audit committees. Similarly, the *ASX CGC* could consider making *ASX 2003* compulsory for all publicly listed firms in Australia so as to create a more level playing field that will make comparability of earnings conservatism policies easier. Corporate management of firms with a less effective audit committee may then have greater fear of a loss of reputational capital as investors can compare all firms equally.

#### **8.3.4 Scholars**

Past theoretical literature suggests the audit committee is an effective mechanism which improves the financial reporting quality, external and internal audit processes within a firm (Abbott et al. 2000; Abbott and Parker 2000; Abbott et al. 2004; Carcello et al. 2006; Chen et al. 2005; Pucheta-Martinez and Fuentes 2007; Stewart and Munro 2007; Xie, Davidson, and DaDalt 2003). There are some implicit suggestions in the literature the audit committee effectiveness/earnings quality linkage may be applied universally. Results from this study, however, imply such a claim may be premature on a number of fronts.

First, as discussed in an earlier section of this thesis, earnings quality is a complex construct that comprises multiple facets. One such facet is earnings conservatism. From this study, results indicate that audit committee effectiveness is not associated with earnings conservatism. Consequently, it would be inappropriate for researchers to automatically presume audit committee effectiveness is a determinant of earnings quality. Rather, theoretical scholars in the fields of corporate governance and accounting may need to redefine the perceived relationship between audit committee effectiveness and earnings conservatism to confine the association to specific components of each construct. Also, as earnings quality is a complex construct, so is earnings conservatism. Findings from this study imply that both theoretical and empirical researchers may need to streamline theoretical arguments and empirical investigations to focus on specific aspects of earnings conservatism and not compartmentalize the construct within a holistic perspective.

Second, the majority of prior research examining the audit committee effectiveness/earnings quality linkage to date has been conducted in the United States (Abbott et al. 2000; Abbott et al. 2004; Carcello et al. 2006; Carcello, Hollingsworth, and Neal 2006; Carcello and Neal 2000; DeZoort, Hermanson, and Houston 2003; DeZoort and Salterio 2001; Dhaliwal et al. 2006). 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 setting rather than blindly assuming that presumptions of factors affecting the audit committee effectiveness/earnings quality linkage can be automatically transferred.

An overwhelming focus of past literature (and regulations) on associated with audit committees emphasizes the importance of independence (Abbott et al. 2000; Bedard et al. 2004; Clifford and Evans 1997; Klein 2002b; Lee, Mande, and Ortman 2003; Lee, Mande, and Ortman 2004; Lennox and Park 2007; Vicknair, Hickman, and Carnes 1993). Findings from this study show that firms with audit committees comprising a majority of independent directors did not exhibit higher level of earnings conservatism relative to counterparts with less independent audit committee members. Rather, findings highlight the importance of other audit committee components (i.e., financial expertise, prior experience and diligence (which has a lesser influence)). This result implies scholars need to exercise caution when considering which structural and operational features really improve the effectiveness of audit committee in ensuring quality of earnings (i.e., earnings conservatism). In the future, scholars may need to shift the future research focus onto audit components such as financial expertise and experience of audit committee members so as to aid in evolving the understanding of the influence of audit committees on the financial reporting process. Whilst

studies of audit committee independence yield important results, a continued focus on this aspect could hamper development of more constructive and effective policies and regulations

Finally, for purposes of this study a composite score built on dichotomous scores was derived in an attempt to capture audit committee effectiveness within a holistic framework. It is acknowledged, however, that the components of audit committee effectiveness scored in this study are not exclusive. That is, other aspects/components of audit committee effectiveness are of merit but are not included in the measurement instrument due to data limitations and operational difficulties. Whilst empirical findings fail to indicate a significant audit committee effectiveness/earnings conservatism linkage, this does not necessarily dismiss the use of a composite score and/or components focused on. Rather, findings using individual component scores suggest that the aggregation of dichotomous values may actually reduce variances. Scholars undertaking future research, therefore, may strive to improve the measurement of a composite score by: (a) incorporating other components of audit committee effectiveness; and (b) utilizing continuous measures to construct an index score.

#### **8.4 Contributions of the Study**

Although prior research shows both the presence, and rise in the past decade, of earnings conservatism, numerous empirical questions about the value of conservatism to the financial reporting process remain unanswered (Givoly et al. 2007; Gotti 2008; Grambovas et al. 2006). This study assists in broadening such understanding, particularly within the context of the Australian capital market. For example, by using alternative measures of earnings conservatism (i.e., Ball and Shivakumar 2005; Basu 1997) the results of this study help to indicate what form of earnings conservatism (i.e., timeliness, persistence or accruals-based) is most pronounced in the Australian domestic setting. Also, findings from this study provide updated evidence on the existence and extent of earnings conservatism amongst Australian publicly listed firms across a longitudinal period.

