Exploring the Relationship between Changes in Accounting Policies and Valuation of Australian Banking Firms

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Abstract

The Australian Accounting Standards Board (AASB) and the International Accounting Standards Board (IASB) state in their objectives that they are committed to producing quality accounting standards in the public interest to enhance the decision usefulness of accounting information. Cooperation between the AASB and IASB began in aid of the development of internationally accepted Australian accounting standards after the issuance of Policy Statement 6, 'International Harmonisation Policy', in 1996. The AASB adopted a two-pronged approach to changing Australian accounting standards: it introduced changes in accounting standards for issues not covered in international accounting standards, and also adopted international accounting standards to provide decision-useful information to the users of financial statements.

The introduction of new accounting standards and changes to the existing standards affected the financial statements of firms, including Australian banking firms. Firms that are affected by the introduction of new accounting standards or changes in accounting standards are required to provide complete disclosure of both quantitative and qualitative information to improve the economic decision making of the users. However, the concept of users in the conceptual framework is narrowly focused on the information needs of investors as the users of accounting information. Investors rely on the recommendations of financial analysts for investment decisions, and financial analysts value firms by using accounting information as input for valuation models to generate recommendations to buy, sell or hold decisions for investors.

The objective of this research is to investigate the impact of changes in accounting policies on the forecasted values of Australian banking firms for the period 1997–2007. The objective is not to predict forecasted share prices accurately, but rather to use forecasted share prices generated through the use of various valuation models used by financial analysts to identify whether changes in accounting policies due to the changes in accounting standards have resulted in decreases in forecasting error.

The research identifies that banking firms are generally excluded from data analysis due to the presence of significantly large proportions of liabilities in the capital structure compared to non-bank firms, which results in the application of different financial performance parameters, such as ratios for performance analysis, compared to non-financial firms. The research answers several questions with reference to these Australian banking firms: first, what are the effects of changes in accounting policies on the financial statements of Australian banking firms? Second, which valuation models are appropriate for valuing Australian banking firms? Third, do changes in accounting policies adopted by Australian banking firms lead to more accurate forecasts of share price, when forecasted share price is benchmarked against actual share price? Fourth, what are the relative effects on share valuation models used for the valuation of Australian banking firms when accounting policies are changed?

The results on the performance of valuation models confirm earlier findings that valuation models provide different forecasted values and consequently provide different forecasting errors. However, some valuation models are more suitable for the valuation of banking

firms compared to non-banking firms in that they use inputs that are disclosed in the financial statements of banking firms. Further analysis reveals that changes in accounting policies due to changes in accounting standards reduce aggregate forecasting error. Therefore, it can be concluded that AASB has achieved its public interest objective by providing decision-useful information to the users of financial statements through the introduction of new accounting standards and changes to existing accounting standards.

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Student Declaration

I, Syed Haider, declare that the PhD thesis entitled 'Exploring the Relationship between Changes in Accounting Policies and Valuation of Australian Banking Firms' is no more than 100,000 words in length including quotes and exclusive of tables, figures, appendices, bibliography, references and footnotes. This thesis contains no material that has been submitted previously, in whole or in part, for the award of any other academic degree or diploma. Except where otherwise indicated, this thesis is my own work.

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Abbreviations

AAA	American Accounting Association
AARF	Australian Accounting Research Foundation
AASB	Australian Accounting Standards Board
AEIFRS	Australian Equivalent International Financial Reporting Standards
ANZ	Australia and New Zealand Banking Group
APB	Accounting Principles Board
APE	Absolute Percentage Error
APESB	Accounting Professional and Ethical Standards Board
APRA	Australian Prudential Regulation Authority
APS	Accounting Policy Statement
ASC	Australian Securities Commission
ASIC	Australian Securities and Investment Commission
ASOBAT	A Statement of Basic Accounting Theory
ASX	Australian Securities Exchange
BV	Book Value
CAPM	Capital Asset Pricing Model
CBA	Commonwealth Bank of Australia
CFROI	Cash Flow Return On Investment
CLERP	Corporate Law Economic Reform Program
CRR	Cash Recovery Rate
DCF	Discounted Cash Flow

DDM	Dividend Discount Model
DFE	Discounted Future Earnings
DY	Dividend Yield
EBIT	Earnings before Interest and Taxes
EBITDA	Earnings before Interest Taxes Depreciation and Amortisation
EPS	Earnings Per Share
EV	Enterprise Value
EVA	Economic Value Added
FAS	Finnish Accounting Standards
FASB	Financial Accounting Standards Board
FCF	Free Cash Flow
FCFE	Free Cash Flow to Equity
FCFF	Free Cash Flow to Firm
FRC	Financial Reporting Council
GAAP	Generally Accepted Accounting Principles
GDP	Gross Domestic Product
IAS	International Accounting Standard
IASB	International Accounting Standards Board
IFAC	International Federation of Accountants
IFRS	International Financial Reporting Standard
IPO	Initial Public Offering
IRR	Internal Rate of Return
LAD	Least Absolute Deviation
MAPE	Mean Absolute Percentage Error
NAB	National Australia Bank

NI	Net Income
NPV	Net Present Value
OLS	Ordinary Least Square
PE	Price-to-Earnings
PEG	Price-to-Earnings multiple scaled by earnings' Growth rate
RBA	Reserve Bank of Australia
REP	Rating to Economic Profit
RIV1	Single-Stage Residual Income Valuation Model
RIV2	Multi-Stage Residual Income Valuation Model
RIVM	Residual Income Valuation Model
ROIC	Return on Invested Capital
SAC	Statement of Accounting Concept
SEC	Securities Exchange Commission
SFAS	Statement of Financial Accounting Standard
SFFAS	Statement of Federal Financial Accounting Standard
US	United States
WACC	Weighted Average Cost of Capital
WB	World Bank
WBC	Westpac Banking Corporation

Chapter 1: Introduction

1.1 **Introduction**

Both the International Accounting Standards Board (IASB) and the Australian Accounting Standards Board (AASB) state in their objectives that they are strongly committed to the creation of high quality accounting standards. AASB Policy Statement 1 (APS 1), 'The Development of Statements of Accounting Concepts and Accounting Standards', issued in 1993, not only focuses on the creation of a theoretical framework for the development of accounting standards, but also highlights the importance of Australian accounting standards' compatibility with international accounting standards.

This thesis deals with the impact of changes in individual firms' accounting policies on the valuation of Australian banking firms due to changes in accounting standards. The present study focuses on the use of valuation models for valuing Australian banking firms' forecasted share prices and the impact on the intrinsic values of Australian banking firms' equities as a consequence of these changes in accounting policies. The study not only focuses on the calculation of forecasted values of Australian banking firms but also investigates the impact of changes in accounting policies on the forecasting error.

The CLERP 9 (2002) reforms introduced by the Australian government have shown a preference for fair value accounting compared to historical cost accounting. It identifies that IASB accounting standards are principle based and significantly focused on the

application of fair value accounting. The application of fair value accounting poses more challenges for banking firms compared to other firms as banks and financial institutions are significantly affected by changes in accounting standards which require the use of fair value accounting for measurement of transactions.

Barth et al. (2008) also identifies that accounting information's quality depends on earnings management, prompt loss recognition and value relevance. The value relevance research conducted by Agostino et al. (2011) identify that financial institutions such as banks are significantly affected by the introduction of accounting standards based on fair value accounting. Banks have significant amounts of financial assets and financial liabilities compared to non-banking firms. Therefore, introduction of fair value accounting could increase volatility of earnings particularly where fair values are derived from the market values of assets and liabilities in a volatile market. Agostino et al. (2011) further discover that mandatory application of international accounting standards increases the value relevance of accounting information, the largest incremental effect was observed in Germany and Italy and the smallest effect was observed in the United Kingdom. Latridis (2010) also discovers that fair value accounting could increase volatility to income statement and balance sheet figures, but it reduces earnings management which could lead to more value relevant accounting information for the users reducing information asymmetry.

According to AASB 130, 'Disclosures in the Financial Statements of Banks and Similar Financial Institutions' (2004b), the crucial role of banks in the economy, along with their close relationship with regulatory authorities due to the influence exercised by them, means

that regulatory authorities impose additional reporting requirements upon them. AASB 130 (2004b) specifically deals with this issue by acknowledging that banks' financial statements are different from those of other non-banking entities. These differences are due to exposure to different kinds of risks related to their solvency, liquidity and capital structure, particularly in their debt to equity relationship. Since the abandonment of AASB 130 in 2007, AASB 101, 'Presentation of Financial Statements', and 'AASB 7, 'Financial Instruments: Disclosures' provide similar guidance to banking and other firms.

Banks' financial statements differ in structure from those of non-financial firms. Banks' financial statements are unclassified, and banks' capital structures are different from those of non-financial firms. Banks' capital structures include significantly larger proportions of liabilities compared to non-bank firms. The primary difference between banks and non-financial firms is the presence of significant financial assets and liabilities. For non-financial firms, debt is a source of capital, whereas banks consider debt as a raw material (Damodaran 2012). Banks use a relatively narrow definition of capital, which is confined to equity. The difference is also highlighted in the fact that banks' ratios for performance and financial analysis are different from those of non-financial firms (Rose & Hudgins 2008).

Woods and Marginson (2004) discuss the differences between banks' financial statements and those of non-banking firms in terms of banks' large-scale use of financial instruments. The presence of large amounts of financial assets and liabilities in banks' financial statements and the simultaneous application of fair value accounting expose banks to risks, and have significant impact on reported profits, financial position and cash flows. The usefulness of fair value disclosure can be criticised on the grounds that banks use different

classifications and sub-classifications in categorising assets, particularly financial instruments; thus it is difficult for the user to compare banks in terms of effective reporting of fair value, as some of these instruments are not traded in the market. In circumstances of non-trading or the absence of an active market, reported values of financial instruments are rendered subjective due to the use of different valuation techniques.

Zhao and He (2008) investigated variation in bank accounting information content for France, Germany, the United Kingdom and the US. An analysis of the financial statements of commercial banks revealed that banks' financial statements and financial performance ratios are different from those of non-banking firms. The differences in the financial statements of banks, such as the balance sheet, can be attributed to the transformation of the banking industry due to the creation of new sources of financing for firms and investments, including new lines of credit, securitisation and trading of derivatives. Changes in asset structure, particularly financial asset structure in the balance sheet, have affected the capital adequacy requirements and consequently net income due to the application of specific regulations on the banking industry. Banks' income statements have five components: interest and dividend income, non-interest income, interest expense, operating expenses and provision for loan losses. In order to improve the quality of banks' accounting information and eliminate moral hazard bias, the IASB issued accounting standard IAS 30, 'Disclosure in the Financial Statements of Banks and Similar Institutions' (equivalent to Australian Accounting Standard AASB 1030), which was later integrated with IFRS 7, 'Financial Instruments: Disclosures' (equivalent to Australian Accounting Standard AASB 7). However, Bischof (2009), while analysing the impact of IFRS 7 from 2006–2007 on European banks' disclosure quality, commented that IFRS 7 is applicable to all firms, but

affects the banking industry more significantly compared to other industries due to the presence of significant amounts of financial instruments in the balance sheet.

Regarding the application of IAS 39, 'Financial Instruments: Measurement and Recognition', Gray (2003, p. 10) stated that:

> In a commercial bank, reporting assets at fair value and liabilities at amortized cost can severely distort the bank's performance during interest rate changes; thus interest rate risk is measured improperly. Presently, IAS 39 requires assets to be measured at fair value except for held-to-maturity securities and originated loans and securities that are not held-for-trading, while financial liabilities, except for derivatives, are measured at amortized cost. Therefore the present international accounting standard continues the situation of interest rate risk being improperly reflected in a banks' statement of accounts.

According to Cortavarria et al. (2000), loan loss provisioning is used to adjust the value of a loan when loans become doubtful by establishing a provision that is similar to the concept of depreciation. A distinction can be made between general and specific provisions on the basis that general provisions are made for possible future losses, whereas specific provisions show identified losses. There is a direct relationship between loan classification and a bank's income statement. Under- or over-estimation of risk can increase or decrease provisions. Given that provisions are treated as an expense, any increase or decrease in estimation leads to over- or under-statement of business cost, profits, and capitalisation and tax payments.

Bouvatier and Lepetit (2008) also discussed the direct impact that loan loss provisions have on bank profits, and the subsequent impact on bank capital if losses are high. They discussed the discretionary and non-discretionary components of provisions. Under the

non-discretionary component, as discussed by Wahlen (1994), specific provisions are charged off when the loan amount is considered uncollectible due to delinquency. Charge-offs are non-discretionary because banks are required by regulatory authorities to charge off a delinquent loan when it remains overdue beyond a certain number of days. The discretionary component is based on management objectives; bank management may undertake discretionary actions to smooth earnings through loan losses, manage capital and signal their financial strength to absorb (Ahmed et al. 1999).

Balla and McKenna (2009) identified that *dynamic provisioning* is also known as statistical provisioning and countercyclical provisioning. They describe dynamic provisioning as:

> a statistical method for loan loss provisioning that relies on historical data for various asset classes to determine the level of provisioning that should occur on a quarterly basis in addition to any provisions that are event driven. The primary goal of dynamic provisioning is the incremental building of reserves during good economic times to be used to absorb losses experienced during economic downturns. (Balla & McKenna, 2009, p. 1)

According to Saurina (2009), banks are more prone to lending errors during times of economic growth by becoming over-optimistic about investment projects and by lowering credit evaluation standards. During economic downturn, banks tighten credit standards. Saurina (2009) discussed Spain's banks as an example assessing the implementation of dynamic provisioning in Spanish banks, and commented that banks are completely transparent when they disclose information about credit loss provision in a manner that assists investors and analysts in reversing the impact of dynamic provisioning. Saurina (2009) rejected the argument that banks' dynamic provisioning allows banks to carry out earnings management. He argues that earnings cannot be managed in the presence of a rule-

based system and a limit on the maximum amount that can be allocated for loan loss provisioning.

According to Damodaran (2002), financial institutions such as banks, insurance companies and other financial firms are relatively difficult to value because of difficulties associated with the estimation of cash flows and the presence of specific regulatory requirements. Damodaran (2002) further identified that measurement of capital expenditure and non-cash working capital are integral parts of free cash flow valuations models. If capital expenditure and non-cash working capital cannot be estimated, as is the case of banking firms, then dividends can be used as alternatives for free cash flow to equity, based on the assumption that firms pay out free cash flows to equity as dividends.

Banks are different from other firms in terms of capital structure, sources of income and exposure to different types of risk. Banks have significantly high level of debt compared to other firms, they are affected significantly to the application of fair value accounting particularly when inputs to fair value accounting are derived from market values of financial assets and liabilities or indirectly from the fluctuations of discount rates for the estimation of present values of financial assets and liabilities. Therefore, it is worthwhile to investigate the impact of changes in accounting policies due to the changes in accounting standards on the intrinsic values of Australian banking firms.

1.2 **Research Objectives**

There has been a plethora of empirical studies in accounting. However, few of these studies have focused on changes in accounting policies on banks, due to their capital structure being different from those of other types of companies. These studies have generally concentrated on correlations between the release of accounting information and market reactions. Previous research (e.g., Cotter et al. 2012; Hope 2003b; Jiao et al. 2012; Ahmed et al. 2013) has often concentrated on the quality of accounting information. In contrast, this study concentrates solely on the impact of changes in accounting policies and standards on the valuation of Australian banking firms. This research not only assesses the link between the accuracy of forecasted share price and accounting policy changes, but also identifies the valuation models that create the fewest forecasting errors. The objectives of the research are detailed in the following sections.

1.2.1 Objective 1: To identify and assess the impact of accounting policy changes on the financial statements of Australian banking firms

The present study employs a content analysis of the financial statements of Australian banking firms to identify changes in accounting policies due to changes in relevant accounting standards, and the impact of these changes on the financial statements. The objective of the content analysis is to identify and categorise changes in accounting policies on the basis of broad classes of accounting events, which are categorised as elements of financial statements according to the AASB/IASB framework. The content analysis thus identifies changes in accounting policies and groups them as assets, liabilities, equity,

income and expenses. The financial consequences of accounting policy changes were identified and measured in order to analyse their impact on the financial statements of banking firms and the valuation of their equity shares.

