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Accounting Standards Complexity, Audit Fees and Financial Analyst Forecasts in Australia

A thesis submitted in fulfilment of the requirements for the degree of
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Dedicated to

My Wife and My Parents

ABSTRACT

While the beneficial effects of International Financial Reporting Standards (IFRS) on financial reporting quality, cost of capital, cross-country investment, corporate decision making and governance are well studied in the literature, there is relatively little research on the cost side of IFRS adoption and its impact on users. This thesis contributes by investigating the impact of IFRS complexity on two important groups of users of financial reports namely auditors and financial analysts. The hypotheses are built on the premise that principles-based standards are more complex than rules-based standards. This study examines the relationships between IFRS complexity, audit fees, and analyst forecast properties. IFRS is likely to require more of auditors in terms of professional expertise, time and effort, hence resulting in higher audit fees. Financial analysts may be similarly affected by the complexity of IFRS resulting in less accurate forecasts on key financial components.

This thesis measures IFRS complexity based on individual IFRS standards specifically identified as having higher levels of complexity. Scores are then calculated to indicate the difference between these IFRS standards and their equivalent previous domestic accounting standards. The degree of complexity is also measured at aggregate level to indicate an overall complexity impact based on the combined score for all identified 'complex' IFRS standards.

Findings indicate that aggregate IFRS complexity is positively and significantly associated with audit fees but that specific IFRS standards are identifiable as being particularly complex, hence explaining much of the positive relationship with audit fees. The results also reveal that the incremental effect of IFRS complexity on audit fees is more pronounced when firms are audited by city-level industry specialists as opposed to those audited by non-industry specialists. Furthermore, IFRS complexity is found to have a positive and significant association with analyst forecast properties (forecast errors, forecast dispersion, and forecast revision). Surprisingly some of the standards identified as being more complex for auditors (i.e., driving higher audit fees) do not appear similarly complex in relation to financial analyst forecast properties. Finally, this thesis investigates the moderating role of high quality audits (proxied by industry specialist auditors) on complexity and analyst forecast properties and finds that forecast errors decrease for firms which are exposed to higher levels of IFRS complexity if they are audited by city-level industry specialists.

This study provides important insights for regulator regarding the complexity of specific IFRS standards. Findings may also be of benefit to countries which are in the process of adopting IFRS or planning to do so.

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LIST OF ABBREVIATIONS

AAA	-	American Accounting Association
AARF	-	Australian Accounting Research Foundations
AASB	-	Australian Accounting Standards Board
AcSB	-	Accounting Standard Board
AFE	-	Analyst Forecast Errors
AGAAP	-	Australian Generally Accepted Accounting Principles
ASIC	-	Australian Securities and Investments Commission
ASX	-	Australian Securities Exchange
ASRB	-	Australian Standards Review Board
AUASB	-	Australian Auditing Standards Board
CAANZ	-	Chartered Accountants Australian and New Zealand
CLERP	-	Corporate Law Economic Reform Program
CPA	-	Certified Practicing Accountants
DISP	-	Forecast Dispersion
ED	-	Exposure Draft
EU	-	European Union
FASB	-	Financial Accounting Standards Board
FRC	-	Financial Reporting Council
GAAP	-	Generally Accepted Accounting Principles
GAO	-	Governmental Accounting Office
IAS	-	International Accounting Standards
IASB	-	International Accounting Standards Board

IASC	-	International Accounting Standards Committee
ICAA	-	The Institute of Chartered Accountants in Australia
ICAEW	-	Institute of Chartered Accountants in England and Wales
IFAC	-	International Federation of Accountants
IFRS	-	International Financial Reporting Standards
IFRSB	-	International Financial Reporting Standards Board
ISA	-	International standards on Auditing
ISP	-	Industry Specialist Auditors
PSASB	-	Public Sector Accounting Standards Board
REVISION	-	Analyst Forecast Revision
SEC	-	Securities and Exchange Commission
UK	-	United Kingdom
US	-	United States

CHAPTER 1- INTRODUCTION

1.1 Motivation and Research Framework

A conversion from local accounting standards to International Financial Reporting Standards (hereafter IFRS) at an international scale creates unprecedented opportunities for financial accounting research. There is extensive research worldwide on the impact of IFRS on financial reporting quality (e.g., Barth, Landsman, & Lang, 2008), cost of capital (e.g., Levitt, 1998), cross-country investment (e.g., DeFond, Hu, Hung, & Li, 2011), corporate decision making (e.g, Biddle, Hilary, & Verdi, 2009; Raman, Shivakumar, & Tamayo, 2013), stewardship and governance (e.g., Marra & Mazzola, 2014) among others topics. Although those studies have made significant advances in our understanding of the overall IFRS effect, little is known about the benefits and challenges of individual IFRS standards from an information user's perspective.

Financial accounting information users are inevitably affected by accounting complexity resulting from changes in accounting standards. IFRS adoption increases task complexity due to a lack of clarity of interpretation embedded in different IFRS standards, which may adversely affects auditors' judgements (Bonner, 1994).[1] Prior research shows that financial analysts demonstrate cognitive bias and thus consistently overreact to certain types of information especially to past earnings (e.g., Martinez & Dumer, 2014). Prior psychological and behavioural research suggests that once people are accustomed to certain conditions, they tend to rely on established knowledge in

[1] Bonner (1994) categorise auditor's task complexity into three elements including input, processing, and output. Within these three elements, task characteristics are classified as either the amount of information, or as the clarity of information. Considering this behavioural elements, this study assumes that complexity arising from IFRS will definitely affect auditor's verification process.

making decisions. Decision making can thus be biased in the presence of abrupt changes because the changes bring about cognitive difficulty in grasping newly introduced concepts and procedures (Barr, Stimpert, & Huff, 1992; Bilz & Nadler, 2013). Therefore, this study hypothesizes that changes in accounting standards will result in cognitive challenges for information users. Focusing on two major users of financial accounting information-external auditors and financial analysts, this thesis examines the effect of accounting complexity caused by change in accounting standards on these two important accounting information user groups.

Specifically, the inquiry in this thesis is twofold. First, this thesis investigates the impact of accounting complexity arising from IFRS adoption on audit fees. Auditors are required to provide assurance on the reconciliation statement that is prepared on the basis of two different sets of accounting standards. They are therefore directly affected by the changes in accounting standards and extra effort is required of them to provide appropriate assurance. Thus, the effect of IFRS complexity on auditors is of research and practical interest. Second, this thesis investigates whether accounting complexity arising from IFRS affects financial analysts' forecast properties. Financial analysts are sophisticated information users serving as important information intermediaries in capital markets. Prior research shows that if the information presented in financial reports is too complex, financial analysts forecast accuracy is low and forecast dispersion is high (e.g., Lehavy, Feng, & Merkley, 2011).[2] This raises a question as to whether financial analysts can disentangle the adjustments in financial reports resulting from the changes in accounting standards during IFRS adoption. This study attempts to

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[2] Lehavy et al. (2011) use the Gunning Fog Index (GFI) to calculate the complexity of information presented in annual reports. In this approach, the number of words per sentence and the number of complex words in a document are accumulated to give a score which indicates the complexity level.

answer this question by investigating the impact of accounting complexity on financial analyst forecast properties.

This study operationalizes accounting complexity[3] as the reconciliation adjustments arising from those individual IFRS standards identified to be complex by prior accounting literature. This research is enabled by the existence of differences between local accounting standards and international accounting standard identified by accounting academics and practitioners (Convergence, 2002; Nobes, 2000, 2001).[4] The differences in amounts of ledger accounts are reported in IFRS-Local Generally Accepted Accounting Principles reconciliation statements (or IFRS-local GAAP reconciliation statements) that are mandatorily required in the annual reports during the IFRS adopting period in Australia. In addition, the detailed reconciliation enables to compute complexity attributable to individual IFRS standards. The six individual standards primarily considered are chosen on the basis of prior Australian research showing that certain standards are more complex than others and require more audit efforts and audit expertise (De George, Ferguson, & Spear, 2013; Jubb, 2005; Pawsey, 2006). An additional six IFRS standards are subsequently identified as causing substantial adjustments in IFRS-Local GAAP reconciliation statements, although they have been neglected by prior literature. Measuring complexity scores at the level of individual accounting standards and individual firms enables identification of the most complex IFRS standards that are most likely to drive an increase in audit fees and to affect analyst forecast properties. The following Figure (Fig. 1) depicts an overview of

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[3] Accounting complexity, in this thesis, is the same as IFRS complexity. Throughout this thesis, the acronyms Accounting complexity and IFRS complexity are used interchangeably.

[4] In Australia, IFRS is mandated from 1 January 2005. Australian Accounting Standards Board (hereafter AASB) requires firms to present reconciliation statements in their annual reports in the year of IFRS adoption. The detailed reconciliation enables this research to be executed at the level of individual accounting standards.

the thesis, as well as specifying the research questions and hypotheses which are empirically tested.

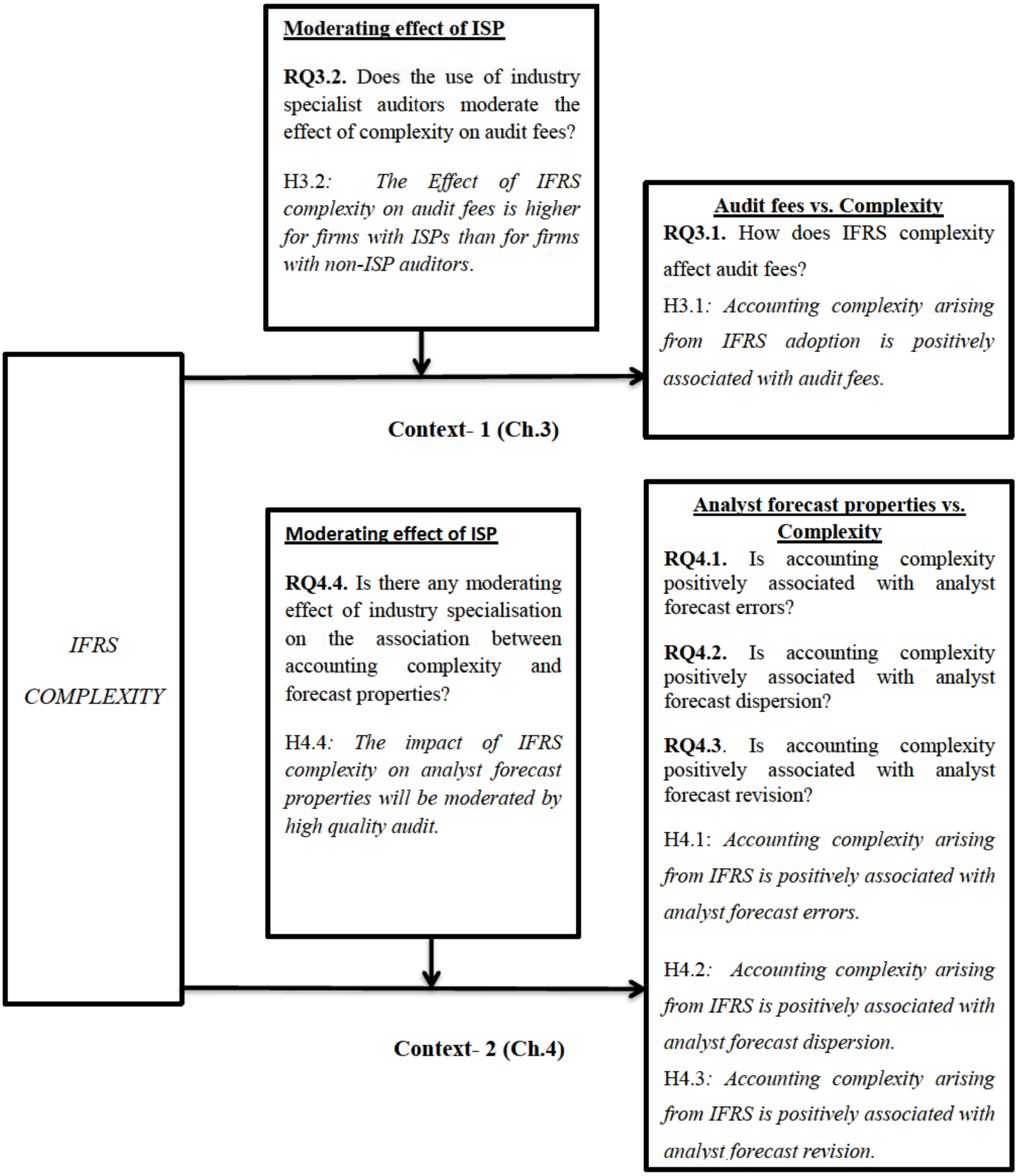

Figure 1: Research Framework

The first research issue is investigated in Chapter 3 where IFRS complexity-audit fees association is investigated by measuring complexity at both aggregate level and the level of individual IFRS standards. Furthermore, this study examines the moderating effect of auditor industry specialisation measured as city-level, national-level, and joint industry specialist auditors level, on the relation between accounting complexity and audit fees. This study selects industry specialisation as moderating effect because prior research shows that ISP auditors demand higher audit fees compared to Big N audit firms as ISP auditors have more industry specific expertise and knowledge which enable them to provide differentiated audit services (Craswell, Francis, & Taylor, 1995). Moreover, auditors' knowledge about client's industry is paramount in today's complex and interconnected economy (Bell, Marrs, Solomon, & Thomas, 1997). In the second part of the thesis presented in Chapter 4, the impact of accounting complexity on analyst forecast properties including forecast errors, dispersion, and revision is investigated. The examination is also conducted at the level of aggregate IFRS complexity and the complexity presented by individual accounting standards. Furthermore, this chapter examines whether the association between accounting complexity and forecast properties is conditional upon having a high quality auditor, proxied here by industry specialist auditors.

1.2 Main Findings

Accounting complexity and audit fees analyses presented in Chapter 3 reveal that accounting complexity arising from IFRS standards significantly increases audit fees. However, not all standards are equally complex and the analysis of individual standards shows that a few specific standards explain much of the positive relationship between complexity and audit fees (AASB 136 *Impairment of Assets,* AASB 138 *Intangibles*

Assets and AASB 119 *Employee Benefits*) from the original six standards identified as complex in prior literature and AASB 121 *The Effects of Changes in Foreign Exchange Rates*, AASB 139 *Financial Instruments: Recognition and Measurement,* and AASB 117 *Leases* from the additional six standards subsequently identified. To investigate whether there is a moderating effect of high quality auditor on the positive effect of complexity on audit fees, this study uses auditor industry specialisation (ISP) measured based on market share (i.e. measured by audit fees). The results of analysis show that city-level industry specialist auditors charge higher audit fees for a firm with higher level of complexity. However, the effect is insignificant at either national-level or joint-level industry specialist.

Accounting complexity and analyst forecast properties analyses presented in Chapter 4 reveal that accounting complexity arising from IFRS also affects analysts forecast properties including forecast errors, forecast dispersion, and forecast revision. Aggregate complexity of the 'original six complex' standards is not significantly associated with forecast errors (*AFE*), forecast dispersion (*DISP)* and forecast revision (*REVISION)*. However, when the aggregate complexity is decomposed into individual standard complexity, only two standards (AASB 2 *Share-based payments*, and AASB 132 *Financial Instruments-Presentation*) complexities are found to significantly increase analyst forecast errors; AASB 117 *Leases* significantly increase forecast dispersion; and two standards (AASB 3 *Business Combination* and AASB 117 *Lease*) significantly increase forecast revision.[5]

The analysis of the moderating role of high quality audit shows that forecast error is lower in firms audited by city-level ISP compared to those audited by non-ISP, and this relation only holds in high complex group. However, no such moderating effects are

[5] Currently in Australia, Lease standard is recoded as AASB 16 and it will be in effect from January 2019.

found between accounting complexity and the other two forecast properties (dispersion and revisions).

1.3 Main Contributions

This thesis contributes to the IFRS literature by constructing a complexity measure in a finer way to gauge the differences between specific individual domestic accounting standards and IFRS. One of the most important objectives to promote IFRS adoption worldwide is to eliminate the accounting differences across the country (AASB, 2004h). The measurement of accounting complexity, based on the differences between local accounting standards and international accounting standards reported in IFRS-Local GAAP reconciliation statements, enables information users and standard setters to identify the most challenging standards. However, extant empirical accounting studies using aggregate figure recognized on reconciliation statements do not fully parse out the difference in complexity associated with different IFRS standards and its impact on users of accounting information (Barth, Landsman, Young, & Zhuang, 2014; De George et al., 2013).

The findings of this study also add to the audit fee literature by providing evidence that audit fees are not driven by all IFRS standards equally as different IFRS standards pose different levels of complexity to auditors. Findings indicate that a few specific standards, some of which are neglected by prior studies, explain much of positive association between IFRS complexity and audit fees. Moreover, this study extends the line of IFRS-audit fee literature that only investigates the impact of aggregate complexity of all standards on audit fees (e.g., De George et al., 2013) or pre-post IFRS effect captured by year dummy variable on audit fees (e.g., Kim, Liu, & Zheng, 2012a). This thesis also contributes to audit quality literature by providing evidence of expertise in dealing with accounting standards complexity by the auditors who are specialists at city-level.

This thesis goes on to contribute to the analyst forecast literature in several important aspects. First, it provides evidence that despite being sophisticated financial information users, financial analysts also have difficulty with some complex IFRS standards. Documented negative effects on analyst forecast performance for certain complex accounting standards from this thesis contradict earlier studies suggesting that IFRS has improved analyst forecast accuracy, especially in a setting where accounting treatment under local standards differs substantially from IFRS (Byard, Li, & Yu, 2011; Horton, Serafeim, & Serafeim, 2013). This contradiction adds contention to IFRS-analyst forecast literature and is further discussed in Chapter 4. Second, this study also contributes to the literature on the consequences of disclosure, relating to differences between local accounting standards and IAS, on analyst forecast properties (e.g., Ashbaugh & Pincus, 2001). Finally, this study complements IFRS-analyst forecast research by revealing a mitigating effect of high quality auditors on the negative relation of accounting complexity and analyst forecast errors when firms face higher levels of complexity.

Overall, the findings in this study have relevance to standard setter and other regulatory authorities (e.g., IASB, AASB, FRC), and other countries that are in the process of adopting or converging to IFRS (e.g., India, Malaysia). Standards setter can consider the findings in revising accounting standards, as setting and revising standards is always a continuous process. The findings in this study are also relevant to users and preparers who wish have a broader understanding about the difficulty and cost of IFRS adoption and about the difficulties auditors experienced in verifying financial statements.

Findings are also useful for investors who make economic decisions based on auditor's opinions and financial analyst forecast estimations.

1.4 Organisation of Thesis

This thesis proceeds as follow: Chapter 2 presents a review of the literature related to IFRS, the institutional framework of Australia, the use of IFRS reconciliation statements and the measurement of complexity. Chapter 3 investigates accounting complexity and audit fees (Context 1 in the Figure 1 research framework). In addition, Chapter 3 discusses the impact of Industry Specialisation (ISP) for complexity. Chapter 4 (Context 2 in the Figure 1 research framework) presents analysis of accounting complexity and analyst forecast properties including forecast errors, dispersion and forecast revision. This chapter also presents the findings for the moderating role of ISP on the association between accounting complexity and analyst forecast errors. Chapter 3 and Chapter 4 are stand-alone presenting to the extent that each presents a theoretical framework, pertinent literature followed by the development hypotheses, empirical results and a chapter summary. Finally, Chapter 5 concludes on the research conducted, overall findings, limitations and direction for future research.

CHAPTER 2-BACKGROUND, LITERATURE, THEORY AND INSTITUTIONAL FRAMEWORK

The chapter begins with a broad but brief overview of the IFRS literature and its underpinning theory (Section 2.1) in an attempt to provide the background knowledge for the focused literature review on IFRS-audit and IFRS-financial analyst research in Chapters 3 and 4 respectively. Section 2.2 then discusses prior literature on the use of reconciliation statements, identification of specific standards associated with higher levels of complexity and the measurement of complexity. Finally, Section 2.3 describes accounting standard development to provide background information on IFRS adoption in Australia.

2.1 Brief Overview of IFRS Literature and Underlying Theory

The adoption of International Financial Reporting Standards (IFRS) has provided unprecedented opportunity for accounting research over the past decade. Fruitful research has been conducted worldwide to investigate the consequences of IFRS adoption across various institutional and legal regimes. Empirically, research on the effect of IFRS adoption shows that it is associated with improved financial reporting quality (e.g., Barth et al., 2008; Jeanjean & Stolowy, 2008; Leuz & Verrecchia, 2000), and has a positive influence on the capital market (Armstrong, Barth, Jagolinzer, & Riedl, 2010; Horton & Serafeim, 2010; Y. Kim, Li, & Li, 2012b) with a lower cost of capital and enhanced liquidity (Daske, 2006; Daske, Hail, Leuz, & Verdi, 2008; S. Li, 2010).[6]

[6] This chapter does not provide a detailed literature review on audit fees and analyst forecast properties. Rather in order to have a good and consistent flow, this study has covered audit fee-specific literature and analyst forecast-specific literature review in Chapter 3 and Chapter 4 respectively.

The theoretical underpinning of the IFRS literature, despite of being unstated in most of the empirical IFRS studies, is agency theory. According to Jensen and Meckling (1976, P. 308) an agency relationship is "a contract under which one or more persons (principals) engage another person (the agent) to perform services on their behalf which involves delegating some decision-making authority to the agent." They suspect that if both parties (agents and principals) are utility maximizers, then there is a possibility that the agent will not always work in the best interests of the principals. They argue that principals can deal with this agency problem by establishing appropriate incentives for the agent and by incurring monitoring costs. Potential conflicts of interest between managers and principals can also be mitigated by accounting regulations (Inchausti, 1997), and improved financial informational disclosure serves to curb informational asymmetry (Lev, 1988). Therefore, the underlying assumption of IFRS adoption from a theoretical perspective is that IFRS require high quality information from management, and thus they are an important mechanism to overcome the agency problem and reduce information asymmetry.

Nevertheless, from a cost perspective, Watts and Zimmerman (1978, p. 116) suggest that the choice of accounting standards can increase information production cost. They state that:

> "Changes in accounting procedures are not costless to firms. Accounting standard changes which either increase disclosure or require corporations to change accounting methods increase the firms' bookkeeping costs (including any necessary increases in accountants' salaries to compensate for additional training."

This theory controversy is presented in the IFRS research and has been pointed out in reviews of IFRS studies (Ahmed, Chalmers, & Khlif, 2013; Brüggemann, Hitz, & Sellhorn, 2013; De George, Li, & Shivakumar, 2016; Hail, Leuz, & Wysocki, 2010; Pope & McLeay, 2011; Soderstrom & Sun, 2007). Brüggemann et al. (2013) find that the extant research fails to confirm intended consequence of IFRS that is comparability or transparency of financial statements, athough there is ample evidence of a positive impact on capital markets as well as at the macroeconomic level. They interpret this contradictory findings in two ways either (i) the litereature understates the impact of IFRS as it captures only a subset of potential changes in financial reporting; or (ii) the literature overstates the impact on capital markets as it is difficult to separate from the effects of concurrent changes which are not related with financial reporting. Reviewing the IFRS literature until 2007, Soderstrom and Sun (2007) state that the extant IFRS research mainly focuses on the positive impact of the voluntary adoption of IFRS. They also argue that this positive impact of IFRS cannot be generalised across countries because accounting quality, even after adoption of IFRS, depends on three factors: the quality of the standards, a country's legal and political system, and financial reporting incentives. Subsequently, Pope and McLeay (2011) review some empirical research on the impact of the mandatory adoption of IFRS. Although they mainly document the extant research with a focus on the effectiveness and transparaeneyc of the enforcement framework, Pope and McLeay (2011) conclude that the results are far away from uniform across Europe, and improvements in accounting quality due to IFRS depend on preparers' incentives and uniformity in local enforcement.

Empirically, only a few studies test the costs of IFRS adoption (De George et al., 2013; Griffin et al., 2009; Kim et al., 2012a; Loyeung, Matolcsy, Weber, & Wells, 2016). For instance, Kim et al. (2012a) measure complexity considering *Absence* and *Divergence* score (defined in next section) and investigate their impact on audit fees (detailed in Chapter 3). De George et al. (2013) investigate the impact of IFRS exposure on audit fees, based on equity adjustments, while Loyeung et al. (2016) examine the association between IFRS implementation error and audit fees. Griffin et al. (2009) document an increase in audit fees due to IFRS adoption in New Zealand. However, there was an option for the entities to adopt IFRS voluntarily in New Zealand from 2005, but fully mandated in 2007. However, they do not find any such evidence with non-audit fees.

Unlike many earlier reviews of the IFRS literature, De George et al. (2016), more recently, have a good coverage of IFRS studies and document that a few studies on the costs of IFRS.[7] De George et al. (2016) contend that in comparison to the attention researchers have given to IFRSs' benefits, little attention is paid to the costs of IFRS. As an empirical test of this proposition and in an effort to address the shortage of studies on the cost perspective of IFRS, this thesis intends to make inquiry into the effects of complex IFRSs on information users.

Cognitively, changes in rules and practices can be challenging to the people responsible for applying the rules. Prior psychological research finds that a sudden change in the

[7] For instance, first IFRS review paper by Soderstrom and Sun (2007), provides a review on adoption of different GAAP. But their discussion about IFRS impact on accounting quality is limited, as they focus only on voluntary adoption of IFRS. Based on academic literature of accounting, economics and finance, Hail et al. (2010), assess the potential impact of IFRS on U.S reporting practices regarding quality and comparability, capital market effects, and potential switching cost from U.S. GAAP to IFRS. Pope and McLeay (2011) review academic papers, relating to IFRS, conducted under the INTACCT research program. Based on their analysis they suggest that the consequences of IFRS and the quality of IFRS implementation mainly depend on preparers incentives and effectiveness of local enforcements. K. Ahmed, Chalmers, and Khlif (2013) conduct a meta-analysis of the IFRS literature. However, they limited their analysis to the effects of IFRS adoption on value relevance, discretionary accruals and capital market effects. None of the above prior reviews documents any studies relating to the cost side of IFRS adoption.

environment affects peoples' behaviour and attitudes; thereby, their decision making can also be biased (Barr et al., 1992; Bilz & Nadler, 2013). For instance, Bondt and Thaler (1985) empirically document that people tend to overreact to unexpected and dramatic news events. More specifically, they show that analysts systematically overreact to earnings information which induces them to make biased estimations. Therefore, the present study posits that during the change in accounting standards from AGAAP to IFRS, information users may suffer from interpretational difficulty and cognitive obstacles. The greater the difference is between an old and new standard, the higher level of complexity is involved for information users to grasp and adapt. The present study uses the term of 'accounting complexity' to conceptualize the adaptive challenges accounting information preparers and users face during changes in accounting regulations, and gauges the differences between the old and new standards.

A small stream of accounting literature has measured a different dimension of complexity as readability of the narrative disclosures in annual reports (e.g., Filzen & Peterson, 2015; Guay, Samuels, & Taylor, 2016; Lehavy et al., 2011; F. Li, 2008). That is, when qualitative disclosures in annual reports are difficult to read, communication becomes difficult and complex. This above mentioned research measures readability with a linguistic analysing technique-the Gunning Fog Index.(GFI) Studies on the readability of annual reports have investigated the impact of readability's on analyst forecast properties (e.g., Lehavy et al., 2011), firms' profitability (e.g., F. Li, 2008), and disclosure quality (e.g., Guay et al., 2016). Differing from the readability studies, with their exclusive focus on qualitative information, this thesis adopts a quantitative approach to gauge the differences in the amounts of reconciliation adjustments in financial statements due to changes in standards. Thus, the crux of the investigation is the differences in accounting treatments and the difficulties arising from the changes in the perspectives of information users. It is expected that the measurement of complexity based on a complete reconciliation will provide an insightful picture about the cost of IFRS adoption. Due to the reliance of this thesis on the reconciliation adjustments in financial statements, the next section provides a comprehensive review of the pertinent literature on reconciliation adjustments and describes the choice of a set of complex IFRS standards. It also explains the procedure used to measure accounting standard-based complexity.