This study also helps in addressing one of many unanswered empirical questions related to earnings conservatism, whilst also increasing the understanding of the influence of audit committees. Specifically, analysis develops insights into, and identifies, key determinants of conservatism. Much empirical research to date has sought to determine the presence and extent of earnings conservatism using a range of techniques (Basu 1997; Givoly and Hayn 2002; Grambovas et al. 2006; Kim et al. 2003; Lubberink and Huijgen 2001). Very little research, however, seeks to identify the key drivers of conservatism (Ahmed and Duellman 2007; Beekes et al. 2004; Krishnan and Visvanathan 2007a; Lara et al. 2009a). To the researcher's best knowledge, this is the first study to provide a comprehensive examination of the relationship between earnings conservatism and audit

committee effectiveness in the Australian capital market setting (if not internationally). By focusing on audit committee effectiveness within a holistic framework (i.e., considering multiple attributes underlying the audit committee's effectiveness), this study provides a deeper understanding of the importance of audit committees, and the extent to which this corporate governance mechanism ensures the integrity of financial reporting. Furthermore, by examining the audit committee effectiveness/earnings conservatism in an Australian setting, this study provides important international evidence of the impact of corporate governance mechanisms on earnings quality.

In regard to audit committees specifically, this study provides evidence of the impact of this corporate governance mechanism to a wider range of firms by size. This study contrasts to a number of prior studies (Abbott and Parker 2000; Carcello and Neal 2003; DeZoort and Salterio 2001; Park 1999; Pucheta-Martinez and Fuentes 2007) examining the effectiveness of audit committee that have generally only considered larger firms by market capitalizations. This study provides evidence on whether the impact of audit committees can be generalized across all listed firms.

Findings from this study also increase the understanding of the role, and impact thereof, of audit committee effectiveness on financial reporting quality. Importantly, this study provides broader evidence on the influence of specific audit committee structural and operational characteristics (i.e., audit committee independence, expertise, experience and diligence) on earnings conservatism. Results indicate that audit committees with financially qualified and experienced members who meet regularly are better able to improve the quality of financial reporting. Findings, therefore, help identify specific audit committee features researchers examining the influence of audit committees may seek to examine/include in future research.

This study also provides contributions to the understanding of the Australian capital market that is beneficial key stakeholders (e.g., regulators). For instance, findings will help regulators determine which structural and operational features of audit committee are best likely to lead to improvements in quality of financial reporting. This information can then enable regulators assess whether *ASX 2003* recommendations are likely to have benefits to firms and society, or will burden firms with unnecessary costs. Findings can aid regulators in revising existing policies to ensure the desired outcome is achieved, or to help in development of new policies to reinforce present standards governing audit committees.

Overall, this study provides important insights and highlights avenues for future research. With any positivist empirical study, however, this research is not without caveats.

## **8.5 Limitations of the Study**

While having many important insights, the study is not without limitations. For instance, audit committee effectiveness is a multi-dimensional construct currently lacking consensus on a precise definition (DeZoort et al. 2002; McMullen and Raghunandan 1996). Consequently, various properties have been forwarded in the literature as characteristics that underpin and determine audit committee effectiveness (Bedard et al. 2004; DeZoort 1997; DeZoort et al. 2002; Klein 2002a; Raghunandan et al. 1998). This study's proxy measure (for audit committee effectiveness) is built on four properties frequently cited in the extant literature to represent effectiveness of the audit committee. Nonetheless, it is recognized this proxy measure is not entirely exclusive. Efforts to include other factors were curtailed due to data limitations, operationalization difficulties and unavailability of information.

Another limitation is (like audit committee effectiveness) there is presently no universally accepted definition and proxy measure for the earnings conservatism construct. This study uses three different measures in an attempt to provide a comprehensive representation of earnings conservatism. Again, it is recognized the aforementioned three measures are not entirely exclusive as past literature has highlighted alternative measures (e.g., Beaver and Ryan 2000; Givoly and Hayn 2000; Roychowdhury and Watts 2007). Whilst robustness tests using several additional measures of earnings conservatism did not yield different results from the main reported findings, differences could still arise if other alternative measures are used.

To test the study's hypotheses, data to determine audit committee effectiveness composite score is collected from annual reports. This focus limits the amount and type of data that can be collected. Dependence on data solely from annual reports raises questions as to the accuracy and completeness of the information disclosed by the preparer. Results from this study, therefore, are dependent to a degree on firms faithfully disclosing information in the annual report.