1.2.2 Objective 2: To determine which valuation models are most appropriate for valuing the equity shares of Australian banking firms

The study applies certain valuation models used by financial analysts for the valuation of shares (Demirakos et al. 2004; Imam et al. 2008; Imam et al. 2013). This research involves assessing the intrinsic values of Australian banking firms' equity; therefore, this research does not consider multiples-based or return-based valuation models, due to these models' inability to provide intrinsic values, which are used at a later stage in the research for the calculation and evaluation of forecasting errors. Moreover, the study also finds that some of the valuation models that provide intrinsic values of equities are not appropriate for Australian banking firms. Financial analysts prefer some valuation models over others for the valuation of firms from different industries (Imam et al. 2008). Based on these preferences, this research provides arguments for the use of valuation models that are considered appropriate for the valuation of Australian banking firms' equities in terms of intrinsic values.

1.2.3 Objective 3: To examine the impact of changes in accounting policies on forecasting error in valuation models for the share values of Australian banking firms

This study also provides evidence that changes in accounting policies due to changes in accounting standards by the AASB increase the decision usefulness of accounting

information for Australian banking firms. This improvement in decision usefulness is assessed after the determination of cost equity that provides the lowest forecasting error using the Capital Asset Pricing Model (CAPM). Support for use of the CAPM is considerable among financial analysts for the estimation of required return to equity, due to its simplicity in application, despite associated uncertainties (Gray & Officer 2005; Truong et al. 2008).

The present research explores the sensitivity of input variables to cost of equity for the measurement of error in the forecasting of share prices after the changes in accounting policies. Cost of equity is estimated using CAPM with variations of beta and risk premiums, varying the length and frequencies of time intervals and time horizons to find the cost of equity that provides the lowest forecasting error using the findings of Truong et al. (2008) in the Australian context. The purpose of these findings is to use the cost of equity from the CAPM as input to the valuation models to assess the impact of changes in accounting policies on the forecasting error, rather than on the accurate prediction of the share price.

1.3 **Research Questions**

The accounting standards boards IASB and AASB identify the decision usefulness of accounting information as an objective of their organisations. To attain this objective, the IASB and AASB introduce either new accounting standards or changes to existing accounting standards. Under IASB and AASB accounting standards, firms that are affected by the introduction of new accounting standards or amendments to existing accounting

standards are required to recognise and disclose the impact of these changes in financial statements. Firms that are affected by changes to accounting standards are required to disclose both qualitative and quantitative information that may affect the decision making of users of those financial statements (Jones & Higgins 2006, Goodwin & Ahmed 2006; Callao et al. 2007; Hung & Subramanyam 2007; Lantto & Sahlström 2009; Hirst & Hopkins 1998, 2000; Hirst et al. 2004). Users of financial statements, such as financial or investment analysts, evaluate these financial statements by means of various valuation models (see section 2.7) to determine the intrinsic values of shares. Other users of financial information, such as investors, rely on the recommendations of these financial and investment analysts for their investment decision making.

Therefore, in the present study, investigations are required at the initial stage to identify valuation models that are suitable for discovering banking firms' intrinsic equity values. After determining the most appropriate various valuation models in terms of their ability to predict intrinsic values of equity, the next stage requires investigations to measure the financial impact on the decision-usefulness of accounting information due to changes in accounting policies subsequent to the changes in accounting standards (Pang 2001; Demirakos et al. 2004; Demirakos et al. 2010; Barker 2001; Barker 1999a; Barker 1999b; Imam et al. 2008; Imam et al. 2013; Roosenboom 2007; Deloof et al. 2009). In order to address the issues related to the identification of appropriate valuation models for banking firms in Australia and changes in accounting policies following the changes in accounting standards, the research study will seek to answer the following questions:

- What is the effect of changes in accounting policies on the financial statements of Australian banking firms?

- Which valuation models are appropriate for valuing the equity shares of Australian banking firms?
- Do changes in accounting policies adopted by Australian banking firms lead to more accurate forecasts of equity share price when forecasted equity share price is benchmarked against actual share price?
- What is the performance, in terms of forecasting errors, of share valuation models of Australian banking firms' equity shares when accounting policies are changed?

1.4 **Overview of the Theoretical Framework**

The theoretical framework that underlies this research incorporates the notions of public interest, equity valuation and input to valuation theories. This research identifies that accounting standards boards such as the AASB, IASB and other statutory organisations use the notion of public interest to justify changes in accounting standards for the creation of decision-useful information for users of financial statements. The notion of the public interest is used in this way not only by accounting standards boards, but also within the profession to apply changes in accounting standards in the form of changes in firms' accounting policies. The equity valuation theory assists in estimating cost of equity by applying the CAPM, and assists in the valuation of Australian banking firms by using valuation models that use cost of equity for the measurement of intrinsic values.

The AASB Framework identifies the information needs of users of financial statements, with an emphasis on the information needs of investors, as they are the providers of risk capital and the primary users of financial statements. Therefore, according to the

framework, firms should provide information that is decision-useful to investors (AASB 2004f). The AASB Framework, as a normative theory of accounting (Deegan 2011), identifies the information needs of investors for economic decision making. Therefore, the theoretical framework of this research is also served by the input-to-equity valuation theory, due to the role of accounting information in providing inputs to the valuation models (valuation theory) used by investors in valuing firms' equity (Holthausen & Watts 2001).

1.5 **Research Methodology**

Under AASB 108, 'Accounting Policies, Changes in Accounting Estimates and Errors', Australian firms are required to provide an account of any changes to their accounting policies in the form of disclosure to the users of financial statements. AASB 108 requires this disclosure to provide both quantitative and qualitative information on the impacts of changes in accounting policies on the financial statements.

This research is undertaken through several steps in order to assess the impact of changes in accounting policies and practices on the equity valuation of Australian banking firms. The research focuses fundamentally on the commercial banking industry; therefore, the first step consists of the development of criteria for identifying the Australian banking firms that are suitable for analysis. Mergers and acquisitions within the Australian banking industry exclude several banks from the analysis, and some banks are also excluded due to their dependence on investment and wealth management operations as their main source of revenue, rather than commercial banking operations. In the second step, data is collected

from several resources for the reconstruction of financial statements, calculation of betas, calculation of risk premiums and identification of accounting policy changes. In the third step, the suitability of valuation models is assessed (Damodaran 2002, 2005, 2012; Gross 2006), and the models identified as suitable are selected to assess the impact of changes in accounting policies. In the fourth step, a sensitivity analysis is performed to identify the combination of beta, risk premium and risk-free rate that provides the lowest forecasting error. In the fifth step, a content analysis is performed on the Australian banking firms' disclosures of their accounting policies, using the criteria and approaches of Vergoossen (1997) and Woods and Marginson (2004) for the identification and classification of changes in accounting policies. The final step involves the measurement of forecasting error. To achieve this, the aggregate impact of changes in accounting policies is measured as the difference between the intrinsic values of shares and observed share price at the valuation date (Isidro et al. 2006) in the scenarios before and after changes in accounting policies.

1.6 **Development of Hypotheses**

The Australian banking industry is dominated by four large banks: the Australia and New Zealand Banking Group (ANZ), Commonwealth Bank of Australia (CBA), National Australia Bank (NAB) and Westpac Banking Corporation (WBC). These banks are diversified geographically, but also in terms of sources of income, with a major emphasis on commercial banking operations in Australia.

In Australia, the Statement of Accounting Concept 1 (SAC 1), Statement of Accounting Concept 2 (SAC 2, to which recent changes were introduced in December 2013), the AASB Framework and AASB 108, 'Accounting Policies, Changes in Accounting Estimates and Errors', focus on providing information to the users of financial statements. SAC 2 groups financial statement users into three categories. The first category is comprised of those users who provide resources to the entity, including investors and other resource providers. The second category is comprised of those users who receive goods and services from the entity, while the third category consists of those users who provide oversight functions. SAC 2 identifies that the purpose of financial information is to assure all user groups that an entity operates economically and effectively through information about its performance, financial position, financing, investing and compliance.

AASB 108 identifies two conditions where entities are required to change their accounting policies: first, where the changes are required under an accounting standard; and second, where changes in accounting policy result in producing more relevant and reliable information for users. Implicit in the first condition is that changes required under an accounting standard should result in the production of more decision-useful information. Decision usefulness of accounting information can also be linked with the objectives of the IASB and AASB for the creation of quality accounting standards in the public interest. Hence, changes in accounting standards and subsequent changes in accounting policies should generate more decision-useful accounting information, in order to reduce forecasting errors in earnings per share (EPS) and share prices.

Hope (2003a) investigated the level of accounting policy disclosure by non-financial firms and its impact on financial analysts' earnings forecasts. A strong negative correlation was discovered between the level of accounting policy disclosure and financial analysts forecasted EPS dispersion and error. However, Hope's research did not consider changes in accounting policies and the subsequent impact of accounting policy changes on the valuation of firms. Moreover, research conducted to assess the impact of changes in accounting standards on the cost of equity capital has yielded conflicting results. Zhao (2010) discovered no significant reduction in the cost of equity capital in European countries after the introduction of International Financial Reporting Standards (IFRS), except in the UK, where the quality of disclosure is significantly superior to that in other European countries. Earlier research conducted by Daske (2006) in Germany also supports the view that the introduction of IFRS did not decrease the cost of equity capital, which leads to the conclusion that it is the quality of disclosure that decreases the cost of equity capital and consequently increases the values of firms.

In order to value firms or their equity, financial analysts use financial information generated through changes in accounting policies as inputs to valuation models to provide recommendations about firms' forecasted earnings and forecasted share prices. Financial analysts prefer to use sophisticated valuation models such as discounted cash flow models in conjunction with unsophisticated earnings-based models, such as price-to-earnings (PE) ratio for the prediction of share price (Barker 1999a, 1999b; Demirakos et al. 2004; Barker & Imam 2008; Imam et al. 2008; Imam et al. 2013; Hopkins 1996; Hirst & Hopkins 1998, 2000; Gleason et al. 2013). Accordingly, in this study, a hypothesis is formulated to

examine the impact of changes in accounting policies on forecasting error for the equity share prices of Australian banks:

Hypothesis 1

Changes in accounting policies reduce forecasting errors for Australian banking firms' share price.

Financial analysts' target price is based on several factors, such as earnings forecast and the use of valuation models. Two commonly used valuation models are PE ratio and discounted cash flow (DCF) models. Theory of finance suggests that different valuation models, when used to assess a firm's intrinsic value, should provide identical intrinsic values of its shares. If two valuation models provide identical results in the form of the same intrinsic values, then they should be ranked equally in terms of ability to forecast accurate equity values. In support of this view, Lundholm and O'Keefe (2001) showed that different valuation models, such as DCF and residual income models should produce identical forecasted values for the valuation of the same firm when the same assumptions are used. However, Lundholm and O'Keefe's (2001) findings were criticised by Penman (2001) on the basis that residual income models and DCF models use different inputs to value equity: residual income models use financial accounting information, while DCF models use cash flow as inputs. Therefore, residual income models' accuracy in forecasting intrinsic value is dependent on the quality of the accounting information provided.

Francis et al. (2000) compared the accuracy of a dividend discount model, a discounted free cash flow model, and a discounted abnormal earnings model. Using a five-year forecasting

horizon, they discovered that the discounted abnormal earnings model was more accurate than the other two models, and that the dividend discount model was more accurate than the discounted free cash flow model. Demirakos et al. (2010) analysed the performance of PE ratio and DCF models using data from the London Stock Exchange excluding financial firms. They discovered that the PE model outperformed the DCF model in terms of target price accuracy and forecast errors. Accordingly, another hypothesis is formulated to examine the effect of changes in accounting policies on the accuracy of valuation models:

Hypothesis 2

Changes in the accounting policies of Australian banking firms have differential effects on the accuracy of different forecasting models.

1.7 **Structure of the Thesis**

The thesis has seven chapters including this introduction. Chapter 2 explores the link between the public interest, changes in accounting policies, decision usefulness and valuation models. The chapter identifies studies that have either excluded banking firms from analysis or analysed them alongside non-banking firms, thus providing only an aggregate impact without any specific to banking firms. Figure 1.1 provides the full outline and structure of the thesis.

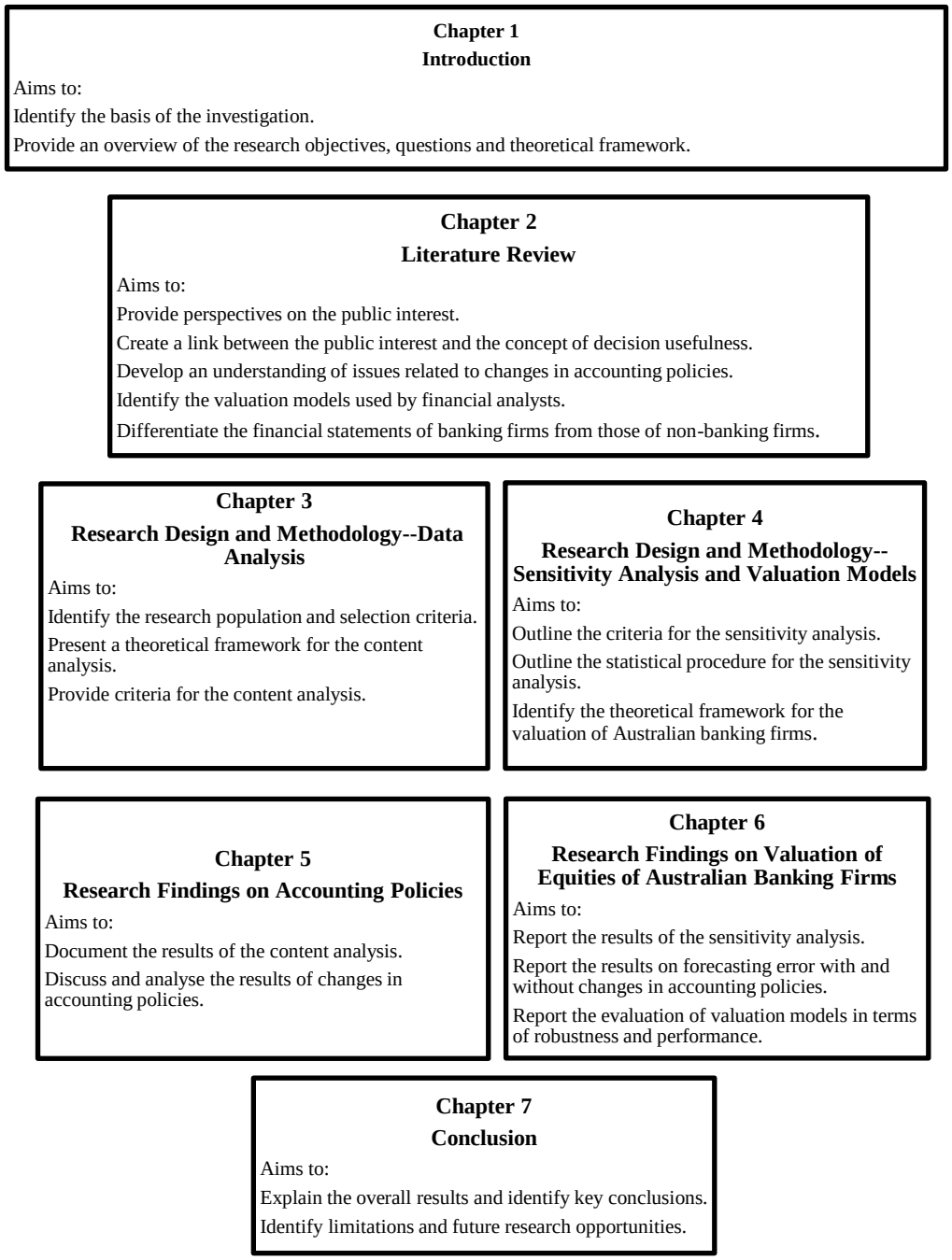

Figure 1.1: Outline of Thesis

Research design and methodology are dealt with in two chapters. Chapter 3 deals with selection criteria for the selection of the population and sample of Australian banks, and

identifies the theoretical framework, criteria and parameters for the identification and selection of accounting policies for the content analysis. Chapter 3 also discusses the research design and the steps involved in the data analysis, including the rationale for the selection of the time horizon for this research. Chapter 3 also describes the various inputs to CAPM for the sensitivity analysis, and identifies the combination of input parameters that provides the lowest forecasting error. It also describes the methodology for assessing and analysing data generated through the sensitivity analysis.