2.2 Use of Reconciliation Statements, Identification of Complex Standards, and the Measurement of Complexity

The Securities Exchange Commission (SEC) in the United States (U.S.) requires all foreign firms cross-listed in U.S. primary stock exchanges to prepare reconciliation statements under U.S. GAAP. For example, a U.K. firm, which is cross-listed in the U.S. primary stock exchange, needs to prepare reconciliation statements under U.S. GAAP, although they prepare a separate set of financial statements under U.K. GAAP. Similarly, countries adopting IFRS require firms to prepare a set of reconciliation statements showing the difference between IFRS and the previous accounting system in the first year of IFRS adoption. Due to these regulatory requirements, there is a large body of literature on reconciliation statements between two accounting standards.

Prior research on U.S. GAAP and non-U.S. GAAP reconciliations, provides consistent empirical evidence that reconciliation statements are value relevant (e.g., Amir, Harris, & Venuti, 1993; Barth & Clinch, 1996) in that they are related with either stock prices or stock returns.[8] For instance, Amir et al. (1993) investigate the value relevance of reconciliations of earnings and shareholders' equity (both in aggregate and separately) for a sample of firms from 20 countries including Australia. They find that reconciliations to U.S.GAAP provide more explanatory power in stock price compared to reconciliations under non-U.S. GAAP. However this finding is limited to a sub-sample of Australia and U.K. firms only. More specifically, they find those reconciliation adjustments, relating to goodwill, assets revaluations, deferred tax, and pensions provide incremental information to investors and affect stock returns.

Meanwhile, prior research also documents the value relevance of IFRS-local GAAP/U.S.GAAP reconciliations (e.g., Barth et al., 2014; Horton & Serafeim, 2010; Hung & Subramanyam, 2007), and the notable impact of reconciliation either on equity or net income (NI) is primarily driven by a few core standards (Fifield, Finningham, Fox, Power, & Veneziani, 2011). For instance, Hung and Subramanyam (2007) examine the value relevance of income and book value of equity of firms following IFRSs in Germany, that are also required to prepare the same fianncial statements under HGB (German local GAAP is known as (HGB).[9] They find that both HGB-based income and equity are more value relevant compared to those under IAS. They infer that, this happens because Germany follows stakeholder-oriented accounting stystem and its own local accounting system (HGB) provides a prudent approach to asset

[8] Value relevance of accounting earnings, in accounting research, are examined in any of three ways (Harris et al. 1994). For instance, one approach is to investigate market reaction to unexpected earnings. Second approach is to investigate the association between information content of accounting data and stock returns. Finally third approach is to compare accounting information under different accounting systems of cross-listed companies such as, requirement of a firm cross-listed in any stock exchange of U.S. to prepare U.S.GAAP based reconciliation. The current study follows the third approach but not on market reaction, rather, impact of IFRS-AGAAP based reconciliation on audit fees and analyst forecast properties (detailed in Chapter 3 and Chapter 4).

[9] Hung and Subramanyam (2007) measure value relevance by taking contemporaneous stock prices.

valuation and liability recognition, which ensures smooth and transparent contracting among stakeholders.[10] Thus, the HGB-based income and equity are positively priced by the investors at large. Similarly, Serafeim Horton and Serafeim (2010) examine the value relevance of IFRS-UK GAAP reconciliation statements of 297 large non-financial firms by investigating stock price reaction to disclosure of those reconciliation statements. They find that negative reconciliation adjustments, that is if earnings under IFRS decrease compared to those under UK GAAP, give rise to negative abnormal returns on or after the date of disclosures. On the other hand, positive earnings adjustments are value relevant before the disclosure date. In addition, in their specific standard analysis, Horton and Serafeim (2010) find reconciliation disclosures, relating to AASB 2 *Share-based Payments*, AASB 112 *Income Taxes*, and AASB 136 *Impairment of Assets,* are playing incremental role in changing share price specifically around the day of disclosure. Vieru et al. (2010) investigates the impact of IFRS transition on audit fees based on Finnish listed firms. They document an increase in non-audit fees due to higher differences between finish accounting standards (FAS) and IFRS. But they don't find any evidence association between statutuory audit fees and FAS-IFRS dispartiy.

More recently, Barth et al. (2014) examine the value relevance of reconciliation to IFRS-based net income (NI) and equity, using 1201 mandatory IFRS adopting firms in 15 European countries.[11] In particular, they focus on reconciliation adjustments relating to IAS 39 *Financial Instruments: Recognition and Measurement* for both financial and

[10]A direct comparison between HGB and IAS is possible in Germany as firms are required to prepare financial statements, in IFRS adoption period, under both accounting system applicable for prior-year of IFRS adoption.

[11] IFRS was mandated in EU from 2005. As majority firms follow calendar year, so first IFRS based annual report is 2005 annual report.

non-financial firms. They find that IAS 39 is value relevant (value irrelevant) for financial firms (non-financial firms). They conclude that investors of financial firms consider fair value measurements under IAS 39 to be more value relevant than those for non-financial firms. Fifield et al. (2011) find that the impact of reconciliation adjustments on Net Income (NI) and shareholders' equity can be attributable to a set of few core standards (e.g., IFRS 2 *Share-based Payment*, IFRS 3 *Business Combinations*, IFRS 5 *Non-current Assets held for Sale and Discounted Operations*, IAS 10 *Events after the Balance sheet*, IAS 12 *Income Taxes*, IAS 16 *Property, Plant and Equipment*, IAS 17 *Leases*, IAS 19 *Employee Benefits*, IAS 38 *Intangible Assets* and IAS 39 *Financial Instruments: Recognition and Measurement*. However, despite of the overwhelming evidence of reconciliation adjustments, Kim et al. (2012b) do not find any impact from the removal of the reconciliation requirements for cross-listed firms following IFRS by U.S. Securities and Exchange Commission on firms' market liquidity, probability of informed trading, and cost of equity in the U.S. markets after the elimination of the reconciliation requirement.[12]

Since IFRS adoption in Australia, a few studies have been conducted based on IFRS-AGAAP reconciliation statements (e.g., F. Ball, Tyler, & Wells, 2015a; De George et al., 2013; Loyeung et al., 2016). For instance, De George et al. (2013) measure the magnitude of net IFRS adjustments using total equity and its impact on audit fees. Another study, Ball et al. (2015a) use similar methodology to investigate the association between audit quality and audit tenure based on 266 Australian listed firms (S &P/ASX Top 500). However, in Ball et al. (2015a)'s study, IFRS-AGAAP differences are

[12] Before 2007, SEC in U.S. required overseas companies which are listed on US stock exchanges to reconcile their local standards- or IFRS-based financial statements to US GAAP-based financial statements.

defined as those reported in two periods (transition period and adoption period) as a proxy for audit quality. They find a negative association between IFRS-AGAAP differences and duration of audit firm-client firm relations, suggesting that closer relation induces management to use more liberal accounting practices, thereby lowering estimation differences and adjustments. In particular, they infer that the firm tenure increases which results in an increase in audit expertise and thereby audit quality. More recently, Loyeung et al. (2016) define IFRS adoption errors as IFRS-AGAAP absolute differences in 20 categories (i.e., 20 standards) based on two disclosures as of the same period, which are published in two periods-transition year and adoption year. They also investigate the association between IFRS implementation errors and changes in audit fees between the adoption period and first year after adoption period. They find a positive association between implementation errors and audit fees.

Taken together, although those studies using reconciliations between two types of standards have provided insight into the effect of reconciliation adjustments, they do not identify and measure reconciliations for a comprehensive set of individual standards, which is the focus of the present study. In addition to the above academic research findings, three surveys have been conducted to investigate the differences between domestic accounting standards and IFRS. The first survey, for instance, GAAP *2000: A Survey of National Accounting rules in 53 Countries, which* covers 60 key accounting measures for the majority of the companies following IAS for accounting periods ending on 31 December 2000 (Nobes, 2000).

The second survey, *GAAP 2001: A Survey of National Accounting Rules Benchmarked Against International Accounting Standards,* covers 60 countries and 80 different accounting measures based on the difference between IAS and domestic accounting standards (DAS) (Nobes, 2001).[13] The third survey titled "*A Survey of National Efforts to Promote and Achieve Convergence with International Financial Reporting",* also known as GAAP Convergence 2002, was based on a convergence plan for 59 countries. The findings of these all these surveys confirm certain areas as being more complex: intangibles, financial assets, tax, share-based payment, impairment, recording and recognition of fair value, and capitalisation or expensing of R & D.

A number studies have used these surveys for empirical testing and found consistent results regarding the complexity associated with certain IFRS standards (e.g., Ding, Hope, Jeanjean, & Stolowy, 2007). A few other studies use a similar methodology to investigate the difficulty of IFRS disclosure requirements (e.g., Jubb (2005)), and preparers' perceptions about IFRS (Morris, Gray, Pickering, & Aisbitt, 2014). All of the above studies provide consistent evidence on the set of difficult IFRS standards. For instance, Jubb (2005) considers the length of qualitative disclosure required under AASB 1047 *Disclosing the Impacts of Adopting Australian Equivalents to International Financial Reporting Standards*. By counting words of disclosure made in annual reports of first-time IFRS adopters, they document that six accounting standards, namely AASB 112 *Income Taxes*, AASB 136 *Impairment of Assets,* AASB 2 *Share-based Payments*, AASB 139 *Financial Instruments: Recognition and Measurement*, AASB 132 *Financial Instruments: Presentation*, and AASB 138 *Intangible Assets*, significantly increase disclosures. In addition, they find that larger companies show extensive

[13] Ding, Yuan, et al. (2007) used these two concepts including "*Absence"* and *"Divergence*" scores in their study. They define "*Absence*" score as the differences between DAS and IAS to the extent to which the rules regarding certain accounting issues are missing in DAS while covered in IAS, while "*Divergence*" as the differences between DAS and IAS to the extent to which the rules regarding the same accounting issue differ in DAS and IAS (Ding, Yuan et al. 2007, p.3).

disclosures compared to smaller companies.[14] Furthermore, Morris et al. (2014) conduct a survey of preparers' perceptions about the cost and benefits of IFRS in Australia. They document that respondents become pessimistic and in some cases, frustrated with the difficulties and problem associated with certain IFRS.

In sum, based on prior academic literature and above surveys, six standards including AASB 2 *Share-based Payments,* AASB 3 *Business Combinations,* AASB 112 *Income Taxes,* AASB 119 *Employee Benefits,* AASB 136 *Impairment of Assets,* and AASB 138 *Intangible Assets* are identified and used in this thesis to compute a composite complexity score. Further, individual complexity scores are also measured for each of the six complex standards identified.

In addition to the above six complex standards, during data collection, this study also finds that many Australian listed companies have significant IFRS-AGAAP adjustments from standards other than these six. These standards are categorised as the 'new six standards', including AASB 116 *Property, Plant and Equipment*, AASB 117 *Leases,* AASB 121 *The Effects of Changes in Foreign Exchange Rates,* AASB 132 *Financial Instruments: Presentation,* AASB 139 *Financial Instruments: Recognition and Measurement, and* AASB 140 *Investment Property*. Then, the composite complexity score for the full set of 12 standards are computed. The complexity for each individual standard is also calculated and analysed on its impact on both audit fees and analyst forecast properties. Complexity measurement in detail is explained in the methodology section in Chapter 3. The following section provides the development of accounting standards and the entire experience of IFRS adoption in Australia.

[14] They defined companies as larger or smaller based on market capitalization (Jubb, 2005; p.2)

2.3 The Development of Accounting Standards in Australia and IFRS Adoption

Australia is a pioneer in the international accounting standards setting process, as it has been involved with the International Accounting Standards Committee (IASC) since 1973, as one of the nine founding member countries.[15] Its journey to IFRS adoption and the accounting bodies involved is presented in Figure 2.

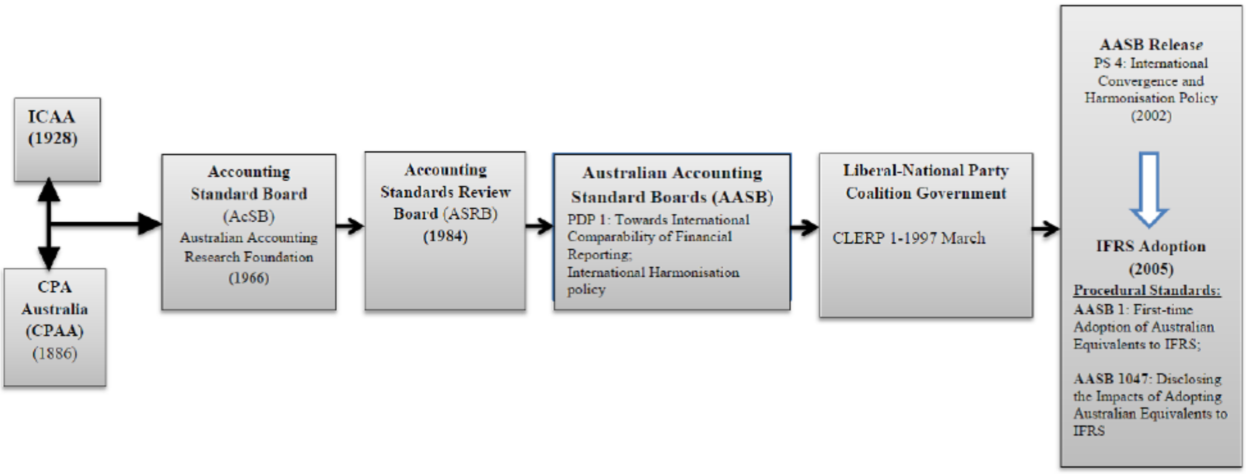

Figure 2: Journey to IFRS in Australia

In Australia, accounting standards were prepared first in the early 1970s by the Accounting Standard Board (AcSB), which was jointly created by two professional accounting bodies namely CPA Australia (CPAA), and the Institute of Chartered Accountants in Australia (ICAA) (Lonergan, 2003). AcSB was part of Australian Accounting Research Foundation (AARF).[16] In 1984, the Federal Government

[15] The nine countries include Australia, Canada, U.S., UK, France, Germany, Japan, Mexico and the Netherlands (Haswell & McKinnon, 2003). Moreover, Australian Michael Sharpe was deputy chair [1993-95] and later was Chairman of IASC from 1995 to 1997.

[16] AARF was established in 1966. CPA Australia was established in 1886 as the Incorporated Institute of Accountants, Victoria (IIAV). In 2000, CPA Australia was renamed from Australian Society of Certified Practising Accountants (ASCPA).

established the Accounting Standards Review Board (ASRB) to approve accounting standards for companies in preparing general purpose financial statements (Stoddart, 2000), and it was funded by the government. Later, The Australian Accounting Standards Board (AASB) was established replacing ASRB by the Australian Securities and Investments Commission (ASIC Act 1989).[17] AARF was a continuing technical and secretariat support to AASB (Brown & Tarca, 2001b). AASB started its operation officially in 1991. The AASB issued policy discussion paper (PDP) titled "*Towards International Comparability of Financial Reporting*" in 1995 in order to ensure comparability without compromising quality of accounting standards. This PDP explains both the causes of diversity between Australian accounting standards and international accounting standards and merits of reducing diversity between the two. More specifically, this PDP suggests three strategies to address diversity including:

> (i) global harmonisation, which would involve the adoption of a single set of accounting standards throughout the world;
> (ii) harmonisation of Australian accounting standards, which would involve Australia adopting accounting standards developed in another jurisdiction; and
> (iii) internationalisation, which would involve Australia developing local accounting standards based on a detailed examination of accounting standards and practices existing in other jurisdictions (AARF, 1994, p.13).

However, there was not much development in accounting regulation and in regulatory bodies until 1997 (Collett, Godfrey, & Hrasky, 2001), when the Liberal-National Party coalition government introduced the Corporate Law Economic Reform Program (CLERP). The CLERP 1 Treasury paper *Accounting Standards: Building Opportunities*

[17] Section 226 of the ASIC Act 1989 provides detail about the establishment of the AASB and its functions and powers. However, the ASIC Act 1989 was superseded by the ASIC Act 2001.

for Australian Business Outlines was a significant event in Australian Accounting history, because it suggests a radical change providing a pathway to adopt international accounting standards. This reform program was also assumed as bringing a commercial focus in regulation to motivate business activity (Collett et al., 2001), because it was argued in CLERP that adopting international accounting standards will enhance the competitive position of the AASB and ASX. More importantly, a greater number of foreign firms will cross list at ASX as there will be no difficulty or discrepancy in financial reporting.

However, there is a lot of criticisms around the release of this reform program because others argue that Australia will lose its control over setting its own accounting standards if it fully adopts or converges with international accounting standards. This criticism was evident in feedback on the reform program from 32 respondents from different stakeholders. It was found that only two respondents (ASX, and IASC) favoured the reform policy (Brown & Tarca, 2001b). Even the ICAA and ASCPA considered adoption of IAS as an immature decision for Australia. They argued that adoption of IAS required by Australia is dependent on a thorough examination of whether the developed capital market has adopted IAS or not, on the role the AASB can play in the IASC, and on the support the AASB can get from other constituents in Australia in this endeavour.

Later on, the CLERP program was enacted in 1999 with some significant changes. First, the AASB was reconstituted as an organisation independent of the accounting profession. Second, the Financial Reporting Council (FRC), an oversight organisation, was established to provide broad oversight of the standard setting process and appointment of AASB members (excluding the Chairperson). Overall, the main objective of forming the FRC was to ensure the establishment of accounting systems and auditing standards in Australia that require firms to provide high quality information for users to make sound economic decisions.[18] Before 2005, the AASB issued four policy statements (PS) including PS 4*: International Convergence and Harmonisation Policy (2002).*[19]

PS 4 describes in detail the status of the AASB in contributing to the development of a single set of accounting standards including strategies, work program strategies, and ways of maintaining liaison with other international organisations, etc. This policy statement mentions important benefits that Australia can achieve by converging with international accounting standards. Benefits include increasing comparability of financial reports, removing barriers to international capital flow, reducing reporting cost of Australian multinational companies, and improvement in Australian financial reporting quality in the international arena (PS 4, p. 8).

Later in 2002, the FRC provides a strategic direction to the AASB to work towards adopting accounting standards that are the same as those issued by IASB. Following this, the AASB initially issued Australian equivalents to IFRSs (A-IFRS) which were to be used by corporations under the Corporations Act 2001. The transition to IFRSs was mandated by a special accounting standard, AASB 1 *First-time Adoption of Australian Equivalents to IFRS*. This standard is critical as it affects all entities that apply IFRSs for the first time. AASB 1 requires firms to prepare AGAAP-IFRS reconciliation statements, showing the comparative information under each set of standards, with certain limited exceptions. A detailed process to adopt IFRSs is mentioned in paragraph

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[18] See for detailed objectives of the FRC at http://www.frc.gov.au/about_the_frc/objectives/.

[19] The other four policy statements include PS 2 The AASB Consultative Group (2001), PS 3 AASB Project Advisory Panels (2001), and PS 5 *The Nature and Purpose of Statements of Accounting Concepts* (2001). However, all these policy statements were already withdrawn by the AASB in 2008, although PS 5 was relevant until the first reporting under IFRSs in 2005 (detailed at http://www.aasb.gov.au/Archive/Policy-statements.aspx).

8, AASB 1. For instance, if an entity's first AIFRS based financial report is due on December 31, 2005; their transition will start on January 1, 2004. As per AASB 1, the entity needs to prepare:

(i) an opening statement of financial position based on AIFRS as on January 1, 2004; and

(ii) its statement of financial position for December 31, 2005 (including comparative amounts for 2004), and a statement of comprehensive income, statement of changes in equity and statement of cash flow for the year to December 31, 2005 (including comparative amounts for 2004) and related disclosures that are all prepared under AIFRS.

Similarly, those entities following July-June fiscal period, their transition period starts from July 1, 2004. Figure 3 shows the timeline of disclosure of comparative financial statements with the passage of IFRS adoption.

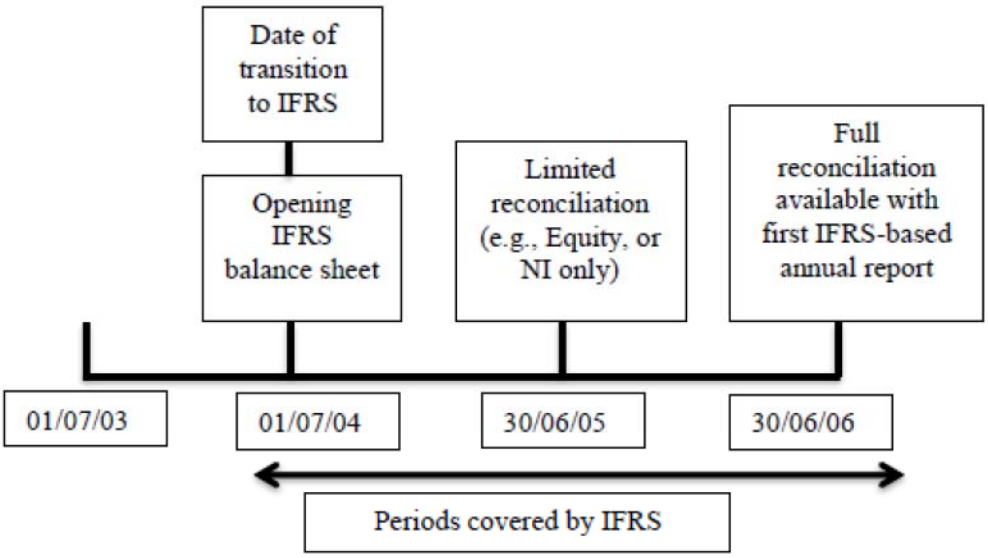

Figure 3: IFRS Time Line and Reporting Time Framework in Australia.

Since there are only six months covered by AIFRS for the reporting period ending June 30, 2005, entities are not required to present the detailed reconciliations for the 2004 financial year.[20] Instead, when they prepare their first AIFRS-based financial report for the 2005-2006 financial year, they need to show a statement of comprehensive income and a statement of financial position for 2004-2005 as if they were following AIFRS. In addition, they need to show a statement of financial position as on transition date July 1, 2004. In sum, companies with a 30 June balance date need to prepare three statements of financial positions (for 2004, 2005 and 2006 financial years) and two statements of comprehensive income (for 2005 and 2006 financial years) and present them in the 2005-2006 annual report. The AASB also issued another accounting standard AASB 1047 *Disclosing the Impacts of Adopting Australian Equivalents to International Financial Reporting Standards (IFRS)*. In particular, this standard explains the detail of the impact of IFRS adoption in narrative form and the related requirements (AASB, 2004i). The reconciliation statements required under these two accounting standards, AASB 1 and AASB 1047, form the main platform for the measurement of complexity which is used in this thesis.

[20] However, many companies show reconciliation relating to shareholders equity only, not for all line items. Due to limited reconciliation, this study does not focus on reconciliation which is based on six months IFRS experience. Rather, this study uses reconciliation from adoption year in which a company prepares a full reconciliation, more importantly, specific line items wise.

CHAPTER 3-ACCOUNTING COMPLEXITY, AUDIT FEES AND AUDIT INDUSTRY SPECIALIZATION

This chapter examines the impact of IFRS complexity on audit fees. Levels of complexity associated with individual standards are measured and regressed against audit fees. In addition, this chapter shows whether premium fees for industry specialist audit firms (ISPs) vary with the levels of complexity a firm is exposed to.

3.1 Introduction

At the time of writing this thesis, a limited number of studies consider the costs of IFRS. Examples of such costs include increased length of annual reports (Webb, 2006), reduced use of accounting numbers for debt contracting post-IFRS (e.g., Ball, Li, & Shivakumar, 2015b), and increased audit fees (Cameran et al. 2013; De George et al., 2013; Kim et al., 2012a).

However, the association between individual standard level complexity and audit fee is not yet explored in prior research.

To fill the gap in the literature, this chapter examines whether IFRS, especially certain aspects are more complex, as claimed by critics, thereby resulting in an increase in audit fees in the year when firms convert from local accounting standards to IFRS. This chapter also examines whether the effect of complexity on audit fees differs between industry specialized auditors and non-specialized auditors.

Although Kim et al. (2012a) and De George et al. (2013) investigate the effect of IFRS adoption on audit fees in general; their studies do not address the likelihood that specific standards of IFRS are more difficult than other and whether they are thus associated with greater audit effort and fees. On the other hand, Cameran et al. (2013) document an increase in audit fees because of IFRS adoption. However, their finding is limited to only banking industry in Italy. They also investigated whether the audit fees decreases due to improvement of financial reporting quality. But they do not find any evidence of improvement in financial reporting quality due to IFRS adoption.

The present study uses the concept of accounting complexity to capture the challenge that practitioners face as a result of changing accounting standards.[21] Using a unique dataset that is manually constructed from the IFRS reconciliations required in financial statements during the first year of IFRS adoption, this study identifies a number of individual IFRS standards from prior Australian studies for which complexity scores are computed (detailed in section 3.3.1). Specifically, this study measures accounting complexity as the magnitude of the difference reflected in the IFRS reconciliation between figures prepared under previous Australian accounting standards as compared to figures prepared under IFRS. It is argued that measuring complexity scores at the individual accounting standards level provides sharper insight as to the most complex standards of IFRS and hence those which are most likely to drive an increase in audit fees.

Australia is selected for this study for the following reasons. First, Australia adopted IFRS in 2005 to become one of the few countries outside the European Union (EU) to pioneer IFRS adoption.[22] IFRS adoption in Australia is mandated for both private and public for-profit entities, which meet the definition of "reporting entity" under AASB standards.[23] Therefore, the impact of IFRS on the Australian economy is widespread, necessitating deep understanding and research. Although ample evidence

[21] The extant accounting literature measures complexity as readability, using syntax analysis (e.g., Filzen & Peterson, 2015; Lehavy et al., 2011), or by measuring the length of the reports through word counts (e.g., Franco, Hope, Vyas, & Zhou, 2015).

[22] See at: http://www.aasb.gov.au/Pronouncements.aspx

[23] A reporting entity is defined as "each entity that is required to prepare financial reports in accordance with Part 2M.3 of the Corporations Act 2001".

on the benefits and challenges of IFRS adoption is provided in the EU, IFRS issues in Australia are comparatively under-researched. Second, Australia is one of the few countries with certain strong arguments contrary to the net benefits of adopting IFRS. As a developed country where existing AGAAP was well developed and strongly enforced, Australia already had relatively high financial reporting quality, which may diminish this oft-repeated benefit of adopting IFRS. Ahmed, Neel, and Wang (2013) find that financial reporting quality of IFRS adopters measured by income smoothing and earnings aggressiveness, in general deteriorates after adoption, particularly for adopters in countries with strong legal regimes. This is possibly because of the ambiguity and flexibilities stemming from certain IFRS standards such as IFRS 13 *Fair Value Measurement*. In similar vein, some studies present country-specific evidence suggesting little advantage in moving to IFRS.[24] In Australia, Goodwin, Ahmed, and Heaney (2008) empirically demonstrate that Australian Generally Accepted Accounting Principles (AGAAP) earnings and equities are more value relevant than IFRS-based earnings and equities.

In addition, although accountants and auditors in Australia have undertaken intensive training and briefing to ease the transition from local AGAAP to IFRS (CAANZ, 2016), there is survey based evidence that some IFRS standards are more challenging than others. For instances, De George et al. (2013) find that AASB 132 *Financial Instruments: Presentation,* AASB 139 *Financial Instrument: Recognition and Measurement* and AASB 2 *Share-based Payment* as being more complex standards,

[24] For instance, Van tendeloo and Vanstraelen (2005) demonstrate that German firms that voluntarily apply IAS do not exhibit differences in earnings management attributes in comparison to those applying local German GAAP. Daske (2006) reports that the cost of equity capital is not significantly different across German firms adopting either IAS or US GAAP.

based on ratings by professional accountants.[25] The present study hypothesizes that in the presence of complexity due to adopting some (all) of those challenging accounting standards, audit fees will increase as a result of increased audit effort and/or audit risks. In addition, this effect of complexity on audit fees may vary between industry-specialized versus non-specialized auditors.

Prior literature demonstrates that audit fees are significantly associated with accounting complexity at an aggregate level. Nevertheless, as explained in the previous chapter, not all standards are equally complex and not all may result in high audit fees. Analysis of the complexity of individual standards suggests that few standards[26], are highly complex and that these few are likely to explain much of the positive relationship between complexity and audit fees. Further analysis suggests that the incremental effect of IFRS complexity on audit fees is more pronounced when firms are audited by city-level industry specialists than by non-industry specialists, although this effect is not significant for national level specialists. These findings hold after controlling for potential self-selection issues.