The methodology adopted in this study to measure and test earnings conservatism is consistent with prior related work (Ahmed and Duellman 2007; Beekes et al. 2004; Lara et al. 2005; Lara et al. 2009a; Roychowdhury and Watts 2007; Ruddock et al. 2006). A limitation of this approach, however, is control variables that may influence earnings conservatism or corporate governance mechanism is ignored. Some past literature, for example, shows firm characteristics (e.g., sales growth, institutional ownership, profitability, litigation risk) can impact the earnings conservatism/corporate governance relationship (Ahmed and Duellman 2007; Lara et al. 2009a). Given the omission of control variables some caution in interpreting the study's results is warranted.

Being a nation-specific study (i.e., focusing solely on Australia) with a concentration on publicly listed firms, it is recognized there is a limitation in generalizing the study's

findings to private (i.e., non-listed) Australian firms or publicly listed firms in an alternative domestic setting (e.g., Hong Kong, India, Spain) with different institutional settings. A related generalization limitation of the results is the observation window only spans the 2004 to 2008 calendar years. It may not be reasonable, therefore, to generalize results to periods prior to 2004 or post 2008.

Finally, for the purposes of this study, the sample firms are the same for each calendar year examined. This raises a possible independence of samples issue (Hair et al. 1995). However, this is not considered overtly detrimental to this study because it only applies to the longitudinal Ordinary Least Squares (OLS) regression models used. Furthermore, individual calendar year analysis was undertaken yielding similar findings to main results. Moreover, almost all past literature (in the accounting and finance fields) using firm-year observations for multivariate testing, accept the fact that independence of samples may be of concern (Ball and Shivakumar 2006; Beekes et al. 2004; Gassen et al. 2006; Givoly et al. 2007; Grambovas et al. 2006; Kung et al. 2008; Roychowdhury and Watts 2007; Zhang 2008). However, there is no other parsimonious way to undertake such longitudinal analysis where changes in the results of selected firm-years are of interest to the researcher(s). While limitations are acknowledged, these caveats do not outweigh the study's strengths nor the insights highlighted. Some caution, however, should be used in interpreting the results, and till future research is developed that will assist to clarify the reported findings.

## **8.6 Suggestions for Future Research**

Empirical findings from this study offer various avenues for future research. For example, future research could utilize other approaches to measuring earnings conservatism. Roychowdhury and Watts (2007) and Beaver and Ryan (2000), for example, uses market value based proxies whereas Givoly and Hayn (2000) rely on accruals based proxy measures for earnings conservatism. Similarly, for audit committee effectiveness, future research could attempt to construct a more comprehensive proxy incorporating other properties (i.e., audit committee size, audit committee member ownership, activity level, interaction with internal auditors, industry expertise and tenure) (Collier and Gregory 1999; DeZoort 1998; Raghunandan et al. 1998). Collection of such data, however, is likely to rely on utilization of other research methods beyond archival collection. Such research methods could include interviews, surveys and questionnaires that may assist in better defining the inner workings of audit committees. Empirical tests can then be performed again.

For purposes of this study (driven in part by data limitations) a five year observation window (i.e., 2004 to 2008) is used. Future research may utilize different time frame, longer or shorter observation periods, or periods to traverse a specific event (e.g., Asian Financial

Crisis, Enron). Such research will aid in building a more comprehensive understanding of the influence of the audit committee on earnings conservatism.

Also, being a study with a single-nation focus (i.e., Australia) a logical extension for future research is to evaluate the audit committee effectiveness – earnings conservatism association in another domestic, regional or broader international setting. For instance, scholars could conduct related research to this study by choosing countries with different institutional settings (e.g., code law versus common law, litigation risk, institutional ownership and cultural difference).

Finally, this study only examines the influence of a single corporate governance mechanism on earnings conservatism. Future research may seek to consider the joint influence of audit committee effective and another corporate governance mechanism (e.g., remuneration committee; auditor quality; internal audit function) on earnings conservatism.

## **8.7 Summary of the Study**

Audit committee effectiveness and earnings conservatism have become two important issues during the past decade. Regulators and theorists have alleged a potential audit committee effectiveness/earnings conservatism linkage. However, empirical research of this linkage has not been forthcoming. This study formally conducts a comprehensive empirical analysis of the association between earnings conservatism and audit committee effectiveness within Australian capital market setting. Utilizing three different perspectives of earnings conservatism (i.e., timeliness (Basu 1997); persistence (Basu 1997); and, accruals-based (i.e., differential in accruals and cash flows) (Ball and Shivakumar 2005)), and measuring audit committee effectiveness using a composite score based on four interrelated characteristics (i.e., independence, financial expertise, prior experience and diligence), extensive statistical tests (including numerous robustness and sensitivity tests) were conducted based on a sample of 494 firm-year observations spanning the 2004 to 2008 calendar years.