The second part of the research design and methodology is discussed in Chapter 4, which deals with the sensitivity analysis and valuation of equity of Australian banking firms. This chapter discusses the valuation theory, and details the variables and parameters required to perform the sensitivity analysis to determine the cost of equity that provides the lowest forecasting error. This cost of equity that provides the lowest forecasting error is subsequently used as an input to the valuation models. Further, the chapter discusses the suitability of different valuation models that can be applied on banking firms given the constraints faced by external financial analysts regarding the availability and structure of accounting data for Australian banking firms.

Chapter 5 is dedicated to the results and findings of the content analysis. The results are related to the changes in accounting policies, and are accompanied by discussions of the changes in accounting policies and the financial impact of those changes in relation to the relevant accounting standards and rules.

Chapter 6 continues the presentation of the research findings. Chapter 6 is dedicated to the results of the sensitivity analysis used to identify the cost of equity that provides the lowest forecasting error, which is then used as input to the valuation models. The findings detailed in this chapter also include the forecasting errors produced by each valuation model, the aggregate forecasting error on a yearly basis for each bank, and the aggregate forecasting error in each year of analysis before and after the changes in accounting policies. The chapter also shows which valuation models are superior in terms of forecasted share price before and after the changes in accounting policies.

Chapter 7 concludes with a discussion, providing a review of the thesis, summary of findings and discussion of the results of the sensitivity analysis with reference to cost of equity. The chapter also discusses the impact of changes in accounting policies on forecasting error, limitations of the research, and opportunities for future research.

1.8 **Conclusion**

This chapter has provided an overview and outline of the thesis. The thesis investigates the impact of changes in accounting standards and consequently changes in the accounting policies of Australian banking firms. The research also explores the impact of changes in accounting policies on forecasting error through the use of valuation models considered suitable for Australian banking firms. The thesis examines whether changes in accounting policies due to changes in accounting standards decrease forecasting error. This chapter has presented the research objectives and research questions, and has also discussed the

theoretical framework that motivates this investigation. Moreover, this chapter has provided an overview of the research methodology and outlines other chapters of the thesis.

Chapter 2 presents a literature review, providing perspectives on the public interest, the concentration of the accounting research literature that relates to accounting policy changes, classification of accounting policy changes, finance theory, equity valuation, firm valuation models and categorisation of valuation models.

Chapter 2: Literature Review

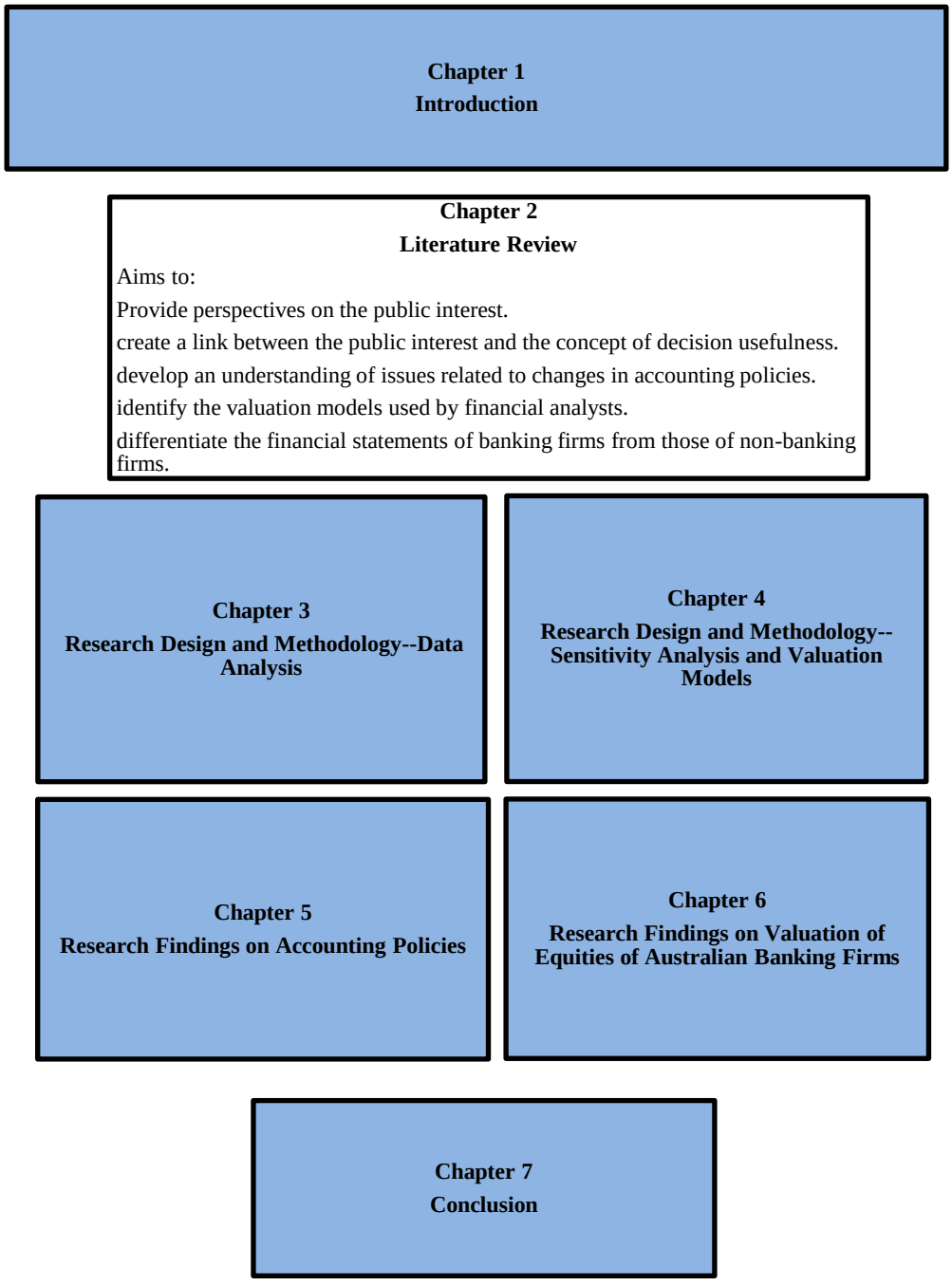

Figure 2.1: Outline of Thesis: Chapter 2

2.1 **Introduction**

The banking industry is considered critical to the economy of any country, including Australia. The recent global financial crisis supports the importance of the banking industry. Due to its importance, the banking industry in Australia is subject to reporting and regulatory constraints imposed by the Australian Prudential Regulation Authority (APRA) and the Australian Securities and Investments Commission (ASIC). The importance of the banking industry has been further increased due to the transformation of the industry during the last 20 years; this transformation is now reflected in the financial statements of banking firms. The gradual transformation of financial statements that has accompanied the introduction of fair value accounting has transferred volatility from the market to the financial statements of banks, due to the presence of significant amounts of financial assets and liabilities in the balance sheet, along with the fact that the fair value of a significant number of financial assets and liabilities is determined by the market.

Financial assets and liabilities are not the only factors that distinguish banks' financial statements from the financial statements of industrial or commercial firms in terms of capital structure, risk exposure, information disclosure and regulatory requirements. Inanga and Schneider (2005) contended that contemporary research in accounting has mainly concentrated on correlation analyses of different factors. In these types of analyses, banking firms are generally excluded to maintain homogeneity in the data set, because they are considered different from other firms due to regulatory restrictions and financial and capital structures (Mackie-Mason 1990; Rajan & Zingales 1995; Zhao & He 2008).

All firms, including banking firms, release accounting information in the form of financial statements. The main users of accounting information are investment or financial analysts, who as a group use information from financial statements to forecast earnings and share prices using valuation models. The accuracy of financial analysts' forecasts depends on the use of appropriate valuation models and on the relevance and reliability of accounting information. Since accounting standards provide guidance on measurement, recognition and disclosures, the role of these standards cannot be disregarded for the creation of decision-useful information in the form of financial statements.

Accounting standards are introduced to meet users' demand for equitable access to relevant and reliable information for decision making. The Corporations Act 2001, along with other regulations, constrains firms in Australia and internationally by obligating them to follow Australian accounting standards, IFRS and SFAS for the preparation of financial statements. Accounting standard-setting bodies and statutory authorities use the notion of the public interest to rationalise changes to accounting standards, rules, regulations and legislation.

The notion of the public interest is broadly applied from the prevention of market failure through state intervention to produce and disseminate accounting information for users of financial information. Accounting standard-setting boards, both domestic and international, often introduce changes in accounting standards to provide more decision-useful information to the users of financial statements. Changes in accounting standards lead to changes in individual firms' accounting policies, and consequently these changes in accounting standards and policies affect financial statements. Therefore, changes in

accounting standards and subsequent changes in accounting policies should result in increased decision usefulness of accounting information, and a simultaneous reduction in forecasting errors when accounting information is used by financial and investment analysts.

This chapter reviews literature from several areas. It commences with a review of perspectives on the public interest, followed by a discussion on the relationship between accounting standards and the public interest. The remaining sections discuss the relationship between changes in accounting policies and their impact in financial statements, the use of valuation models by financial analysts, and idiosyncrasies in banking firms' financial statements.

2.2 **Perspectives on the Public Interest**

Public interest theories of regulation are based on the idea that regulations are created in aid of the public interest, and that regulators act as agents of public interest (Baldwin and Cave 1999). According to public interest theory, regulation should increase public welfare by achieving desired results, and regulations should prevent market failures. Posner (1974) explained public interest theory from a market perspective by assuming that regulation is a corrective reaction to market inefficiencies and inequitable market practices. Posner (1974) also identified limitations of public interest theory, including its inability to create a link or process for measuring perception of public interest and conversion of public interest into legislation. Public interest theory in itself also fails to identify particular legislations or policies that would increase public welfare.

Barr (1993) argued for the application of regulation in terms of social values. The state interferes in the free market with large numbers of regulations, most of which are related to the efficient and equitable operation of the market, particularly where knowledge or information is imperfect. In order to maintain this equitable operation of the market, several regulations are required to maintain both quality and quantity of information. However, Hantke-Domas (2003) argued that both Posner's (1974) and Barr's (1993) descriptions referred to welfare economics, and that while public interest theory's assumptions also belong to welfare economics, Posner's identification of the public interest was incomplete, as it failed to provide an argument for state intervention in the market through regulation due to inefficient allocation of resources and inequity in the market.

Cochran (1974) identified four perspectives on public interest theory. The first perspective is based on the normative perspective, where public interest becomes a benchmark for the evaluation of public policies, and the public interest is considered a general good for a community. The second perspective denies the existence of any public interest, and focuses instead on goods and interests pursued by individuals and groups. The third perspective considers the public interest as a political process through which policy is prepared; this process can be further subdivided into public interest as an aggregate interest, public interest as an outcome of clashes of interest, and public interest as a democratic process of interest reconciliation. The fourth perspective is based on a consensualist notion: it acknowledges that the public interest cannot be defined, and therefore focuses on the procedure or functions for developing consensus for common interests based on community values.

Dellaportas and Davenport (2008) expanded Cochran's (1974) perspectives to explore the concepts of the public, the public interest and serving the public interest. The public is a community that constitutes all stakeholders served by the profession. It is a broader concept, and it is difficult to apply the concept of public interest where stakeholders have competing requirements and interests. The public, according to the consensualist view, consists of a constituency that lies between individuals and the community as a whole. The accounting profession relies on the consensualist view of the public interest, which confines the scope of public interest to the primary users of financial information; thus, for the purposes of this thesis, the public consists of the primary users of accounting information.

Related to discussions of the public, the public interest refers to the collective wellbeing of the public. The collective wellbeing in accounting is expressed in the objective of the AASB Framework on the preparation and presentation of financial statements, which states that the objectives of financial reports are to provide information about the financial performance of an entity to users of financial statements for their economic decision making. Public interest and self-interest are contrasting in nature, but are achieved simultaneously. Accounting standard-setting bodies serve the public interest by developing high quality accounting standards to provide decision-useful information to the users of financial statements. Regulations, codes of conduct, accounting rules and standards impose restrictions on the profession to promote the public interest through the preparation of financial reports using accounting standards. Therefore, the profession protects its private interest by complying with legislations, codes, and accounting standards and serving the public interest simultaneously.

Definitions of the public interest revolve around the wellbeing of communities and societies. Dellaportas and Davenport (2008, p. 1093) defined public interest in accounting as:

> the collective well-being of people and institutions the profession serves and to protect the economic interest of third parties by facilitating an efficient and effective economic decision making process through the provision of relevant and reliable economic data.

The International Federation of Accountants (IFAC) defined public interest as (IFAC 2012, p. 1):

> the net benefits derived for, and procedural rigor employed on behalf of, all society in relation to any action, decision or policy.

2.3 **Accounting Standards and the Public Interest**

The objectives of accounting standard-setting bodies such as the IFRS Foundation, IASB, AASB, and Financial Accounting Standards Board (FASB) focus on the development of high quality accounting standards. According to the IFRS (2012, p. 1), the principal objective of the IFRS Foundation is to work in the public interest and to:

> develop a single set of high quality, understandable, enforceable and globally accepted international financial reporting standards (IFRSs) through its standard-setting body, the IASB.

The AASB in Australia is responsible for developing accounting standards under the Corporations Act 2001. The objective of the AASB (2012b, p. 1) is to:

> develop and maintain high-quality financial reporting standards for all sectors of the Australian economy.

AASB (2012a, p. 1) further states that:

> The AASB is committed to developing, in the public interest, a single set of high quality, understandable accounting standards that require transparent and comparable information in general purpose financial statements.

The FASB in the United States (US) is responsible for the development of accounting standards in the US. The FASB (2012) states its objective as:

> to establish and improve standards of financial accounting and reporting that foster financial reporting by nongovernmental entities that provide decision-useful information to investors and other users of financial reports.

The FASB (2012) also identified a concern for the users of financial statements and the public interest in financial reporting by stressing the importance of the board's independence for the preparation of accounting principles. The importance of the public interest was also emphasised by the US Securities Exchange Commission (SEC), which is responsible for the implementation of Financial Accounting Standards in the US by publicly held firms under the US Securities Exchange Act 1934.

The IASB and AASB focus on the development of quality accounting standards that promote comparability of different sources of financial information. The IASB and FASB emphasise the importance of the development of accounting standards that provide decision-useful information to the users of financial statements. Lev (1988) supported the formulation of accounting standards in the public interest by focusing on 'equity'. Equity was defined as:

> an equality of opportunity—an equal access to information relevant for asset valuation. or, in more familiar parlance—a state of symmetric distribution of information across investors. (Lev, 1988, p. 3)

From this perspective, reduction of inequality through reduction of information asymmetry in the market can be achieved by prescribing accounting rules. Inequality in the market in terms of availability of information leads to adverse social and private consequences. The basic role of accounting standard-setting bodies such as the FASB is to provide useful information to users for the analysis of the prospective risks and returns associated with

investments. Hence, a reduction in information asymmetry promotes the public interest (Lev 1988).

The Accounting Professional and Ethical Standards Board (APESB 2010), an Australian independent body, identifies public interest entities as listed entities, and also emphasises the responsibilities of the accounting profession to act in the public interest. Therefore, accounting professionals are not only required to act in the interests of their clients and employers, but also to act in the public interest. However, Baker (2005) criticised the role of the accounting profession as manifesting a 'self-interested ideology' for the maintenance of the economic interests of the accounting profession rather than the public interest. Accounting standards boards such as the FASB contend in their statements of objectives that they serve the public interest through the creation of high quality accounting standards. However, the FASB narrowly focuses on the information needs of investors or capital providers, with the assumption that if information is considered useful for capital providers, then it might be useful for other users; in this way, the public interest is confined to the protection of investors' interests only.