This chapter contributes to the IFRS literature by constructing a complexity measure to gauge the difference between specific individual domestic accounting standards and IFRS. This enables the degree of complexity to be refined, as opposed to being measured at only an aggregate level, but also at the individual standard level. The findings highlight that not all standards are equally complex and therefore that different standards require different levels of auditor effort. In the presence of more complex standards, financial reporting quality may be compromised as a result of increased

[25] De George et al. (2013) use a 10 point scale to rate the difficulty level associated with individual standards.

[26] Specifically, these include AASB 136 *Impairment of Assets*; AASB119 *Employee Benefits*; AASB139 *Financial Instrument: Recognition and Measurements*; AASB 121 *The Effects of Changes in Foreign Exchange Rates and* AASB 117 *Leases*.

errors and misunderstandings. Pinpointing specific standards with high complexity is informative to standard setters and may assist them with future, implementations and improvements of accounting standards. Greater awareness of the extent to which these standards pose challenges to accountants and auditors, may also assist standards setters and/or professional bodies to provide appropriate additional guidance and training. Better understanding around why audit fees increase as a result of changes in specific accounting standards should also help audit firms to make better decisions about planning, staffing and training. In addition, although prior Australian studies identify some accounting standards that are perceived to be more complex and thus more difficult to understand (e.g., Chalmers, Clinch, Godfrey, & Wei, 2012; De George et al., 2013; Matolcsy & Wyatt, 2006), this study extends prior literature by empirically testing such propositions and investigating the consequences for audit fees. More importantly, the results also highlight certain complex IFRS standards that have been neglected by prior Australian studies, including AASB 121 *The Effects of Changes in Foreign Exchange Rates* and AASB 117 *Leases*. Thus, this study complements and extends the extant Australian IFRS literature by providing additional depth using a novel standard-based investigation.

The remainder of this chapter is organized as follows. Section 3.2 provides the literature review which leads on to the development of the hypotheses. Section 3.3 provides details regarding the sample and research design. Section 3.4 presents the main empirical findings and discusses several additional analyses. Section 3.5 concludes.

3.2 Literature Review and Development of Hypotheses

The IFRS literature of the last decade suggests that IFRS, as a set of high quality and globally accepted standards, is beneficial in many ways. Little is known about the cost of IFRS adoption. IFRS can be costly, complex and burdensome due to lack of implementation guidance and uniform interpretation (Jermakowicz & Gornik-Tomaszewski, 2006). Being principle based accounting standards, IFRS are less prescriptive and require accountants to make judgments based on interpretation of imprecise phrases (Psaros, 2007), and are thereby more complex (Plumlee & Yohn, 2010). Some standards provide more gaming opportunities than others (Benston, Bromwich, & Wagenhofer, 2006), because they contain inherent ambiguity (Schipper, 2003). For instance, standards for fair value measurements, related party disclosures, intangible asset verifications, and accounting for retirement benefits, among others all require a high degree of professional judgment by auditors (Chen, 2014).

When there is flexibility and professional judgement involved in the application of accounting standards and inconsistent expertise of accounting practitioners, financial reporting quality becomes unpredictable (Schipper, 2003). Flexibility can create complexity due to uncertainty about the interpretation of the standards (Morris et al., 2014). For example, fair value measurement is the preferred valuation method of IFRS. However, it is less verifiable and more difficult to audit (Ettredge, Yang, & Yi, 2014), as there is a variation in techniques used in measuring fair values (Yao, D. et al., 2015), which requiring auditors to master more sophisticated valuation techniques and to develop a deeper understanding of financial markets (Chen, 2014). Although Goncharov et al. (2014) document a decreasing audit fees for firms reporting their property assets at fair value. However, their finding is limited to real estate sector.

Fair values are also associated with a greater probability of material misstatement (De George et al., 2013). De George et al. (2016) suggest that general uncertainty around IFRS adoption may explain the increased compliance and audit costs faced by firms. This is because uncertainty about the implementation and effects of

IFRS is likely to increase investors' scrutiny of financial statements post-IFRS adoption, resulting in a high likelihood of costly litigation and regulatory interventions. Litigation concerns often pressurize auditors to increase audit effort, reassess client risk, or both (e.g., Clarkson, Ferguson, & Hall, 2003; Francis & Krishnan, 1999), which leads to increased audit fees.

Two extant studies investigate the increase in audit fees as a result of IFRS adoption and they are pertinent yet different to the present study. Kim et al. (2012a) claim that IFRS is comprehensive and fair value-based, so require special audit expertise, significantly more audit time and substantial judgments. Using a broad sample of 11 IFRS adopting countries from the EU, they find that audit fees rise significantly post-IFRS, because of an increase in reporting complexity. Following Ding et al. (2007), Kim et al. (2012a) also measure complexity as the deviation of local GAAP from IFRS where *Absence* and *Divergence* scores are computed to represent the numbers of missing or (non-missing) accounting rules regarding particular accounting issues in local GAAP but which are available in (IFRS) and the number of differential accounting rules regarding the same accounting issues. The higher the total *Absence* and *Divergence* scores, the more a country's local GAAP differs from IFRS and hence the higher the level of complexity. As a cross-country study, Kim et al. (2012a)'s complexity score is measured at country level which assumes consistent levels of complexity for all firms in that country. However, different firms face different levels of complexity in spite of using the same set of accounting standards. For instance, an auditor's risk assessment should vary where a firm which has no IFRS adjustments for AASB 139 *Financial Instruments: Recognition and Measurement,* as compared with another firm which has significant adjustments arising from same IFRS standard. This thesis, therefore, focuses on only one country in order to provide more refined insights at firm level regarding the impact of complexity on audit fees brought about by IFRS adoption.

Using a sample of Australian publicly listed companies De George et al. (2013) investigate whether the magnitude of net IFRS adjustments to total equity is associated with an increase in audit fees. Specifically, they classify firms' adjustments to total equity due to IFRS adoption into three categories, namely positive, negative and nil adjustments and show the differential impact for these classifications on audit fees. In addition, they interview auditors from Big 4 audit firms to rate auditors' perception of risk, complexity and extra audit effort brought about by IFRS. Auditors' responses suggest that requirements for financial instruments, share-based payments, intangible assets, and income taxes demand considerable effort and entail the most auditing complexity. A measure 'IFRS_Score' is then constructed by De George et al. (2013) to capture the exposure of a firm to those identified IFRS items. IFRS_Score incorporates several dimensions using information disclosed in financial statements in the year of IFRS adoption. Dimensions covered include whether the firm applies hedge accounting, rankings in terms of gross financial assets and liabilities, whether the company recognizes derivative financial instruments, whether the firm applies AASB 2 *Share-based Payment*, whether the firm records IFRS adjustments in relation to AASB 112 *Income Taxes*, whether the firm records a goodwill balance, and whether the firm recognizes intangible assets in the prior year under previous AGAAP. After applying IFRS_Score to their empirical model, they find a positive relationship between IFRS_Score and audit fees. Measurement of IFRS complexity, in this thesis, differs from that of De George et al. (2013) in that it is a *de facto* measure based on the magnitude of actual adjustments made by firms to reconcile between AGAAP and IFRs, while theirs is an inferred measure based on firm characteristics.

Several Australian studies investigate which IFRS accounting standards are more difficult than others (De George et al., 2013; Jermakowicz & Gornik-Tomaszewski, 2006; Jubb, 2005). Building on findings from these studies, this thesis identifies a list of complex standards for empirical testing. Given the theoretical arguments about increased investors' scrutiny and audit litigation concerns along with the empirical findings of prior research (De George et al., 2013; Kim et al., 2012a), the first hypothesis is stated as follows:

H3.1: Accounting complexity arising from adopting IFRS is positively associated with audit fees.[27]

Further, the present study extends investigation to a research question on whether the effect of complexity on audit fees differs due to high quality auditors (proxied by industry-specialized auditors) (ISPs) and non-specialized auditors (non-ISPs). This study chooses to focus on ISP instead of Big 4 for two reasons. First, prior studies show that an ISP charge higher audit fees compared to a Big N auditor because of differentiated audit quality. For instance, Craswell et al. (1995) investigate the confounding effect between brand name reputation (Big N) and industry specialisation. Using a large sample of Australian listed firms, they document that industry specialist Big N auditors earn, on overage, a 34% premium over non-specialist Big N auditors.[28] They contend that in industries having specialist auditors, non-specialist Big N auditors are regarded as equivalent to non-Big N firms and who are also non-specialists. Consequently, specialist auditors should be a more clearly differentiated proxy for audit quality than Big 4. Furthermore, auditors' knowledge of their clients' industry is a prerequisite in today's complex and interconnected global economy (Bell et al., 1997),

[27] **H3.1 and H3.2** indicate first and second hypotheses in Chapter 3 respectively. First digit indicates Chapter location and second digit indicates order of hypothesis.
[28] Big N indicates Big 8 audit firms. Craswell et al. (1995) conducted their study when the Big 8 audit firms were still recognised as such in the audit market.

and affects auditors' judgements and assessment of risk. This in turn improves their performance and helps them to anticipate possible misstatements, which ultimately improves audit quality (Low, 2004; Taylor, 2000).

In addition, the selection of ISP as a moderator is motivated by the mixed findings on the relationship between ISPs and audit fees.[29] On the one hand, it is argued that industry specialists charge a fee premium as a result of branding effects and superior audit quality (Fung, Gul, & Krishnan, 2012; Hay & Jeter, 2011). Other empirical studies provide corroborative evidence on this proposition (e.g., Basioudis & Francis, 2007; DeFond, Francis, & Wong, 2000; Ferguson, Francis, & Stokes, 2003; Francis, Kenneth, & Wang, 2005; Fung et al., 2012; Mayhew & Wilkins, 2003). On the other hand, industry specialization is argued to reduce audit fees because specialized knowledge of the clients' industry can bring about 'economies of scale' which translates into a fee discount (Fung et al., 2012). The 'fee discount' argument also has its empirical support (e.g., Ettredge & Greenberg, 1990; Hay & Jeter, 2011). Adding to this puzzle, a few studies report no significant effect of industry specialization on audit (e.g., Ferguson & Stokes, 2002; Palmrose, 1986). A more recent study, Bae, Choi, and Rho (2016a), reconciles these competing views by finding that ISPs charge significantly higher total audit fees because they spend significantly greater audit hours than non-ISPs, although the unit audit price of ISPs is significantly lower than that of non-ISPs as a result of fee discount using their industry knowledge.

Cahan, Jeter, and Naiker (2011) contend that there are two types of ISPs – product specialists and cost specialists. The former competes using a product specialization strategy, differentiating their product from that of their competitors in order to build barriers and reduce head-to-head competition. This strategy stresses

[29] For a complete review of papers on auditor industry specialization, please refer to following studies (Audousset-Coulier, Jeny, & Jiang, 2016; Hay, 2013; Hay, Knechel, & Wong, 2006).

uniqueness rather than price discount. Therefore, product specialists would be associated with higher audit fees. However, the latter use a cost minimization strategy, related to fee discounts. Industry specialists competing on product differentiation, as opposed to price competition, tend to focus on industries where client firms are less homogeneous, more complex, or possess unique accounting issues (e.g., GAO, 2003, 2008). Reconciliation between domestic GAAP and IFRS results in larger adjustments for firms with greater exposure to certain business activities. When accounting standards get complex, auditors need to utilize their industry product specialization and extend greater effort. Therefore, this study posits that ISPs charge higher fees for firms having higher IFRS complexity compared to those with lower complexity. The testable hypothesis is developed as follows:

H3.2: The effect of IFRS complexity on audit fees is stronger for firms with ISPs than for firms with non-ISP auditors.

3.3 Sample and Research Design

3.3.1 Measurement of Accounting Complexity arising from IFRS

AASB 1 requires that the first time adopters of Australian equivalents to IFRS should provide comprehensive reconciliation statements showing their financial performance and financial position under two accounting systems (i.e. old AGAAP and new AIFRs) (AASB 1, 2004h). The measure of complexity is based on the magnitude of the adjustments made in the Reconciliation Statements, prepared in the year of IFRS adoption. Although, few studies, using the similar approach, attempt to use reconciliation statement to gauge the differences between two accounting systems (e.g., Street et al., 2000). Street et al. (2000) calculate comparability index (CI) based only on Net Income (NI) under both US GAAP and IAS (see p.31). However, Street et al.

(2000) do not consider any balance sheet differences between US GAAP and IAS. This thesis overcomes this limitation considering both income statement and balance sheet components. More importantly, the main focus of the present study is on individual accounting standards. Firstly, this study identifies six accounting standards that are found to have significant impact on financial statement in prior Australian accounting studies (e.g., De George et al., 2013; Jermakowicz & Gornik-Tomaszewski, 2006; Jubb, 2005). These standards include AASB2 Share-based payments, AASB 3 Business Combinations, AASB 136 Impairment of Assets, AASB 138 Intangible Assets, AASB 112 Income Taxes, and AASB 119 Employee Benefits. These findings for Australia are largely consistent with findings for other comparable jurisdictions such as New Zealand (e.g., Stent, Bradbury, & Hooks, 2010) and Germany (e.g., Hung & Subramanyam, 2007).

During data collection, some additional IFRS standards are identified as being complex because many firms make substantial reconciliation adjustments which arise from these standards. These additional standards include: AASB 116 *Property, Plant and Equipment,* AASB 117 *Leases,* AASB 121 *The Effects of Changes in Foreign Exchange Rates,* AASB 132 *Financial Instruments: Presentation,* AASB 139 *Financial Instruments: Recognition and Measurement, and* AASB 119 *Investment Property*. Throughout the thesis, the above set of standards is known as "new six standards". Recently, Barth et al. (2014) investigate the value relevance of reconciliation adjustments for net income (NI) with stock price. They consider aggregate impact on NI from 11 IFRS standards and find that resulting net income adjustments are incrementally value relevant for both financial and non-financial firms. This thesis, therefore, extends the list of complex standards to include 9 of the 11 standards identified by Barth et al. (2014).

For each standard, the differences in affected accounts (see Appendix-B) from IFRS reconciliations are collected. These differences are then expressed as a percentage of either Total Revenue, if the account is a statement of comprehensive income item or Total Assets if the account is a statement of financial position related item. The differences are then classified into four categories (i.e., 'Material', 'Moderate', 'Small' and 'Zero') based on materiality thresholds used in auditing practice (Leung, Coram, Cooper, & Richardson, 2015). That is, the difference is considered as Material if it is 1% or more of either Total Revenue or Total Assets; as Moderate if it is in between 0.5% and 1% of the above totals; as Small if it is less than 0.5% but greater than 0; and as Zero where there is no difference as a result of the switch to IFRS. These categories are then used for scoring (i.e., 6 is assigned for material, 4 is assigned for moderate, 2 is assigned to small and 0 is for no adjustments). For instance, Avexa Limited (Official Ticker: AVX) prepared a reconciliation statement showing the impact of AASB 2 *Share-based Payment* (see Appendix-C). It has shown that due to IFRS adoption, the company had an additional AU $61000 as an expense adjustment, which is 9 percent of the Total revenue of Avexa Limited. Based on the above materiality thresholds, as it is more than 1 percent of turnover this is a material adjustment, so 6 points are assigned. Another example using a statement of financial position related item is that of BKM Management Limited (Official Ticker: BKM) reporting on the impact of AASB 136 *Impairment of Assets* (see Appendix-C) in its reconciliation. Specifically, there is a reversal of amortisation of AU$ 71144 due to the changes from the amortisation approach under old AGAAP to the approach of impairment testing under IFRS. To calculate complexity induced by AASB 136, this adjustment is deflated by total assets, which returns a value of 8.77%, again attracting a 'material' score of 6 points. A high score indicates a high level of complexity because material adjustments have been made on that account due to the adoption of IFRS.

When all original six accounting standards are considered together, the complexity scores assigned to individual standards are aggregated. For instance, Insurance Australia Group Limited (IAG) shows that their financial statements as of June 30, 2006, are affected by AASB 2 *Share-based Payment,* AASB 136 *Impairment of Assets,* AASB 138 *Intangibles Assets,* AASB 112 *Income Taxes, and* AASB 119 *Employee Benefits*. AASB 112 *Income Taxes* and AASB 119 *Employee Benefits* are classified as material (6 points each). AASB 136 *Impairment of Assets* as moderate (4 points) and AASB 2 and AASB 138 as small (2 points each). As a result, IAG Limited's total complexity score of five complex standards scores is 20. Using the same approach, this study measures complexity as (i) aggregate composite complexity score of original six complex standards; (ii) the composite complexity scores of original six complex standards separately; (iii) aggregate composite complexity score of 12 standards including new six standards that are identified during data collection; and (iv) the composite complexity scores of all 12 standards separately. Empirical tests are then conducted with all four complexity measures.

3.3.2 Auditor Industry Specialization (ISP)

Following the approach of Ferguson et al. (2003) and Francis et al. (2005), this study measures ISPs as the audit firm who has the largest market share (i.e. measured by audit fees) in the same industry, because the auditor with dominant presence in the industry is likely to possess specialist expertise as a result of superior industry knowledge and more experienced human resources. Using audit fees to measure market share is also consistent with industrial organization literature which measures market share using industry output (DeFond et al., 2000).[30]

ISPs are measured at city- and national-level respectively. This study also identifies joint ISPs as specialists at both city- and national-levels. To this end the following procedure is used to identify ISPs. First, the location of audit firms is identified for all sample companies. 1085 companies are found to have auditors locating in five big cities in Australia, including Adelaide, Brisbane, Perth, Melbourne and Sydney. Then, the total audit fees of each audit firm in each industry and in each of the five cities are calculated. The audit firm with the highest audit revenue in a particular industry and a particular city is ranked as a city-level ISP. This procedure is repeated to recognize each national-level ISP with the highest revenue in a particular industry in a particular year nation-wide. Lastly, joint ISP is identified as an audit firm who is industry specialist at both city and national-level.

3.3.3 Sample Selection and Data

Sample selection starts with the identification of 1587 non-financial listed companies on the Australian Securities Exchange (ASX) as of June 2006. Table 3-1, Panel A then shows the exclusion of newly listed (40) and delisted companies (80) in 2006 as they did not provide complete information for prior periods or gained exemption from IFRS reporting due to short history of listing. Another three firms which changed their fiscal

[30] Other measures of ISPs (such as client size and number of clients) may be suitable for settings where audit fee disclosures are unavailable. For example, audit fee disclosures did not become enforced until 2000 in the United States. More recently, Audousset-Coulier et al. (2016) investigate the validity of ISP measurements; they find that audit fee is the significant determinant of ISP measurement compared to other available ISP measurement. Overall, audit fees can capture auditor efforts better than other ISP measurements as audit fees are a function of client size, complexity and riskiness (Audousset-Coulier et al., 2016).

year are eliminated. 38 firms using foreign currency or foreign GAAP are also excluded. A further 25 firms are discarded because their annual reports are missing (16) or contain no information on reconciliation (9). 149 observations are excluded due to missing data for calculation of other variables required for regression analysis. Lastly, 130 companies are excluded which do not show reconciliations between the old AGAAP and the new IFRS, because the change in accounting standards does not result in material differences in accounts as stated in their annual reports in a narrative form. These eliminations leave a sample of 1122 firms for analysis. Panel B of Table 3-1 shows the distribution of the final sample based on four-digit Global Industry Classification Standard (GICS). ISP auditors are identified in the twenty five industries using audit fees. More than 32% (367 out of 1122) of sample firms come from materials industries, 12% (135 firms) come from energy industries, with the remaining 55% of firms spread across the other 23 industry categories.

Table 3-1: Sample and Industry Distribution

Panel A: Sample selection	Observations
Number of companies listed excluding financial service companies on ASX at June 30, 2006	1587
Less:	
Firms newly listed in 2006	(40)
Firms delisted in 2006	(80)
Fiscal year change [from July-June to Jan-Dec, or Jan-Dec to July-June]	(3)
Firms using foreign currency/Foreign GAAP	(38)
Annual reports not available	(16)
No information available in annual reports	(9)
Missing variables	(149)
No material difference (NMD) declaration stated in disclosure	(130)
Final sample used for analysis	**1122**

Panel B:	Distribution of Firms Based on GICS Code	Observations	Percentage
1.	Materials	367	0.3271
2.	Energy	135	0.1203
3.	Capital Goods	68	0.0606
4.	Software & Services	66	0.0588
5.	Pharmaceuticals & Biotechnology	59	0.0526
6.	Consumer Durables & Apparel	15	0.0134
7.	Consumer Services	34	0.0303
8.	Diversified Financials	36	0.0321
9.	Automobiles and Components	10	0.0089
10.	Food & Staples Retailing	4	0.0036
11.	Food, Beverage & Tobacco	29	0.0258
12.	Health Care Equipment & Services	47	0.0419
13.	Household & Personal Products	5	0.0045
14.	Insurance	5	0.0045
15.	Commercial & Professional Services	7	0.0062
16.	Commercial Services & Supplies	37	0.0330
17.	Media	37	0.0330
18.	Miscellaneous	3	0.0027
19.	Real Estate	42	0.0374
20.	Retailing	31	0.0276
21.	Semiconductors & Semiconductor Equipment	3	0.0027
22.	Technology Hardware & Equipment	27	0.0241
23.	Telecommunication Services	17	0.0152
24.	Transpiration	17	0.0152
25.	Utilities	21	0.0187
	Total No. of Companies in Sample=	1122	1.000

The majority of Australian companies report on July-June fiscal periods and hence report under IFRS for the first time in June 2006. Therefore, reconciliation adjustments for such companies are collected from their annual reports as at June 2006. For companies who report on the calendar year (January to December), reconciliation adjustments are collected from 2005 annual reports which is their first complete IFRS-based annual report. In 2005 annual reports, firms showed the IFRS impact on 2004's financial statements as if they had followed IFRS in 2004. Lastly, required data to calculate control variables are collected from DataStream and auditor information is collected from Securities Industry Research Centre of Asia-Pacific (SIRCA).

3.3.4 Research Design

To investigate the impact of accounting complexity on audit fees proposed as Hypothesis 1, Equation (1) is tested using Ordinary Least Square (OLS) regression. Equation (1) is tested respectively with (i) the composite complexity score of all original six complex standards; (ii) original six complex standards separately; (iii) the composite complexity score of 12 standards; and (iv) 12 standards separately. The audit fee regression model is specified following prior audit fee literature (Craswell et al., 1995; De George et al., 2013; Ferguson et al., 2003; Kim et al., 2012a; Simunic, 1980) with the variable of interest, *COMPLEXITY*.

$$\begin{aligned} LnAF &= \beta_0 + \beta_1 COMPLEXITY + \beta_2 LnASSETS + \beta_3 LnNAS + \beta_4 BIG4 + \beta_5 OPINION + \beta_6 DEBT \\ &+ \beta_7 REC + \beta_8 INV + \beta_9 ACCR + \beta_{10} ROA + \beta_{11} LOSS + \beta_{12} QUICK + \beta_{13} SUB + \beta_{14} GEOSUB \\ &+ INDUSTRY\ FIXED\ EFFECTS + \varepsilon \end{aligned} \quad (1)$$

Where,

LnAF= is audit fees measured as the natural log of total audit fees paid to external auditors;

COMPLEXITY= is the complexity score measured in four ways including (i) the composite complexity score of AASB 2, AASB 3, AASB 136, AASB 138, AASB 112, and AASB 119; (ii) above six complex standards separately; (iii) composite complexity score of 12 standards; and (iv) 12 standards separately;

LnNAS = natural log of total non-audit service fees paid to external auditors;

BIG4 = 1 if the firm is audited by Big 4 audit firms (i.e., KPMG, PWC, Deloitte, and EY), 0 otherwise;

OPINION = 1 for modified opinion, otherwise 0;

LnASSETS = natural log of total assets under AGAAP;

REC= ratio of total receivables to ending total assets;

INV = ratio of total inventory to ending total assets;

ACCR = absolute value of accruals (computed as difference between net income and cash flow from operations) scaled by ending total assets;

QUICK = ratio of current assets to current liabilities;

DEBT = ratio of long-term debt to ending total assets;

ROA = ratio of net profit after tax to ending total assets;

LOSS = 1 if the firm reported loss in the sample period, otherwise equal to 0;

SUB = natural log of 1 plus the number of subsidiaries; and

GEOSUB = natural log of 1 plus the number of foreign subsidiaries;

The coefficients of all complexity variables, both in aggregate or at individual standard level, are expected to be positive, as this will imply that IFRS complexities increase audit fees.

With respect to the control variables, first client size *(LnASSETS)* is controlled, which is the most dominant determinant of audit fees (Hay et al., 2006; Simunic, 1980). The coefficient for *LnASSETS* is expected to be positive as prior research finds that more than 70% of the variation of audit fees is explained by size (Hay et al., 2006). Non-audit service fees (*LnNAS*) is also controlled, as prior research explains that such services may lead to extensive organizational change which requires increased audit effort hence increased external audit fees (Hay et al., 2006), thereby a positive coefficient is expected for *LnNAS*. Next, this study controls the effect of whether Big 4 audit firms

(*BIG4)* earn premiums as compared with non-Big 4 audit firms, as prior research finds strong and positive associations with audit fees (De George et al., 2013; Kim et al., 2012a). A positive and significant coefficient is expected between audit fees and audit opinion (*OPINION*), as auditors charge higher audit fees for firms with modified opinions (Palmrose, 1986; Schelleman & Knechel, 2010). To control for the risk level of clients, this study uses the long-term debt ratio (*DEBT*) and quick ratio (*QUICK*) as control variables. A positive coefficient for *DEBT* is expected. Prior research (e.g., Hay et al., 2006) in their meta-analysis, find that half of the prior 39 studies examined record positive associations with audit fees and leverage. *QUICK,* as smaller quick ration (less liquid) indicates higher riskier the firms, thereby higher audit fees (e.g., De George et al., 2013; Francis & Stokes, 1986). A set of control variables relating to firm level complexity is also considered such as *REC, INV, SUB* and *GEOSUB*. *REC* and *INV* are risky balance sheet components which require auditors' specific audit procedures (Simunic, 1980, p. 137), and positive coefficients are expected for both variables. This study also includes some other determinants of audit fees such as, number of local subsidiaries (*SUB*) and number of foreign subsidiaries (*GEOSUB*). Positive and significant coefficients are expected for both *SUB* and *GEOSUB*. Auditors charge higher audit fees for firms with deteriorating operational performance (Simunic, 1980). To control for this, another variable, *LOSS* is used in audit fee regressions. Positive coefficients for Loss (*LOSS*) and negative coefficients for return on assets (*ROA*) are expected.

If Hypothesis **(H3.1)** is supported, $\beta 1$will be positive and significant. This study also tests the effect of individual standards separately by replacing the composite complexity score in Eq. (1) with the scores of individual standards.

To test Hypothesis 3.2's proposition on the moderating effect of auditor industry specialization, Equation (2) is designed as follows.

$$\begin{aligned} LnAF = {} & \beta_0 + \beta_1 COMPLEXITY + \beta_2 ISP + \beta_3 COMPLEXITY * ISP + \beta_4 LnNAS + \beta_5 OPINION \\ & + \beta_6 LnASSETS + \beta_7 DEBT + \beta_8 REC + \beta_9 INV + \beta_{10} ACCR + \beta_{11} ROA + \beta_{12} LOSS \\ & + \beta_{13} QUICK + \beta_{14} SUB + \beta_{15} GEOSUB + INDUSTRY\ FIXED\ EFFECTS + \varepsilon \end{aligned} \quad (2)$$

Where, ISP is the variable of interest representing auditor industry specialization and is proxied by three measures including (1) city-level ISP; (2) national-level ISP; and (3) joint ISP for auditor identified as being both a city and national level ISP. Other variables are as defined. A positive and significant coefficient for β3 is expected if Hypothesis (**H3.2)** is supported.

3.4. Empirical Results

3.4.1 Descriptive Statistics

Table 3-2 Panel A, shows the descriptive statistics and Panel B shows the coefficients of correlation among the variables. In Panel A, the mean value of *COMPLEXITY_6SD* is 6.38 with a minimum of 0 and maximum of 26. It is evident from this descriptive analysis that few of the sample companies have material adjustments arising from the original six complex standards, a finding consistent with that of Stent, Bradbury, and Hooks (2010).

Only *COMPLEXITY_AASB2* has a mean score exceeding 2 which indicates that overall, IFRS adjustments of the original six standards tend to be small i.e., low level of complexity. With regard to dependent variables and controls, the mean value of *LnAF* is 4.27 with a minimum of 1.95 and maximum of 8.10, and the mean value of *LnNAS* is

2.63 with a minimum of -0.36 and maximum of 7.55. All variables are winsorized at the 5% and 95% level to remove outliers in the regression.