The empirical tests yield insightful results. Specifically, overall findings suggest a more effective audit committee is not likely to incorporate negative news into earnings faster (i.e., more timely). However, contradictory to expectations, less effective audit committees are more likely to encourage persistence of earnings conservatism whilst the effectiveness of the audit committee appears to have no significant association to accruals-based earnings conservatism. Analysis suggests financial expertise and prior corporate governance experience of audit committee members are the components driving the audit committee's influence on earnings conservatism (particularly timeliness) with diligence having a lesser impact. Independence, however, appears to be of limited (if any) relevance. Further analysis also suggests larger firms having more effective audit committees are more likely to

incorporate negative news into earnings significantly faster (i.e., more timely) than smaller firms. Also, a firm audited by a *Big-4* firm, is more likely to incorporate negative news into earnings significantly faster (i.e., more timely) than a firm audited by a *non-Big-4* auditor.

Overall, findings from this study provide valuable insights and understanding not only in respect to the audit committee effectiveness/earnings conservatism linkage, but the individual dynamics and significance of the audit committee and earnings conservatism/quality concepts. Despite recognized caveats, findings from this study have merit in highlighting important insights with significant implications for various key financial accounting stakeholders (e.g., regulators, corporate management, practitioners, investors and scholars). In advancing the knowledge and understanding of audit committees and earnings conservatism, and the related association between the two concepts, this study also highlights various paths for future interest and productive empirical research.

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## APPENDIX A

Excerpt from the Australian Securities Exchange Corporate Governance Council's 2003 '*Principles of good corporate governance and best practice recommendations*'.

### **Principle 4: Safeguard integrity in financial reporting**

#### **Have a structure to independently verify and safeguard the integrity of the company's financial reporting.**

This requires the company to put in place a structure of review and authorisation designed to ensure the truthful and factual presentation of the company's financial position. The structure would include, for example:

- review and consideration of the accounts by the audit committee;
- a process to ensure the independence and competence of the company's external auditors.

Such a structure does not diminish the ultimate responsibility of the board to ensure the integrity of the company's financial reporting.

#### **How to achieve best practice**

**Recommendation 4.1:** *Require the chief executive officer (or equivalent) and the chief financial officer (or equivalent) to state in writing to the board that the company's financial reports present a true and fair view, in all material respects, of the company's financial condition and operational results and are in accordance with relevant accounting standards.*

#### **Commentary and guidance**

This statement is complemented by the statement required in recommendation 7.2 relating to the underlying risk management system.

#### **Interaction with Corporations Act**

The requirement to make this statement encourages management accountability and provides an underpinning for the statements required by the directors under the Corporations Act in relation to the company's financial reports.

**Recommendation 4.2:** *The board should establish an audit committee.*

#### **Commentary and guidance**

##### ***Purpose of the audit committee***

Particularly for larger companies, an audit committee can be a more efficient mechanism than the full board for focusing the company on particular issues relevant to verifying and safeguarding the integrity of the company's financial reporting. The existence of an audit committee should not be seen as implying a fragmentation or diminution of the

## APPENDIX A1

responsibilities of the board as a whole. It is recognised that for smaller boards, the same efficiencies may not be apparent from a formal committee structure.

### ***Importance of the audit committee***

The existence of an independent audit committee is recognised internationally as an important feature of good corporate governance. If there is no audit committee, it is particularly important that the company disclose how its alternative approach assures the integrity of the financial statements of the company and the independence of the external auditor, and why an audit committee is not considered appropriate. Companies within the S&P/ASX All Ordinaries Index are subject to ASX Listing Rule 12.7, which requires that an entity included in that index at the beginning of its financial year have an audit committee during that year. The composition, operation and responsibilities of the audit committee must comply with the recommendations below.

**Recommendation 4.3:** *Structure the audit committee so that it consists of:*

- *only non-executive directors*
- *a majority of independent directors;*
- *an independent chairperson, who is not chairperson of the board; and*
- *at least three members.*

### **Commentary and guidance**

The audit committee should be of sufficient size, independence and technical expertise to discharge its mandate effectively.

### ***Importance of independence***

The ability of the audit committee to exercise independent judgement is vital. International best practice is moving towards an audit committee comprised of only independent directors. The ASX Corporate Governance Council encourages companies to move towards such a composition within the next three years and will be monitoring audit committee composition and international developments in this area.