Gallhofer and Haslam (2007) questioned the IASB's objectives for the development of high quality mandatory accounting standards in pursuit of the public interest through critical evaluation of the IASB's role. They identified that the IASB's approach is problematic, and that its functions are not consistent with its stated objectives. In order to support their argument, Gallhofer and Haslam (2007) used accounting for extractive industries and operating segments as examples to bring out the issue of transparency in financial transactions. It was discovered that companies involved in the resource extraction business,

particularly in less developed countries, do not provide sufficient disclosure; due to this lack of disclosure, companies involved in corrupt activities try to conceal their corruption through transfer pricing, which results in significant reductions in corporate tax and the payment of higher rates of royalties to parent companies. It was determined that the IASB's accounting standard preparation process was slow, and that the board did not react promptly to remove deficiencies from accounting standards by introducing changes. Instead of creating an accounting standard specific to extractive industries, the IASB issued an exposure draft in 2003 to provide guidance on how to use existing accounting standards for extractive companies. This delay in the issuance of accounting standards for extractive industries raised the question whether the IASB was working in aid of the public or private interests.

2.4 **Accounting Policies and Accounting Policy Changes**

The Statement of Accounting Concepts 1 (SAC 1) explains the concept of *reporting entities* in Australia. According to the SAC 1 (AARF 1990), the concept of a reporting entity is primarily focused on the information needs of users that are dependent on general-purpose financial reports for decision making. In addition to SAC 1, Australia's Corporations Act 2001 imposes restrictions on limited, large proprietary and—under certain conditions—small proprietary firms for the preparation of financial statements using AASB accounting standards. Based on SAC 1 and the Corporations Act 2001, all reporting entities in Australia are required to prepare general-purpose financial reports. According to AASB 101, 'Presentation of Financial Statements' (AASB 2007a), the components of a financial report are identified as the balance sheet, income statement, statement of changes in equity,

and notes consisting of significant accounting policies, including changes in accounting policies and other explanatory disclosure.

AASB 108, 'Accounting Policies, Changes in Accounting Estimates and Errors' (AASB 2007d, para 5), defines accounting policies as:

> specific principles, bases, conventions, rules and practices applied by an entity in preparing and presenting financial statements.

Fields et al. (2001, p. 356) discussed accounting policy as an *accounting choice* in their research on the determinants and consequences of accounting choice, and defined it as follows:

> An accounting choice is any decision whose primary purpose is to influence (either in form or substance) the output of the accounting system in a particular way, including not only financial statements published in accordance with GAAP, but also tax returns and regulatory filings.

The guidance provided in AASB 108, 'Accounting Policies, Changes in Accounting Estimates and Errors' (AASB 2007b, para 14), specifies conditions for changes in accounting policies, stating that:

> An entity shall change an accounting policy only if the change:
>
> is required by an Australian Accounting Standard; or
>
> results in the financial statements providing reliable and more relevant information about the effects of transactions, other events or conditions on the entity's financial position, financial performance or cash flows.

Another definition of changes in accounting policies provided by the US FASB under Statement of Financial Accounting Standard (SFAS) 154, 'Accounting Changes and Error Corrections' (FASB 2005, para 1), states that:

> Accounting change—a change in (1) an accounting principle, (2) an accounting estimate, or (3) the reporting entity. The correction of an error in previously issued financial statements is not an accounting change.

The FASB's definition does not explicitly distinguish between a mandatory change and a voluntary change in accounting policies. However, SFAS 154 (FASB 2005, para 5) highlights situations that allow firms to introduce mandatory or voluntary changes in accounting policies. It states that:

> A reporting entity shall change an accounting principle only if (a) the change is required by a newly issued accounting pronouncement or (b) the entity can justify the use of an allowable alternative accounting principle on the basis that it is preferable.

A comparison between AASB 108, 'Accounting Policies, Changes in Accounting Estimates and Errors' (AASB 2007b), and SFAS 154, 'Accounting Changes and Error Corrections' (FASB 2005), on changes in accounting policies shows that the AASB's guidance is more specific regarding discretionary changes in accounting policies, and is focused on the relevance and reliability of financial information. In contrast, the FASB's guidance focuses more on the firm's duty to provide justification for changes in its accounting policies. However, both accounting standards, SFAS 154 and AASB 108, clearly state that firms must change their accounting policies or principles when changes are required by newly issued accounting standards or pronouncements.

The disclosure requirements of AASB 108, 'Accounting Policies, Changes in Accounting Estimates and Errors' (AASB 2007b), do not specifically distinguish between mandatory and discretionary changes in accounting policies. Both discretionary and mandatory disclosure requirements include disclosure of the nature of changes in accounting policies, reasons for the changes and the financial impact of each change. Disclosures of mandatory

and voluntary policy changes are subject to materiality tests. If the effect of a change in accounting policies is judged to be material, then firms are required to disclose the impact of that change in accounting policies on their financial statements (AASB 2004d; AASB 2007b).

AASB 108, 'Accounting Policies, Changes in Accounting Estimates and Errors' (AASB 2007b, para 20), provides flexibility for firms to apply mandatory accounting policy changes earlier than the application date, but it also specifies that:

> Early adoption of an Australian Accounting Standard is not a voluntary change in accounting Policy.

Therefore, early adoption and application of a change in an accounting standard are not considered voluntary or discretionary change (AASB 2007b), but early adoption could significantly impact a firm's financial position or performance if the effect of a change in accounting policy is material. Latridis and Joseph (2005) investigated the timing of firms' adoption of mandatory changes in accounting policies imposed by accounting standards. They discovered that where accounting standard-setting bodies provide flexibility for firms to adopt amended or new accounting standards earlier than the operative date, managers plan the timing of adoption of accounting policies so that the changes have minimal adverse impacts on their firms' financial information. The sample used by Latridis and Joseph (2005) consisted of industrial firms, including retail, textile, chemical and electrical firms. It excluded banking and financial firms on the basis that these firms have different accounting measures.

AASB 108, 'Accounting Policies, Changes in Accounting Estimates and Errors' (AASB 2007b), further states that the accounting policies prescribed by the Australian accounting standards help in the creation of reliable and relevant information about an entity's transactions in the form of financial statements. The evidence gathered by Healy (1985, 1996), Holthausen et al. (1995), Godfrey and Jones (1999) and Burns and Kedia (2006) supports the view that firms change accounting policies to manage and smooth earnings to avoid adverse reactions from analysts and investors. This stands in contrast to the guidance provided by AASB 108 about changes in accounting policies aiming to provide more reliable and relevant information to the user.

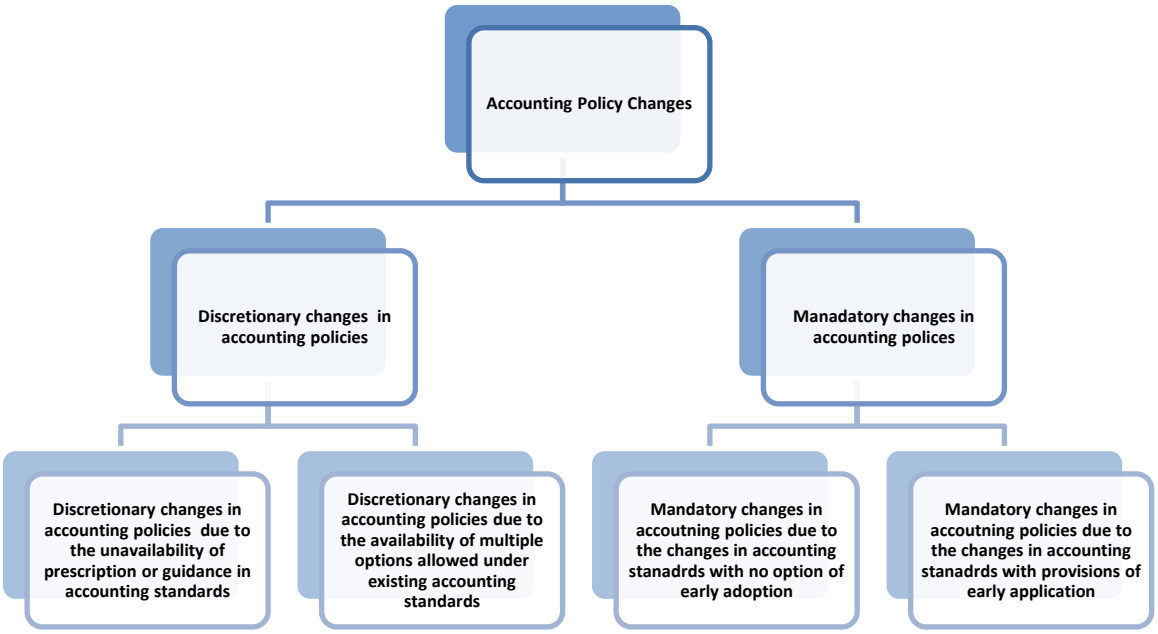

Figure 2.2: Types of Accounting Policies

Figure 2.2 shows that accounting policy changes are divided into two broad categories: discretionary changes and mandatory changes. According to positive accounting theory, discretionary changes are introduced either opportunistically, to manage earnings, or to

show the efficiency of the firm through the adoption of appropriate measurement methods that reveal the performance of an entity. Implicit in the efficiency perspective is the decision usefulness of accounting information. Mandatory changes to accounting policies are introduced due to changes in accounting standards, but accounting standards boards do provide flexibility to firms in terms of applying changes earlier than the operative date. Due to the provision of early application, entities can act in an opportunistic manner to manage earnings if they are able to determine that early application could result in an increase in earnings.

AASB 1, 'First-time Adoption of Australian Equivalents to International Financial Reporting Standards' (AASB 2004a), requires that Australian firms provide explanations about transition from Australian Generally Accepted Accounting Principles (GAAP) to Australian equivalents to IFRS by disclosing appropriate accounting policies regarding changes to financial statements. In order to comply with the transition requirements, firms must prepare reconciliations of equity, profit or loss and impairment of assets to show the impact of changes in accounting policies due to changes in accounting standards. AASB 1, 'First-time Adoption of Australian Equivalents to International Financial Reporting Standards' (AASB 2004a), specifies that AASB 108, 'Accounting Policies, Changes in Accounting Estimates and Errors' (AASB 2007b), cannot be applied in conjunction with AASB 1. Therefore, AASB 108's disclosure requirements are not applicable on reporting entities during the transitional phase in which an entity initially prepares financial reports applying Australian equivalents to IFRS.

In addition to AASB 1, AASB 1047, 'Disclosing the Impacts of Adopting Australian Equivalents to International Financial Reporting Standards' (AASB 2004e), also requires firms to disclose key differences expected to arise due to transition to the Australian Equivalent of International Financial Reporting Standards (AEIFRS). AASB 1047 also identifies potential accounting policy changes by specifically identifying changes under AEIFRS.

2.5 **Decision Usefulness of Accounting Information**

The concept of a normative theory of accounting, including the concept of decision usefulness, dates back to the 1960s, when the Accounting Principles Board (APB) was assigned the task of developing a comprehensive theory of accounting in order to establish standards for the assessment of accounting information. The American Accounting Association (AAA), with the support of the APB, formed a committee and published 'A Statement of Basic Accounting Theory' (ASOBAT), which defines accounting as:

> the process of identifying, measuring and communicating economic information to permit informed judgments and decisions by users of the information. (AAA 1966, p. 1)

The committee also recommended standards for the evaluation of accounting information, which were identified as relevance, verifiability, freedom from bias and quantifiability. In order to achieve all of these objectives simultaneously, accounting information should be provided on the basis of historical cost, which is verifiable, and current cost, which is relevant for decision usefulness for both internal and external users. Beaver et al. (1968) expanded the committee's views by highlighting the predictive ability of accounting information and linking this predictive ability with decision usefulness. The identification

of variables for constructing decision-making models, and the use of an appropriate accounting measurement model, are a few issues that create complexities for the implementation of decision usefulness as a criterion for assessing information.

Sorter (1969) discussed the recommendations of the committee and perspective of Beaver et al. (1968), and provided two views of decision usefulness, the *value theory* and the *events theory*. The value theory assumes users' information needs are known and that accounting theory can provide optimum input values to decision-useful models. This view has been criticised due to its inability to optimise input values, or to identify or develop theoretically correct models. The events theory is based on the role of entity-specific information about economic events that affect the entity, and this information is used by different users as input to decision-making models. Sorter (1969) further commented that the presentation of financial information in aggregate form could result in the loss of information, as the total value is composed of many different items. Johnson (1970) removed the ambiguity in Sorter's description of events by dividing events into two categories: real events and publication events. Real events are observed events, and publications events are those included in a report. Therefore, an inference in the form of a forecast can be developed on the basis of observable and publication events.

The concept of decision usefulness was further expanded by Bebbington et al. (2001) through the identification of two branches of decision usefulness: the decision makers' emphasis and the decision-models emphasis. The decision makers' emphasis focuses on the exploration of the information needs of the user, while the decision-models emphasis focuses on the production of information for particular decision-making models that may be

useful for decision making for a particular type of user group due to their individual requirements. Both branches of decision usefulness are similar to the views provided earlier by Sorter (1969) for the decision usefulness of accounting information.

Figure 2.3 below shows that the notions of public interest and decision usefulness have significant influence in the creation of financial information. Both concepts influence accounting standards boards and accounting practitioners simultaneously to act in public interest through the creation of decision-useful financial information. The accounting standards board changes accounting standards or creates new accounting standards to create decision-useful information for users in the public interest. The profession is then required to apply these changes in accounting standards via changes to their own accounting policies, in aid of the creation of decision-useful information in the public interest under the code of conduct for professional accountants (see section 3.5). Figure 2.3 also shows the flow of accounting information and interaction between the accounting regulatory bodies such as the IASB, AASB and FASB, preparers of financial reports and the users of financial statements, such as investors or financial analysts. Financial analysts use valuation models along with other inputs, such as growth rates, terminal values, earnings forecasts, cash flow forecasts, and cost of capital, to value firms and their equity values.

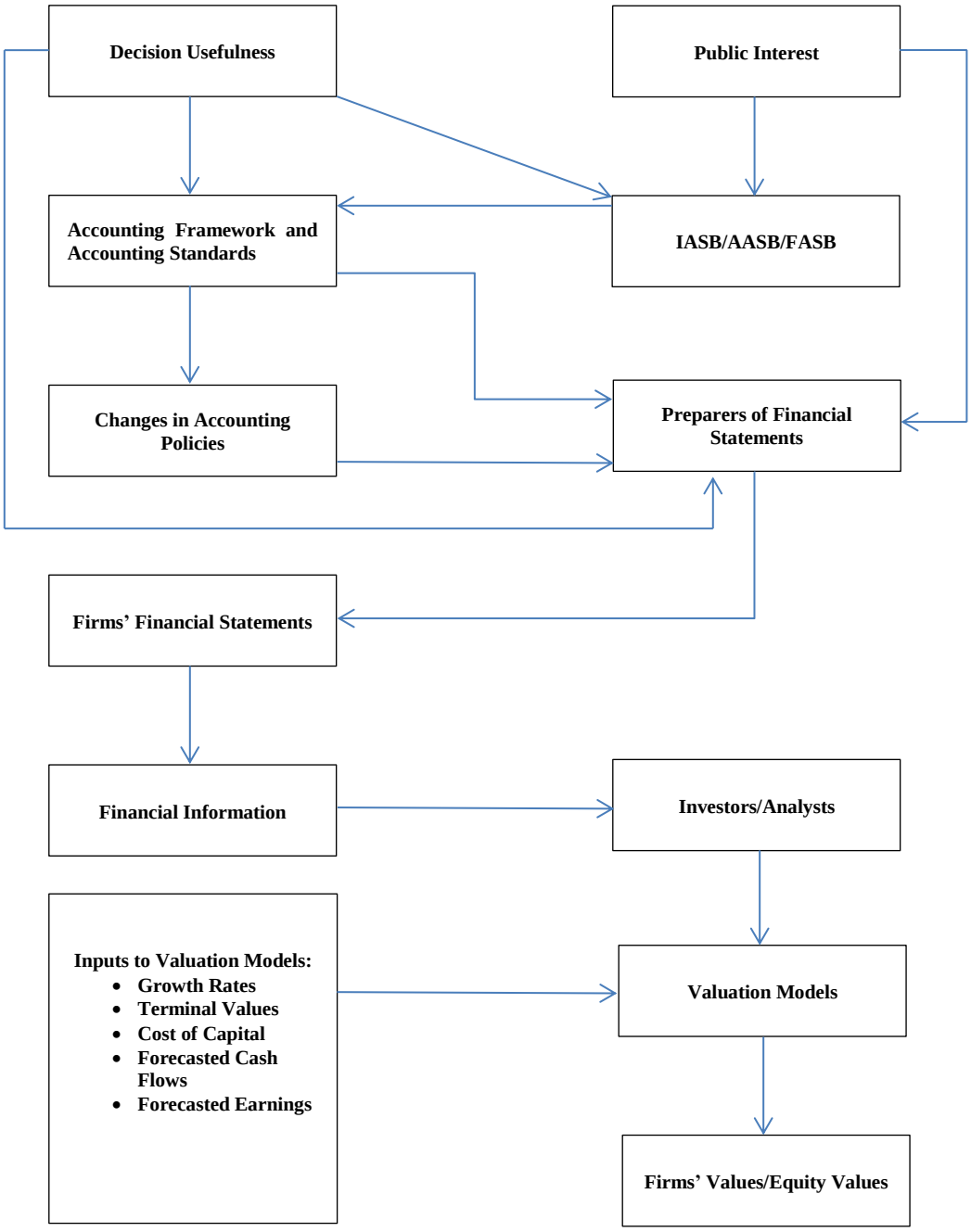

Figure 2.3: Framework for the Flow of Accounting Information

Puxty and Laughlin (1983) used the Lipsey-Lancaster theorem to explain the role of public welfare and decision usefulness for the production of accounting information. Their discussion shows how the concept of decision usefulness underpins the guidance provided

by accounting standards boards such as the FASB for the production of accounting information. Accounting information is a subset of information in the market that informs users about market conditions, with the quality of accounting information contributing significantly towards market efficiency. The contribution towards market efficiency depends on the 'improvement of information given in the annual reports':

> where improvement is defined in terms of its usefulness to the individual decision maker in enabling him to make better judgements in allocating his resources. (Puxty & Laughlin 1983, p. 546)

However, the production of more information on the basis of decision usefulness does not necessarily lead to general welfare in a complex environment. It rather requires a balanced approach by regulatory bodies to balance individual and organisational needs.