Table 3-2: Descriptive and Correlation Matrix

Panel A: Descriptive Statistics

Variables	N	Mean	Median	S.D	Min	Max
Complexity Variables						
COMPLEXITY_AASB2	1122	2.06	0	2.49	0	6
COMPLEXITY_AASB3	1122	0.11	0	0.69	0	6
COMPLEXITY_AASB136	1122	1.76	0	2.44	0	6
COMPLEXITY_AASB138	1122	0.46	0	1.46	0	6
COMPLEXITY_AASB112	1122	1.77	0	2.55	0	6
COMPLEXITY_AASB119	1122	0.22	0	0.92	0	6
COMPLEXITY_6SD	1122	6.38	6	5.4	0	26
COMPLEXITY_AASB121	1122	0.58	0	1.58	0	6
COMPLEXITY_AASB132	1122	0.06	0	0.56	0	6
COMPLEXITY_AASB140	1122	0.13	0	0.77	0	6
COMPLEXITY_AASB116	1122	0.36	0	1.23	0	6
COMPLEXITY_AASB139	1122	0.22	0	1.03	0	6
COMPLEXITY_AASB117	1122	0.19	0	0.85	0	6
COMPLEXITY_12SD	1122	7.92	6	6.73	0	32
Audit Fee and Control Variables						
LnAF	1122	4.27	4.08	1.31	1.95	8.1
CITY_ISP	1085	0.24	0	0.43	0	1
NATIONAL_ISP	1085	0.18	0	0.39	0	1
JOINT_ISP	1085	0.12	0	0.32	0	1
*COMPLEXITY_6SD*CITY_ISP*	1085	1.96	0	4.53	0	26
*COMPLEXITY_6SD *NATIONAL_ISP*	1085	1.51	0	4.05	0	26
*COMPLEXITY_6SD *JOINT_ISP*	1085	1.1	0	3.62	0	26
LnNAS	1122	2.63	2.72	2.13	-0.36	7.55
BIG4	1122	0.49	0	0.5	0	1
OPINION	1122	0.14	0	0.34	0	1
LnASSETS	1122	10.35	10.08	2.18	5.16	16.07
DEBT	1122	0.09	0	0.16	0	0.79
REC	1122	0.15	0.05	0.33	0	2.79
INV	1122	0.06	0	0.11	0	0.5
ACCR	1122	0.23	0.07	0.62	0	4.7
ROA	1122	-0.27	-0.03	0.82	-5.63	0.39
QUICK	1122	5.45	1.63	10.38	0	71.70
SUBS	1122	0.94	0.69	0.36	0	1.79
GEOSUB	1122	0.92	0.69	0.37	0	1.95

See the Appendix A for variable definitions.

Panel B: Pearson Correlation Matrix

	NAME OF VARIABLES	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
1	*LnAF*	1																							
2	*COMPLEXITY_6SD*	.509	1																						
3	*CITY_ISP*	.398	.201	1																					
4	*NATIONAL_ISP*	.352	.178	.460	1																				
5	*JOINT_ISP*	.384	.205	.656	.779	1																			
6	*COMPLEXITY_6SD*CITY_ISP*	.462	.493	.775	.429	.595	1																		
7	*COMPLEXITY_6SD *NATIONAL_ISP*	.426	.419	.432	.795	.707	.619	1																	
8	*COMPLEXITY_6SD *JOINT_ISP*	.414	.378	.546	.648	.832	.741	.863	1																
9	*COMPLEXITY_12SD*	.595	.914	.240	.216	.237	.493	.430	.386	1															
10	*COMPLEXITY_12SD *CITY_ISP*	.494	.456	.786	.438	.607	.963	.602	.723	.520	1														
11	*COMPLEXITY_12SD *NATIONAL_ISP*	.450	.391	.434	.799	.710	.593	.965	.832	.456	.621	1													
12	*COMPLEXITY_12SD *JOINT_ISP*	.436	.354	.551	.654	.840	.716	.835	.969	.405	.748	.859	1												
13	*LnNAS*	.719	.412	.320	.262	.301	.349	.319	.315	.477	.368	.328	.325	1											
14	*OPINION*	-0.150	-.137	-.101	-.087	*-.074*	-.116	-.094	-.082	-.149	-.125	-.099	-.087	-.189	1										
15	*LnASSETS*	.794	.440	.321	.283	.299	.377	.350	.331	.514	.404	.372	.352	.691	-.311	1									
16	*DEBT*	.354	.143	.094	.126	.115	.133	.144	.120	.181	.140	.161	.129	.256	0.03	.349	1								
17	*REC*	.170	0.04	0.02	-0.02	*0.01*	0.02	-0.01	0.01	0.03	0.02	-0.01	0.00	.130	-0.03	.155	0.04	1							
18	*INV*	.284	.141	*.076*	.093	.096	.080	.115	.083	.185	.088	.121	.080	.187	0.03	.229	.150	.187	1						
19	*ACCR*	-.171	-.109	*-.064*	-0.05	*-0.04*	-.083	*-.068*	-0.06	-.124	-.082	*-.062*	-0.05	-.190	.251	-.376	0.01	-0.03	*-.071*	1					
20	*ROA*	.240	.114	.084	0.05	*0.05*	.096	.079	*.065*	.146	.103	.082	*.068*	.254	-.336	.479	0.03	*.072*	.113	-.828	1				
21	*LOSS*	-.540	-.315	-.166	-.128	-.163	-.214	-.191	-.183	-.364	-.227	-.201	-.190	-.445	.277	-.577	-.231	-.239	-.259	.193	-.407	1			
22	*QUICK*	-.340	-.219	-.084	-0.03	*-0.04*	-.118	-.079	*-.076*	-.239	-.123	-.088	-.080	-.248	-.107	-.234	-.206	-.138	-.221	-0.03	0.00	.250	1		
23	*SUB*	.319	.165	.111	*.073*	.106	.135	.117	.127	.230	.160	.136	.144	.264	*-.069*	.231	0.04	0.02	.091	-0.05	*.078*	-.137	-.089	1	
24	*GEOSUB*	.449	.275	.109	.133	.163	.193	.185	.189	.310	.206	.200	.205	.400	*-.072*	.402	.216	.179	.181	-0.06	.105	-.295	-.154	.299	1

See the Appendix A for variable definitions, **Bold** and *Italic* value Indicate significance at 1 percent and 5 percent levels in a two-tailed test, respectively.

Table 3-2 Panel B presents the correlation matrix. It shows that all tested variables (such as, *COMPLEXITY_6SD, COMPLEXITY_12SD, COMPLEXITY_6SD*CITY_ISP, COMPLEXITY_6SD *NATIONAL_ISP, COMPLEXITY_6SD*JOINT_ISP*) are significantly and positively correlated with audit fees *(LnAF*). This indicates that complexity arising from IFRS standards have significant associations with audit fees. The same argument holds for firms which are audited either by city-level or national-level industry specialist auditors or even audited by joint specialist audit firms. Control variables such as *LnNAS, REC, INV, LnASSETS*, and *DEBT* also show positive and significant correlation with *LnAF* which is consistent with audit fees literature. Nonaudit services (*LnNAS)* could be associated with audit fees *(LnAF*) because such services may lead to extensive changes in an organization that requires additional audit effort (e.g., Hay et al., 2006). *ACCR, LOSS* and *QUICK* have negative and significant correlation with *LnAF*. *ROA* has positive and significant association with *LnAF*. *SUB* and *GEOSUB* are two variables which also show the positive and significant correlation with *LnAF* consistent with extant audit fees literature.

Descriptive statistics for ISP are reported in Table 3-3. Audit fees are reported as a percentage of total market-share for the 25 industry categories based on ASX GICS codes. There are 103 city-industry combinations. [31] It is interesting to note that not all ISPs are Big 4 audit firms at city level although all industry specialists are found to be Big 4 firms at national level. City and national-level ISPs capture different concepts as only 49 city-industry specialists are found to be specialists at national level as well.[32] In

[31] There are 5 cities and 25 industry sectors, so theoretically there should be a total of 125 city-industry combinations. However, no observation is found for 22 city-industry combinations, leaving 103.

[32] Ferguson et al. (2003) find that less than half (45 out of 103 cases) of the city industry leaders are national industry leaders in Australia.

14 instances, non-Big 4 audit firms are found to be specialists, leaving 89 city-industry combinations attributable to Big 4 firms.

Table 3-3: Descriptive Statistics on Industry Specialists

Market Share of Audit Firms at City and National Level (Percentage of Audit Fees in Parenthesis)

Sector	Perth	Sydney	Melbourne	Brisbane	Adelaide	National
Automobiles and Components	KPMG (38)	PKF (100)	KPMG (91)	-	DEL (77)	KPMG (43)
Capital Goods	PWC (29)	KPMG (77)	KPMG (75)	EY (45)	KPMG (100)	KPMG (66)
Commercial & Professional services	EY (100)	EY (78)	DEL (44)	-	-	EY (51)
Commercial Services & Supplies	DEL (60)	DEL (40)	DEL (73)	BMRI (31)	-	DEL (38)
Consumer Durables and Apparel	DEL (40)	EY (58)	PWC (56)	PWC (84)	-	PWC (58)
Consumer Services	DEL (100)	PWC (74)	EY (42)	PWC (76)	-	PWC (49)
Diversified Financials	PKF (42)	KPMG (75)	EY (27)	PKF (63)	-	KPMG (45)
Energy	EY (57)	KPMG (38)	PWC (22)	PWC (56)	KPMG (66)	EY (30)
Food and Staples Retailing	EY (98)	DEL (100)	BDO (100)	-	-	EY (54)
Food, Beverage and Tobacco	EY (99)	EY (54)	KPMG	EY (100)	EY (97)	EY (67)
Health Care Equipment and Services	HW (41)	DEL (34)	DEL	PKF (46)	DEL (100)	DEL (40)
Household and Personal Products	PWC (97)	-	DTT (100)	-	-	PWC (83)
Insurance	-	PWC (75)	-	KPMG (100)	-	PWC (74)
Materials	EY (22)	PWC (28)	KPMG (65)	PWC (37)	PWC (64)	KPMG (47)
Media	PWC (49)	PWC (32)	EY (88)	EY (100)	EY (100)	EY (40)
Miscellaneous	-	KPMG (100)	EY (100)	BDO (100)	-	KPMG (91)
Pharmaceuticals and Biotechnology	BDO (29)	EY (47)	EY (81)	EY (56)	PWC (74)	EY (66)
Real Estate	KPMG (79)	EY (66)	PWC (80)	EY (45)	-	EY (49)
Retailing	DEL (39)	EY (53)	KPMG (42)	EY (64)	-	EY (45)
Semiconductors	EY (96)	PWC (100)	-	-	-	EY (76)
Software and Services	KPMG (27)	PWC (34)	PWC (100)	EY (25)	GT (100)	PWC (43)
Technology Hardware	BMRI (68)	PWC (49)	EY (48)	KPMG (100)	KPMG (93)	KPMG (37)
Telecommunications	EY (74)	PWC (48)	EY (97)	GT (83)	EY (100)	EY (84)
Transportation	PWC (51)	KPMG (70)	KPMG (91)	KPMG (59)	EY (100)	KPMG (76)
Utilities	EY (45)	PWC (37)	PP (61)	EY (43)	PWC (93)	PWC (29)

DEL= Deloittee Touche Tohmatsu Limited, EY=Ernst & Young (E&Y), PWC = Pricewaterhouse Coopers, KPMG= KPMG, PKF= PFK International, BDO= BDO, GT=Grant Thornton, PP= Pitcher Partners, BMRI= Bentleys MRI, DTT=DT Victoria, and HW= Horwarth.

3.4.2 Impact of Accounting Complexity on Audit Fees

To test **H3.1**, Eq. (1) is used for analysis. The results of the regression analysis are presented in Table 3-4. The first regression Model (1) shows the relation between lagged audit fees and accounting complexity for the original six complex standards together (*COMPLEXITY_6SD*). The coefficient of *COMPLEXITY_6SD* is 0.022 (t-statistic 5.31, significant at better than 1% level). This result suggests that accounting complexity arising from the original six complex standards is positively related to audit fees due to increased audit effort, greater requirement for professional judgement and/or higher audit risks associated with the uncertainties of applying new accounting standards.

The coefficients of control variables are mostly significant with expected signs at the 1% level (except *DEBT* and *ACCR*). These results are consistent with the prior literature that audit fees are positively associated with firm size (*LnASSETS*), firm level complexity (*REC, INV, SUB* and *GEOSUB*) and firm–specific risks (the inverse for *ROA*, and *QUICK*). On the other hand *LOSS* is also negatively associated with audit fees. This may indicate the client's inability to pay higher audit fees due to operating losses, which is consistent with previous Australian audit fee studies (e.g., De George et al., 2013; Ferguson et al., 2003). As expected, *LnNAS* has a positive and significant association with audit fees. The positive coefficient for *BIG4* indicates that clients are charged higher audit fees if they are audited by one of the Big 4 audit firms. Finally, as expected positive coefficients for *OPINION* indicate that auditors charge higher audit fees where companies are issued with qualified opinions. In this study, few control variables such as merger and acquisition (*MERGER/ACQUISITION*), auditor switch (*SWITCH*) (i.e., Big4 to Non-Big4 vice versa) are not included, as they are not frequently used in audit fee models.[33] In this study, 32 firms have auditor switch and 3 firms involved with merger and acquisition., Audit fee regression model is re-run after excluding 32 firms from the final sample. The main results do change ($\beta_{COMPLEXITY\_6SD}$ =

[33] Hay et al. (2006) shows that only 1 audit fees study uses "*MERGER*" and 2 audit fees studies use "*ACQUISITION*" as control variables.

$_{0.023,}$ t= 5.43; $\beta_{COMPLEXITY\_12SD}$ = $_{0.026,}$ t= 7.34). Similar results are found in individual standard-wise regression analysis (results un-tabulated).

Table 3-4 : Accounting Complexity and Audit Fees Regression Analysis

$$LAF = \beta_0 + \beta_1 COMPLEXITY + \beta_2 LnASSETS + \beta_3 LnNAS + \beta_4 BIG4 + \beta_5 OPINION + \beta_6 DEBT + \beta_7 REC + \beta_8 INV + \beta_9 ACCR + \beta_{10} ROA + \beta_{11} LOSS + \beta_{12} QUICK + \beta_{13} SUB + \beta_{14} GEOSUB + INDUSTRY\ FIXED\ EFFECTS + \varepsilon \quad (1)$$

Dependent Variables: LnAF	Predicted sign	Model (1)	Model (2)	Model (3)	Model (4)
INTERCEPT		0.579**	0.660**	0.746***	0.657**
		[2.20]	[2.48]	[2.84]	[2.53]
COMPLEXITY_AASB2	+		0.003	0.004	
			[0.45]	[0.51]	
COMPLEXITY_AASB3	+		-0.005	-0.004	
			[-0.15]	[-0.11]	
COMPLEXITY_AASB136	+		**0.059*** **	**0.056*** **	
			[6.42]	[6.12]	
COMPLEXITY_AASB138	+		**0.027** **	**0.025* **	
			[2.11]	[1.94]	
COMPLEXITY_AASB112	+		-0.003	-0.003	
			[-0.32]	[-0.40]	
COMPLEXITY_AASB119	+		**0.081*** **	**0.066** **	
			[2.94]	[2.43]	
COMPLEXITY_6SD	+	**0.022*** **			
		[5.31]			
COMPLEXITY_AASB121	+			**0.044*** **	
				[3.09]	
COMPLEXITY_AASB132	+			0.056	
				[1.31]	
COMPLEXITY_AASB140	+			0.023	
				[0.95]	
COMPLEXITY_AASB116	+			0.002	
				[0.11]	
COMPLEXITY_AASB139	+			**0.044** **	
				[2.53]	
COMPLEXITY_AASB117	+			**0.049** **	
				[2.23]	
COMPLEXITY_12SD	+				**0.024*** **
					[7.04]

LnNAS	+	0.106***	0.107***	0.104***	0.102***
		[7.82]	[7.97]	[7.83]	[7.69]
BIG4	+	0.440***	0.455***	0.428***	0.422***
		[10.82]	[11.25]	[10.59]	[10.39]
OPINION	+	0.239***	0.215***	0.211***	0.236***
		[4.04]	[3.67]	[3.62]	[4.03]
LnASSETS	+	0.296***	0.295***	0.289***	0.287***
		[15.87]	[15.95]	[15.50]	[15.30]
DEBT	+	0.209	0.213	0.231	0.210
		[1.40]	[1.45]	[1.56]	[1.39]
REC	+	0.117**	0.115**	0.126**	0.134**
		[2.16]	[2.13]	[2.39]	[2.52]
INV	+	0.504**	0.430*	0.384*	0.461**
		[2.23]	[1.95]	[1.75]	[2.04]
ACCR	+	0.015	0.013	0.013	0.019
		[0.30]	[0.25]	[0.25]	[0.37]
ROA	-	-0.169***	-0.167***	-0.160***	-0.160***
		[-3.84]	[-3.64]	[-3.52]	[-3.62]
LOSS	+	-0.228***	-0.205***	-0.198***	-0.214***
		[-3.81]	[-3.49]	[-3.45]	[-3.62]
QUICK	-	-0.007***	-0.006***	-0.006***	-0.006***
		[-3.26]	[-3.13]	[-3.12]	[-3.15]
SUB	+	0.305***	0.290***	0.241***	0.280***
		[5.57]	[5.46]	[4.26]	[5.21]
GEOSUB	+	0.169***	0.142**	0.138**	0.162***
		[2.83]	[2.47]	[2.39]	[2.76]
INDUSTRY FIXED EFFECTS		Yes	Yes	Yes	Yes
OBSERVATIONS		1,122	1,122	1,122	1,122
R-SQUARED		0.80	0.80	0.81	0.80
ADJ. R^2		0.79	0.80	0.80	0.79

See the Appendix A for variable definition. ***, **, * Significance level at the 1%, 5% and 10% level respectively. Model 1: Total score for original six standards together is considered as one variable of interest, Model 2: Original six complex standards individually and separately considered, Model 3: 12 standards are considered separately Model 4: Total score for full set of 12standards considered together as a single variable of interest.

Model (2) in Table 3-4 tests the audit fee effect of each of the six complex standards separately. The results show that three standards have a significant and positive effect on audit fees. *COMPLEXITY_AASB136 relates to* AASB 136 *Impairments of Assets* and *COMPLEXITY_AASB119 relating to* AASB 119 *Employee Benefits* are significant at the 1% level, while *COMPLEXITY_AASB138 relating to* AASB 138 *Intangible Assets* is significant at the 5% level. The results of complexity arising from these three standards are consistent with expectations. Under AASB 136 *Impairments of Assets* and AASB 138 *Intangibles Assets*, entities are required to conduct impairment tests using a fair value instead of applying a straight line amortisation approach under AGAAP.[34] Under the impairment testing approach, a 'recoverable amount' is defined as the higher of an asset's or cash-generating unit's fair value less costs to sell and its value in use (AASB, 2004f; para.18). Auditors' difficulties, relating to AASB 136 *Impairment of Assets*, arise in two ways: (i) identification of cash-generating units, as there is the potential for considerable subjectivity in identifying the level or levels at which cash-generating units are to be recognised (Wines, Dagwell, & Windsor, 2007)[35], and (ii) auditing fair values of the assets or unit as firms' application of fair values may introduce creative accounting or bias. In addition, AASB 119 *Employee Benefits* requires firms to recognise any net surplus or deficit of retirement plan funds as an asset or liability (AASB, 2004d). Under new standards, firms are required to obtain independent actuarial valuations of the fair value of plan assets and liabilities and then determine the extent of net surplus or deficit, with significant disclosure requirements over plan details and future projections (AASB, 2004d; para 145). De George et al. (2013) also document AASB 119 as one of the most difficult standards, based on survey ratings from 0 to 10 where AASB 119 was rated at 4.9.

[34] Before IFRS, entities were following the amortisation approach subject to a maximum period of 20 years.

[35] 'Cash-generating unit' is defined as the smallest identifiable group of assets that generates cash inflows that are largely independent of the cash inflows from other assets or groups of assets (Para 6, AASB 136).

Taken together, it is evident that uncertainty and bias relating to fair values may introduce audit risk and require more auditor effort. This is consistent with the notion that verifying assets' fair value increases audit effort, and thereby increases audit fees (Ettredge et al., 2014). In addition, Bratten, Gaynor, McDaniel, Montague, and Sierra (2013) argue that fair value verification requires more auditor expertise in finance and economics than in accounting. Furthermore, auditors, may have issues making estimates due to a lack of objective data or due to higher levels of uncertainty involved with particular estimation (Para 14, Australian Standards Auditing (ASA). To compensate for a higher level of risk, auditors may charge higher audit fees, an argument which is supported by the analysis results presented in Model (2).

Furthermore, AASB 138 *Intangible Assets* does not permit research expenditure to be capitalised, and the capitalisation of development costs is now subject to new IFRS criteria, e.g. the ability to demonstrate technical feasibility of developing assets available for use or sale and the probability of generating future economic benefits (AASB, 2004g). Lack of precise guidance about establishing technical feasibility increases the likelihood of opportunistic behaviour by management which increases audit risk. For example, Nobes (2013) argues that flexibility embedded in IFRS creates scope for management bias or opportunistic behaviour. More specifically, he notes "the choice of cost or fair value measurement for some types of intangibles", as one of more than 31 options (if a choice is involved) for which auditors may charge higher audit fees to firms suspected of earnings management. For instance, Gul, Chen, and Tsui (2003) document a positive association between audit fees and income earnings management (proxied by discretionary accruals).

Model (3) includes an expanded list of complex standards being tested separately as independent variables. This model confirms the Model (2) results for three of the original six complex standards, although for AASB 138, only at the 10% level. In addition, the results of Model 3 suggest that three of the new six complex standards are also positively and significantly associated with audit fees. *COMPLEXITY_AASB121 relating to* AASB 121 *The Effects of Changes in Foreign Exchange Rates, COMPLEXITY_AASB139* relating to AASB 139 *Financial Instruments: Recognition and Measurements* and *COMPLEXITY_AASB117 relating to* AASB 117 *Leases*. Similar result is found when only new six standards are entered into regression model (coefficients for *COMPLEXITY_AASB121, COMPLEXITY_AASB139,* and *COMPLEXITY_AASB117 are 0.055 (t=3.83), 0.046 (t=2.48),* and *0.066 (3.00) respectively*. This finding is interesting in that those standards are not perceived as complex based on the evidence from interview-based research in Australia. However, audit fees are positively associated with these three standards, suggesting greater audit effort is made in dealing with the adjustments as a result of the changes associated with these standards. The fourth model is similar to the first model, but uses an aggregate complexity score for all standards identified as the independent variable in the regression model. The results conform to those of Model (1) and provide a small increase in explanatory power. The overall results are consistent with hypothesis H3.1, suggesting that audit fees is positively associated with accounting complexity arising from IFRS. Moreover, all models show high and significant adjusted R^2 values.

3.4.3 Accounting Complexity, Audit Fees and Auditor Industry Specialization (ISP)

To test H3.2, Eq. (2) is employed for analysis. The results are presented in Table 3-5. Models (1), (2) and (3) test the moderating effect of city-level, national-level and joint industry specialist auditors on audit fee-accounting complexity associations. The results show that only city-level ISPs demonstrate significant and positive complexity effects on audit fees (coefficient on *COMPLEXITY_6SD*CITY_ISP* 0.016, t statistics 2.*0,* significant at the 5% level). The effects shown in Model (2) for national-level ISPs are insignificant (coefficient on *COMPLEXITY_6SD* NATIONAL_ISP* 0.010, t statistics 1.14), as are the effects shown in Model (3) for joint industry specialization i.e., at both city and national level (*JOINT_ISP)* at 0.013 (t statistics 1.36). The result of ISP moderating effect, supports hypothesis, H3.2, but for only city-level industry specialist auditors. This is consistent with prior research for instance, Ferguson et al. (2003) that is audit fees, in Australia, is primarily driven by office-level expertise. Ferguson et al. (2003) also find that national-level industry specialist auditors do not earn any premium unless they are also specialist at city level.

However, coefficients of *COMPLEXITY_6SD* and *ISP* measures at the city, national and joint level are also significantly positive in all three model specifications, conforming to the results of the Eq. (1) analysis.

The coefficients of audit fee related control variables (*LnNAS*, *OPINION*) are positive and significant with expected sign at the 1 percent level, consistent with the notion that additional services for the client require the auditors to spend more time and investment, thereby increasing audit fees. Further a modified opinion increases auditor's risk level or increase audit effort for which high quality auditors charge higher audit fees.

The client size control variable (*LnASSETS*) is also positively and significantly associated with audit fees. Control variables, related to the firm's level of complexity such as, *INV*, *SUB*, and *GEOSUB*, are also significant and positively associated with audit fees (except, *REC*). *QUICK*, a client risk related control variable is negatively associated with audit fees, which is consistent with the prior literature. The coefficient of *LOSS* does not show expected sign, consistent with the results and discussion for Table 3-4.

TABLE 3-5: Accounting Complexity, Audit Fees and Auditor Industry Specialization (ISP)

$$LnAF = \beta_0 + \beta_1 COMPLEXITY + \beta_2 ISP + \beta_3 COMPLEXITY * ISP + \beta_4 LnNAS + \beta_5 OPINION + \beta_6 LnASSETS + \beta_7 DEBT + \beta_8 REC + \beta_9 INV + \beta_{10} ACCR + \beta_{11} ROA + \beta_{12} LOSS + \beta_{13} QUICK + \beta_{14} SUB + \beta_{15} GEOSUB + INDUSTR\ FIXEDEFFECTS + \varepsilon$$

DEPENDENT VARIABLE=LnAF	Predicted Sign	Model (1)	Model (2)	Model (3)
INTERCEPT		0.524**	0.566**	0.557**
		[2.13]	[2.18]	[2.15]
COMPLEXITY_6SD	+	0.020***	0.022***	0.022***
		[3.88]	[4.60]	[4.82]
CITY_ISP	+	0.244***		
		[3.54]		
*COMPLEXITY_6SD*CITY_ISP*	+	0.016**		
		[2.00]		
NATIONAL_ISP	+		0.273***	
			[3.38]	
*COMPLEXITY_6SD *NATIONAL_ISP*	+		0.010	
			[1.14]	
JOINT_ISP	+			0.299***
				[3.10]
*COMPLEXITY_6SD *JOINT_ISP*	+			0.013
				[1.36]
LnNAS	+	0.121***	0.125***	0.124***
		[8.65]	[8.74]	[8.71]
OPINION	+	0.207***	0.205***	0.195***

		[3.36]	[3.29]	[3.12]
LnASSETS	+	0.304***	0.306***	0.306***
		[15.51]	[15.68]	[15.66]
DEBT	+	0.241	0.205	0.236
		[1.53]	[1.30]	[1.51]
REC	+	0.083	0.095*	0.092*
		[1.61]	[1.79]	[1.74]
INV	+	0.594**	0.545**	0.556**
		[2.45]	[2.21]	[2.25]
ACCR	+	0.004	0.011	0.006
		[0.07]	[0.22]	[0.13]
ROA	-	-0.170***	-0.164***	-0.166***
		[-3.90]	[-3.75]	[-3.78]
LOSS	+	-0.237***	-0.235***	-0.232***
		[-3.85]	[-3.77]	[-3.73]
QUICK	-	-0.007***	-0.008***	-0.008***
		[-3.70]	[-3.68]	[-3.93]
SUB	+	0.292***	0.301***	0.295***
		[5.21]	[5.29]	[5.21]
GEOSUB	+	0.165***	0.146**	0.146**
		[2.77]	[2.41]	[2.44]
Industry Fixed Effects		Controlled	Controlled	Controlled
Observations		1,085	1,085	1,085
R-squared		0.79	0.79	0.79
Adj. R-squared		0.78	0.78	0.78

See the Appendix A for variable definitions***, **, and * indicate 1%, 5%, and 10% significance level respectively. Model (1): *Complexity_6SD* and City-level ISP (*CITY_ISP*) is interacted. Model (2): *Complexity_6SD* and National- level ISP (*NATIONAL_ISP*) is interacted. Model (3): *Complexity_6SD* and *JOINT_ISP* are interacted. 1 is for a firm which is audited by an audit firm which is specialist in both City level and National level, 0 otherwise.