### ***Technical expertise***

The audit committee should include members who are all financially literate (i.e., are able to read and understand financial statements); at least one member who has financial expertise (i.e., is a qualified accountant or other financial professional with experience of financial and accounting matters); and some members who have an understanding of the industry in which the entity operates.

### **Transitional arrangements for companies within the All Ordinaries Index**

## APPENDIX A2

Companies within the S&P/ASX All Ordinaries Index are required by ASX Listing Rule 12.7 to comply with the best practice recommendations of the Council concerning the composition, operation and responsibility of audit committees in respect of full reporting periods commencing after 1 January 2003. While such companies should aspire to satisfy recommendation 4.3 as soon as practicable, in order to avoid undue disruption, it need not be applied until 1 July 2005. Instead, prior to 1 July 2005:

- the audit committee may comprise a majority of non-executive directors
- at least one member of the audit committee must be independent.

It is preferable that the chairperson of the committee be independent.

**Recommendation 4.4:** *The audit committee should have a formal charter.*

### **Commentary and guidance**

#### ***Charter***

The charter should clearly set out the audit committee's role and responsibilities, composition, structure and membership requirements. The audit committee should be given the necessary power and resources to meet its charter. This will include rights of access to management and to auditors (external and internal) without management present and rights to seek explanations and additional information.

#### ***Responsibilities***

The audit committee should review the integrity of the company's financial reporting and oversee the independence of the external auditors. A detailed guide to the responsibilities of the audit committee is provided in *Best Practice Guide – Audit Committees*, Auditing & Assurance Standards Board of The Australian Accounting Research Foundation, Institute of Internal Auditors, Australian Institute of Company Directors, 2nd edition, August 2001. [www.aarf.asn.au](http://www.aarf.asn.au). The independence and objectivity of the auditor is considered in *Professional Statement F1 – Professional Independence*, The Institute of Chartered Accountants in Australia and CPA Australia 2002, and in *Pronouncement 1, “Code of Ethics”* of the National Institute of Accountants.

#### ***Meetings***

The audit committee should meet often enough to undertake its role effectively. The audit committee should keep minutes of its meetings and these should ordinarily be included in the papers for the next full board meeting after each audit committee meeting.

## **APPENDIX A3**

### **Reporting**

The audit committee should report to the board. The report should contain all matters relevant to the committee's role and responsibilities, including:

- assessment of whether external reporting is consistent with committee members' information and knowledge and is adequate for shareholder needs;
- assessment of the management processes supporting external reporting;
- procedures for the selection and appointment of the external auditor and for the rotation of external audit engagement partners;
- recommendations for the appointment or removal of an auditor;
- assessment of the performance and independence of the external auditors and whether the audit committee is satisfied that independence of this function has been maintained having regard to the provision of non-audit services;
- assessment of the performance and objectivity of the internal audit function; and
- the results of its review of risk management and internal compliance and control systems. Principle 7 provides further guidance on this matter.

**Recommendation 4.5:** *Provide the information indicated in Guide to reporting on Principle 4.*

### **Guide to reporting on Principle 4:**

The following material should be included in the corporate governance section of the annual report:

- details of the names and qualifications of those appointed to the audit committee, or, where an audit committee has not been formed, those who fulfil the functions of an audit committee
- the number of meetings of the audit committee and the names of the attendees
- explanation of any departures from best practice recommendations 4.1, 4.2, 4.3, 4.4 or 4.5.

The following material should be made publicly available, ideally by posting it to the company's website in a clearly marked corporate governance section:

- the audit committee charter
- information on procedures for the selection and appointment of the external auditor, and for the rotation of external audit engagement partners.