Accounting standard-setting bodies create accounting rules that subsequently affect firms' preparation of financial information for users of financial statements. Staubus (2000) identified that, according to the decision usefulness theory of accounting, the objective of accounting is to provide financial information about firms' activities to investors. Investors such as shareholders and creditors provide resources to the firm in anticipation of returns in the form of cash. Financial elements such as assets and liabilities store potential cash flows, where assets store positive cash flows and liabilities store negative cash flows. The accounting process helps in identifying the present and future cash flow potential of the firms. In identifying the capability of a firm's potential cash flows, criteria based on relevance, reliability, comparability, timeliness, understandability, cost and economic consequences are applied. Staubus (2000) mentioned that FASB's 'conceptual framework' is a decision usefulness theory, and all participants involved in the setting of accounting standards should consider the decision usefulness objective and the quality of financial

information. Staubus (2000) further identified the influence of the preparers of financial statements on the recognition and disclosure of financial information. Preparers of financial information reduce the influence of decision usefulness on accounting practice, which creates conflicts between users and preparers of statements. With reference to Staubus's discussions regarding decision usefulness, the current IASB/AASB framework also focuses on users' evaluations to assess amount, timing and riskiness of cash flows, and considers this information useful for economic decision making.

Inanga and Schneider (2005) criticised contemporary research in accounting for focusing mainly on correlation analysis rather than theory formulation and testing of hypotheses. They also criticised Staubus's decision-useful theory of accounting as a documentation of observations, rather than a logical explanation, where assumptions used in the theory have not been empirically tested.

The AASB/IASB conceptual framework identifies users of financial reports as investors, employees, lenders, suppliers and other trade creditors, customers, governments and their agencies, and the public. The conceptual framework for the preparation of financial statements by AASB (2004f, para 10) states that:

> While all of the information needs of these users cannot be met by financial statements, there are needs which are common to all users. As investors are providers of risk capital to the entity, the provision of financial statements that meet their needs will also meet most of the needs of other users that financial statements can satisfy.

The concept of decision usefulness in the AASB/IASB's conceptual framework is not neutral, as it is mainly focused on the information needs of capital providers, and ignores the specific needs of other stakeholders. The basic perspective of measurement in

accounting is to provide information required by investors that can be used to value firms. It was also identified that it is investors' decision-making problems that shape the structure of information, where investors' decision-making problems have been reduced to security valuation decisions under the current frameworks of the IASB and FASB. Therefore, investors demand information that can be used as input to their valuation models, which are also based on the concept of present value. Decision usefulness of accounting information refers to new information that is capable of altering investors' expectations about the value of the firm, and financial statements should be able to aggregate value-relevant information in a cost-efficient manner. Investors as present and potential equity holders and their resource allocation decisions mentioned in the conceptual framework include buying, selling or holding securities. Moreover, investors, including present and potential equity holders, are also interested in estimating the value of a firm (Barth 2007; Hitz 2007; Laughlin 2007).

In summary, investors decide to buy, sell and hold securities, and their decision making depends on the decision usefulness of the information they receive. Gassen and Schwedler (2010) investigated investors' perceptions of decision usefulness through a survey in 22 countries. It was discovered that investors' ratings of decision usefulness were highest for company accounting data and industry fundamental analysis. Their major source of information for investment decisions was accounting information, and respondents assigned the highest weight to financial statements, followed by personal contacts with management, notes accompanying financial statements, quarterly financial statements, management discussions and analysis, interaction on analysts' meetings and voluntary disclosure by the firms.

2.6 **Effects of Changes in Accounting Policies on Financial Statements**

According to Jones and Higgins (2006), Australia's decision to adopt IFRS came first from the Corporate Law Economic Reform Program (CLERP) through the introduction of CLERP 1, 'Accounting Standards: Building International Opportunities for Australian Business', in 1997, and later in the form of CLERP 9, 'Corporate Disclosure: Strengthening the Financial Reporting Network', in 2002.

In anticipation of the adoption of IFRS in Australia, Haswell and McKinnon (2003) analysed major differences between IFRS and Australian accounting standards before the implementation of IFRS in Australia in 2005. They critically analysed potential impacts related to business combinations, goodwill, proposed dividends, assets revaluation and depreciation on accounting policy changes due to the application of IFRS on the financial statements of Australian firms. They concluded that the flexibility that was available in Australian GAAP would be reduced due to the application of international accounting standards in Australia, and the level of uncertainty would increase instead.

Jones and Higgins (2006) also investigated the potential impact of IFRS on financial statements in Australia by conducting a perception survey of senior managers. They discovered that IFRS would have a major impact in areas where Australian accounting standards fail to provide clear guidance or provide different treatments of particular accounting issues. According to Jones and Higgins (2006), 52 per cent of senior managers expected a significant impact on firms' financial position, including that of banks, and 62%

of senior managers expected a significant impact on the financial performance of firms, including that of banks. Respondents expected a negative impact on the equity and profitability of firms. Respondents also identified several accounting standards that would potentially affect reporting practices due to the applications of IAS 32, 'Financial Instruments: Presentation'; IAS 139, 'Financial Instruments: Recognition and Measurement'; IAS 38, 'Intangible Assets'; IAS 12, 'Income Taxes'; IAS 22, 'Business Combinations'; IAS 16, 'Property, Plant and Equipment'; IAS 36, 'Impairment of Assets'; ED 2, 'Share-based payments' (now IFRS 2); IAS 19, 'Employee Benefits'; IAS 37, 'Provisions, Contingent Liabilities and Contingent Assets'; ED 5, 'Insurance Contracts' (now IFRS 4); and IAS 40, 'Investment Property'.

Goodwin and Ahmed (2006) investigated the impact of changes in accounting policies introduced through the IFRS under AASB 1, 'First-time Adoption of Australian Equivalents to International Financial Reporting Standards' (AASB 2004a), on the financial statements of Australian firms. Their sample consisted of 135 firms, excluding banking firms, which were divided into small, medium and large firms on the basis of assets under Australian GAAP. They discovered that of the small firms, 58 per cent reported no change in net income, while 53 per cent reported no change in equity; of the medium-sized firms, 11 per cent reported no change in net income and 16 per cent reported no change in equity; and of the large firms, 4 per cent reported no change in net income and 2 per cent reported no change in equity. Goodwin and Ahmed (2006) also identified the impacts of income tax, share-based payments, goodwill, intangibles excluding goodwill, restoration provisions, impairment, foreign exchange translation, superannuation, financial instruments and revenue recognition on the net income and equity of small, medium and

large entities. They reported that small firms' net income and equity increased after the implementation of AEIFRS. This increase was largely due to tax benefits, deferred tax assets and goodwill. Large firms had significant increases in liabilities and decreases in equity; impairment was the main adjustment for large firms.

Callao et al. (2007) investigated the impact of IFRS on Spanish firms listed on the European stock markets. They analysed financial statements before and after the implementation of IFRS, as firms are required to show the financial impact of application of IFRS under IFRS 1, 'First-time Adoption of International Financial Reporting Standards'. A sample consisting of the top 34 firms on the basis of capitalisation was selected; however, the sample did not include financial institutions and insurance firms. Absolute values were used to measure relative variations of market value and book value under the Spanish accounting standards and IFRS. They reported that current assets and liabilities caused variations in financial statements due to the use of fair value for the measurement of financial instruments, reclassification and consolidation. The IFRS's effect on non-current assets and inventories was not found to be significant. However, the impact on income statement was significant due to the differential treatment of revenues, research and development, and impairment of assets under local accounting standards and IFRS. These significant changes in assets, liabilities, equity, revenue and expenses due to the application of IFRS caused changes in return on assets and return on equity. It was also discovered that market-to-book ratio varied significantly under IFRS, and the gap between book value and market value increased considerably. Callao et al. (2007) also reported that medium and large firms were significantly affected by changes in accounting standards due

to reclassification of equity to liabilities, while small firms largely remained unaffected, with relatively small changes in income and equity.

Hung and Subramanyam (2007) also investigated the effect of the adoption of international accounting standards on German firms' financial statements using a sample that consisted of 80 firms, excluding financial firms. They discovered that total assets and book values of equity were significantly higher under international accounting standards compared to the German GAAP.

Lantto and Sahlström (2009) investigated the impact of mandatory adoption of IFRS on financial ratios in Finland. Finland's accounting regulatory body was aligned with the local taxation system before the implementation of IFRS. A sample of 91 firms was selected, representing all industries and sizes, including financial firms. It was discovered that firms' adoption of IFRS affected several financial ratios, which were categorised as profitability, PE and leverage ratios. A two-step process was adopted to investigate the impact of changes in accounting standards. In the first step, the impact of changes from domestic accounting standards to IFRS on line items belonging to both income statements and balance sheets was assessed. In the second step, the IFRS were identified that would contribute to differences in financial ratios before and after the transitions from domestic accounting standards to IFRS. Profitability was measured through operating profit margin, return on equity, and return on invested capital. Leverage was measured using equity and gearing ratios. Liquidity was measured using quick and current ratios. Ratios were calculated according to the difference between Finnish Accounting Standards (FAS) and IFRS. The results showed that a change from FAS and IFRS caused profitability ratios to

increase by 9 per cent to 19 per cent, gearing increased by 2.9 per cent, equity ratio decreased by 0.7 per cent, liquidity ratios decreased by 0.1 to 0.2 per cent and PE ratio decreased by 11 per cent. The changes in accounting policies following the implementation of IFRS caused subsequent changes in financial ratios. Lantto and Sahlström (2009) did not specifically identify the number of companies from each industry in their sample. Therefore, inclusion of financial firms in their sample could have significantly altered the results due to the presence of large amounts of financial assets and liabilities in the financial position statements of banking and other financial firms. Moreover, it is also difficult to apply normal liquidity ratios and profitability ratios to banking firms, due to the different structures of their financial statements. As noted, previous research conducted by Callao et al. (2007) and Goodwin and Ahmed (2006) excluded financial sector firms.

Watts and Zimmerman (1978) discussed the effects of regulations, political cost, information production cost and compensation on changes in accounting policies during the initial developmental phase of positive accounting theory. Regulations such as accounting standards may have an impact on the decision to favour or oppose a change in accounting standards. Firms that are regulated by an independent body for rate increase (e.g., utilities firms periodically apply for annual rates increases in Australia) may oppose an accounting standard or changes in accounting standards that increase their income; or, on the contrary, firms may favour an accounting standard that reduces their income if it provides them with an opportunity to influence independent commissions for rates increases. In contrast to small firms, large firms making excessive profits or enjoying monopoly avoid government scrutiny by introducing discretionary changes in accounting policies to reduce reported earnings. There is a relationship between firm size, reported earnings and the magnitude of

the political cost in cases such as the break-up of Telstra (Sharp 2010) and legislation to regulate Australian banks (Rolfe 2010; AAP 2010). Information production is also costly, particularly when more information is required in the form of additional disclosure; firms that change their accounting policies require additional disclosure as per AASB 108 (AASB 2007b) and AASB 101 (AASB 2007a). Additional regulatory reporting requirements impose additional payroll and training costs on firms. Changes in accounting policies can also be linked with future cash flows, particularly when management compensations such as bonus plans are linked with accounting income. Changes in accounting policies that affect income and compensation could thus impact firms' future cash flows and share prices.

Latridis and Joseph (2005) investigated positive accounting theory's political cost hypothesis on industrial firms listed on the London Stock Exchange, and discovered that these firms delay the implementation of mandated changes in accounting policies in order to avoid political cost. Political cost can be linked to the adoption of accounting policies with a view to reducing accounting profits or reported income in order to avoid political scrutiny by those parties who can impose additional costs on large firms.

2.7 **Relationship between Accounting Policy Changes, Financial Statements and Earnings Forecast**

Financial analysts use accounting information in addition to other information to update firms' earnings forecasts. Financial analysts are categorised into two main categories: buy-side analysts and sell-side analysts. Sell-side financial analysts are employed by brokerage

firms and provide forecasts to firms' brokers and clients, while buy-side financial analysts are employed by investment and asset management firms, where their recommendations and forecasts are available only internally. A comparison between buy-side and sell-side analysts using mean absolute forecast error shows that buy-side analysts' earnings forecasts are over-optimistic and inaccurate, and returns to their buy recommendations under-perform compared to sell-side analysts' recommendations. Nevertheless, fund managers rely more on buy-side analysts' reports compared to sell-side analysts' reports for investment decisions (Groysberg et al. 2008; Yingmei et al. 2006).

Ashbaugh and Pincus (2001) discovered an association between changes in accounting policies in firms from different countries and the adoption of international accounting standards that resulted in improved accuracy in analysts' forecasts and reductions in errors in financial analysts' forecasts of earnings and intrinsic values of shares. The authors mentioned that previous studies have provided mixed results about whether the convergence of different countries' accounting standards on a more harmonised set of standards increases the informativeness of financial reports.

Accounting information generated by applying different accounting policies is used by a diverse group of users. Some of these users, such as financial analysts, investment advisers and research brokers, provide recommendations to investors. Byard and Shaw (2003) found that analysts rely on publicly available information from accounting disclosures to update their forecasts about firms' value. Their findings were based on a sample drawn from large US firms and the rating scale of disclosure quality issued by the Association of Investment Management and Research (currently known as the Chartered Financial Analyst Institute).

Williams, Moyes and Park (1996) supported the view that buy-side and sell-side analysts use different analytical approaches, but that buy-side analysts rely more on publicly available accounting information. For buy-side analysts, accounting numbers are more important considerations compared to sell-side analysts. Groysberg et al. (2008) also supported the view that financial analysts use both private and public financial information to update their forecasts.

Accounting policy disclosure is a part of overall disclosure. Lang and Lundholm (1996) showed that firms' disclosure policies result in improved earnings forecasts. Hope (2003a), focusing specifically on the disclosure of accounting policies, discovered that disclosure of accounting policies reduces analysts' uncertainty about future earnings and also reduces forecast error. Hope discovered a strong negative relation between the level disclosure of accounting policy and analysts' forecast dispersion and error. Accounting policy disclosure, in addition to the financial data, is informative in explaining variations in analysts' forecasts. These findings are consistent with accounting standard setters' views that accounting policy disclosure is important to financial statement users. Accounting standard setters argue that, to understand and interpret financial statements, users should be aware of the main assumptions on which financial reports are based.