3.4.4 Additional Tests

Several additional analyses are conducted to check the robustness of the findings. First, following the De George et al.'s (2013) approach of using the difference in total book value of shareholders' equity reported under AGAAP and AIFRS[36], the following two equations Eq. (3) and Eq. (4) are re-estimated by replacing *COMPLEXITY* with the difference in total equity under two sets of accounting standards (*IFRS_DIFF*). The empirical results are consistent with De George et al. (2013), that is audit fees are significantly and positively associated with *IFRS_DIFF* (β1= 0.033*** with t = 4.00, significant at 1 percent level) for the Eq. (3) estimation.

When *IFRS_DIFF* is interacted with city-level industry specialisation (*ISP*) following Eq. (4), the coefficient of interaction is not statistically significant (β3= 0.009 with t=0.59). These results suggest that city-level industry specialist auditors are not very concerned about the simple differences in equity figures under two accounting systems. Rather they are more concerned with a few specific complex standards which may increase audit efforts or requires more professional expertise, and thereby increase audit fees, which is evident in the analysis. For brevity, the results are not tabulated.

$$\begin{aligned} LnAF \quad &= \beta_0 + \beta_1 IFRS\_DIFF + \beta_2 LnASSETS + \beta_3 LnNAS + \beta_4 BIG4 + \beta_5 OPINION + \beta_6 DEBT \\ &+ \beta_7 REC + \beta_8 INV + \beta_9 ACCR + \beta_{10} ROA + \beta_{11} LOSS + \beta_{12} QUICK + \beta_{13} SUB + \beta_{14} GEOSUB \\ &+ INDUSTR\ FIXEDEFFECTS + \varepsilon\ , \end{aligned} \tag{3}$$

$$\begin{aligned} LnAF \quad &= \beta_0 + \beta_1 IFRS\_DIFF + \beta_2 ISP + \beta_3 IFRS\_DIFF * ISP + \beta_4 LnNAS + \beta_5 OPINON \\ &+ \beta_6 LnASSETS + \beta_7 DEBT + \beta_8 REC + \beta_9 INV + \beta_{10} ACCR + \beta_{11} ROA + \beta_{12} LOSS \\ &+ \beta_{13} QUICK + \beta_{14} SUB + \beta_{15} GEOSUB + INDUSTR\ FIXEDEFFECTS + \varepsilon \end{aligned} \tag{4}$$

Second, Eq. (2) re-estimated by replacing ISP with Big 4 audit firm (*BIG4*). The results (un-tabulated) show that the interaction variables of *COMPLEXITY* and *BIG4* are also positively and significantly associated with audit fees [*BIG4* (β1) =0.331 with t = 5.54; *COMPLEXITY *BIG4* (β2) =0.018 with t = 2.51, significant at 1 percent level]. It

[36] De George et al. (2013) contend that the total effect of adopting IFRS on a company's accounts will be eventually summarized into shareholders' equity. Therefore, testing the total effect of IFRS on shareholders' equity is an appropriate way of capturing the general effect of IFRS.

indicates Big 4 audit firms also charge higher audit fees for firms with level of accounting complexity arising from IFRS.

The third additional analysis is to further examine the effect of ISPs only on those complex standards, identified as such in the initial analysis by having a positive and significant association with audit fees. The Eq. (2) is repeated for each of these complexity standards separately (i.e., AASB 136, AASB 138, AASB 119, AASB 121, AASB 139, and AASB 117), as identified in the main analysis. Results are presented in Table 3-6. Surprisingly, only *COMPLEXITY_AASB136* shows a positive association with audit fees only at city-level (*COMPLEXITY_AASB 136*CITY_ISP* (β) = 0.052 with t= 3.02) and statistically significant at 1 percent level. However, the coefficients for all interaction variables (*COMPLEXITY_AASB138, COMPLEXITY_AASB121, COMPLEXITY_AASB139, and COMPLEXITY_AASB117* with *CITY_ISP*) show a positive association with audit fees, although it is statistically insignificant.

Lastly, the Heckman test is carried out to tackle the potential auditor self-selection problem. ISP choice is an endogenous decision for each firm and factors that determine ISP choice can influence audit fees along with complexity. The Heckman test is increasingly used in accounting and auditing research as a "robustness test" for selection bias. To control possible Endogeneity in this study, the inverse Mills ratio (*INVMR*) is calculated and added it in Eq. (2).[37]

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[37] For this purpose, a probit regression is run for the ISP choice model that is similar to the model used by Choi and Wong (2007) and Behn, Choi, and Kang (2008). The model is:

$$CITY\_ISP = \beta_0 + \beta_1 LnASSETS + \beta_2 DEBT + \beta_3 REC + \beta_4 INV + \beta_5 ROA + \beta_6 QUICK + \beta_7 CAPINT + \beta_8 ATURN + \beta_9 LOSS + \beta_{10} ISSUE + \varepsilon$$

Where *CAPINT* is the capital intensity measured by the PPE over total assets, *ATURN* indicates assets turnover ratio, *ISSUE* is the dummy variable of outstanding number of shares for issuing more than 10 percent of existing share capital. Using the first stage regression, the inverse Mills ratio (*INVMR*) is computed. In the first stage regression, *LnAssets*, *ROA, DEBT* are significant at 1%, 5%, and 10%

The second stage regression results are presented in Table 3-7. The Coefficients of *COMPLEXITY_6SD* CITY_ISP* is still positive with audit fees which is consistent with the initial analysis. It suggests that ISPs charge higher audit fees for clients with a higher levels of IFRS complexity. The coefficient of *INVMR* is also highly positive and significant at one percent level (β= 5.315 with t = 4.38).

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significance levels respectively. All other control variables are statistically insignificant. Pseudo-R^2 of the regression model is 0.1336.

Table 3-6 : Regression Analysis of Individual Standard-Wise Complexity and Interaction of ISP

VARIABLES *Dependent Variable -LnAF*	LnAF	LnAF	LnAF	LnAF	LnAF	LnAF
	AASB 136	**AASB 138**	**AASB 119**	**AASB 121**	**AASB 139**	**AASB 117**
INTERCEPT	0.518**	0.388	0.509**	0.414*	0.482*	0.461*
	[2.06]	[1.54]	[2.02]	[1.68]	[1.91]	[1.85]
COMPLEXITY_AASB136	**0.043*** **					
	[3.70]					
COMPLEXITY_AASB138		**0.040** **				
		[2.21]				
COMPLEXITY_AASB119			0.033			
			[0.75]			
COMPLEXITY_AASB121				**0.056*** **		
				[2.70]		
COMPLEXITY_AASB139					**0.054** **	
					[2.24]	
COMPLEXITY_AASB1117						**0.064** **
						[2.01]
CITY_ISP	**0.249*** **	**0.376*** **	**0.326*** **	**0.338*** **	**0.351*** **	**0.347*** **
	[4.42]	**[7.55]**	**[6.66]**	**[6.65]**	**[7.19]**	**[7.18]**
*COMPLEXITY_AASB136*CITY_ISP*	**0.052*** **					
	[3.02]					

*COMPLEXITY_AASB138*CITY_ISP*		-0.03				
		[-1.09]				
*COMPLEXITY_AASB119*CITY_ISP*			**0.080***			
			[1.65]			
*COMPLEXITY_AASB121*CITY_ISP*				0.009		
				[0.33]		
*COMPLEXITY_AASB139*CITY_ISP*					0	
					[0.01]	
*COMPLEXITY_AASB117*CITY_ISP*						0.044
						[1.09]
LnNAS	0.128***	0.126***	0.125***	0.121***	0.129***	0.127***
	[9.35]	[9.04]	[8.91]	[8.75]	[9.17]	[9.10]
OPINION	0.187***	0.193***	0.193***	0.198***	0.192***	0.191***
	[3.07]	[3.09]	[3.10]	[3.19]	[3.06]	[3.10]
LnASSETS	0.315***	0.326***	0.317***	0.325***	0.318***	0.321***
	[16.31]	[16.69]	[15.95]	[16.63]	[16.09]	[16.43]
DEBT	0.239	0.207	0.222	0.207	0.2	0.215
	[1.55]	[1.30]	[1.41]	[1.28]	[1.27]	[1.37]
REC	0.069	0.057	0.065	0.06	0.063	0.071
	[1.33]	[1.06]	[1.24]	[1.13]	[1.18]	[1.33]
INV	0.569**	0.605**	0.556**	0.552**	0.630**	0.577**
	[2.36]	[2.43]	[2.26]	[2.23]	[2.53]	[2.39]
ACCR	-0.009	-0.006	-0.006	-0.014	-0.014	-0.008

	[-0.18]	[-0.11]	[-0.13]	[-0.27]	[-0.27]	[-0.16]
ROA	-0.184***	-0.194***	-0.185***	-0.195***	-0.194***	-0.190***
	[-4.17]	[-4.29]	[-4.23]	[-4.38]	[-4.36]	[-4.33]
LOSS	-0.224***	-0.252***	-0.248***	-0.257***	-0.253***	-0.252***
	[-3.73]	[-4.10]	[-4.05]	[-4.23]	[-4.19]	[-4.14]
QUICK	-0.007***	-0.008***	-0.008***	-0.008***	-0.008***	-0.008***
	[-3.66]	[-4.08]	[-4.26]	[-4.04]	[-4.19]	[-4.25]
SUB	0.299***	0.286***	0.283***	0.213***	0.286***	0.301***
	[5.36]	[5.02]	[4.99]	[3.56]	[5.02]	[5.28]
GEOSUB	0.146**	0.189***	0.179***	0.212***	0.185***	0.175***
	[2.46]	[3.10]	[2.94]	[3.49]	[3.03]	[2.85]
INDUSTRY FIXED EFFECTS	Controlled	Controlled	Controlled	Controlled	Controlled	Controlled
OBSERVATIONS	1,085	1,085	1,085	1,085	1,085	1,085
R-SQUARED	0.79	0.78	0.79	0.79	0.78	0.79
ADJ. R-SQUARED	0.78	0.78	0.78	0.78	0.78	0.78

See the Appendix A for variable definitions***, **, and * indicate 1%, 5%, and 10% significance level respectively. *COMPLEXITY_AASB136* is related to AASB 136 *Impairment of Assets*, *COMPLEXITY_AASB138* related to AASB 138 *Intangible Assets*, *COMPLEXITY_AASB119* is related to AASB 119 *Employment Benefits*, *COMPLEXITY_AASB121* is related to AASB 121 *The Effects of changes in Foreign Exchange Rates*, *COMPLEXITY_AASB139* is related to AASB 139 *Financial Instruments-Recognition and Measurements* and *COMPLEXITY_AASB117* is related to AASB 117 *Lease.*

Table 3-7: Second Stage Regression of Accounting Complexity, Audit Fees, and ISP

Dependent Variable=LnAF	Predicted Sign	Model (1)*
INTERCEPT	?	-12.039***
		[-4.98]
COMPLEXITY_6SD	+	0.022***
		[4.38]
CITY_ISP	+	0.278***
		[3.85]
*COMPLEXITY_6SD*CITY_ISP*	+	0.008
		[1.04]
LnNAS	+	0.117***
		[8.34]
OPINION	+	0.198***
		[3.26]
LnASSETS	+	0.958***
		[7.61]
DEBT	+	-1.046***
		[-3.71]
REC	+	-0.164**
		[-2.43]
INV	+	1.130***
		[4.28]
ACCR	+	0.210***
		[3.36]
ROA	-	-0.374***
		[-6.69]
LOSS	+	-0.076
		[-1.09]
QUICK	-	-0.001
		[-0.60]
SUB	+	0.291***
		[5.24]
GEOSUB	+	0.137**
		[2.32]
INVMR		6.048***
		[5.24]
INDUSTRY FIXED EFFECTS		Controlled
OBSERVATIONS		1,082
R-SQUARED		0.79
ADJ. R-SQUARED		0.79

See the Appendix A for variable definitions***, **, and * indicate 1%, 5%, and 10% significance level respectively.

3.5 Chapter Summary

This chapter examines whether accounting complexity arising from adopting IFRS increases audit fees and whether auditor industry specialization moderates this effect. Unlike prior research, accounting complexity is operationalized as differences in the amounts of financial statement line items prepared under AGAAP as opposed to IFRS. The larger the difference, the greater the complexity level indicated. This facilitates a focus on particular accounting standards identified as most likely to contribute to increased audit fees. Building on previous Australian studies the present study identifies a list of standards which are found to have the largest impacts on financial information. The chapter empirically investigates their relationship with audit fees, using a unique dataset that is manually constructed from IFRS reconciliation statements in annual reports.

Prior research, for instance, De George et al. (2013) investigate the impact of IFRS adoption on audit fees and find positive associations between IFRS adoption and audit fees. They also idenfity some standards which are more complex compared to other IFRS standards, consistent with Jubb (2005). The extant researches are agreed that there six IFRS standards that are more complex compared to other standards. However none of the previous research investigates the effect of such complexity on audit fees at individual standard level. The present study fills this gap by disentangling the most complex accounting standards and highlighting that they are not equally complex. Auditors are more concerned with some specific standard complexity. Surprisingly, this study finds some IFRS standards, which, although not identified as complex in prior literature, have significant adjustments/ complexity and which are also significantly associated with audit fees.

This chapter also investigates whether the effects of complexity on audit fees differs due to ISP or non-ISP audit firms. On the one hand, it is argued that ISPs have differentiated audit quality for which they may demand higher audit fees for their higher expertise. On the other hand, opposing arguments claim that having specialised knowledge about a client's industry can bring about "economies of scale" which translate to lower audit fees. Empirical evidence from this study, using a market share approach to measuring ISP, is consistent with the predictions. A positive relationship is found between audit fees and interaction of city-level ISPs and aggregate complexity.

A caveat of this study is that choosing a one-off event i.e., the year of IFRS adoption. The measure of complexity does not consider the learning effect that may take place in the years following IFRS adoption. The complex accounting standards measured in this approach are sensitive to the magnitude of the differences that accountants and auditors face in applying the new accounting standards. However, this effect could diminish with time. Further research is necessary to determine whether complex standards at initial adoption continue to demand greater effort in later years. One such recent study uses 855 New Zealand's observations between 2002 and 2012, Higgins, Lont, and Scott (2016), document that audit fees are higher in the year after IFRS adoption relative to IFRS adoption year and that the increase in audit fees is persistent in post-IFRS adoption periods.[38]

[38] In New Zealand, IFRS was voluntary before January 1, 2007. Firms in New Zealand could use IFRS from January 1, 2005. The first mandatory IFRS- based annual reports were therefore released after the end of financial year for 2007 i.e., during 2008.

CHAPTER 4 - ACCOUNTING COMPLEXITY AND ANALYST FORECAST PROPERTIES

4.1 Introduction

This chapter aims to investigate the impact of complexity as a result of IFRS adoption on analyst forecast properties including forecast errors, dispersion, and revision. It is argued that analyst forecast properties are significantly affected by major changes in accounting standards if financial analysts are unaware of these due to their lack of expertise in interpreting accounting standards. This lack of knowledge can result in inaccurate forecast estimations on key financials. In addition, changing accounting standards introduces greater uncertainty which can lead to a high level of forecast dispersion because of different interpretations among analysts. These factors may also cause an increased incidence of revision in analysts' forecasts. The prior literature, however, suggests that analyst forecast performance is improved if firms are audited by quality auditors (e.g., Behn, Choi, & Kang, 2008). This chapter therefore investigates this contention, by using industry specialist auditors (ISP) as a proxy for high quality audits.

Prior research examining the impact of IFRS adoption on analyst forecasting properties, (such as, Ashbaugh & Pincus, 2001; Bae, Tan, & Welker, 2008; Byard et al., 2011; Ernstberger, Krotter, & Stadler, 2008; Hodgdon, Tondkar, Harless, & Adhikari, 2008; Jiao, Koning, Mertens, & Roosenboom, 2012; Tan, Wang, & Welker, 2011; Xi & Yang, 2016), underlines the importance of analysts as information intermediaries and sophisticated users of financial reports. The effects of IFRS on this group of information users have significant implications for accounting standard setters. The aforementioned studies shed light on the impact of IFRS on analyst forecast accuracy, analyst following, and dispersion. These studies generally investigate the impact of IFRS using a dummy variable to differentiate the post-IFRS period from the pre-IFRS period. Some also test the impact of the difference in clauses between local standards and IFRS on forecast properties (e.g., Bae et al., 2008; Byard et al., 2011). Three studies investigate the impact of specific standards on analyst forecast properties (e.g., Bugeja, Czernkowski, & Moran, 2015; Cotter, Tarca, & Wee, 2012; Matolcsy & Wyatt, 2006), but all limit their focus to standards pertinent to *Intangible Assets* or *Operating Segments*. This chapter of the thesis is therefore distinguished from the extant studies in that it focuses on the complexity of IFRS measured at both aggregate and individual level for specifically identified complex standards and their effect on analyst forecasting properties.

Australia is selected for this investigation for reasons similar to those described in Chapter 3. In addition, the effect of IFRS adoption on analyst forecasts may not be as prominent as that reported by prior studies in other countries. The mature financial analyst industry in Australia should mean that financial analysts are equipped with a high level of financial literacy and analytical skills. If they are competent in untangling the differences between old and new accounting standards, the complexity this study is trying to capture may have no impact on analyst forecast performance. Given that pre-existing Australian accounting standards were of high quality and in line with many principles of IFRS, there may have been little impact for analysts. It therefore appears to be an empirical issue worthy of investigation.

The empirical findings, using 322 sample firms, show that complexity at aggregate level does not explain the increase in forecast error, dispersion and revision, which highlights the importance of decomposing complexity score into individual components at individual levels. The analysis with individual standard complexity score provides important insights. Specifically, this study finds that analyst forecast errors are positively associated with accounting complexity arising from two standards, namely AASB 2 *Share-based Payment and* AASB 132 *Financial Instruments: Presentation*. On the other hand, analyst forecast dispersion analysis reveals that AASB 117 *Leases* is positively associated with dispersion and the complexity scores of a few standards show a negative effect on dispersion, suggesting that dispersion is in fact decreased due to the adoption of those standards. This study also demonstrates that forecast revision increases with the increase in accounting complexity of two standards, AASB 3 *Business Combination* and AASB 117 *Lease.*

To investigate the moderating effect of high quality auditor on the complexity-forecast properties association as proposed in H4.4, forecast properties are regressed on aggregate complexity score, ISP and their interaction along with a set of control variables. However, the results, for all forecast properties, do not suggest there is a moderating effect of auditor quality on the association between complexity and forecast properties. Additionally, sub-sample analysis is also conducted using high vs. low complex subsamples based on aggregate scores in both (i) original six complex standards and (ii) full set of 12 standards considered in this study. In both cases the result show that analyst forecast error is lower in firms audited by city-level ISP compared to those audited by non-ISP in high complex sub-sample, but this relationship does not hold in low complex sub-sample. This study doesn't find any evidence, for both forecast dispersion and for forecast revision, suggesting that the association between these two properties and accounting complexity are not driven by whether firms employ high quality auditors or not that is measured as city level ISP.[39]

This chapter makes several contributions to the literature. First, it shows that analyst forecast performance is affected by accounting complexity as a result of IFRS adoption, with a few specific standards being highlighted as more complex than others. Second, this study shows the moderating effect of high quality audit on the relationship between accounting complexity and forecast properties, pinpointing the importance of auditors' monitoring effects when firms face changes in accounting standards. Thus, the findings show a particular context where high quality auditors are more important than ever. Although Behn et al. (2008) demonstrate that high quality auditors can reduce analyst forecast errors and reduce forecast dispersion, this chapter highlights that high quality auditor effects are more pronounced in a context where firms face accounting complexity.

The rest of the chapter is organised as follows. In section 4.2, literature and development of hypotheses are discussed. Section 4.3 describes the empirical research methods and discusses sample selection procedures. Section 4.4 presents analysis results on the impact of accounting complexity on analyst forecast errors, dispersion, and revision. Section 4.5 presents empirical evidence on the moderating effect of high quality auditors proxied by city-level ISP on the relation between accounting complexity and forecast errors. Section 4.6 concludes.

[39] However, the present study does not find any evidence on the moderating effect of national-level industry specialisation (*NATIONAL_ISP)* on the association between forecast properties and aggregate accounting complexity in either original six or new-six category of accounting standards.

4.2 Literature Review and Hypothesis Development

4.2.1 Accounting Complexity and Analyst Forecasting Error

Financial analysts are very important, sophisticated, and visible users of financial statements (Bae et al., 2008; Schipper, 1991; Tan et al., 2011), because they provide earnings forecasts, buy/sell recommendations and other information to brokers, money managers and institutional investors (Lang & Lundholm, 1996). The extant IFRS and financial analyst forecast studies can be broadly classified into two streams: (i) voluntary adoption of IFRS studies and analyst forecast properties (Ashbaugh & Pincus, 2001; Bae et al., 2008; Ernstberger et al., 2008; Hodgdon et al., 2008); and (ii) mandatory adoption of IFRS and analyst forecast properties (Byard et al., 2011; Jiao et al., 2012; Tan et al., 2011; Xi & Yang, 2016).

All voluntary IFRS adoption and analyst forecast studies provide consistent results that the analysts' consensus forecast accuracy significantly improves after firms adopt IFRS voluntarily. However, studies of mandatory adoption of IFRS provide inconclusive results, and provide the motivation to explore this phenomenon further. On the one hand, IFRS is associated with a better information environment due to improved information quality, which should result in improved forecasts by analysts. Horton et al. (2013) investigate whether improved analyst forecast accuracy can be attributed to (i) higher-quality information; (ii) greater comparability, or (iii) constraining managers' opportunities to manipulate earnings. Based on a large sample covering all available companies of all countries in The Institutional Brokers' Estimate System (*I/B/E/S)*, they find that forecast accuracy increases due to both higher information quality and greater comparability of information prepared on the basis of IFRS. They do not find any evidence in support of a change in management opportunistic behaviour as a result of IFRS adoption. Tan et al. (2011) argue that if widespread mandatory IFRS adoption increases timeliness, analyst following may also increase because of the increasing usefulness of accounting data. However, due to increasing earnings volatility, forecast accuracy may decrease. Alternatively, the subjectivity involved in the fair value approach under IFRS may result in earnings smoothing. This in turn may cause the analyst following to decrease because of the decreasing usefulness of accounting information, while forecast errors may also decrease. Their empirical analysis suggests that IFRS adoption attracts foreign analysts and results in increased forecast accuracy for foreign analysts, while local analysts' forecast accuracy is not affected by IFRS adoption. They explain that the finding for local analysts is driven by those analysts who have prior IFRS experience and international portfolios prior to mandated IFRS adoption in their home country.

On the other hand, Byard et al. (2011) contend that mandatory adopters may not provide enough incentive for analysts to follow IFRS rigorously because firms may have already optimised their financial reporting quality under the local standards, resulting in little change in the analyst information environment. By examining 1168 EU IFRS mandatory adopter firms and 250 voluntarily IFRS adopter firms, they find that simply making IFRS mandatory, on average, does not change analysts' information environment (forecast errors and forecast dispersion), but significantly improves the information environment for firms domiciled in countries with both strong enforcement regimes and significant differences between domestic accounting standards and IFRS.

Focusing on a single country, Cotter et al. (2012) examine the impact of IFRS disclosure on analyst forecasts for 145 Australian listed firms from 2003 to 2007. They document that analyst forecast accuracy improves in both adoption year and post-adoption years but that dispersion does not decrease. They claim that improvement in forecast accuracy and unchanged dispersion levels can be attributed to the additional effort and attention given to IFRS during the adoption period. In the same setting, again using Australian data, Chalmers et al. (2012) investigate the association between analyst forecast accuracy and dispersion and the new methods of intangible reporting under IFRS. They find that the association between the new method of recording intangibles and analyst forecast error is reduced after the adoption of IFRS. IFRS no longer permits a firms' straight-line amortisation of intangible assets, instead prescribing new impairment approach, and Chalmers et al. (2012) argue that the impairment approach provides more information than the amortisation approach, so decreasing forecast errors. Taken together, it is evident that none of the prior studies comprehensively explores the impact of changes in individual standards on analyst forecasting properties, although Chalmers et al. (2012) make an important contribution with regard to intangibles. This present thesis seeks to extend this line of investigation, by investigating the impact of each of the IFRS standards that have been identified as 'complex'.

Analyst forecast literature has reached consensus that analyst forecast properties are affected by (i) analysts' abilities and expertise (e.g., Ramnath, Rock, & Shane, 2008); (ii) reporting complexity (e.g., Chang, Donohoe, & Sougiannis, 2016; Plumlee, 2003); and (iii) economic complexity (Chang et al., 2016). Chang et al. (2016) investigate the impact of complexity, due to ambiguous and unclear standards regarding derivatives, on analyst forecast properties. They categorise their sample into different groups to disentangle reporting complexity from economic complexity.[40] They define

[40] Prior literature shows that early derivative accounting standards (such as Statement of Financial Accounting Standards (SFAS) No. 133/138 [from 2000-2003]), under FASB, were neither clear about the conditions of derivatives contracts, nor comparable across different contracts (Pollock, 2005). Later standards address some of the issues with earlier standards, but investigation of the impact of economic complexity is beyond the scope of this thesis. Discriminating reporting complexity from economic

economic complexity on the basis of the number of derivatives used during the financial reporting regime when ambiguous standards were in practice. High economic complexity is used for firms with at least two derivatives or high risk hedging instruments, otherwise firms are categorised as low economic complexity. Through empirical analysis, they find that reporting complexity, rather than economic complexity, is significantly associated with analyst forecast errors. Plumlee (2003) investigates the impact of complexity, arising from tax law changes in six different areas, on analysts' forecast properties (errors and revisions).[41] She measures complexity, based on questionnaire ratings by tax professionals of difficulty levels associated with tax law changes. She finds that reporting complexities arising from changes in tax laws are significantly associated with forecast errors.[42]

Following this line of reasoning, this chapter investigates if analyst forecast errors increase because of increased reporting complexity arising from IFRS adoption. If certain IFRS standards are complex, as evidenced by the high levels of differences between domestic GAAP and the new standards, analysts are likely to experience more difficulty processing information in the IFRS reconciliations, leading to less accurate forecasts. The first hypothesis is therefore developed as follows:

H4.1: Accounting complexity arising from IFRS is positively associated with analyst forecast errors.

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complexity is challenging, if not impossible (Chang et al., 2016, p. 596) and, in any case, economic factors are considered when accounting standards are issued (Peterson, 2012). The present thesis considers only reporting complexity as reflected in the IFRS-AGAAP reconciliation statements relating to IFRS adoption.

[41] Two changes are regarding tax rates; one change is for calculation of taxable income and three changes are related to tax-credits

[42] Plumlee (2003) uses analyst effective tax rate (ETR) forecast as the dependent variable in her study.

4.2.2 Accounting Complexity and Analyst Forecast Dispersion

Forecast dispersion (hereafter *DISP*), is a measure of uncertainty embedded in earnings and is an important analyst forecast properties. It is perceived by investors to be valuable information because it indicates the uncertainty of future performance (e.g., Givoly & Lakonishok, 1984). It is argued that better disclosures reduce information asymmetry (Brown & Hillegeist, 2003c), and consequently improve analyst forecast consensus (Byard & Shaw, 2003). In addition, as financial statements are the primary source of information for analysts, the quality of the accounting information presented in the financial statements is an influential determinant of forecast properties (Byard & Shaw, 2003). Empirically, Lang and Lundholm (1996) provide evidence of lower dispersion among individual analysts due to informative disclosures.

However, IFRS forecast dispersion studies provide mixed results. For instance, on the one hand, it is argued that due to inexperience, analysts may face difficulty understanding and interpreting information presented under a set of accounting standards that differ from their domestic GAAP. This may result in heterogeneity in earnings forecasts (Cuijpers & Buijink, 2005). Cuijpers and Buijink (2005) investigate the impact of voluntary adoption of IAS or US GAAP on information asymmmetry for 133 non-financial firms in the EU. They find that forecast dispersion among individual analysts increases for firms adopting IAS or US GAAP. However, they document an increase in analyst following for firms adopting IAS or US GAAP compared to non-adopting firms. However, Cotter et al. (2012) examine financial analyst forecasting properties of 145 Australian listed firms for the period 2003–2007, and find that forecast dispersion remains unchanged in the IFRS adoption year.