**Appendix B: Pearson Correlation Table**

<b>Panel A: Pearson Correlation Matrix – Basu (1997) timeliness model of earnings conservatism</b>								
	$X_{jt}$	$RR-AllOrd_{jt}$	$DR_{jt}$	$RR-AllOrd_{jt}*DR_{jt}$	$ACE_{jt}$	$RR-AllOrd_{jt}*ACE_{jt}$	$ACE*DR_{jt}$	$RR-AllOrd_{jt}*DR_{jt}*ACE_{jt}$
$X_{jt}$	1.000							
$RR-AllOrd_{jt}$	-0.170*	1.000						
$DR_{jt}$	-0.146**	-0.479*	1.000					
$RR-AllOrd_{jt}*DR_{jt}$	0.165*	0.466*	-0.667*	1.000				
$ACE_{jt}$	0.253*	-0.012	-0.103	0.234*	1.000			
$RR-AllOrd_{jt}*ACE_{jt}$	-0.050	0.758*	-0.607*	0.546*	0.033	1.000		
$ACE*DR_{jt}$	-0.007	-0.356*	0.793*	-0.414*	0.355*	-0.544*	1.000	
$RR-AllOrd_{jt}*DR_{jt}*ACE_{jt}$	0.089	0.409*	-0.630*	0.826*	-0.124	0.593*	-0.658*	1.000
<b>Panel B: Pearson Correlation Matrix – Basu (1997) persistence model of earnings conservatism</b>								
	$BPX_{jt}$	$PX_{jt}$	$DPX_{jt}$	$PX_{jt}*DPX_{jt}$	$ACE_{jt}$	$PX_{jt}*ACE_{jt}$	$DPX_{jt}*ACE_{jt}$	$PX_{jt}*DPX_{jt}*ACE_{jt}$
$BPX_{jt}$	1.000							
$PX_{jt}$	-0.077	1.000						
$DPX_{jt}$	-0.453*	0.100	1.000					
$PX_{jt}*DPX_{jt}$	0.580*	-0.081	-0.475*	1.000				
$ACE_{jt}$	-0.058	-0.130	-0.124	0.198*	1.000			
$PX_{jt}*ACE_{jt}$	-0.151**	0.632*	0.143**	-0.091	-0.021	1.000		
$DPX_{jt}*ACE_{jt}$	-0.332*	0.040	0.784*	-0.289*	0.214*	0.130	1.000	
$PX_{jt}*DPX_{jt}*ACE_{jt}$	-0.120	0.484*	0.228*	-0.144**	-0.015	0.627*	0.207*	1.000

## Appendix B1: Pearson Correlation Table

Panel C: Pearson Correlation Matrix – Ball and Shivakumar (2005) model of earnings conservatism								
	$ACC_{jt}$	$CFO_{jt}$	$DCFO_{jt}$	$CFO_{jt} * DCFO_{jt}$	$ACE_{jt}$	$ACE_{jt} * CFO_{jt}$	$ACE_{jt} * DCFO_{jt}$	$ACE_{jt} * CFO_{jt} * DCFO_{jt}$
$ACC_{jt}$	1.000							
$CFO_{jt}$	-0.797*	1.000						
$DCFO_{jt}$	0.142**	-0.249*	1.000					
$CFO_{jt} * DCFO_{jt}$	0.349*	-0.057	-0.041	1.000				
$ACE_{jt}$	0.261*	-0.148**	-0.001	0.252*	1.000			
$ACE_{jt} * CFO_{jt}$	-0.663*	0.818*	-0.261*	-0.039	0.087	1.000		
$ACE_{jt} * DCFO_{jt}$	0.185*	-0.221*	0.765*	0.084	0.318*	-0.210*	1.000	
$ACE_{jt} * CFO_{jt} * DCFO_{jt}$	-0.040	0.010	0.477*	0.024	0.081	0.063	0.477*	1.000