Hirst and Hopkins (2000) discussed the impact of accounting changes on the valuation of firms. They discussed financial analysts' treatment of mandatory and voluntary accounting changes in the valuation process by assessing the impact of mandatory accounting change SFAS 106, 'Employers' Accounting for Postretirement Benefits Other than Pensions', on a sample firm. SFAS 106 imposed restrictions on firms to use accrual accounting instead of

pay-as-you-go (cash basis) accounting for health care benefits. Therefore, firms affected by SFAS 106 were required to make a single adjustment for the prior year's expenses. A single adjustment makes financial statements difficult to compare, because it is difficult to compare cash basis and accrual basis in terms of financial performance. Financial analysts analysing accounting changes have suggested that accounting adjustments are non-cash and one-time adjustments, and hence should be ignored. However, Hirst and Hopkins (2000) suggested that when firms provide complete financial disclosure about the impact of a mandatory change in accounting policy in the reporting period, financial analysts should assess the impact of the change on prior years' financial statements retrospectively. Hirst and Hopkins (2000) further discussed voluntary changes in accounting policies by cautioning financial analysts about the importance of the timing and quality of earnings due to changes in voluntary accounting policies, because these changes could either understate or overstate the earnings.

Peek (2004, 2005) assumed that analysts differentiate between short-term and long-term forecasts, and incorporate changes in accounting policies into short-term forecasts. These assumptions are consistent with the findings of Mest and Plummer (1999), who categorised analysts' forecasts into three time horizons: quarterly, yearly, and three-to-five-year horizons. Transitionary earnings are relevant for short periods, while persistent earnings are expected to continue in the long term. Peek (2004, 2005) further added to the findings of Mest and Plummer (1999) that changes in accounting policies have a three-fold effect on earnings' predictability. First, a change in accounting policy brings temporary distortion in earnings immediately after the change is introduced, because accounting policy changes not only alter earnings trends, but also changes their composition. Second, a change in

accounting policy can either increase or decrease the variability of earnings, and this change can subsequently affect forecasted earnings. Third, a change in accounting policies can also affect the predictive value of other financial information.

Cotter et al. (2012) investigated IFRS adoption and its impact on analysts' valuation using earnings forecasts. A sample of 145 firms, including 29 financial firms, was selected from the top 200 firms based on market capitalisation during the period December 2003 to December 2007. A checklist of 11 categories was developed, including items from financial performance, financial position, and IFRS disclosures using the requirements of AASB 1 and AASB 1047. It was discovered that IFRS adoption has subsequently improved analysts' forecasts by reducing absolute forecast error, but that forecasting dispersion remains unchanged.

The adoption of conservative accounting policies results in the underestimation of reported earnings. Feltham and Ohlson (1995) defined conservative accounting as a comparison between book value and market value. Under conservative accounting, the book value of a firm is less than its market value. Zhang (2000) endorsed the same view, identifying that under conservative accounting policies, price-to-book ratio should be greater than one. Penman and Xiao-Jun (2002) investigated conservative accounting by creating indices for the measurement of conservative accounting and earnings quality. These indices were based on estimated reserves created by conservatism and net operating assets. They also discovered that conservative accounting policies decrease earnings, but produce high quality earnings. A combination of conservative accounting and investment growth results in earnings decrease along with decreased accounting rate of returns. However, a

combination of conservative accounting and investment growth creates unrecorded reserves. A decrease in investment growth rate in the subsequent period releases unrecorded reserves and increases earnings and rate of return (Penman & Xiao-Jun 2002; Zhang 2005).

Mensah et al. (2004) further investigated the effects of conservative accounting policies on financial analysts' forecasts using the aggregate accounting conservatism measure developed by Penman and Xiao-Jun (2002). According to Mensah et al. (2004), conservative accounting policies systematically underestimate assets and overestimate liabilities through slow recognition of revenue or faster recognition of expenses. Accounting standards also contribute to conservatism, such as through recognition of research and development expenditure, pension costs, post-retirement benefits, and impairment of both tangible and intangible assets. However, in some cases, entities are not permitted to recognise upward revaluation of intangible assets in the absence of an active market or internally generated intangibles. Mensah et al. (2004) further discovered that firms' adoption of conservative accounting policies leads to higher forecast errors by financial analysts, because conservative financial statements generate disagreement among financial analysts compared to neutral or unbiased financial statements.

The studies by Penman and Xiao-Jun (2002) and Mensah et al. (2004) contradicted O'Brien's (1990) findings. O'Brien (1990) investigated financial analysts' multiple-period earnings forecasts for nine different industries, including the banking industry, provided by both individual analysts and firms. O'Brien (1990) used average absolute forecast error as a measurement of forecast error. There was no significant difference discovered between

analysts' forecasting abilities. Several potential reasons for similar forecasted EPS were identified: a significant number of financial analysts incorporated relevant information in a timely manner, followed by few informed or leading industry analysts who used few or similar methods to forecast earnings and share prices.

Hirst and Hopkins (2000) investigated buy-side financial analysts' use and integration of accounting information in their valuation processes. They used an experimental method in which they systematically varied earnings data related to gains in marketable securities and their impact on analysts' valuation judgements. The investigation was performed using guidance given in FASB's SFAS 115, 'Accounting for Certain Investments in Debt and Equity Securities'. Under SFAS 115, firms were allowed to bypass income statements and record gains as increases in equity until the security was sold. Firms were also allowed to recognise gains from equity to income statements when the security was sold. AASB 139, 'Financial Instruments: Recognition and Measurement', also requires firms to ensure that available-for-sale securities that are not part of a hedging arrangement follow the same procedure permitted under SFAS 115 (AASB 2004c).

In their experiment, Hirst and Hopkins (2000) used 47 buy-side analysts and portfolio managers with an average of 14 years' experience. They created three earnings management scenarios using three hypothetical firms. In the first scenario, the firm is a no-earnings management firm, and its financial information includes a positive net income, zero growth during the last three years and significant available-for-sale securities gain retained under equity. In the second scenario, the firm is an earnings management firm, and its financial information includes a positive net income and an average of 11 per cent

growth during the last three years, and the firm's growth in income has been achieved by selling available-for-sale securities. In the third scenario, the third firm is an increased revenue firm, and its financial information includes 11 per cent growth rate in income during the last three years, where the firm achieved this growth through increases in revenue, not by selling available-for-sale securities. All other information about the three firms and three scenarios was kept identical, and all information was made available to analysts and portfolio managers. The results of the experiment showed that analysts valued the no-earnings management firm significantly less compared to the other two firms, and the analysts did not find significant differences between the earnings management and increased revenue firms. Analysts also relied significantly on historical net income for the valuation of firms, and used price-earnings multiples to determine value. The experiment further suggested that analysts could be deceived by a firm involved in opportunistic behaviour through earnings management, due to analysts' extensive reliance on historical income as input to valuation models for the calculation of forecasted value.

Ryan (2007) discussed the limitations of fair value accounting by highlighting three general threats. First, economic descriptiveness of fair value accounting involves a degree of subjectivity in the calculation of fair values. Second, fair value estimation errors might result in transfer of low risk assets through securitisation and retention of high risk assets. Third, it is highly unlikely that fair values can be obtained for all assets and liabilities in the absence of an active market. The failure to capture the economic value of assets and liabilities will result in non-descriptive volatility of equity and net income. Accounting standards in Australia allow banking firms to use different measurement bases; in

particular, banks can use different methods to report the value of assets and liabilities in the absence of an active market for financial assets.

Penman (2007b) also highlighted the measurement issue by identifying the potential problem associated with fair value after conducting a survey of public statements made by accounting standard setters, regulators, analysts and preparers of financial statements. According to Penman (2007b), the survey revealed a potential misuse of fair value estimating in 'marking to model' rather than 'marking to market'. The survey also revealed concerns about earnings volatility and increased systematic risk.

2.8 **Financial Analysts and the Use of Valuation Models**

According to Watts and Zimmerman (1986), there are two competing hypotheses—the 'no-effect hypothesis' and the 'mechanistic hypothesis'— that provide explanations for market reaction to voluntary changes in accounting policies. Under the no-effect hypothesis, it is not possible to make abnormal returns when changes in accounting policies are publicly announced by a firm in an efficient market when the tax rate is zero. Earlier positive accounting researchers Ball and Brown (1968), Foster (1977) and Brown (1970) used CAPM as a valuation model, and calculated the market value of a firm as a function of expected cash flows and expected rates of return. In the absence of taxes, changes in accounting policies and procedures will not alter cash flows. Therefore, changes in accounting policies would have no effect on the market value of a firm. However, if market expects no impact on cash flows then a surprise in the form of cash outflows in the presence of taxes would generate an abnormal return. Before the introduction of the

efficient market hypothesis, researchers assumed that changes in accounting policies and procedures had a negative effect on share price in situations with and without taxes. In contrast, the mechanistic hypothesis asserts that changes in accounting policies and procedures would affect share price because the accounting reports are the main source of information for investors and they use earnings information from accounting reports to value firms.

Financial analysts' judgements are based upon the input provided by the accounting information generated through the use of discretionary and mandatory changes in accounting policies. Financial analysts not only provide recommendations about firms' earnings, but also use several valuation models for securities. There is no general consensus among researchers regarding the categorisation of these valuation models. One method of categorisation by Pang (2001) showed that models used for valuation can be divided into income-based valuation models, cash flow-based valuation models and asset-based valuation models. Pang also commented that changes in accounting policies, such as changes in the inventory valuation method, depreciation method, or income and expense recognition can distort the value of the firm when changes in accounting policies are introduced.

Another categorisation comes from Demirakos et al. (2004) in Table 2.1, who found that analysts' models can be divided into single-period comparative valuation models, hybrid valuation models and multi-period valuation models. Single-period comparative valuation models are further divided into earnings multiple, sales multiple, price-to-book, price-to-assets, price-to-cash flow, dividend yield and enterprise value to R&D. Hybrid valuation

models can be further divided into accounting rate of return, cash recovery rate, economic value added, continuing value and technology value. Multi-period valuation models consist of DCF and residual income valuation.

Table 2.1: Definitions of the Valuation Scoring Convention

Major Valuation Models	**Definition**	
Single-Period Comparative	Earnings multiples (E)	Price-to-earnings (PE), Enterprise value to earnings before interest, taxes, depreciation and amortisation *(EV/EBITDA)*, Enterprise value to earnings before interest and taxes *(EV/EBIT)*, PEG ratio (PE multiple scaled by earnings' growth rate), and discounted future earnings multiple (DFE multiple)
	Sales multiples (S)	Price to sales (P/S) and Enterprise value to sales (EV/S) multiples
	Price-to-book (BV)	Stock price-to-book value per share (only scored for reports containing a distinct analysis of this ratio)
	Price-to-assets (Assets)	Stock price to asset value multiple
	Price to cash flow (CF)	Price to cash flow multiple
	Dividend yield (DY)	The dividend yield method
	Enterprise value to R&D (R&D)	Enterprise Value divided by R&D expenditure
	Rating to economic profit (REP)	Ratio of the market-to-book value of the enterprise to the return on invested capital scaled by the weighted average cost of capital. Appendix B provides more detail. REP includes all forms of analysis that combine economic spread and book value multiples (including graphical representations of their relation, REP multiples etc.). In practice, analysts perform this analysis in a single-period comparative framework
Hybrid	Accounting rates of return (ARR)	The return on equity (Ohlson and Lopes, 2007) and return on invested capital (ROIC) ratios when analysts use these as valuation models and not simply as indicators of economic profitability
	Cash recovery rates (CRR)	The standard CRR and the cash flow return on investment (CFROI™)
	Economic value added (EVA™)	The return spread times the book value of a firm's assets
	Continuing value (Cont.V.)	The capitalised value of a firm's net operating profit (using the weighted average cost of capital as a discount factor) minus its current debt
	Technology value (Tech.V.)	Market value minus cash plus debt, compared to similar firms (used in valuing biotechnology stocks)
	Options-Pr	Real option style models and simple probability weighted net present value models
Multi-period	Discounted cash flow (DCF)	The present value of a firm's cash flows over multiple future periods
	Residual income valuation (Jog and Srivastava, 1995)	Residual current book value of equity plus the present value of residual earnings over multiple future periods

Source: Demirakos et al. (2004)

Barker and Imam (2008) and Imam et al. (2008) expanded on the research conducted by Demirakos et al. (2004) by developing a classification system for identifying the dominant models used by financial analysts to value shares. The following scheme was developed:

- Category 1: 'Pure cash flow' means that not a single accrual-based model was mentioned anywhere in the report by financial analysts.
- Category 2: 'Cash flow dominance' means that a cash flow-based model(s) was the dominant model but that an accrual-based model(s) was also used alongside the cash flow model(s) to justify target price and/or recommendation.
- Category 3: 'Accrual-based dominance' means that the relative importance of cash flow and accrual-based models in Category 2 is reversed.
- Category 4: 'Pure accrual' means that not a single cash flow-based model was mentioned anywhere in the report.
- Category 5: If any report did not fall into any of the above categories, we classified it as 'Unable to determine'. (Imam et al. 2008).

Imam et al. (2008) identified the use of the following models by sell-side financial analysts:

- Price earning (PE)
- Discounted cash flow (DCF) or free cash flow (FCF)
- Enter price value / earnings before interest tax, depreciation and amortisation (EV/EBITDA)
- Price-to-cash flow
- Cash flow return on investment (CFROI)

- Enterprice value / sales (EV/sales)
- Price-to-book value
- Dividend yield (DY)
- Economic Value Added (EVA)
- Price earnings growth (PEG)
- Price-to-sales
- Dividend discount models (DDM)
- Enterprise value / Book value EV/BV

Another categorisation of valuation models introduced by Imam et al. (2008) in Table 2.2.

Table 2.2: Categorisation of Valuation Models

Classification	Model	Definition
Cash flow-based	DY	Dividend yield $P_0 = D_1/k$ where P_0 = price (market value) at the end of the period 0; k = cost of equity capital; D_1 = next period net dividend
	DDM_a	Dividend discount model $P_0 = \sum_{t=1}^{\infty} D_t/(1+k)^t$ where P_0 = price (market value) at the end of the period 0; k = cost of equity capital; D_t = net dividend, paid at date t
	DCF or FCF_a	Discounted cash flow model (i.e. the present value of the firm's cash flows over a long horizon) $V_0 = \sum_{t=1}^{\infty} FCFF_t/(1+WACC)^t$
	Price/cash flow	Price to cash flow multiple
	$CFROI_a$	Gross cash flow minus economic depreciation divided by gross investment
Accrual-based	PE	Price-to-earnings (i.e. current or forward earnings)
	PEG	PE multiple scaled by earnings growth rate (i.e. PEG = PE*100/LTG where LTG is long-term growth)
	P/B	Price-to-book value multiple
	Price/sales	Price to sales multiple
	EV/EBITDA	Enterprise value divided by earnings before interest, tax, depreciation and amortisation
	EV/BV	Enterprise value to book value multiple
	EV/sales	Enterprise value to sales multiple
	EVA_a	Economic value added (i.e. the spread on the net operating asset)

Source: (Imam et al. 2008)

Damodaran (2005) discussed financial analysts' use of both simple and sophisticated models for the valuation of securities. He also discussed that most valuation models require assumptions about variables involved in the calculation of intrinsic value; these assumptions can be classified into four approaches. First, *DCF valuation* involves the application of present value to expected future cash flow. Second, *liquidation and*

accounting valuation values assets of a firm by using book value or accounting value. Third, *relative valuation* compares variables such as earnings, cash flows, book value and sales. Fourth, *contingent claim valuation* uses option pricing models to value assets. Brown et al. (2014) investigated the use of valuation models by analysts for the US firms to assess the use of valuation models. They discovered that analysts more frequently used PE or PEG models followed by cash flow model, dividend discount model, earnings surplus model, economic value added model, residual income model and a model based on share price and volume patterns.

2.9 **Financial Statements of Banking Firms**

According to AASB 130, 'Disclosures in the Financial Statements of Banks and Similar Financial Institutions' (2004b), the crucial role of banks in the economy, along with their close relationship with regulatory authorities due to the influence exercised by them, means that regulatory authorities impose additional reporting requirements upon them. AASB 130 (2004b) specifically deals with this issue by acknowledging that banks' financial statements are different from those of other non-banking entities. These differences are due to exposure to different kinds of risks related to their solvency, liquidity and capital structure, particularly in their debt to equity relationship. Since the abandonment of AASB 130 in 2007, AASB 101, 'Presentation of Financial Statements', and 'AASB 7, 'Financial Instruments: Disclosures' provide similar guidance to banking and other firms.