On the other hand, prior research has shown that forecast dispersion may also decrease with the adoption of IFRS, because IFRS may improve the information environment through enhanced disclosure and increased comparability of financial reports (e.g., Bae et al., 2008; Horton et al., 2013). Studying a sample of 1168 mandatory IFRS adopters from twenty European countries, Byard et al. (2011) find that analysts' absolute forecast dispersion decreases upon mandatory adoption of IFRS. However, they limit their findings to those countries having both strong enforcement and significant differences between Domestic Accounting Standards (DAS) and IFRS. For instance, though mentioned in earlier hypothesis development, Chalmers et al. (2012) investigate the impact of IFRS on forecast properties taking a sample of 3328 observations in Australia covering pre- and post-IFRS adoption periods. Similarly, they find that the impairment approach suggested by IFRS provides more information compared to the former straight-line amortisation approach under local standards (AGAAP), thereby decreasing forecast dispersion.

Unlike the extant IFRS and analyst forecast studies, this Chapter uses IFRS complexity to proxy for analysts forecast uncertainty. The greater the complexity is, the higher the uncertainty faced by analysts in interpreting IFRS. Analysts' interpretation of the IFRS complexity based on IFRS-AGAAP adjustments may vary with their financial expertise, experience and knowledge of the industry. In the first year of adoption, the learning curve of analysts would be steeper and some analysts are likely able to learn the IFRS effect and undo the differences more efficiently than others. This expectation leads to the development of the following directional hypothesis:

H4.2: Accounting complexity arising from IFRS is positively associated with analyst forecast dispersion.

4.2.3 Accounting Complexity and Forecast Revision

Following the approach of Barth and Hutton (2004), this study measures forecast revision at consensus level as the difference between the last mean forecast made before the current year earnings announcement date and the first mean forecast made after the last year earnings announcement date. Analyst forecast revision has important implications for investors who revise their beliefs of earnings based on analyst forecast revision (Mendenhall, 1991), because investors by themselves are unable to determine the persistence of earnings when the earnings are announced (Freeman & Tse, 1989).

With regard to the importance of forecast revision, several studies find that forecast revision can predict a firm's future profitability. For instance, Barth and Hutton (2004), in comparing hedge return to different strategies, investigate whether forecast revision can reveal information about earnings persistence beyond that obtained from accruals. Barth and Hutton (2004) document that a combined strategy of accruals and forecast revision can generate a return significantly larger than either of the two individual strategies. Clement and Tse (2003) investigate whether investors can extract required information from analysts' characteristics which are associated with forecast accuracy. In particular, they find that investors' responses to forecast revisions are influenced by other forecast characteristics such as timely forecasts, broker firm size, and frequency of forecasts rather than forecast accuracy. They conclude that investors' responses to forecast revisions indicate that forecast accuracy is not all that matters.

However, none of prior researches has attempted to investigate the impact of IFRS adoption on the tendency for analyst forecast revisions. This study hypothesize that analysts revise their forecast in response to changes in accounting standards from local GAAP to IFRS on the following grounds. First, it takes time for analysts to adjust their earnings predictions based on new accounting standards. This may be due to analysts' lack of experience in comprehending and interpreting accounting-related regulations. Plumlee (2003) predicts and finds that complexity arising from changes in tax laws affects analyst forecast errors and forecast revisions, suggesting that analysts do not consider complex information in forecast revision as this information does not accurately support them in forecasting firms' effective tax rates (ETR). Second, analysts' previous knowledge of AGAAP and firms' historical accounting information forms the basis of their forecasts for contemporaneous and future performance. During the year of IFRS adoption, analysts' early forecasts are firstly formed on the basis of their understanding of historical information. However, they may gradually realize the deviations of their predictions from the actual performance that is prepared using IFRS and thus make forecast revisions. This realization may occur through their newly acquired knowledge of IFRS, management guidance, and most importantly, firms' disclosures of quarterly financial results. The reconciliation adjustments in the first year of IFRS adoption are used to proxy for the differences in accounting treatments. The greater they are, the more likely analysts are to conduct forecast revisions in the year of adoption. Taken together, this study predicts a positive relationship between accounting complexity and forecast revision and develops the following directional hypothesis:

H4.3*:* Accounting complexity arising from IFRS is positively associated with analyst forecast revision.

4.2.4 Accounting Complexity, Audit Quality, and Financial Analyst Forecast Properties

This chapter also examines the moderating role of audit quality on the relationship between accounting standard complexity and financial analyst forecast properties. It is argued that analyst forecast properties are also moderated by audit quality because financial information is used by analysts as one of the primary resources for stock analysis and earnings forecasts. High quality auditors provide assurance as to accounting information quality (Stokes & Webster, 2010), and thus analysts' forecast performance should be improved when they use high quality accounting information assured by a quality auditor (e.g., Behn et al., 2008). Following this line of argument, a stream of literature examines and finds supportive evidence on a discernible effect of audit quality on analysts' forecasts properties (Behn et al., 2008; He, Sidhu, & Taylor, 2014; Payne, 2008; Yi & Wilson, 2016). Behn et al. (2008) find that there is a positive association between audit quality and analyst forecast accuracy. More specifically, they show that forecast accuracy is higher and dispersion is lower for firms audited by industry specialist audit firms.

He et al. (2014) extend Behn et al. (2008) to test the impact of high quality audits on the information environment in which analysts operate. They find that higher audit quality results in analysts placing more weight on public information rather than private information. In addition, both analysts' common and private information tends to be more precise for the companies audited by industry specialists. Yi and Wilson (2016) investigate the interaction between auditor industry expertise and analyst industry expertise on analyst forecast properties. They find that analyst forecast error is lower for the firms audited by industry specialists if the firm is given less coverage by industry specialized analysts. This finding suggests a complementary effect of high quality auditors in reducing analyst forecast errors, especially when analysts are less sophisticated.[43] In general, extant studies consistently find a positive effect of high quality audit on analyst forecast performance although there is some countervailing evidence.

Given the theoretical argument of the importance of high quality auditors and the aforementioned empirical evidence, the main motivation is to examine whether high quality auditors improve analyst forecast performance when analysts face greater reporting uncertainty and difficulty due to changing accounting standards. This study uses industry specialisation of auditors (ISP) following the approach of Krishnan, Chan, and Qian (2013), as a proxy for high quality auditors.[44] ISPs have more experience and training than non-specialist auditors (Sun & Liu, 2011), and they are more familiar with industry-specific accounting principles and transaction processes. They can therefore make more effective professional judgments and be more likely to detect accounting fraud (Tang & Peng, 2013). It is argued that the adverse effects of accounting standard complexity on analyst forecast performance can be ameliorated by quality auditors because high quality auditors interpret new accounting standards with higher accuracy and demand client compliance, thus mitigating the negative effects of accounting complexity on analyst forecast properties. The following hypothesis is formulated:

H4.4: The negative impact of IFRS complexity on analyst forecast properties will be moderated by high quality auditors.

[43] Conversely, Payne (2008) shows that analysts' forecast errors are greater for the firms audited by industry specialists. They argue that this is due to a focus on end of year forecasts which induce benchmark-beating incentives for earnings manipulations. In addition, Yi & Wilson (2016) claim that end of year forecasts contain noisiness.

[44] See Balsam, Krishnan, and Yang (2003), Behn et al. (2008), and Beasley and Petroni (2001) for industry specialisation used for high quality audit.

4.3 Empirical Procedures

4.3.1 Measurement of Variables

4.3.1.1 Measurement of Dependent Variables

The dependent variables, in this study are analyst forecast properties including analyst forecast error (*AFE*), dispersion (*DISP*), and revision (*REVISION*). *AFE* is measured as the absolute value of analyst forecast error that is, the median forecast minus actual EPS and then is deflated by the stock price at the end of last year.

$$\text{AFE}= \frac{|Forecasts\ EPS - Actual\ EPS|}{Share\ price}$$

Forecast dispersion (*DISP*) is defined as the standard deviation of all earnings forecasts made between last year earnings announcement date and current year earnings announcement date by all analysts following the same firm and scaled by stock price at the end of the last year.

$$\text{DISP}=\frac{STD\ (Forecasts\ EPS)}{Share\ price}$$

Forecast Revision (*REVISION*), following the approach of Barth and Hutton (2004), is calculated as last consensus forecast minus first consensus forecasts, and is then scaled by share price at the end of the last year.

$$\text{REV}= \frac{|LF - FF|}{Share\ price}$$

Where:

- The first forecast (FF) is the first one which is made after the last year's earnings announcement date.

- The last consensus forecast (LF) is calculated using all available forecasts made before the current year's earnings announcement date.
- All forecast properties are calculated based on forecasts issued between the last year's earnings announcement date and the current year's earnings announcement date.

For example, ANSELL Ltd follows a July-June fiscal period and announces their earnings for 2004-05 on 17 August 2005 and their current year earnings (2005-06) on 24 August 2006. Forecasts which are issued after 17 August 2005 and before 24 August 2006 are considered in calculating forecast properties.

4.3.1.2 Measurement of Accounting Complexity

The same measurement of accounting complexity arising from IFRS applies as that used in Chapter 3. The complexity dataset is matched with the analyst forecasting dataset to provide a common sample for analysis. As introduced earlier in Chapter 3, the complexity variables are computed based on each firm's Reconciliation Statements showing the differences in amounts on all affected accounts prepared under two sets of accounting standards, i.e., AGAAP and AIFRS.

4.3.2 Research Design

To empirically test the first three hypotheses [H3.1-H3.3], the equation below is used following Bae et al. (2008), Barth and Hutton (2004), Byard et al. (2011), and Horton Horton et al. (2013). The regressions are analyzed using Ordinary Least Squares (OLS) analysis. Complexity is respectively measured as (i) the composite complexity score of all original six complex standards; (ii) original six complex standards separately; (iii) composite complexity score of full set of 12 standards identified as complex; and (iv) 12 standards identified separately.

$$\begin{aligned} FORECAST\_PROPERTIES &= \beta_0 + \beta_1 COMPLEXITY + \beta_2 SIZE + \beta_3 FOLLOW + \beta_4 SURPRISE + \beta_5 HORIZON \\ &+ \beta_6 RETVOL + \beta_7 NUMEST + \beta_8 AGE + \beta_9 EARNSD + \beta_{10} ROA + \beta_{11} STOCKTURNOVER \\ &+ YEAR\ DUMMIES + INDUSTRY\ FIXED\ EFFECTS + \varepsilon \end{aligned} \quad (1)$$

Where

FORECAST_PROPERTIES include analyst forecast errors (*AFE),* forecast dispersion *(DISP),* and forecast revision *(REVISION)*.

COMPLEXITY = this variable of interest include all types of complexity variables mentioned earlier. For instance, *COMPLEXITY_AASB2* indicates the complexity score derived based on complexity arising from AASB 2 *Share-based Payment*; *COMPLEXITY_AASB136* indicates the complexity arising from AASB 136 *Impairment of Assets*, *COMPLEXITY_6SD* indicates the aggregate complexity score of all original six complex standards. Similarly, *COMPLEXITY_12SD* indicates the aggregate complexity scores from all 12 IFRS considered in this study.

SIZE = natural log of market capitalization for firm;

FOLLOW = natural logarithm of 1 plus the actual number of analysts following the firm; *SURPRISE* = an absolute value of the difference between the current year's earnings per share and last year's earnings per share, divided by the share price at the beginning of the fiscal year;

HORIZON = the natural logarithm of the average number of calendar days between the forecast announcement date and corresponding actual earnings announcement date;

RETVOL = standard deviation of weekly stock returns for the firm; stock return is calculated as the difference between share price of current week and share price of last week and that difference is deflated by last week share price;

EARNSD = standard deviation of the firm's reported earnings over the last three years;

NUMEST = natural logarithm of 1 plus the actual number of estimates made for the company as a whole;

AGE = natural log of number of years that firm has been listed at year 2006;

ROA = return on assets for the firm;

STOCK TURNOVER = number of shares traded in the year divided by the average number of shares outstanding for the firm;

YEAR DUMMIES = Indicator variable equal to 1 for firms with a June 30 year-end, otherwise equal to 0;

INDUSTRY EFFECT = dummy variables are assigned based on Global Industry Classification Standard (GICS) industry code.[45]

Analyses on forecast error, dispersion and revision share the same set of control variables, except for forecast horizon (*HORIZON*), which is not used in forecast revision analysis following prior studies (H4.3).

The present study expects the coefficients for the *COMPLEXITY_IFRS*[46] variables to be positive for forecast error, forecast dispersion and forecast revision analyses. With respect to the control variables for all cases, it is expected the coefficients for *SIZE* will be negative because forecast errors and dispersions are lower and forecast revisions are fewer for larger firms (Lang & Lundholm, 1996). Prior research by Lang and Lundholm

[45] See the breakdown of industries listed in ASX following GICS (http://www.marketindex.com.au/asx-sectors).

[46] *COMPLEXITY_IFRS* means complexity for all standards considered in this study. For instance, it includes *Complexity_AASB2*, *Complexity_AASB3*, etc.

(1996) find a positive association between *SURPRISE* and all forecast properties. The present study expects negative coefficients for analyst following *(FOLLOW)* with respect to forecast errors but positive coefficients with forecast dispersion, because the greater the analyst following for a firm, the smaller the forecast errors and forecast dispersions tend to be (Bhushan, 1989), along with the forecast revisions being fewer. Following Brown et al. (2001b), this study controls *HORIZON* for both forecast error and dispersion analysis, because it is expected that a forecast announced closer to the actual earnings announcement date is closer to actual EPS; hence, it has lower forecast error and lower dispersion than those announced earlier in the year. Return volatility *(RETVOL)* and earnings variability *(EARNSD)* are normally used as proxies for uncertainty in a firm's future performance. This study expects the coefficients of both variables will be positive for all forecast properties, as firms with more volatile past earnings and stock returns tend to give less disclosure, which increases information asymmetry among analysts, thereby increasing forecast errors, dispersion, and forecast revisions (Lang & Lundholm, 1996). This study controls the number of estimates *(NUMEST)* in regression models, as the higher the number of forecasts issued by all analysts for a firm, the higher the forecast dispersion, forecast errors and frequency of revisions (Jiao et al., 2012). Following Matolcsy and Wyatt (2006), this study also controls *AGE*, the number of years the firm has been listed in the ASX. Positive coefficients are expected for this variable in all cases, implying that the longer the firms are listed, the greater the tendency to have higher dispersion, higher forecast errors and more frequent revisions.

The profitability indicator variable *(ROA)* is included because analysts' forecasts for more profitable firms have, on average, fewer forecast errors than loss-reporting firms (Lang & Lundholm, 1996). Finally, this study controls stock turnover *(STOCK TURNOVER)* following (Tan et al., 2011), and expects a negative association implying that firms having greater market liquidity or turnover produce positive signals to market participants thereby decreasing forecast errors and forecast dispersion.

To test whether ISP has a moderating effect on the association between complexity and forecast properties (**H4.4**), the following two equations are estimated. Due to differentiated audit quality, ISPs can improve reporting quality and thereby decrease analysts' forecast errors, dispersion and revisions. Equation (2) tests whether analyst forecast performance is improved if firms are audited by ISPs. This study uses both city-level industry specialists (*CITY_ISP)* and national-level ISP (*NATIONAL_ISP).*

$$\begin{aligned} FORECAST\_PROPERTIES &= \beta_0 + \beta_1 COMPLEXITY + \beta_2 ISP + \beta_3 COMPLEXITY * ISP \\ &+ \beta_4 SIZE + \beta_5 FOLLOW + \beta_6 SURPRISE + \beta_7 HORIZON + \beta_8 RETVOL \\ &+ \beta_9 NUMEST + \beta_{10} AGE + \beta_{11} EARNSD + \beta_{12} ROA + \beta_{13} STOCKTURNOVER \\ &+ YEAR\ DUMMIES + INDUSTRY\ \ FIXEDEFFECTS + \varepsilon \end{aligned} \quad (2)$$

Next, to investigate the possibility of differences in the moderating effect of ISPs due to different levels of aggregate complexity, the entire sample is split into two groups based on aggregate complexity.

The following regression specification is estimated in this regard.

$$\begin{aligned} FORECAST\_PROPERTIES &= \beta_0 + \beta_1 CITY\_ISP + \beta_2 SIZE + \beta_3 FOLLOW + \beta_4 SURPRISE \\ &+ \beta_5 HORIZON + \beta_6 RETVOL + \beta_7 NUMEST + \beta_8 AGE + \beta_9 EARNSD + \beta_{10} ROA \\ &+ \beta_{11} STOCKTURNOVER + YEAR\ DUMMIES + INDUSTRY\ \ FIXEDEFFES + \varepsilon \end{aligned} \quad (3)$$

Where:

CITY_ISP indicates city-level industry specialisation. This study uses a market share approach to measure city level industry specialisation following the approach of Krishnan et al. (2013). More detail about ISP measurements is provided in Chapter 3 (Section 3.3.2, P.50). All other control variables are already defined in previous models.

Although a testable hypothesis for Eq. (3) has not been developed, the present study contends that for the sub-sample analysis partitioned on the level of complexity, forecast error and forecast dispersion will be significantly lower for firms with a higher complexity level compared to those with a lower complexity level, conditional upon the firms being audited by an ISP. It is expected the coefficient on *CITY_ISP* will be negative for all forecast properties, as this study's expectation is that high quality auditors (*CITY_ISP*) will increase financial reporting quality, mitigating the effect of complexity on analyst forecast errors, dispersion and revision.

4.3.3 Data and Sample Selection

As explained in previous chapters, the sample is comprised of firms listed on the Australian Stock Exchange (ASX). Analyst forecast data is collected from the Institutional Brokers Estimate System (*I/B/E/S*). Actual EPS and data for measuring control variables are collected from COMPUSTAT Global database and from DataStream. The data used to measure complexity and the complexity measurement is explained in Chapter 3. I/B/E/S gives analyst forecast data for 6915 forecasts made for 442 firms in 2005. After matching these with the complexity database, 327 firms are retained. Five firms are eliminated due to unavailability of the data required to calculate *HORIZON*. This results in a sample of 322 observations with the required analyst and complexity data.

Table 4-1: Sample Breakdown	
	Observations
Analyst data available in IBES (Firms)	443
Complexity database provides (firms)	1122
Observation after matching	327
Less: Non-availability of horizon variables	5
Total observations used for analysis	**322**
Categorisation of the companies based on fiscal period following:	
Following July-June Fiscal period	282
Following January-December period	40
Total firms in analysis	**322**

4.4 Empirical Results

4.4.1 Descriptive Statistics

In Table 4-2, Panel A presents summary statistics for IFRS complexity variables and forecast properties with control variables. The mean (median) of *COMPLEXITY_AASB2* regarding AASB 2 *Share-Based Payment* are 2.098 and 2.00, respectively. Similarly the mean and the median for all other complexity variables are reported in panel A. The mean value of forecast errors (*AFE*) is 0.048 in the sample, suggesting that the difference between analysts' forecasts and corresponding actual earnings is about 4.8% of lagged stock price. The mean dispersion (*DISP*) of 0.023 in the sample suggests that the average forecast dispersion is about 2.3% of the lagged stock price. On the other hand, the mean value of forecast revision (*REVISION*) is 0.034 which suggests that the average forecast revision is 3.4% of lagged stock price.

Firm size, which is the logarithm of market capitalisation (*SIZE*), is 5.889. The mean (median) number of analyst following (*FOLLOW*) is 1.569 (1.609), implying that on average; four analysts are following a firm included in the final sample. The average earnings surprise (*SURPRISE*) is 0.065. The mean of forecast *HORIZON* is 5.225, implying that the average number of calendar days between forecast announcement date and subsequent actual earnings announcement date is 200. *RETVOL* measures the variations of weekly stock returns for firm at t-1. The mean and the median value of *RETVOL* are 0.077 and 0.053, respectively. The mean number of estimates (*NUMEST*) made by analysts is 2.213, which indicate that at least 9 forecasts have been made for a firm included in the sample. However, the minimum and maximum value of *NUMEST* is 0, and 4.663 respectively. It means some firms have only one forecast estimates in the sample period, whereas the highest number of estimates is 106. The average listing period of the firm (*AGE*) is 2.181. On the other hand, *EARNSD* measures the standard deviation of firms actual EPS over the last three years. The mean value of *EARNSD* is 0.124 while the median is 0.056. In the regression analysis, this study uses *STOCK TURNOVER*, which shows the number of shares traded in current year divided by the average number of shares outstanding in the current year. The mean value of *STOCKTURNOVER* is 0.003, implying that on average 1000 shares are traded during the sample period. However, the maximum number of shares traded is 1010. Descriptive statistics are not reported for Year (*YE*) and Industry Classification (*SECTORCODE*), or the related t-statistics for the variables for equations (1-4), variables in the interests of parsimony.

Panel B presents the Pearson correlation matrices for the regression variables. The positive correlation between forecast errors and complexity variables are found with only three standards: AASB 2 *Share-based Payments*, AASB 140 *Investment Property*, and AASB 116 *Property, Plant, and Equipment*. For the second forecast properties, the complexities arising from AASB 2 *Share-based Payments*, AASB 138 *Intangible Assets*, AASB 116 *Property, Plant and Equipment*, AASB 139 *Financial Instruments:*

Recognition and Measurement, and AASB 117 *Leases*, are positively correlated with forecast dispersion. On the other hand, complexities arising from ASB 138 *Intangible Assets*, AASB 112 *Income taxes*, AASB 121 *The Effects of Changes in Foreign Exchange Rates,* AASB 140 *Investment property*, AASB 139 *Financial Instruments: Recognition and Measurement*, and AASB 117 *Leases*, have a positive correlation with forecast revision. All other complexity variables show correlations in the opposite direction. However, forecast error is positively associated with both forecast dispersion and forecast revision. For control variables, firm size (*SIZE)* is negatively correlated with all forecast properties but statistically significant with forecast error and forecast dispersion only. *SURPRISE* is positively and significantly correlated with all forecast properties. The profitability measure, return on assets *(ROA*), is negatively and significantly correlated with both forecast error and dispersion but positively associated with forecast revision. The earnings variability measure (*EARNSD*) is positively associated with all forecast characteristics but statistically significant only with respect to forecast error and forecast revision. Finally, the firms' performance uncertainty measure, *RETVOL*, is positively associated with all forecast properties but statistically insignificant.

4.4.2 Regression Results

Table 4-3 presents multivariate regression results for Eq. (1) that examines the effect of complexity on forecast properties. Ordinary Least Square (OLS) regressions results are shown, in four columns for each analyst forecast property, respectively with (i) the composite complexity score of all original six complex standard; (ii) original six complex standards separately; (iii) composite complexity score of full set of 12 standards identified as complex; and (iv) 12 standards identified separately. In general, the results show no discernible effect of complexity measured in aggregate as evidenced by the results for *COMPLEXITY_6SD* and *COMPLEXITY_12SD* in columns 1, 3, 5, 7, 9, and 11 in Table 4-3. So, hypotheses (H4.1-H4.3) are not supported. However, the results should be interpreted with caution, because, individual standards-wise analysis shows that a several individual complex standards do yield significant results – these have been highlighted in bold letters for ease of identification. This suggests the importance of decomposing complexity into individual standards. Columns 1 and 3 show the impact of aggregate complexity on AFE. Measuring complexity of multiple standards in aggregate may therefore mask the effect of specific standards.

The results for individual complex standards are presented in columns 2, 4, 6, 8, 10, and 12 in Table 4-3. Column 2, Table 4-3, shows the impact of individual standard complexity on *AFE* with the original six standards being included in the model specification simultaneously. *COMPLEXITY_AASB2* (AASB 2 Share-based Payments) and *COMPLEXITY_AASB132* (AASB 132 *Financial Instruments: Presentation*) are positively and significantly associated with *AFE* (for AASB 2, coefficient 0.005, at least t-statistic 2.18, and significant at the better than 5% level; while for AASB 132, coefficient 0.008, t-statistic 3.26, significant at the better than 1% level). When only new six standards are included in the regression model, it shows that only *COMPLEXITY_AASB 132* (coefficient = 0.005, t=2.24) arising from AASB 132 is positively and significantly associated with analyst forecast errors (results un-tabulated). AASB 2 requires an entity to disclose how they determine the fair value of the goods or services received, or the fair value of the equity instruments granted. Measuring fair value of equity instruments is challenging, requiring subjective judgement which creates bias and information noise. For instance, complex stock option pricing models which are often used by firms to calculate fair values of equity instruments specified in the equity settled share-based payment transactions (AASB, 2004a; para 46). However, even experienced accountants and financial analysts find it difficult to comprehend and evaluate the suitability of a particular pricing model (De George et al., 2013). In addition, entities need to explain any alternative methods used, where the fair value method is impracticable. This will again increase the complexity for financial analysts.

This study therefore appears to confirm that fair value measurements, along with discretionary choice for option pricing models for share valuation, increase AFE. This is consistent with prior research findings (e.g., Lihong & Riedl, 2014). Lihong Lihong and Riedl (2014) argue that the fair value method, which allows recognition of unrealised gains and losses, increases analyst forecast errors, because financial analysts do not eliminate those losses and gains in making their forecasts. More specifically, they suggest that analysts face greater difficulty in forecasting statement of comprehensive income-based elements which have low serial correlation.

Similar arguments apply for AASB 132 *Financial Instruments: Presentation*. This standard requires firms to disclose descriptions of the financial instruments, their carrying amount and an explanation of why fair value cannot be measured reliably (AASB, 2004e). In addition, this standard requires firms to disclose assumptions used in valuation along with financial risk profiles. However, these disclosures involve complexity and require subjective judgements due to the lack of active and liquid markets. The complexity and uncertainty inherent in these disclosures may therefore also result in increased forecast errors.

For forecast dispersion analysis (columns 5-8), the coefficient of *COMPLEXITY_AASB138,* when only the original six complex standards are considered, is positive and significant at $p<0.10$. Although the significance of this finding is lost when considering the new six standards identified as complex, it nevertheless suggests that complexity arising from AASB 138 *Intangibles Assets* increases forecast dispersion. Significant changes in intangible accounting standards were brought about by AASB 138 in Australia (e.g., capitalisation of development costs is now subject to new IFRS criteria like the requirement to demonstrate technical feasibility of developing assets available for use or sale and the probability of generating future economic benefits) (AASB, 2004g). Therefore, making decisions about capitalization of expenditure requires accountants' judgement and managerial discretion. When subjectivity is involved, external information users may perceive greater levels of information asymmetry, resulting in uncertainty and dispersion in predicting firms' future prospects. High uncertainty is innate to intangibles due to their abstract nature. Also, information on the likelihood of technological success may only be observable by insiders, which accentuates information asymmetry. Various feasible explanations can therefore be put forward to support this finding of a significant and positive effect of complexity pertinent to intangible accounting standards on analyst forecast dispersion.

The results in Column 8 show that when the additional six standards, under the new six standards category, are added in regression mode l, *COMPLEXITY_AASB117* relating to AASB 117 *Leases*, is positively and significantly related to *DISP* (β= 0.007 with t= 2.14). Similar result is found when only new six standards individually are included in the regression model ($\beta_{COMPLEXITY\_AASB117}$ = 0.007, t=2.19, $\beta_{COMPLEXITY\_AASB116}$ = -0.002, t= -2.18). Adjustments required for leases in reconciliation statements, increase uncertainty about a firm's future performance, which results in high analyst forecast dispersion.

Somewhat surprisingly, there are significant negative coefficients on *COMPLEXITY_AASB136* and *COMPLEXITY_AASB116*, suggesting that forecast dispersion decreases among the analysts when there is complexity as proxied by a high reconciliation adjustment as a result of these standards. The new IFRS-based accounting standard, AASB 116 *Property, Plant and Equipment* (PPE), brought significant change compared to previous accounting standards. For instance, prior accounting standards relating to PPE (such as AASB 1015 *Acquisitions of Assets*, AASB 1021 *Depreciation*, and AASB 1041 *Revaluation of Non-Current Assets*) were applicable to both tangible and intangible assets (AASB, 2004c). After adopting IFRSs, one standard (AASB 116) concerns only tangible assets, while intangible assets are now governed by a separate new standard (AASB 138 *Intangible Assets*). This new standard is more specialised and contains clear guidance, resulting in improved disclosure. In addition, the new standard contains stricter requirements for entities to disclose use of the revaluation model for individual assets as opposed to the cost model. These changes may enhance the analyst information environment thereby reducing dispersion among analysts.

Lastly, for forecast revision analysis, results from analysis of the original six complex standards (Column 10) shows that none of the standard's complexity is positively associated with analysts' forecast revision except AASB 136 *Impairment of Assets*, which shows the opposite direction.