### Legend:

- $X_{jt}$  = Operating profit after tax of firm  $j$  deflated by market value of equity ( $MVE_{t-1}$  - Market capitalization of firm  $j$  at beginning of the fiscal year  $t$ ) of firm  $j$  at beginning of the fiscal year  $t$ ;  
 $DR_{jt}$  = Indicator variable where firm  $j$  is scored one (1) if  $RR-AllOrd_{jt}$  is negative, otherwise firm  $j$  is scored zero (0);  
 $ACE_{jt}$  = A composite score for audit committee effectiveness based on the sub-committee's independence, expertise, experience and diligence (i.e.,  $Ind\_ACE_{jt} + Expt\_ACE_{jt} + Exp\_ACE_{jt} + Dil\_ACE_{jt}$ );  
 $DR_{jt} * ACE_{jt}$  = Two-way interaction between indicator variable where firm  $j$  is scored one (1) if  $RR-AllOrd_{jt}$  is negative, otherwise firm  $j$  is scored zero (0), and the composite audit committee effectiveness score of firm  $j$  in fiscal year  $t$ ;  
 $RR-AllOrd_{jt}$  = Annual share returns for firm  $j$  from three months after the previous fiscal year  $t-1$  to three months after the current fiscal year  $t$  (i.e.,  $(P_t - P_{t-1})/P_{t-1}$  where  $P_t$  is the price of shares for firm  $j$  three months after the end of the fiscal year  $t$  and  $P_{t-1}$  is the price of shares for firm  $j$  three months after the end of the fiscal year  $t-1$ ) adjusted for the All Ordinaries Index over the same period;  
 $RR-AllOrd_{jt} * DR_{jt}$  = Two-way interaction between annual share returns for firm  $j$  from three months after the previous fiscal year  $t-1$  to three months after the current fiscal year  $t$  (i.e.,  $(P_t - P_{t-1})/P_{t-1}$  where  $P_t$  is the price of shares for firm  $j$  three months after the end of the fiscal year  $t$  and  $P_{t-1}$  is the price of shares for firm  $j$  three months after the end of the fiscal year  $t-1$ ) adjusted for the All Ordinaries Index over the same period and indicator variable where firm  $j$  is scored one (1) if  $RR-AllOrd_{jt}$  is negative, otherwise firm  $j$  is scored zero (0);  
 $RR-AllOrd_{jt} * ACE_{jt}$  = Two-way interaction between annual share returns for firm  $j$  from three months after the previous fiscal year  $t-1$  to three months after the current fiscal year  $t$  (i.e.,  $(P_t - P_{t-1})/P_{t-1}$  where  $P_t$  is the price of shares for firm  $j$  three months after the end of the fiscal year  $t$  and  $P_{t-1}$  is the price of shares for firm  $j$  three months after the end of the fiscal year  $t-1$ ) adjusted for the All Ordinaries Index over the same period and the composite audit committee effectiveness score based on the sub-committee's independence, expertise, experience and diligence (i.e.,  $Ind\_ACE_{jt} + Expt\_ACE_{jt} + Exp\_ACE_{jt} + Dil\_ACE_{jt}$ ) of firm  $j$  in fiscal year  $t$ ;