Banks' financial statements differ in structure from those of non-financial firms. Banks' financial statements are unclassified, and banks' capital structures are different from those

of non-financial firms. Banks' capital structures include significantly larger proportions of liabilities compared to non-bank firms. The primary difference between banks and non-financial firms is the presence of debt. For non-financial firms, debt is a source of capital, whereas banks consider debt as a raw material (Damodaran 2012). Banks use a relatively narrow definition of capital, which is confined to equity. The difference is also highlighted in the fact that banks' ratios for performance and financial analysis are different from those of non-financial firms (Rose & Hudgins 2008).

Woods and Marginson (2004) discuss the differences between banks' financial statements and those of non-banking firms in terms of banks' large-scale use of financial instruments. The presence of large amounts of financial assets and liabilities in banks' financial statements and the simultaneous application of fair value accounting expose banks to risks, and have significant impact on reported profits, financial position and cash flows. The usefulness of fair value disclosure can be criticised on the grounds that banks use different classifications and sub-classifications in categorising assets, particularly financial instruments; thus it is difficult for the user to compare banks in terms of effective reporting of fair value, as some of these instruments are not traded in the market. In circumstances of non-trading or the absence of an active market, reported values of financial instruments are rendered subjective due to the use of different valuation techniques.

Zhao and He (2008) investigated variation in bank accounting information content for France, Germany, the United Kingdom and the US. An analysis of the financial statements of commercial banks revealed that banks' financial statements and financial performance ratios are different from those of non-banking firms. The differences in the financial

statements of banks, such as the balance sheet, can be attributed to the transformation of the banking industry due to the creation of new sources of financing for firms and investments, including new lines of credit, securitisation and trading of derivatives. Changes in asset structure, particularly financial asset structure in the balance sheet, have affected the capital adequacy requirements and consequently net income due to the application of specific regulations on the banking industry. Banks' income statements have five components: interest and dividend income, non-interest income, interest expense, operating expenses and provision for loan losses. In order to improve the quality of banks' accounting information and eliminate moral hazard bias, IASB issued accounting standard IAS 30, 'Disclosure in the Financial Statements of Banks and Similar Institutions' (equivalent to Australian Accounting Standard AASB 1030), which was later integrated with IFRS 7, 'Financial Instruments: Disclosures' (equivalent to Australian Accounting Standard AASB 7). However, Bischof (2009), while analysing the impact of IFRS 7 from 2006–2007 on European banks' disclosure quality, commented that IFRS 7 is applicable to all firms, but affects the banking industry more significantly compared to other industries due to the presence of significant amounts of financial instruments in the balance sheet.

Regarding the application of IAS 39, 'Financial Instruments: Measurement and Recognition', Gray (2003, p. 10) stated that:

> In a commercial bank, reporting assets at fair value and liabilities at amortized cost can severely distort the bank's performance during interest rate changes; thus interest rate risk is measured improperly. Presently, IAS 39 requires assets to be measured at fair value except for held-to-maturity securities and originated loans and securities that are not held-for-trading, while financial liabilities, except for derivatives, are measured at amortized cost. Therefore the present international accounting standard continues the situation of interest rate risk being improperly reflected in a banks' statement of accounts.

According to Cortavarria et al. (2000), loan loss provisioning is used to adjust the value of a loan when loans become doubtful by establishing a provision that is similar to the concept of depreciation. A distinction can be made between general and specific provisions on the basis that general provisions are made for possible future losses, whereas specific provisions show identified losses. There is a direct relationship between loan classification and a bank's income statement. Under-or over-estimation of risk can increase or decrease provisions. Given that provisions are treated as an expense, any increase or decrease in estimation leads to over- or under-statement of business cost, profits, and capitalisation and tax payments.

Bouvatier and Lepetit (2008) also discussed the direct impact that loan loss provisions have on bank profits, and the subsequent impact on bank capital if losses are high. They discussed the discretionary and non-discretionary components of provisions. Under the non-discretionary component, as discussed by Wahlen (1994), specific provisions are charged off when the loan amount is considered uncollectible due to delinquency. Charge-offs are non-discretionary because banks are required by regulatory authorities to charge off a delinquent loan when it remains overdue beyond a certain number of days. The discretionary component is based on management objectives; bank management may undertake discretionary actions to smooth earnings through loan losses, manage capital and signal their financial strength to absorb (Ahmed et al. 1999).

Balla and McKenna (2009) identified that *dynamic provisioning* is also known as statistical provisioning and countercyclical provisioning. They describe dynamic provisioning as:

> a statistical method for loan loss provisioning that relies on historical data for various asset classes to determine the level of provisioning that should occur on a quarterly basis in addition to any provisions that are event driven. The primary goal of dynamic provisioning is the incremental building of reserves during good economic times to be used to absorb losses experienced during economic downturns. (Balla & McKenna, 2009, p. 1)

According to Saurina (2009), banks are more prone to lending errors during times of economic growth by becoming over-optimistic about investment projects and by lowering credit evaluation standards. During economic downturn, banks tighten credit standards. Saurina (2009) discussed Spain's banks as an example assessing the implementation of dynamic provisioning in Spanish banks, and commented that banks are completely transparent when they disclose information about credit loss provision in a manner that assists investors and analysts in reversing the impact of dynamic provisioning. Saurina (2009) rejected the argument that banks' dynamic provisioning allows banks to carry out earnings management. He argues that earnings cannot be managed in the presence of a rule-based system and a limit on the maximum amount that can be allocated for loan loss provisioning.

According to Damodaran (2002), financial institutions such as banks, insurance companies and other financial firms are relatively difficult to value because of difficulties associated with the estimation of cash flows and the presence of specific regulatory requirements. Damodaran (2002) further identified that measurement of capital expenditure and non-cash working capital are integral parts of free cash flow valuations models. If capital expenditure and non-cash working capital cannot be estimated, as is the case for banking firms, then dividends can be used as alternatives for free cash flow to equity, based on the assumption that firms pay out free cash flows to equity as dividends.

2.10 **Conclusion**

This chapter has examined several issues related to accounting policy research, public interest in accounting, decision usefulness of accounting information, accounting policy changes and valuation of banking firms. Accounting standards boards emphasise the importance of the public interest when introducing changes in accounting standards. As a significant aspect of changes in accounting standards, a description of the public interest is required. Box (2007) identified the public interest as both an objective and a process. The public interest as a process is developed during interactions between individuals; this view emphasises the roles of individuals who participate in this process in describing and dealing with public interest issues. The weakness of the process view of the public interest is that the process involves limited participation of individuals, where instead the majority prepares and imposes rules and regulations that could create unnecessary or additional costs for those who disagree with the majority due to competing interests.

The public interest in accounting extends to the collective wellbeing of the entire society through the creation of decision-useful information for the users of financial statements. However, the IASB framework is narrowly focused on the information needs of capital providers. This represents a shift from the recommendations of the Corporate Report (1975), which argues that accounting information and accounting regulations should serve the accounting information needs of all stakeholders, rather than merely those of capital providers (Laughlin 2007).

The public interest is applied at two levels. First, it is applied as an objective: accounting standard-setting bodies use public interest as an objective in introducing new accounting standards or changing existing standards to increase the decision usefulness of accounting information. Second, the public interest is applied as a process: on this level, accounting standards development is conducted as a process through the participation of stakeholders. During the process of accounting standards development, stakeholders are invited to provide opinions about suggested changes to accounting standards.

The accounting profession also uses the notion of the public interest as an objective for the provision of decision-useful information to the users of financial statements, in that the public interest is considered during the preparation of financial information. In this regard, research opportunities exist to investigate whether accounting standard-setting bodies achieve this objective of advancing the public interest by providing decision-useful information to the users of financial reports, such as financial analysts and investment advisers. Financial analysts and investment advisers use accounting information in the form of financial statements to forecast earnings and intrinsic values of the firms using valuation models.

The AASB/IASB framework identifies primary users as investors, creditors and their advisers, with the assumption that if information is considered useful by primary users then it is also considered useful by other users. Accounting standard-setting boards make changes to accounting standards and introduce new accounting standards to provide more decision-useful information to users in order to protect the public interest. Accounting policy changes significantly affect the income and equity of firms. Consequently,

accounting policy changes significantly affect earnings forecasts and intrinsic values of firms' equities where accounting information is used as input to valuation models. The current literature has largely concentrated on the correlation between changes in accounting policies and market price or cost of capital. Therefore, it would be interesting to investigate whether accounting information can be used as input to different types of valuation models for the calculation of intrinsic values. It would also be interesting to discover whether accounting policy changes are captured by valuation models for banks. Finally, research is required to assess the decision usefulness of accounting information when changes in accounting standards or new accounting standards are introduced.

Accounting policy changes have affected the financial statements of banks and financial institutions to a greater extent than those of non-banking and non-financial firms, particularly due to the presence of significant amounts of financial assets and liabilities, including derivatives. The research literature has generally excluded banking firms from analysis due to their unusual capital structure compared to that of non-financial firms. Due to this difference in capital structure, the financial performance evaluation criteria in the form of financial performance evaluation ratios that are applied on non-financial firms cannot be applied on banking firms.

Overall, the literature reviewed in this chapter has highlighted that there are several questions that require answers with reference to changes in accounting policies and the impact of those changes on the intrinsic values of banking firms. Chapter 3 discusses research methodology related to the identification of accounting policy changes and categorisation of accounting policies.

Chapter 3: Research Design and Methodology—Data Analysis

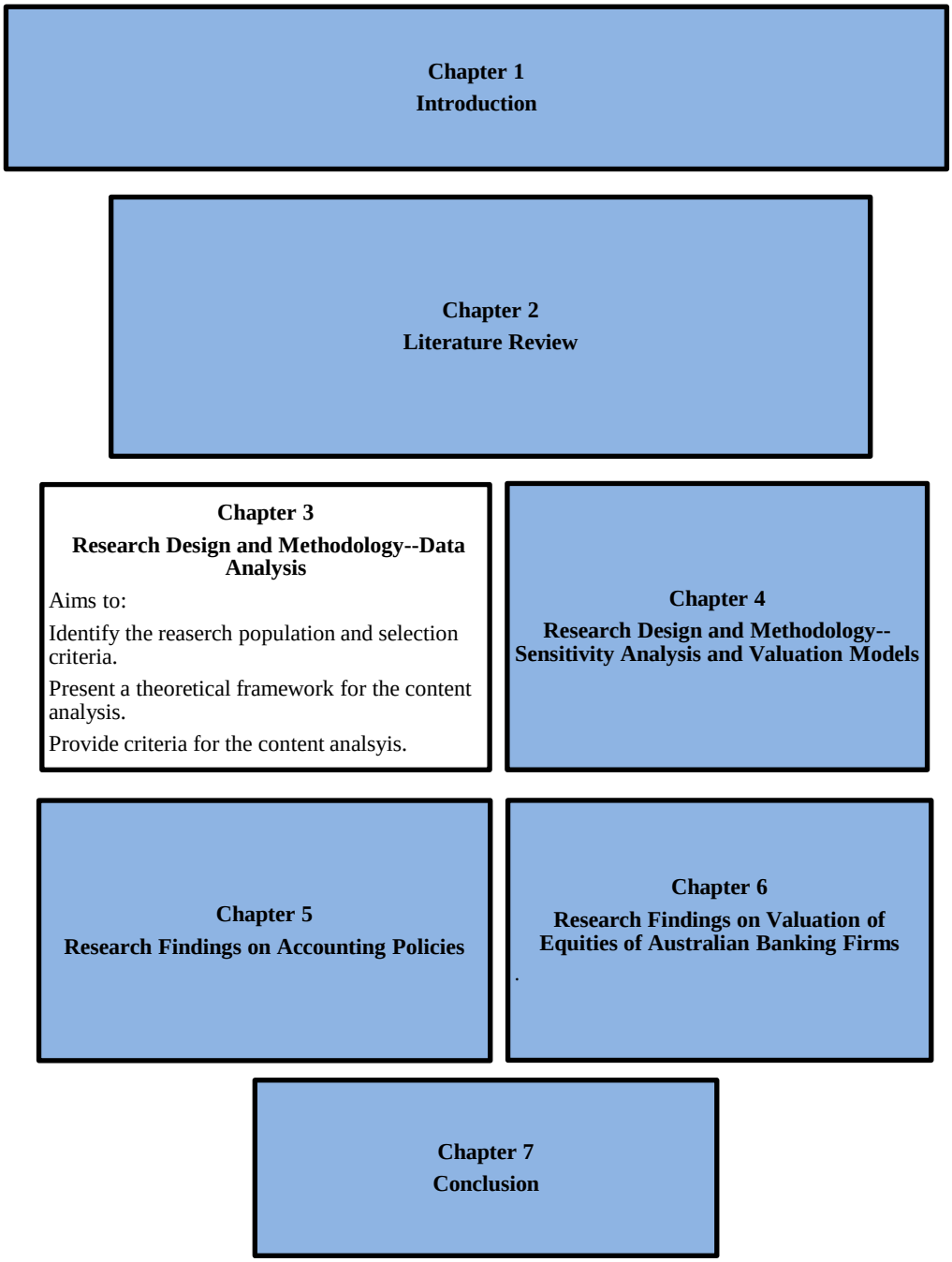

Figure 3.1: Outline of Thesis: Chapter 3

3.1 **Introduction**

The previous chapter reviewed the literature in the field, setting the foundation for this research through the identification of issues revolving around public interest, accounting policies, decision usefulness and valuation models. Issues pertaining to the research design and methodology of the present study are divided into two chapters: Chapter 3 deals with data analysis, and Chapter 4 deals with valuation models and sensitivity analysis. This chapter identifies the issues related to the identification of the population and sample of Australian commercial banks, criteria for the selection of banks from the population, data availability and sources of data, and identification of changes in accounting policies through content analysis. The results of the study are reported in Chapters 5 and 6.

An objective of this research is to extend the existing research on the decision usefulness of accounting information, concentrating on Australian banking firms, by assessing the impact of changes in accounting policies due to changes in accounting standards and rules. The research design and methodology chapters are founded on the findings of Holthausen and Watts (2001). Holthausen and Watts reviewed the research literature on value and categorised its theories into two groups: *direct valuation theory* and *inputs to equity valuation theory*. Direct valuation theory explains the associations between the accounting earnings, book values and market values of equities. These associations provide insights to accounting standard setters in order to assess the impact on the market values of equities of accounting earnings and book value changes that result from changes in accounting standards. As in inputs to equity valuation theory, preparers of financial statements use accounting standards to provide information that is then used by investors as inputs to

valuation models. According to inputs to equity valuation theory (Holthausen & Watts 2001), accounting standard setters are interested in research that explores how to create relevant accounting information that can subsequently be used as input to valuation models.

The inputs to equity valuation theory identify the importance of accurate measurement of assets' and liabilities' market values using accounting methods. Therefore, measurement of assets and liabilities on the basis of market values could provide an estimation of market value of equity. This approach increases the association between the market value of net assets generated through the use of alternative accounting methods for the measurement of assets and liabilities. The theory focuses on the association of book value of equity with the market value equity. The theory explains that if assets and liabilities are measured close to their market values then book value of equity or net assets show the market value of equity. The widespread use of inputs to valuation approach could lead to the creation of accounting standards which provide direct equity valuation from financial statements.

The inputs-to-equity valuation theory emphasises the use of sensitivity analysis by measuring the impact of each type of asset or liability using alternative measurement methods on the book value of equity by holding other variables constant to assess incremental association of each variable with the market value of equity. Each class of assets and liabilities is incrementally studied to assess the relationship between the net book value of assets and market value of equity. A similar point can be made with regard to the measurement of earnings components to assess the incremental association of earnings components. Therefore, using the earnings based valuation models would provide an

estimate of the market value of the equity or an estimate of the change in the market value of equity (Holthausen & Watts 2001).

The present research uses the inputs to valuation approach identified by Holthausen and Watts (2001), using valuation models to assess changes in accounting policies due to changes in accounting standards. In order to perform inputs to equity valuation, content analysis is conducted on the descriptive data disclosed in financial statements in order to identify and classify changes in accounting policies. Since AASB 108 imposes restrictions on firms to provide disclosures related to changes in accounting policies in both qualitative and quantitative forms, the structured results of the content analysis are subsequently used as inputs to valuation models to perform the sensitivity analysis (see Chapter 4).

3.2 **Research Approach and Procedures**

The present study is divided into six steps, outlined below.