The negative coefficient for *COMPLEXITY_AASB136* may be due to the fact that analysts' uncertainty is reduced as a result of a change to the impairment approach promulgated in AASB 136, as opposed to the straight-line amortisation approach used in Australia before IFRS adoption for AASB 1010 *Recoverable Amount of Non-Current Assets* and AAS 10 *Recoverable Amount of Non-current Assets*. This is in accordance with prior research findings in Australia that this new impairment approach provides more useful information compared to the amortization method, thereby enhancing analyst forecast performance (Chalmers et al., 2012). However, when only new six standards are included in the regression model, analysis shows that only one standard complexity ($\beta_{COMPLEXITY\_AASB117}$ = 0.009, t = 2.05) is positively and significantly associated with analyst forecast revision (results un-tabulated).

The extended analysis including the additional new six standards (column 12, for full set of 12 standards) confirms that complexity (*COMPLEXITY_AASB117)* arising from AASB 117 *Leases* is positively and significantly associated with analyst forecast revision. Surprisingly, *COMPLEXITY_AASB3* arising from AASB 3 *Business Combinations* (from original six category) is identified in this analysis as positive and significant at the 5% level. Goodwill treatment was significantly changed after IFRS adoption as AASB 3 requires entities to ensure valuation of all identifiable assets, both tangible and intangible, at fair value, which is subject to the assumptions and judgements of preparers (AASB, 2004b). In addition, the determination of fair value is not always straightforward due to unavailability of active markets for the net assets of a whole business (Barth & Landsman, 1995). This limitation increases information asymmetry between firms and their analyst following, thereby increasing the frequency of forecast revisions.

With respect to control variables, *SIZE* is the only variable consistently significant and showing a negative coefficient in all forecast properties, suggesting that analyst forecast errors, forecast dispersion, and frequency of forecast revision are lower for larger firms which is consistent with prior research (Brown, Richardson, & Schwager, 1987a; Lang & Lundholm, 1996). This is because analysts are more interested in larger firms. *SURPRISE* is positively and significantly associated with all forecast properties, except forecast revision. This indicates that changes to firms' actual earnings from last year to the current year have a significant influence on forecast errors and the standard deviation of firms' forecasts (Lang & Lundholm, 1996). In the case of forecast revision analysis, the control variable *NUMEST* has positive and significant associations with forecast revision, implying that the greater the number of forecast estimations for a firm, the greater the incidence of forecast revisions. Other control variables exhibit less explanatory power.

Overall, the results do not support an association between aggregate complexity arising either from the six complex standards identified from prior literature, or the 12 standards including the new six standards identified during data collection, and the properties of analysts' forecasts in Australia. However, the individual standard analyses using decomposed complexity scores reveal insightful findings. These findings support the argument that aggregate scores are neither good at capturing IFRS benefits/costs, nor capable of uncovering specific effects of individual standards on information users. This is in line with critics of the use of dummy variables to investigate IFRS effects. Using a dummy variable approach (i.e., pre- and post-IFRS years are labelled as 0 and 1), Tan et al. (2011) reach a similar conclusion that local analyst forecast accuracy does not improve due simply to IFRS adoption. Cotter et al. (2012) report similar results with respect to forecast dispersion.

In conclusion, this chapter's findings reveal that some standards, i.e., AASB 136 *Impairment of Assets* and AASB 116 *Property, Plant and Equipment*, improve forecast performance, whereas others, i.e., AASB 2 *Share-based Payments*, AASB 132 *Financial Instruments: Presentation*, AASB 138 *Intangible Assets and* AASB 117 *Leases*, appear to cause significant difficulties for analysts.

Table 4-2 : Descriptive Statistics

Panel A: Descriptive Statistics

Variables name	N	Mean	Median	S.D	Min	Max	1st Percentile	99th percentile
IFRS Complexity Variables								
Complexity_AASB2	327	2.098	2.000	2.046	0	6	0	6
Complexity_AASB3	327	0.214	0.000	0.998	0	6	0	6
Complexity_AASB136	327	2.477	2.000	2.445	0	6	0	6
Complexity_AASB138	327	0.722	0.000	1.700	0	6	0	6
Complexity_AASB112	327	3.235	4.000	2.610	0	6	0	6
Complexity_AASB119	327	0.544	0.000	1.360	0	6	0	6
Complexity_6SD	327	9.291	8.000	5.355	0	26	0	22
Complexity_AASB121	327	0.881	0.000	1.822	0	6	0	6
Complexity_AASB132	327	0.055	0.000	0.505	0	6	0	2
Complexity_AASB140	327	0.385	0.000	1.351	0	6	0	6
Complexity_AASB116	327	0.661	0.000	1.536	0	6	0	6
Complexity_AASB139	327	0.575	0.000	1.594	0	6	0	6
Complexity_AASB117	327	0.477	0.000	1.250	0	6	0	6
COMPLEXITY_12SD	327	12.324	12.000	6.821	0	32	0	30
Forecast Properties and Control Variables								
AFE	327	0.048	0.018	0.080	0.000	0.407	0.000	0.407
DISP	271	0.023	0.010	0.048	0.001	0.385	0.001	0.385
REVISION	272	0.034	0.012	0.067	0	4.84	0	0.5
SIZE	327	5.889	5.638	1.688	2.079	9.652	2.079	9.652
FOLLOW	327	1.569	1.609	0.734	0.000	2.833	0.000	2.833
SURPRISE	327	0.065	0.025	0.109	0.000	0.630	0.000	0.630
HORIZON	322	5.225	5.314	0.441	3.466	5.869	3.466	5.869
RETVOL	327	0.077	0.053	0.060	0.016	0.325	0.016	0.325
NUMEST	327	2.213	2.197	1.133	0.000	4.663	0.000	4.663
AGE	327	2.181	2.197	0.956	0.000	3.784	0.000	3.784
EARNSD	327	0.124	0.056	0.215	0.002	1.621	0.002	1.621
ROA	327	0.769	0.071	5.122	-22.332	20.058	-22.332	20.058
STOCKTURNOVER	327	0.003	0.003	0.002	0.000123	0.010145	0.000123	0.010145

See Appendix A for variable definitions.

Table 4-2: CONTINUED

Panel B: Pearson Correlation Matrix

		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27
1	*AFE*	1.00																										
2	*DISP*	.367**	1.00																									
3	*REVISION*	0.04	0.07	1.00																								
4	*COMPLEXITY_AASB2*	0.09	0.02	-0.01	1.00																							
5	*COMPLEXITY_AASB3*	0.00	-0.04	-0.03	-0.05	1.00																						
6	*COMPLEXITY_AASB136*	-.203**	-.204**	-0.04	-0.07	0.08	1.00																					
7	*COMPLEXITY_AASB138*	-0.08	0.11	0.11	0.00	0.07	0.08	1.00																				
8	*COMPLEXITY_AASB112*	-.142**	-0.02	0.00	-0.09	0.03	.186**	.161**	1.00																			
9	*COMPLEXITY_AASB119*	-.110*	-0.04	0.11	-0.01	0.09	.136*	0.07	.149**	1.00																		
10	*COMPLEXITY_6SD*	-.180**	-0.08	0.04	.296**	.265**	.595**	.468**	.634**	.427**	1.00																	
11	*COMPLEXITY_AASB121*	-0.07	-0.04	0.01	0.06	0.05	0.10	.190**	0.07	.242**	.235**	1.00																
12	*COMPLEXITY_AASB132*	-0.01	-0.02	-0.01	-0.02	-0.02	-0.04	0.00	-0.05	.117*	-0.03	0.04	1.00															
13	*COMPLEXITY_AASB140*	0.11	-0.09	0.04	-.173**	-0.06	-0.07	-0.10	-0.03	-0.07	-.172**	-.123*	-0.01	1.00														
14	*COMPLEXITY_AASB116*	0.02	0.01	-0.01	0.01	0.00	-.114*	0.01	0.10	0.07	0.02	0.06	-0.03	-0.09	1.00													
15	*COMPLEXITY_AASB139*	-0.02	0.02	0.09	0.06	-0.04	-0.07	0.05	.112*	.161**	0.09	-0.04	-0.04	-0.01	.115*	1.00												
16	*COMPLEXITY_AASB117*	0.00	.156*	.200**	-0.09	-0.05	0.09	0.10	.161**	0.06	.126*	0.01	-0.04	0.02	0.07	.139*	1.00											
17	*COMPLEXITY_12SD*	-.140*	-0.05	0.09	.213**	.188**	.453**	.428**	.585**	.460**	.861**	.437**	0.04	0.01	.276**	.342**	.333**	1.00										
18	*SIZE*	-.272**	-.307**	0.07	-0.06	0.06	.117*	0.04	.185**	.295**	.220**	.114*	0.02	0.07	0.04	.165**	.154**	.295**	1.00	.117*								
19	*AGE*	-0.01	0.00	-0.04	0.01	-0.02	-0.07	0.11	0.10	.126*	0.08	.171**	0.00	-0.10	0.05	0.07	-0.05	.109*	.117*	1.00								
20	*SURPRISE*	.604**	.380**	.384**	-0.02	-0.01	-.198**	0.00	-.124*	-0.05	-.172**	0.03	-0.03	0.00	0.11	0.00	0.08	-0.09	-.234**	-0.02	1.00							
21	*ROA*	-.168**	-.209**	0.08	-.131*	-0.06	0.10	-0.03	.133*	0.02	0.05	0.08	0.06	0.07	0.02	-0.06	-0.04	0.06	.168**	0.10	-.141*	1.00						
22	*FOLLOW*	-.288**	-.148*	0.11	-.117*	0.04	.190**	.135*	.305**	.331**	.325**	.186**	0.03	-0.04	.117*	.114*	.210**	.392**	.750**	0.09	-.210**	.143**	1.00					
23	*NUMEST*	-.218**	-0.06	0.11	-.112*	0.04	.132*	.115*	.305**	.327**	.293**	.174**	0.04	-0.07	.160**	.118*	.150**	.357**	.708**	.138*	-0.11	.162**	.932**	1.00				
24	*RETVOL*	0.04	0.10	0.08	.117*	.116*	-0.03	-0.01	-0.06	-.118*	-0.01	-0.05	0.07	-0.08	-0.08	-0.06	-0.06	-0.08	-.134*	-.179**	0.04	.136*	-.205**	-.172**	1.00			
25	*EARNSD*	.161**	0.05	.211**	-0.03	0.05	-0.04	0.02	0.07	.180**	0.07	.153**	0.01	0.10	0.00	0.03	0.06	.131*	.214**	0.08	.186**	0.03	.227**	.268**	0.06	1.00		
26	*HORIZON*	-.123*	-0.07	0.02	-0.03	-0.03	.176**	.142*	0.05	0.10	.160**	0.09	0.01	-0.01	0.04	-.125*	0.09	.144**	0.10	0.06	-0.11	-0.06	.267**	.251**	-.288**	0.05	1.00	
27	*STOCKTURNOVER*	0.11	0.05	0.08	0.00	-0.04	-0.10	-.127*	0.04	0.10	-0.05	0.02	-0.03	0.03	0.10	.208**	.147**	0.07	.310**	-0.09	.109*	0.01	.350**	.354**	-0.03	0.08	-0.05	1.00

See Appendix A for variable definitions. **, and * represent statistical significance at the 1%, and 5%, respectively (two-tailed test).

Table 4-3 : Multivariate Tests on The Association Between AFE, DISP, and Revision and Accounting Complexity arising from IFRS (H3.1- H3.3)

$$FORECAST\_PROPERTIES = \beta_0 + \beta_1 COMPLEXITY + \beta_2 SIZE + \beta_3 AGE + \beta_4 SURPRISE + \beta_5 ROA + \beta_6 FOLLOW + \beta_7 NUMEST + \beta_8 RETVOL + \beta_9 RARNSD + \beta_{10} HORIZON + \beta_{11} STOCKTURNOVER + YEARDUMMIES + INDUSTRYFIXEDEFFECT + \varepsilon$$

	Expected Sign	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
		AFE	AFE	AFE	AFE	DISP	DISP	DISP	DISP	REVISION	REVISION	REVISION	REVISION
INTERCEPT	?	0.081	0.084	0.080	0.084	0.085	0.081	0.086	0.099	-0.000	0.004	-0.000	0.029
		[1.08]	[1.14]	[1.08]	[1.12]	[1.11]	[1.04]	[1.11]	[1.27]	[-0.01]	[0.18]	[-0.01]	[1.27]
COMPLEXITY_AASB2	+		**0.005****		**0.005****		-0.002		-0.002		-0.002		-0.001
			[2.18]		**[2.27]**		[-1.27]		[-1.05]		[-0.95]		[-0.50]
COMPLEXITY_AASB3	+		0 .005		0.005		-0.000		0.001		0.001		**0.004****
			[1.40]		[1.55]		[-0.03]		[0.61]		[0.56]		**[1.99]**
COMPLEXITY_AASB136	+		0.000		0.000		-0.002		-0.002*		-0.003**		-0.003**
			[0.19]		[0.33]		[-1.61]		[-1.67]		[-2.30]		[-2.12]
COMPLEXITY_AASB138	+		-0.001		-0.001		**0.003***		0.003		0.001		0.001
			[-0.93]		[-0.45]		**[1.78]**		[1.49]		[0.79]		[0.57]
COMPLEXITY_AASB112	+		-0.001		-0.001		0.000		-0.000		0.001		0.000
			[-0.52]		[-0.45]		[0.15]		[-0.12]		[0.60]		[0.11]
COMPLEXITY_AASB119	+		-0.002		-0.002		0.001		0.001		0.001		0.001
			[-1.14]		[-0.80]		[0.70]		[0.72]		[0.35]		[0.44]
COMPLEXITY_6SD	+	0.000				-0.000				-0.000			
		[0.44]				[-0.18]				[-0.52]			
COMPLEXITY_AASB121	+				-0.003				-0.001				-0.003
					[-1.43]				[-0.45]				[-1.27]
COMPLEXITY_AASB132	+				**0.008*****				-0.001				0.002
					[3.26]				[-0.88]				[0.80]
COMPLEXITY_AASB140	+				0.001				-0.001				-0.003
					[0.47]				[-0.47]				[-1.23]
COMPLEXITY_AASB116	+				-0.001				-0.003**				-0.004
					[-0.33]				[-2.36]				[-1.62]
COMPLEXITY_AASB139	+				-0.001				0.000				0.003
					[-0.52]				[0.15]				[1.36]
COMPLEXITY_AASB117	+				0.000				**0.007****				**0.010****
					[0.19]				**[2.14]**				**[2.08]**

	Expected Sign	1	2	3	4	5	6	7	8	9	10	11	12
COMPLEXITY_12SD	+			-0.000				0.000				-0.000	
				[-0.20]				[0.22]				[-0.05]	
SIZE	-	-0.009**	-0.009**	-0.008**	-0.009**	-0.010**	-0.008**	-0.010**	-0.009**	-0.015***	-0.014***	-0.015***	-0.016***
		[-2.13]	[-2.34]	[-2.11]	[-2.31]	[-2.23]	[-2.12]	[-2.24]	[-2.46]	[-2.98]	[-2.86]	[-3.00]	[-3.52]
AGE	+	0.005	0.005	0.005	0.006	0.002	0.001	0.002	0.001	0.005	0.004	0.005	0.003
		[1.24]	[1.31]	[1.28]	[1.56]	[1.14]	[0.42]	[1.10]	[0.33]	[1.57]	[1.04]	[1.50]	[0.93]
SURPRISE	+	0.303***	0.309***	0.302***	0.313***	0.100*	0.088*	0.100*	0.081*	0.151	0.142	0.153	0.134
		[4.02]	[4.03]	[3.99]	[3.96]	[1.92]	[1.89]	[1.96]	[1.92]	[1.62]	[1.56]	[1.64]	[1.55]
ROA	-	-0.000	-0.000	-0.000	-0.000	-0.002	-0.002	-0.002	-0.001	0.000	0.000	0.000	0.001
		[-0.43]	[-0.20]	[-0.43]	[-0.15]	[-1.45]	[-1.53]	[-1.45]	[-1.30]	[0.52]	[0.55]	[0.50]	[1.06]
FOLLOW	-	-0.018	-0.016	-0.017	-0.014	0.003	0.001	0.003	-0.000	-0.009	-0.012	-0.010	-0.014
		[-0.97]	[-0.85]	[-0.92]	[-0.78]	[0.34]	[0.11]	[0.31]	[-0.04]	[-0.59]	[-0.76]	[-0.62]	[-0.93]
NUMEST	+	0.003	0.006	0.003	0.005	0.008	0.006	0.008	0.007	0.021**	0.019**	0.021**	0.022**
		[0.31]	[0.53]	[0.32]	[0.49]	[1.53]	[1.15]	[1.52]	[1.40]	[2.38]	[2.12]	[2.38]	[2.39]
RETVOL	+	-0.065	-0.088	-0.062	-0.095	0.076	0.098	0.074	0.072	0.102	0.118	0.097	0.071
		[-1.00]	[-1.37]	[-0.98]	[-1.43]	[1.28]	[1.46]	[1.26]	[1.15]	[1.38]	[1.47]	[1.32]	[0.91]
EARNSD	+	0.058	0.060	0.058	0.062	0.005	0.003	0.004	0.004	0.026	0.023	0.025	0.029
		[1.52]	[1.64]	[1.53]	[1.62]	[0.39]	[0.26]	[0.36]	[0.36]	[0.86]	[0.76]	[0.85]	[1.09]
HORIZON	-	-0.007	-0.007	-0.006	-0.008	-0.012	-0.011	-0.013	-0.012	-	-	-	-
		[-0.50]	[-0.55]	[-0.48]	[-0.57]	[-0.91]	[-0.81]	[-0.91]	[-0.87]	-	-	-	-
STOCKTURNOVER		4.590**	4.155**	4.577**	4.301**	0.922	1.253	0.888	0.596	2.967	3.124	2.932	1.717
		[2.27]	[2.05]	[2.26]	[2.10]	[0.67]	[0.92]	[0.64]	[0.45]	[1.34]	[1.43]	[1.32]	[0.84]
YE		-0.006	-0.006	-0.005	-0.005	-0.002	0.001	-0.002	-0.001	0.027**	0.028**	0.026**	0.023**
		[-0.52]	[-0.52]	[-0.47]	[-0.44]	[-0.13]	[0.10]	[-0.15]	[-0.10]	[2.32]	[2.42]	[2.22]	[1.98]
INDUSTRY FIXED EFFECTS		YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES
OBSERVATIONS		322	322	322	322	271	271	271	271	272	272	272	272
R-SQUARED		0.47	0.49	0.47	0.49	0.43	0.45	0.43	0.48	0.39	0.41	0.39	0.45
ADJ.R^2		0.40	0.41	0.40	0.40	0.33	0.35	0.33	0.37	0.30	0.30	0.30	0.33

See Appendix A for variable definitions. ***, **, and * represent statistical significance at the 1%, 5%, and 10% levels respectively (two-tailed test).

Model (1) *AFE* and original six complex standards are considered together as stand-alone experimental variable Model (2) *AFE* and original six complex standards are considered separately, Model (3) *AFE* and full set of 12 complex standards are considered together as stand-alone experimental variable, Model (4) *AFE* and full set of 12 complex standards are considered separately, Model (5) *DISP* and original six complex standards are considered together as stand-alone experimental variable Model (6) *DISP* and original six complex standards are considered separately, Model (7) *DISP* and full set of 12 complex standards are considered together as stand-alone experimental variable, Model (8) *DISP* and full set of 12 complex standards are considered separately, (Model (9) *RIVISION* and original six complex standards are considered together as stand-alone experimental variable Model (10) *RIVISION* and original six complex standards are considered separately, Model (11) *RIVISION* and full set of 12 complex standards are considered together as stand-alone experimental variable, Model (12) *RIVISION* and full set of 12 complex standards are considered separately.

4.5 Accounting Complexity, Audit Quality, and Analyst Forecast Properties (H4.4)

This section investigates the role of high quality audits (proxied by industry specialization) on the association between accounting complexity and analyst forecast properties as proposed in H4.4. High quality auditors can improve the quality of accounting information (e.g., Francis & Yu, 2009), which may increase the confidence of the users of such accounting information, in this case, financial analysts.[47] Therefore, forecast errors and frequency of forecast revisions should be lower for firms which are audited by high quality audit firms. To test H4.4, two approaches are taken. First, Eq. (2) is used to investigate whether there is a moderating effect of ISPs on the association between complexity and forecast properties. Next, a sub-sample analysis is conducted to test whether the effect of ISP (at both the city-level and national-level) on forecast errors differs between firms with high and low complexity. To this end, the sample is divided into two groups, based on aggregate complexity level using either six standards' aggregate score or the aggregate score of all 12 standards identified.

The results are presented in Table 4-4, using similar columnar format as for Table 4-3. The results support the contention that the association between forecast properties and aggregate accounting complexity is moderated by high quality audit, for only dispersion (*DISP*) and only for national level ISPs for both the six 'original' complex standards and the full set of 12 complex standards. Next, Eq. (2) is re-estimated to test the moderating effect of ISPs for the specific accounting standards which are found to be positively associated with analyst forecast properties in the earlier analysis (Table 4-3) namely AASB 2 *Share-based Payments,* AASB 132 *Financial Instruments:*

[47] Francis & Yu (2009) predict and find that larger audit firms (Big 4) provide higher quality audits as they are more likely to issue going concern opinions compared to non-Big 4 audit firms.

Presentation, AASB 138 *Intangibles Assets,* AASB 117 *Leases, and* AASB 3 *Business Combination.*[48] To support H4.4, the coefficients on the interaction term, *COMPLEXITY*ISP*, are expected to be negative and significant. However, results suggest that the effects of higher levels of complexity of those individual standards on analyst forecast properties are not mitigated by high quality audits (un-tabulated). In sum, the results do not support H4.4 even after conducting individual standards analyses.

To have better insight into the possibility of ISP influence difference between the high complex and the low complex group, sub-sample analyses are conducted. First the aggregate complexity score of six standards is used in order to classify the sample into high and low complexity groups. A total of 144 firms are classified as high complexity, each with a complexity score above the mean (μ_{six}= 9.43). Next, the aggregate complexity score of all 12 standards identified is used. This results in a total of 129 high complexity firms (i.e., above mean complexity (μ_{All} = 12.38). In both cases, Eq. (3) and Eq. (4) are analysed to regress forecast properties on both city-level (national-level) industry specialisation and a set of control variables. The results are reported in Table 4-5.

In both cases, Panel A of Table 4-5 shows the sub-sample analysis based on aggregate scores of the original six complex standards. Panel B shows the sub-sample analysis based on aggregate scores of all 12 complex standards identified. For national level industry specialisation, no moderating effect is found on the association between accounting complexity and forecast properties (results are not tabulated). However, for

[48] *COMPLEXITY is replaced by COMPLEXITY_AASB132* and *COMPLEXITY_AASB2* for AFE analysis, *COMPLEXITY_AASB138* and *COMPLEXITY_AASB117* for forecast dispersion and *COMPLEXITY_AASB138* and *COMPLEXITY_AASB117* for forecast revision. All other control variables are similar to the ones used in Eq. (2)

city level industry specialisation, Panel A of Table 4-5 reports the coefficient of *CITY_ISP*, regarding forecast error (*AFE*), as significant at the 5% level and negative (-0.017) for only the high complexity firms. In comparison, this effect is insignificant for low complexity firms. The results suggest a decrease in analyst forecast errors (*AFE*) for firms audited by city level ISP, but only when firms face high levels of complexity during IFRS adoption which supports the hypothesis 4.4. However, results should be interpreted with caution as the moderating effect of ISP is only found for high complex firms not for low complex firms. In addition, this result is hold for city-level ISP not for either national or joint ISP level.

The result is stronger when using the aggregate complexity score of the original six complex standards than when using the aggregate complexity score of all 12 standards identified as complex.

For forecast dispersion analysis, ISP shows no moderating effect for either high complexity or low complexity firms. However, the coefficient of *CITY_ISP*, for forecast revision analysis when all 12 standards identified as complex are considered, is negative for low complexity firms, suggesting that the incidence of analyst revisions is reduced where firms have lower levels of complexity and are audited by city level ISP.

Table 4-4: Multivariate Tests on the Association Between Forecast Properties and Accounting Complexity and Interaction with ISP (H4.4)

$$FORECAST\_PROPERTIES = \beta_0 + \beta_1 COMPLEXITY + \beta_2 ISP + \beta_3 COMPLEXITY*ISP + \beta_4 SIZE + \beta_5 FOLLOW + \beta_6 SURPRISE + \beta_7 HORIZON + \beta_8 RETVOL + \beta_9 NUMEST + \beta_{10} AGE + \beta_{11} EARNSD + \beta_{12} HORIZON + \beta_{13} STOCKTURNVOVER + YEAR\ DUMMIES + INDUSTRY\ FIXED$$

	Expected sign	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
Dependent variables:		**AFE**	**AFE**	**AFE**	**AFE**	**DISP**	**DISP**	**DISP**	**DISP**	**REVISION**	**REVISION**	**REVISION**	**REVISION**
INTERCEPT	?	0.136	0.135	0.134	0.135	0.084	0.085	0.082	0.084	0.00	0.001	-0.012	-0.010
		[1.38]	[1.37]	[1.36]	[1.35]	[0.93]	[0.96]	[1.09]	[1.11]	[0.00]	[0.02]	[-0.31]	[-0.27]
COMPLEXITY_6SD	+	0.001		0.001		0		0.001		-0.001		0.001	
		[0.67]		[0.95]		[0.20]		[1.16]		[-0.33]		[0.73]	
CITY_ISP	-	0.011	0.011			0.009	0.007			-0.015	-0.018		
		[0.49]	[0.50]			[0.62]	[0.49]			[-0.54]	[-0.79]		
NATIONAL_ISP	-			0.02	0.012			0.027	0.025			0.04	0.0170
				[0.97]	[0.65]			[1.51]	[1.45]			[1.23]	[0.69]
COMPLEXITY_12SD	+		0		0		0		0.001		0.00		0.0000
			[0.34]		[0.27]		[0.25]		[0.99]		[-0.27]		[0.31]
*COMPLEXITY_6SD*CITY_ISP*	-	-0.001				-0.001				0.001			
		[-0.54]				[-0.70]				[0.34]			

*COMPLEXITY_12SD**	-		-0.001				-0.001				0.001		
CITY_ISP													
			[-0.57]				[-0.59]				[0.60]		
*COMPLEXITY_6SD*N*												-0.0030	
ATIONAL_ISP	-			-0.002				-0.003*					
				[-0.98]				[-1.77]				[-1.16]	
*COMPLEXITY_12SD**													-0.0010
NATIONAL_ISP	-				-0.001				-0.003*				
					[-0.62]				[-1.71]				[-0.46]
SIZE	-	-0.011**	-0.011**	-0.011**	-0.011**	-0.009**	-0.009**	-0.010**	-0.010**	-0.013**	-0.013**	-0.014**	-0.013**
		[-2.32]	[-2.31]	[-2.34]	[-2.30]	[-2.05]	[-2.03]	[-2.22]	[-2.23]	[-2.05]	[-2.08]	[-2.32]	[-2.16]
AGE	+	0.008*	0.008*	0.008*	0.008*	0.005*	0.005*	0.005**	0.005**	0.006	0.01	0.01	0.01
		[1.73]	[1.77]	[1.72]	[1.73]	[1.89]	[1.85]	[2.09]	[2.04]	[1.35]	[1.32]	[1.37]	[1.27]
			0.209**	0.215**								0.254**	0.253**
SURPRISE	+	0.211***	*	*	0.210***	0.095*	0.095*	0.100**	0.096*	0.253**	0.254**		
		[3.17]	[3.15]	[3.25]	[3.17]	[1.81]	[1.86]	[1.98]	[1.96]	[2.02]	[2.03]	[2.06]	[2.03]
ROA	-	-0.001	-0.001	-0.001	-0.001	-0.002*	-0.002*	-0.002*	-0.002*	0	0.00	0.00	0.00
		[-0.94]	[-0.93]	[-0.99]	[-0.96]	[-1.80]	[-1.78]	[-1.96]	[-1.95]	[0.37]	[0.36]	[-0.02]	[0.19]
FOLLOW	-	-0.014	-0.014	-0.014	-0.014	0.001	0.001	0.002	0.002	-0.009	-0.01	-0.01	-0.01
		[-0.69]	[-0.67]	[-0.71]	[-0.68]	[0.10]	[0.06]	[0.20]	[0.17]	[-0.42]	[-0.44]	[-0.45]	[-0.47]
NUMEST	+	0.002	0.002	0.002	0.002	0.009*	0.009*	0.009*	0.009*	0.016	0.02	0.02	0.02
		[0.15]	[0.17]	[0.16]	[0.17]	[1.66]	[1.68]	[1.72]	[1.66]	[1.50]	[1.52]	[1.56]	[1.49]
RETVOL	-	-0.111	-0.109	-0.112	-0.107	0.127	0.127	0.105	0.111	0.134	0.13	0.13	0.14

		[-1.27]	[-1.26]	[-1.28]	[-1.24]	[1.50]	[1.50]	[1.30]	[1.36]	[0.85]	[0.85]	[0.84]	[0.96]
EARNSD	+	0.079*	0.080*	0.079*	0.079*	0.009	0.009	0.01	0.009	0.014	0.01	0.02	0.01
		[1.67]	[1.69]	[1.69]	[1.68]	[0.62]	[0.63]	[0.72]	[0.68]	[0.45]	[0.42]	[0.56]	[0.50]
HORIZON	-	-0.016	-0.016	-0.016	-0.015	-0.015	-0.015	-0.015	-0.015				
		[-0.89]	[-0.89]	[-0.90]	[-0.87]	[-0.96]	[-0.98]	[-1.07]	[-1.07]				
STOCKTURNOVER	+	5.102**	5.119*	4.976*	4.988*	1.084	1.07	0.935	0.94	4.593	4.55	4.60	4.68
		[1.97]	[1.96]	[1.90]	[1.91]	[0.66]	[0.63]	[0.57]	[0.58]	[1.41]	[1.39]	[1.49]	[1.47]
YE		-0.012	-0.011	-0.013	-0.012	-0.003	-0.003	-0.007	-0.006	0.023	0.02	0.02	0.02
		[-0.90]	[-0.85]	[-0.99]	[-0.89]	[-0.22]	[-0.19]	[-0.49]	[-0.41]	[1.56]	[1.52]	[1.41]	[1.58]
OBSERVATIONS		287	287	287	287	240	240	240	240	214	214	214	214
R-SQUARED		0.42	0.42	0.42	0.42	0.48	0.48	0.49	0.49	0.44	0.44	0.45	0.44
Adj.R^2		0.33	0.33	0.34	0.33	0.38	0.38	0.4	0.4	0.32	0.32	0.33	0.32

See the appendix A for variable definition. ***, **, and * represent statistical significance at the 1%, 5%, and 10% levels respectively (two-tailed test).