## Appendix B2: Pearson Correlation Table

- $RR-AllOrd_{jt} * DR_{jt} * ACE_{jt}$  = Three-way interaction between annual share returns for firm  $j$  from three months after the previous fiscal year  $t-1$  to three months after the current fiscal year  $t$  (i.e.,  $(P_t - P_{t-1})/P_{t-1}$  where  $P_t$  is the price of shares for firm  $j$  three months after the end of the fiscal year  $t$  and  $P_{t-1}$  is the price of shares for firm  $j$  three months after the end of the fiscal year  $t-1$ ) adjusted for the All Ordinaries Index over the same period, indicator variable where firm  $j$  is scored one (1) if  $RR-AllOrd_{jt}$  is negative, otherwise firm  $j$  is scored zero (0), and the composite audit committee effectiveness score based on the sub-committee's independence, expertise, experience and diligence (i.e.,  $Ind\_ACE_{jt} + Expt\_ACE_{jt} + Exp\_ACE_{jt} + Dil\_ACE_{jt}$ ) of firm  $j$  in fiscal year  $t$ ;
- $BPX_{jt}$  = Change in operating profit after tax of firm  $j$  for period  $t$  from operating profit after tax of firm  $j$  for period  $t-1$  deflated by market capitalization of firm  $j$  at the end of period  $t-1$ ;
- $PX_{jt}$  = Change in operating profit after tax of firm  $j$  for period  $t-1$  from operating profit after tax of firm  $j$  for period  $t-2$  deflated by market capitalization of firm  $j$  at the end of period  $t-2$ ;
- $DPX_{jt}$  = Indicator variable where firm  $j$  is scored one (1) if  $PX_{jt}$  is negative; otherwise score of zero (0);
- $PX_{jt} * DPX_{jt}$  = Two-way interaction between change in operating profit after tax of firm  $j$  for period  $t$  from operating profit after tax of firm  $j$  for period  $t-1$  deflated by market capitalization of firm  $j$  at the end of period  $t-1$  and indicator variable where firm  $j$  is scored one (1) if  $PX_{jt}$  is negative; otherwise score of zero (0);
- $ACE_{jt}$  = A composite score for audit committee effectiveness based on the sub-committee's independence, expertise, experience and diligence (i.e.,  $Ind\_ACE_{jt} + Expt\_ACE_{jt} + Exp\_ACE_{jt} + Dil\_ACE_{jt}$ );
- $ACE_{jt} * PX_{jt}$  = Two-way interaction between composite score for audit committee effectiveness based on the sub-committee's independence, expertise, experience and diligence (i.e.,  $Ind\_ACE_{jt} + Expt\_ACE_{jt} + Exp\_ACE_{jt} + Dil\_ACE_{jt}$ ) and change in operating profit after tax of firm  $j$  for period  $t$  from operating profit after tax of firm  $j$  for period  $t-1$  deflated by market capitalization of firm  $j$  at the end of period  $t-1$ ;
- $ACE_{jt} * DPX_{jt}$  = Two-way interaction between composite score for audit committee effectiveness based on the sub-committee's independence, expertise, experience and diligence (i.e.,  $Ind\_ACE_{jt} + Expt\_ACE_{jt} + Exp\_ACE_{jt} + Dil\_ACE_{jt}$ ) and indicator variable that takes the value of one (1) if  $DPX_{jt} < 0$ , otherwise scored zero (0);
- $ACE_{jt} * PX_{jt} * DPX_{jt}$  = Three-way interaction between composite score for audit committee effectiveness based on the sub-committee's independence, expertise, experience and diligence (i.e.,  $Ind\_ACE_{jt} + Expt\_ACE_{jt} + Exp\_ACE_{jt} + Dil\_ACE_{jt}$ ), change in operating profit after tax of firm  $j$  for period  $t$  from operating profit after tax of firm  $j$  for period  $t-1$  deflated by market capitalization of firm  $j$  at the end of period  $t-1$  and indicator variable that takes the value of one (1) if  $DPX_{jt} < 0$ , otherwise scored zero (0);
- $ACC_{jt}$  = Accruals (i.e., difference between operating profit and cash flow from operations) of firm  $j$  in fiscal year  $t$  scaled by the book value of total assets of firm  $j$  at the beginning of the fiscal year  $t$  (i.e.,  $BVTA_{jt}$ );
- $CFO_{jt}$  = Cash flow from operating activities of firm  $j$  in fiscal year  $t$  scaled by the book value of total assets of firm  $j$  at the beginning of the fiscal year  $t$  (i.e.,  $BVTA_{jt}$ );
- $DCFO_{jt}$  = Indicator variable where firm  $j$  is scored one (1) if  $\Delta CFO_{jt}$  is negative, otherwise scored zero (0);
- $CFO_{jt} * DCFO_{jt}$  = Two-way interaction between cash flow from operating activities of firm  $j$  in fiscal year  $t$  scaled by the book value of total assets of firm  $j$  at the beginning of the fiscal year  $t$  (i.e.,  $BVTA_{jt}$ ) and indicator variable where firm  $j$  is scored one (1) if  $\Delta CFO_{jt}$  is negative, otherwise scored zero (0);
- $ACE_{jt}$  = A composite score for audit committee effectiveness based on the sub-committee's independence, expertise, experience and diligence (i.e.,  $Ind\_ACE_{jt} + Expt\_ACE_{jt} + Exp\_ACE_{jt} + Dil\_ACE_{jt}$ );
- $ACE_{jt} * CFO_{jt}$  = Two-way interaction between composite score for audit committee effectiveness based on the sub-committee's independence, expertise, experience and diligence (i.e.,  $Ind\_ACE_{jt} + Expt\_ACE_{jt} + Exp\_ACE_{jt} + Dil\_ACE_{jt}$ ) and cash flow from operating activities of firm  $j$  in fiscal year  $t$  scaled by the book value of total assets of firm  $j$  at the beginning of the fiscal year  $t$  (i.e.,  $BVTA_{jt}$ );
- $ACE_{jt} * DCFO_{jt}$  = Two-way interaction between composite score for audit committee effectiveness based on the sub-committee's independence, expertise, experience and diligence (i.e.,  $Ind\_ACE_{jt} + Expt\_ACE_{jt} + Exp\_ACE_{jt} + Dil\_ACE_{jt}$ ) and indicator variable that takes the value of one (1) if  $DCFO_{jt} < 0$ , otherwise scored zero (0);

### Appendix B3: Pearson Correlation Table

$ACE_{jt} * CFO_{jt} * DCF_{jt}$  = Three-way interaction between composite score for audit committee effectiveness based on the sub-committee's independence, expertise, experience and diligence (i.e.,  $Ind\_ACE_{jt} + Expt\_ACE_{jt} + Exp\_ACE_{jt} + Dil\_ACE_{jt}$ ), cash flow from operating activities of firm  $j$  in fiscal year  $t$  scaled by the book value of total assets of firm  $j$  at the beginning of the fiscal year  $t$  (i.e.,  $BVTA_{jt}$ ) and indicator variable that takes the value of one (1) if  $DCF_{jt} < 0$ , otherwise scored zero (0);

$\alpha_k, \beta_k$  = Coefficients;

$\varepsilon_{jt}$  = Error term; and \*, \*\* = Significant at the 0.01 and 0.05 confidence levels respectively.<sup>61</sup>

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<sup>61</sup> The critical level for correlation to have any significant influence on causing autocorrelation concerns is 0.90 (Hair et al 1995).