In this table, for every forecast property (such as, forecast error (AFE), forecast dispersion (DISP) and forecast revision (REVISION), four columns are assigned. The first and second columns show moderating impact of city- level industry specialisation on forecast properties and aggregate complexity in both six and new six categories of standards and the second and third columns show the moderating role of national -level industry specialists in between forecast properties and aggregate complexity in both six and new six categories of standards.

Table 4-5: Multivariate Tests on Moderating Role of City-Level Industry Specialisation on Forecast Properties Based on Sub-Sample

$$FORECAST\_PROPERTIES = \beta_0 + \beta_1 CITY\_ISP + \beta_2 SIZE + \beta_3 FOLLOW + \beta_4 SURPRISE + \beta_5 HORIZON + \beta_6 RETVOL + \beta_7 NUMEST + \beta_8 AGEA + \beta_9 EARNSD + \beta_{10} ROA + \beta_{11} STOCKTURNOVER + YEAR\ DUMMIES + INDUSTRY\ FIXEDEFFECTS + \varepsilon. \quad (3)$$

Panel A: When the sub-sample is determined based on aggregate score of six complex standards

VARIABLES	AFE	AFE	DISP	DISP	REVISION	REVISION
	High Complex	Low Complex	High Complex	Low Complex	High Complex	Low Complex
INTERCEPT	0.094	0.093	0.078	0.185	0.035	0.033
	[0.93]	[0.95]	[1.50]	[1.00]	[0.49]	[0.50]
CITY_ISP	**-0.017****	0.012	-0.003	-0.002	-0.008	-0.014
	[-2.14]	[0.83]	[-0.29]	[-0.23]	[-0.43]	[-0.86]
SIZE	-0.008	-0.019***	-0.015*	-0.007	-0.026**	-0.010
	[-1.59]	[-2.84]	[-1.68]	[-1.64]	[-2.08]	[-1.09]
FOLLOW	-0.013	-0.006	-0.001	-0.006	-0.008	-0.008
	[-0.68]	[-0.17]	[-0.06]	[-0.60]	[-0.31]	[-0.22]
SURPRISE	0.317***	0.199**	0.188	0.041	0.315	0.191
	[2.75]	[2.37]	[1.02]	[1.32]	[1.11]	[1.32]
HORIZON	-0.013	-0.005	-0.012	-0.032	-	-
	[-0.70]	[-0.32]	[-0.80]	[-1.01]	-	-
RETVOL	0.078	-0.030	0.182	-0.110	0.270	-0.230
	[1.45]	[-0.29]	[1.33]	[-0.73]	[1.32]	[-0.89]
NUMEST	0.010	0.005	0.017	0.013	0.037	0.009
	[1.09]	[0.23]	[1.09]	[1.47]	[1.46]	[0.45]
AGE	0.008*	0.006	0.003	0.009	0.002	0.010
	[1.96]	[0.77]	[0.98]	[1.38]	[0.30]	[1.02]
EARNSD	-0.018	0.156***	-0.015	0.036	-0.031	0.086
	[-1.31]	[2.93]	[-0.56]	[1.14]	[-0.76]	[1.06]
ROA	-0.003**	-0.001	-0.002	-0.001*	-0.001	0.000
	[-2.48]	[-1.33]	[-1.33]	[-1.80]	[-0.35]	[0.54]
STOCKTURNOVER	2.523	4.875	-0.597	1.509	-2.268	9.476*
	[1.11]	[1.38]	[-0.28]	[1.07]	[-0.50]	[1.77]
YE	-0.014	-0.010	0.011	-0.016	0.035	-0.015
	[-0.94]	[-0.69]	[0.62]	[-0.94]	[1.31]	[-0.54]
Observations	144	143	129	111	113	101
R-squared	0.66	0.53	0.48	0.48	0.46	0.46
Adj. R-squared	0.55	0.39	0.28	0.26	0.21	0.22

Panel B: When the sub-sample is determined based on aggregate score of All standards considered in this study

VARIABLES	AFE High Complex	AFE Low Complex	DISP High Complex	DISP Low Complex	REVISION High Complex	REVISION Low Complex
INTERCEPT	0.082	0.835	0.013	0.134	0.068	0.062
	[1.18]	[1.06]	[0.18]	[1.13]	[1.03]	[1.31]
CITY_ISP	**-0.016***	0.033	-0.005	0	-0.005	**-0.019***
	[-1.88]	[0.70]	[-0.40]	[-0.00]	[-0.27]	**[-1.69]**
SIZE	-0.002	-0.045**	-0.009	-0.009**	-0.015	-0.014**
	[-0.27]	[-2.26]	[-1.30]	[-2.18]	[-1.53]	[-2.23]
AGE	0.002	0.058	0	0.007	-0.003	0.009
	[0.55]	[1.57]	[-0.19]	[1.54]	[-0.56]	[1.49]
SURPRISE	0.422***	0.099	0.334***	0.03	0.659***	0.084
	[6.46]	[0.61]	[3.46]	[1.01]	[4.74]	[0.81]
ROA	-0.002*	-0.003*	-0.001	-0.001	0.002	0
	[-1.92]	[-1.82]	[-0.59]	[-1.51]	[1.29]	[1.12]
FOLLOW	-0.021	0.186	-0.001	0	-0.02	-0.015
	[-1.30]	[1.27]	[-0.04]	[0.00]	[-0.62]	[-0.73]
NUMEST	0.005	-0.114	0.01	0.011*	0.036**	0.017
	[0.59]	[-1.47]	[1.21]	[1.68]	[2.21]	[1.45]
RETVOL	-0.107*	-0.335	0.088	0	-0.014	-0.161
	[-1.76]	[-0.85]	[1.06]	[-0.00]	[-0.11]	[-0.77]
EARNSD	0.003	0.922**	-0.022	-0.009	0	-0.038
	[0.16]	[2.21]	[-0.98]	[-0.45]	[0.01]	[-0.91]
HORIZON	-0.004	-0.158	0.003	-0.022	-	-
	[-0.28]	[-1.17]	[0.23]	[-1.11]	-	-
STOCK TURNOVER	1.968	-6.496	-2.445	1.124	-7.399	5.634
	[1.01]	[-0.32]	[-0.75]	[0.86]	[-1.17]	[1.47]
YE	-0.034***	0.034	0	-0.01	0.018	-0.015
	[-2.97]	[0.68]	[-0.02]	[-0.74]	[0.93]	[-0.69]
Observations	126	161	117	123	103	111
R-squared	0.72	0.4	0.59	0.47	0.64	0.44
Adj. R-squared	0.61	0.23	0.42	0.27	0.45	0.21

See appendix A for variable definitions. ***, **, and * represent statistical significance at the 1%, 5%, and 10% levels respectively (two-tailed test).

4.6 Chapter Summary

By investigating the impact of complexity arising from IFRS adoption on financial analyst forecast properties and effect of complexity on analyst forecast properties varies with audit quality (as proxied by auditor industry specialization), this chapter shows that only two standards (AASB 2 *Share-based Payment* and AASB 132 *Financial Instruments: Presentation*) are positively and significantly associated with analyst forecast errors, while only one standard (AASB 117 *Leases*) is positively and significantly associated with analyst forecast dispersion. Two IFRS standards, namely AASB3 *Business Combinations* and AASB 117 *Leases*, are found to contribute to increased incidence of analyst forecast revisions in the IFRS adoption period.

In addition, this chapter examines whether the association between accounting complexity and analyst forecast properties varies between high complexity firms and low complexity firms, depending on whether they are audited by industry specialist auditors or not. Forecast errors are found to decrease for high complexity firms if they are audited by a city-level ISP, whereas no such evidence is found for either forecast dispersion or forecast revision, suggesting that the association between these two properties and complexity is not moderated by industry specialist auditors.

This chapter is also subject to a few caveats, so readers should be cautious about interpreting and generalising the results. First, this chapter does not show a causal relationship between accounting complexity arising from IFRS and analyst forecast properties. Instead, this study relies on association tests to document the relationship. Second, this chapter does not consider the impact of half yearly disclosures made by July-June following companies as of December 31, 2005 as those companies only disclose estimated impact of IFRS rather than taking on a full reconciliation approach required by Australian accounting standards (AASB, 2004h, p. 14).

Third, this study acknowledges that there is a possibility of some unknown factors apart from IFRS impact that may affect analyst forecasting decisions. The final limitation in this study is the relatively small sample size due to a lack of analyst coverage of Australian companies in the sample.

Taken together, this chapter provides evidence of the pitfall associated with international accounting standards, which will be of interest to accounting academics, standard setters, and financial analysts. More specifically it will be useful to investors and analysts from countries that are considering adopting or harmonising IFRS.

To further understand the impact of IFRS complexity on analyst forecasting properties, it is recommended that future research examines the effect of individual accounting standards by using a transaction-based approach in order to untangle the reasons for information users' incapability or difficulties in interpreting financial information prepared by companies.

CHAPTER 5 - DISCUSSION AND CONCLUSION

This chapter is organised as follows: Section 5.1 presents a summary explaining the development of a unique complexity measure, how this measure was used to investigate the impact of IFRS complexity on important users of financial information, and the resulting findings. Section 5.2 presents the contributions of this research and policy implications. Section 5.3 outlines the limitations of this research and provides suggestions for future research opportunities.

5.1 Summary of the Thesis Findings

This study was designed to investigate the impact of accounting complexity arising from IFRS adoption on two important groups of users of financial reports, namely auditors and financial analysts. Australia is an ideal setting for the present study due to several reasons. For instance, first, Australia is one of the IFRS adopters outside the EU, which mandated IFRS for all reporting firms at the same time as the EU. Second, prior research shows that there are significant differences between Australian GAAP and IFRS which requires researcher's attention. For instance, Ding et al. (2007) shows that Australia holds *Absence* and *Divergence* scores of 34 and 21 respectively, where the average *Absence* and *Divergence* scores of 30 countries are 18.3 and 22.6 respectively.[49] Third, prior research also shows that Australian GAAP provides more value relevant

[49] *Absence* score is defined as the differences between DAS and IAS as the extent to which the rules regarding certain accounting issues are missing in DAS while covered in IAS. *Divergence* is defined as the difference between DAS and IAS as the extent to which the rules regarding the same accounting issue differ in DAS and IAS (Ding, Yuan et al. 2007, P.3).

information than IFRS (e.g., Goodwin et al., 2008) which is contradictory to existing IFRS based research.[50]

While an extensive body of research examines the benefits of IFRS for capital markets (e.g., liquidity and cost of capital), reporting quality, the information environment, and reduced earnings management, very few studies concentrate on the costs of IFRS. This study, therefore, focuses on potential costs arising from the accounting complexity embedded in IFRS. A unique complexity measure is developed to enable calculation of complexity at individual standard level; specifically those are identified as 'complex standards'. Six of these complex standards are identified as such in prior literature (defined as 'original six') and a further six standards are identified as complex during data collection procedures ('new six'). Complexity scores are based on IFRS adjustments that are shown in the mandatory IFRS-AGAAP reconciliation statements required for the first-time adopters of IFRS. This study provides new evidence on specific IFRS standards that are identifiable as being particularly complex. One of the more significant findings to emerge from distinguishing between standards is that some standards rated as complex by auditors do not appear to be complex for financial analysts, in terms of their effect on analyst forecast properties.

Chapter 3 examines the association between accounting complexity arising from IFRS adoption and audit fees. Aggregate complexity of the original six 'complex standards' identified in prior literature is found to be significantly and positively associated with audit fees. When aggregate complexity is decomposed to examine the effects of the 'original six' standards individually, only some of these standards (AASB 136 *Impairment of Assets,* AASB 138 *Intangibles Assets,* and AASB 119 *Employee*

[50] Goodwin et al. (2008) document that earnings and equities under AGAAP are more value relevant than IFRS-based earnings and equities.

Benefits) are found to be positively and significantly associated with audit fees. Certainly, few other standards from the 'new six' standards category (such as, AASB 121 *The Effects of Changes in Foreign Exchange Rates,* AASB 139 *Financial Instruments: Recognition and Measurement,* and AASB 117 *Leases*), are also found to be more complex (i.e., have a significant and positive associations with audit fees).

In addition, moderating effect of high quality auditors (proxied by ISP) are tested to examine whether they charge higher audit fees for higher levels of complexity involved in IFRS. Findings indicate that city-level ISP (*CITY_ISP*) charge higher audit fees for firms which are exposed to higher levels of complexity. This association is not as strong at the national-level (*NATIONAL_ISP*). The results of this research support the notion that principle-based accounting standards, such as IFRS, require more audit effort, judgement and professional expertise, as these standards involve estimation and subjectivity which increases uncertainty. To compensate for higher levels of risk and to reduce uncertainty, auditors may charge higher audit fees for firms which are exposed to higher level of complexity.

Chapter 4 examines the impact of IFRS complexity on financial analysts forecast properties. The results of this investigation show that aggregate complexity is not associated with analyst forecast properties (forecast errors, dispersion and forecast revision). However, similar to Chapter 3, when the effects of complexity are examined at individual standard level complexity, findings indicate that two standards (AASB 2 *Share-based payments* and AASB 132 *Financial Instruments-Presentation*) from the 'original six' complex standards have a significant positive associations with analyst forecast errors, and one standard from the 'new six' complex standards (AASB 117 *Leases*) has a significant and positive association with forecast dispersion, while a further two (AASB 3 *Business Combination* and AASB 117 *Leases)* are positively and significantly associated with forecast revision. These results suggest that while financial analysts are not significantly affected by the gross impact of IFRS, they are concerned with the complexity involved with some specific standards.

The moderating role of high quality auditors on the adverse relationship between accounting complexity and forecast properties is then examined. To explore this issue in depth, the firm sample is bisected into two sub-samples, high and low complexity firms, based on aggregate complexity scores, for both the 'original six' and 'full set of 12' standards. The result shows that forecast error is lower in firms audited by city-level ISP for the high complexity firms but not for the low complexity firms. There is no evidence of such a moderating effect on the relationship between accounting complexity and the other two forecast properties (forecast dispersion and forecast revision).

5.2 Research Contributions

This thesis makes a number of noteworthy contributions to the accounting literature. First, it pinpoints that specific standards are highly complex; this is informative to standard setters and may assist them with future standard setting, implementation and emendation decisions. Raised awareness of the complexity associated with these standards should also assist standards setters such as the IASB, AASB, or FRC to determine where additional guidance and training is appropriate. In particular, this thesis will be of interest to other countries that are in the IFRS adoption stage or planning to adopt IFRS (e.g., India, Russia). This, in turn should overflow to other interested parties. For example, a better understanding of the impact of the complexity of these standards on audit fees should enable auditors to improve audit planning, staffing and training.

Second, this thesis provides a unique methodology which enables the measurement and quantification of the complexity associated with individual accounting standards at firm level, rather than at country level.

Third, this thesis provides evidence that standards rated as complex by auditors do not appear equally complex for financial analysts. These findings enhance the understanding of the degree of exposure of these two intermediaries to IFRS complexity. Moreover, they provide an indication to investors of the extent to which financial analysts are really exposed to IFRS complexity, and how this may distort their forecast capacity and lead to forecast errors.

Fourth, this study shows that high quality auditors charge higher audit fees where there are higher levels of IFRS complexity. This finding provides additional evidence consistent with previous findings regarding premiums for industry specialist auditors in Australia.

Finally, this thesis enhances understanding of the role of high quality audit on the relationship between forecast performance and accounting complexity. This shows that analyst forecast errors decrease for firms which are audited by city-level ISP. This finding is consistent with the notion that industry specialist knowledge improves audit quality and hence the information environment for financial analysts. Findings are also consistent with existing research notions that industry specialists charge a premium because of differentiated audit quality.

5.3 Limitations of the Study and Suggestions for Future Research

A number of caveats need to be noted regarding this study. First, this study uses only Australian IFRS reconciliation statements to identify and compute complexity. These are based on adjustments specific to Australia which may not persist beyond the IFRS adoption year due to learning effects. Also, this study only considers the IFRS adoption period to investigate the impact of complexity on audit fees and analyst forecast performance. This impact also may not persist beyond the sample period. Furthermore, this study shows associations rather than causal relationships between accounting complexity and audit fees or forecast performance. It would therefore add insight to investigate the longer term impact of individual standards' complexity on both audit fees and analyst forecast properties, in Australia as well as in other countries.

Second, this study does not consider all IFRS standards issued by the IASB and adopted by the AASB. Consequently, those standards, not covered in this study, may provide improved understanding of the relationship between accounting complexity, analyst forecast performance and audit fees (e.g., due to their effects in contributing to increasing reporting quality or simplicity of application). Further research covering other IFRS standards would therefore provide fuller insights regarding the impact of IFRS complexity on both audit fees and financial analyst forecast performance. It would also be of interest to attempt to assess the net benefits of IFRS by attempting to compare the benefits of IFRS adoption with a fuller assessment of its costs.

Third, this study uses a market share price (audit fee based) approach to calculate industry specialisation of auditors at both the city and national-level. A future study investigating alternative ways of measuring industry specialisation in auditors and the role of high quality auditors in dealing with IFRS complexity would be of interest.

Fourth, this study does not consider any moderating effect of corporate governance mechanism on the relation between accounting complexity and audit fees. It is reasonable that strong governance for instance, high quality audit committee, high quality internal management will be comparatively better in dealing with IFRS complexity than a firm with low quality audit committee or lower quality internal management. Consequently, auditor will charge lower audit fees because of higher reporting quality.

Finally, future research could investigate the impact of IFRS complexity for financial companies as they have separate rules and regulations. This would highlight the impact of IFRS complexity in a fuller sense.

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Appendix A: Variable Definitions

VARIABLE	*DEFINITIONS*
LnAF	Natural logarithm of total audit service fees paid to external auditors;
AFE	Analyst forecast error (AFE) is measured as absolute value of difference between median consensus and actual EPS which is deflated by last year share market price. Firm's actual EPS for the year ended June 30, 2006 is used for companies following fiscal period from July-June and actual EPS of 2005 is used for companies which follow calendar year (Jan-Dec);
DISP	Dispersion is calculated as standard deviation of forecasts made for a company. This analysis considers all forecasts made between last year earnings announcement date and current year earnings announcement date. More specifically, it is calculated as standard deviation of firm's EPS forecasts, scaled by share price which is at the end of last fiscal period;
REVISION	Difference of last forecast (LF) of EPS and first forecast (FF) of EPS. If there are multiple forecasts on the same day in both forecasts (first and last Forecast), average is used;
COMPLEXITY_6SD	Extent of complexity based on complexity measurement for original six complex standards together;
COMPLEXITY_12SD	Extent of complexity based on complexity measurement for full set of 12 complex standards together;
COMPLEXITY_AASB2	Extent of complexity based on complexity measurement for AASB 2 *Share-based Payment*; same definition applies to all other complexity variables measured based on other 11 other standards individually;
IFRS_DIFF	Extent of complexity measured based on equity difference (AGAAP and IFRS) only;
BIG4	1 if the firm is audited by Big 4 audit firms (i.e., KPMG, PWC, Deloitte, and EY), 0 otherwise;
OPINION	Indicator variable equal to 1 if the firm was issued with a modified opinion in the current year, otherwise equal to 0;
LnASSETS	Natural logarithm of total assets;
LnNAS	Natural logarithm of total non-audit service fees paid to external auditors;
REC	Ratio of total receivables to ending total assets;
INV	Ratio of total inventory to ending total assets;
ACCR	Absolute value of accruals (computed as difference between net income and cash flow from operations) scaled by ending total assets;
QUICK	Ratio of current assets to current liabilities;
DEBT	Ratio of long-term debt to ending total assets;
ROA	Ratio of net profit after tax to ending total assets;
LOSS	1 if the firm reported a loss in the current year, and otherwise equal to 0;
SUB	Natural logarithm of 1 plus the number of foreign subsidiaries;
GEOSUB	Natural logarithm of 1 plus the number of total subsidiaries (domestic plus foreign subsidiaries);
ISP	Auditor industry specialization (ISP) is measured at city-level,

	national-level and both city and national level (Joint ISP);
SIZE	Natural logarithm of market capitalization for a firm (Chalmers et al. 2012; Matolcsy and Wyatt 2006);
AGE	Natural logarithm of the number of years that a firm has been listed with ASX at 2006 (Chalmers et al. 2012; Matolcsy and Wyatt 2006);
SURPRISE	The absolute value of the difference between the current year's earnings per share and last year's earnings per share, divided by the price at the beginning of the fiscal year (Lang & Lundholm, 1996);
FOLLOW	Natural logarithm of (1 + average number of analysts following a firm), it is calculated starting from last year earnings announcement (LYEA) date to current year earnings announcement (CYEA) date (Chalmers et al. 2012; Matolcsy and Wyatt 2006);
NUMEST	Natural logarithm of (1 + number of analysts' forecasts is included in the consensus forecasts) (Payne, 2008; J.Cotter et al. 2012);
RETVOL	Standard deviation of weekly stock returns for a firm in the last year (Tan et al. 2011);
EARNSD	standard deviation of the firm's reported earnings over the last three years (Chalmers et al. 2012; Matolcsy and Wyatt 2006);
HORIZON	The natural logarithm of the average number of calendar days between the forecast announcement date and corresponding actual earnings announcement date (Behn et al., 2008);
STOCKTURNOVER	Number of shares traded in current year divided by the firm's average number of shares outstanding in current year (Tan et al. 2011);
YEAR DUMMIES	Indicator variable equal to 1 for firms with a June 30 year-end, otherwise equal to 0;
INDUSTRY FIXED EFFECTS	Industry classification for a firm at year of 2006 and 2005;

APPENDIX B: List of Accounts Affected by Complex Standards

AASB 2	*Share-based payment* *Share-based payment Reserves*
AASB 3	*Goodwill* *Interpretations/notes*
AASB 136	*Impairment expenses* *Reversal of AGAAP amortisation (As IFRS does not allow amortisation)* *Retained earnings* *Interpretations/notes*
AASB 138	*Goodwill* *Internally generated intangibles* *Intangibles* *Research expenses* *Development expenditure* *Interpretations/notes*
AASB 112	*Income tax expenses* *Deferred tax assets* *Deferred tax liability* *Interpretations/notes*
AASB 119	*Employee benefit expenses* *Retirement-provisions* *Retained earnings adjustments* *Interpretations/notes*
AASB 121	*Foreign currency translation reserve* *Retained earnings* *Interpretations/notes*
AASB 132	*Derivative financial instrument payable* *Interest rate swaps* *Non-current receivables-related to AASB 132* *Current receivables* *Other current assets* *Retained earnings* *Financial assets* *Other financial assets* *Financial liability* *Fair value of instrument* *Reserves* *Derivatives* *Interpretations/notes*
AASB 140	*Asset revaluation reserves* *Retained earnings-transfer of revaluation*

	Income statement impact *Fair value of investment properties*
AASB 116	*Amortisations-PPE* *Revaluation-increase/decrease in fair value of PPE* *PPE-before fair value* *PPE-after fair value* *Interpretations/notes*
AASB 139	*Shareholders' equity-beginning balance* *Receivables* *Purchased debt* *Other non-current assets* *Non-current liabilities* *Current liabilities* *Re-measurement of investments in a firm to fair value (net of tax)* *Financial assets available for sale* *Financial assets held to maturity* *Non-current financial assets* *Non-current financial assets held to maturity* *Derivatives* *Other financial assets* *Reserve in equity* *Cross currency swaps* *Interest rates swaps* *Hedging reserves* *Deferred tax liabilities* *Deferred tax assets* *Intangibles* *Retained earnings* *Shareholders' equity-ending balance* *Interpretations/notes*
AASB 117	*Income statement-Rental expense (due to method change e.g., straight-line method adoption)* *Adjustment amount-Statement of comprehensive income* *Balance sheet-lease liability/Assets amount change* *Adjustment amount-Statement of financial position* *Interpretations/notes*

Appendix C: Disclosure of Reconciliation Statements

(a) Reconciliation of Equity as Presented Under Previous AGAAP to that Under AIFRS

	30 June 2005 $'000	1 July 2004 $'000
Total equity under AGAAP	21,112	-
Adjustments to accumulated losses (net of tax):		
Recognition of share-based payment expense	(61)	-
	21,051	-
Adjustments to accumulated losses (net of tax)		
Recognition of share-based payment expense	61	-
Total equity under AIFRS	21,112	-

(b) Reconciliation of Results as Presented Under AGAAP to that Under AIFRS

	2005 $'000
Net loss as reported under AGAAP	13,536
Share-based payment expense	61
Net loss under AIFRS	13,597

Under AASB 2 Share Based Payments, the Company recognises the fair value of options granted to employees at grant date as an expense on a pro-rata basis over the vesting period in the income statement, with a corresponding adjustment to equity. Share-based payments costs were not recognised under previous AGAAP.

C-1: Avexa Limited (Annual Report 2006)

C-2: BKM Management Limited (Annual report as of June 30, 2006

Reconciliation of profit or loss for the year ended 30 June 2005

Economic Entity	Note	Previous GAAP $	Adjustments on introduction of Australian equivalents to IFRS $	Australian equivalents to IFRS $
Revenue		2,072,096	-	2,072,096
Bad Debts		(8,453)	-	(8,453)
Audit Fees		(27,450)	-	(27,450)
Depreciation Expenses		(11,189)	-	(11,189)
Amortisation	2b	(71,144)	71,144	-
Employee Costs		(595,518)	-	(595,518)
Model Agency Costs		(1,552,467)	-	(1,552,467)
Corporate and Administration Costs		(332,490)	-	(332,490)
Occupancy Costs		(98,094)	-	(98,094)
Mineral Tenement Acquisition & Exploration Expenditure Written Off	2a	-	(5,909)	(5,909)
Impairment Loss on Goodwill	2b	-	(71,144)	(71,144)
(Loss) before income tax expense		(624,709)	(5,909)	(630,618)
Income tax expense		-	-	-
Net (loss) attributable to members of the parent entity		(624,709)	(5,909)	(630,618)