Step 1: Banks to be used for this research are identified. The criteria for the identification and selection of banks are discussed in Table 3.5 and in section 3.3.

Step 2: Data are identified and collected. Table 3.1 identifies the type, uses and sources of data.

Table 3.1: Data Availability and Sources of Data

Type of data	Uses of data	Sources of data	Time period
Information about changes in accounting policies	Information about the changes in accounting policies is used to identify the type of accounting policy changes and quantitative impact of accounting policy changes on the current period's financial statements	Annual reports	1997–2007
Financial information in the form of financial statements	Financial statements are reconstructed as part of sensitivity analysis and scenario analysis to gauge the impact of changes in accounting policies on elements of financial statements	Banks' annual reports, Datastream and FinAnalysis	1997–2007
Banks' total return index	Share return information is used to calculate beta of each bank	Datastream	1992–2007
Beta	Data from Datastream is used to calculate beta with different time intervals and Datastream beta is also used as inputs to the Capital Asset Pricing Model (CAPM)	Datastream	1997–2007
ASX All Ordinaries total return index	Total return index is used to calculate risk premium and risk premium is used as an input to CAPM	Datastream	1992–2007
10-year bond yield	Bond yield is used to calculate risk-free rate and risk-free is used as an input to CAPM	Reserve Bank of Australia	1992–2007
Share price data	Share price data is used to measure forecasting errors before and after changes in accounting policies	SIRCA	1997–2007

Step 3: The valuation models preferred and used by financial and investment analysts in the industry are identified and categorised. Valuation models are identified, along with assumptions that can be used to find the intrinsic values of Australian banking firms' equity share prices (see Tables 3.1 and 3.2).

Step 4: Sensitivity analysis is performed using combinations of risk premiums and betas to discover the optimum cost of equity that provides the lowest aggregate forecasting error. To accomplish this, the valuation models identified in Step 3 are used.

Step 5: Content analysis is performed on the financial statements of banking firms to identify changes in accounting policies (see section 3.5) and identify and measure the financial impact of changes in accounting policies.

Step 6: Effects of changes in accounting policies on banking firms' forecasted share price are analysed through scenario analysis to determine whether changes in accounting policies increase or decrease forecasting error. The impact on forecasting error is assessed under two scenarios. In the first scenario, the impact of the changes in accounting policies is removed from financial statements in order to measure share price forecasting error without the changes in accounting policies. In the second scenario, the effects of the changes in accounting policies are retained in the statements in order to assess their impact on the financial statements and consequently on share price forecasting error.

This chapter provides discussion on the collection of data identified in Steps 1 and 2. Chapter 4 provides discussion on content analysis, sensitivity analysis, risk premium, cost of capital and valuation models identified in Steps 3 to 6.

Figure 3.2 shows the framework for the sensitivity analysis and steps involved in the research. There are two stages in the sensitivity analysis. The first stage looks at the interactions between several variables to arrive at the optimum cost of capital that produces the lowest forecasting error. Combinations of variables, such as risk-free rate of return, market return and beta, that produce the lowest cost of capital are subsequently used to perform the second stage of the sensitivity analysis. For this second stage, content analysis is performed on financial statements to identify and group accounting policies into several

categories, including income, expenses, assets, liabilities and equity. These are grouped into two broad categories: income after tax and equity. This approach is consistent with that of Goodwin and Ahmed (2006). The second stage of the sensitivity analysis involves reversing the changes in accounting policies, removing them from Australian banks' financial statements, in order to assess their impact on forecasting error through the use of valuation models, while keeping all other variables constant.

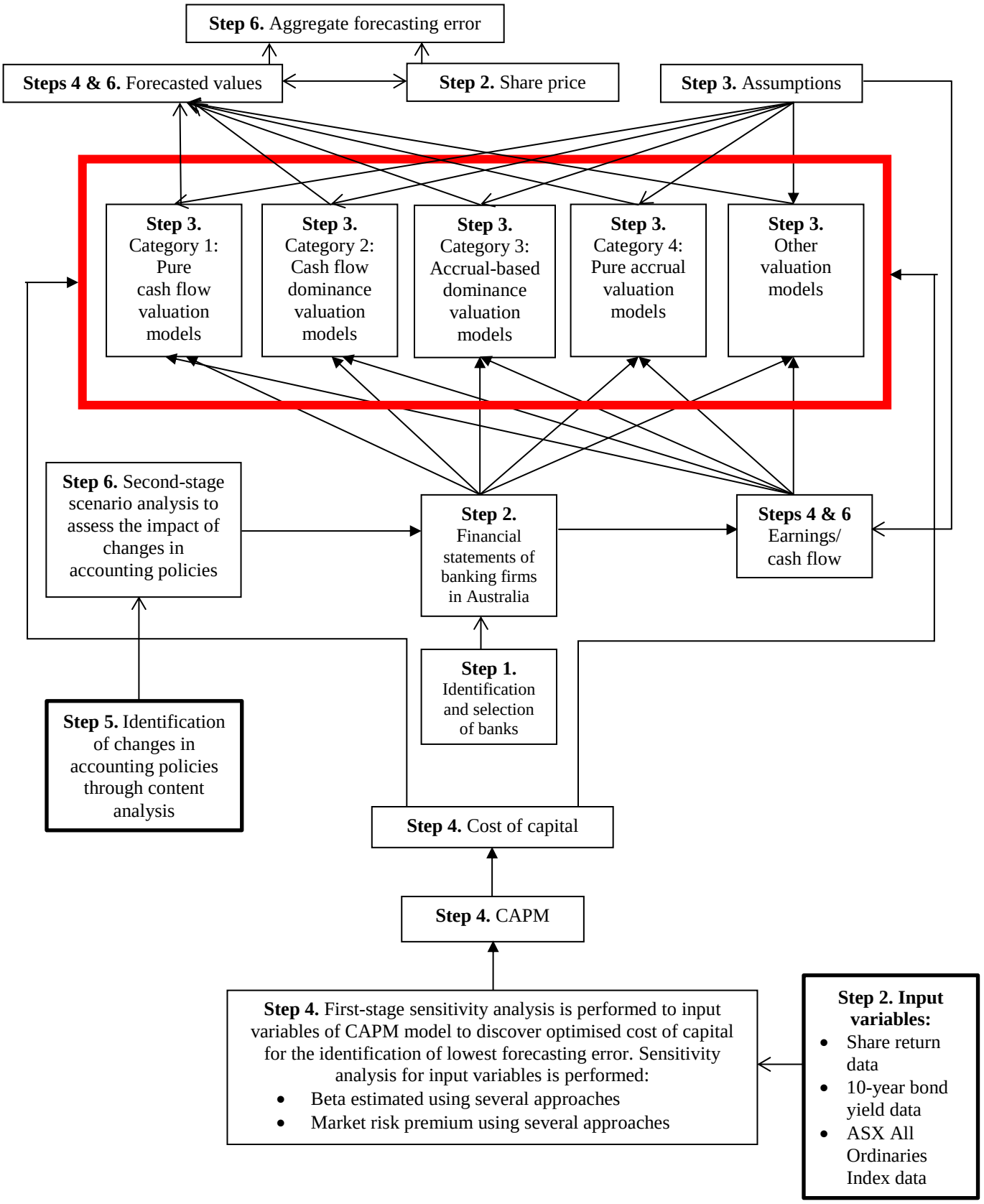

Figure 3.2: Framework for Sensitivity Analysis

3.3 **Population of Australian Commercial Banks and Selection Criteria**

The institutions authorised by APRA as deposit-taking institutions include Australian-owned banks, foreign subsidiary banks, branches of foreign banks, building societies and credit unions, among others. Table 3.2 shows the banks in Australia over the period of 1997 to 2007, including banks that ceased operations as independent banks after acquisitions. Cooperation between the AASB and IASB began in 1996 for the development of internationally accepted Australian accounting standards after the issuance of Policy Statement 6, 'International Harmonisation Policy', in 1996. This policy took a two-pronged approach: first, changing Australian accounting standards for issues not covered in international accounting standards; and second, adopting international accounting standards in order to provide more decision-useful information to the users of financial statements. This cooperation for the harmonisation of accounting standards between the AASB and IASB resulted in the Australian government's decision to adopt the IFRS in 2005. During this period, the number of domestic banks decreased from 18 banks in 1997 to 13 banks in 2007 due to mergers and acquisitions, including some banking firms with major sources of business in insurance and investment banking, and others that are subsidiaries of major banks (see Table 3.4).

Table 3.2: List of Australian Banks

1997*		2007*		Banks in continuous operation from 1997 to 2007	
Australian Banks**		**Australian Banks*****			
1	Australia and New Zealand Banking Group Limited ANZ)	1	Australia and New Zealand Banking Group Limited (ANZ)	1	Australia and New Zealand Banking Group Limited (ANZ)
2	Bank of Queensland Limited	2	Bank of Queensland Limited	2	Bank of Queensland Limited
3	BankWest	3	Bank of Western Australia Limited (a subsidiary of Commonwealth Bank of Australia, trading as BankWest)	3	Bank of Western Australia Limited (a subsidiary of Commonwealth Bank of Australia, trading as BankWest)
4	Commonwealth Bank of Australia Limited (CBA)	4	Commonwealth Bank of Australia Limited (CBA)	4	Commonwealth Bank of Australia Limited (CBA)
5	National Australia Bank Limited (ANZ)	5	National Australia Bank Limited (NAB)	5	National Australia Bank Limited (NAB)
6	St. George Bank	6	St. George Bank (Took over by Westpac Banking Corporation in 2008)	6	St. George Bank (taken over by Westpac Banking Corporation in 2008)
7	Suncorp-Metway Limited	7	Suncorp-Metway Limited	7	Suncorp-Metway Limited
8	Westpac Banking Corporation (WBC)	8	Westpac Banking Corporation (WBC)	8	Westpac Banking Corporation (WBC)
9	Macquarie Bank Limited	9	Macquarie Bank Limited	9	Macquarie Bank Limited
10	Adelaide Bank	10	Rural Bank Limited (a subsidiary of Bendigo and Adelaide Bank Limited		
11	Bendigo Bank	11	Bendigo and Adelaide Bank Limited (Bendigo and Adelaide banks merged in 2007)		
12	Primary Industry Bank	12	AMP Bank Limited		
13	Advance Bank Australia	13	Members Equity Bank Pty Limited		
14	IBJ Australia Bank				
15	Bank of Melbourne				
16	Colonial State Bank				
17	ING Mercantile Mutual Bank				
18	Bank of Melbourne				

*Foreign branches of international banks have been removed from the list.

Source: **Reserve Bank of Australia 1997 and ***Australian Prudential Regulation Authority 2007

The reduction in the number of banks was due to mergers and takeovers of small and medium-sized financial institutions by four major banks: ANZ, CBA, NAB and WBC. The Australian government in 1997 adopted the 'four-pillar' policy, which restricts mergers between these four banks in Australia (Sathye 2001; Bakir 2005). The four-pillar policy permitted the four largest banks in Australia, also known as the 'big four', to acquire a significant number of financial institutions. These mergers and acquisitions allowed domination by these four major retail and commercial banks in terms of market capitalisation and amount of assets. According to ATC (2010) and APRA (2010), in 2010 there are 56 banks in Australia, including 12 local banks, 9 foreign banks' subsidiaries and 35 branches of foreign banks.

Table 3.3 shows the operating results of all depository institutions, including ANZ, CBA, NAB and WBC, compared to other domestic banks, foreign subsidiary banks and branches of foreign banks. The total interest incomes, profits and carrying amounts of assets of the four major banks represent 75.49 per cent, 76.92 per cent and 67.26 per cent of the market respectively compared to the interest incomes, profits and carrying amounts of assets of other domestic banks, foreign banks and foreign branch banks in Australia. The four major banks hold 67.26 per cent of all assets compared to other domestic banks' 14.17 per cent, foreign subsidiary banks' 5.41 per cent and foreign bank branches' 13.15 per cent at December 2007.

Table 3.3: Operating Results of Australian Depository Institutions, December 2007

	All Banks	Major* Banks		Other Domestic Banks		Foreign Subsidiary Banks		Foreign Branch Banks	
	$ Billions	$ Billions	Percentage share	$ Billions	Percentage Share	$ Billions	Percentage Share	$ Billions	Percentage Share
Net interest income	10,451	7,889	75.49%	1,378	13.19%	662	6.33%	521	4.98%
Other operating income	10,376	4,698	45.28%	4,664	44.95%	406	3.91%	608	5.86%
Total operating income	20,827	12,588	60.44%	6,042	29.01%	1,068	5.13%	1,129	5.42%
Operating expenses	12,316	6,077	49.34%	4,685	38.04%	689	5.59%	865	7.02%
Net profit after tax	5,781	4,447	76.92%	923	15.97%	217	3.75%	193	3.34%
Total assets	2,690,466	1,809,735	67.26%	381,373	14.17%	145,664	5.41%	353,695	13.15%
Total shareholder equity	136,933	97,270	71.03%	30,394	22.20%	9,269	6.77%	-	-
Number of Banks	53	4	7.55%	8	15.09%	10	18.87%	31	58.49%

*Major Banks include ANZ, WBC, CBA and NAB.

Source: APRA, ADI Quarterly Performance Statistics, December 2007

The following criteria are applied in the selection of the study population of Australian commercial banks:

- A bank must have existed for the entire period from 1997 to 2007 and been primarily engaged in the retail and commercial banking businesses.
- A bank must be listed on the Australian Securities Exchange (ASX), with financial and share price information available. This information is necessary to measure forecast error before and after changes in accounting policies by testing intrinsic values against share prices.

This research is restricted to a population of large Australian retail and commercial banks, because firms that are unlisted, firms that have fewer shareholders, firms that are small in terms of asset size, firms audited by small audit firms, and firms that are less profitable in terms of earnings margins and return do not provide adequate financial disclosure (Buzby 1975; Singhvi & Desai 1971).

Table 3.4: Market Capitalisation of Australian Commercial Banks, 1997–2007

Banks	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007
Australia and New Zealand Banking Group Ltd	16.84%	17.25%	16.45%	17.10%	17.10%	17.92%	20.15%	20.64%	20.73%	19.35%	18.45%
Bendigo and Adelaide Bank Limited	0.23%	0.43%	0.33%	0.53%	0.53%	0.66%	0.77%	0.66%	0.77%	0.77%	1.46%
Bank of Queensland Limited	0.38%	0.38%	0.28%	0.28%	0.31%	0.44%	0.54%	0.56%	0.69%	0.74%	1.16%
Commonwealth Bank of Australia	20.14%	22.63%	27.42%	29.19%	25.40%	23.22%	23.99%	22.88%	23.94%	24.96%	25.53%
National Australia Bank Limited	34.14%	34.30%	30.35%	27.33%	31.61%	29.03%	24.39%	24.37%	24.83%	22.11%	19.59%
St. George Bank Limited	5.66%	5.00%	4.01%	5.04%	5.43%	6.49%	6.54%	6.83%	6.69%	6.58%	7.81%
Suncorp Group Limited	2.17%	2.01%	2.31%	4.04%	4.22%	4.09%	4.71%	5.48%	4.80%	6.91%	6.37%
Westpac Banking Corporation	20.44%	17.99%	18.86%	16.48%	15.41%	18.15%	18.91%	18.57%	17.56%	18.57%	19.63%
Total	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Total Market Capitalisation of ANZ, WBC, CBA, & NAB*	91.56%	92.18%	93.08%	90.11%	89.51%	88.32%	87.44%	86.46%	87.05%	84.99%	83.20%

- Average Total market capitalisation of ANZ, WBC, CBA & NAB is 88.54 %

Data source: Datastream (2012)

Table 3.4 shows the percentages of market capital capitalisation of all the listed banks including ANZ, WBA, CBA and NAB from 1997 to 2007. The total market capitalisation of the four major listed banks in Australia varies from 91.56 per cent in 1997 to 83.20 per cent in 2007. WBC's takeover of St. George Limited in 2008 would have further increased the total market capitalisation of the four major banks to approximately 91 per cent. Therefore, including or excluding small banks in this research would not significantly alter any weighted aggregate results, but would significantly distort any unweighted aggregate results.

Table 3.5: List of Banks Excluded from Analysis

Name of Bank	**Reasons for Exclusion from Analysis**
AMP Bank Limited	AMP Bank Limited has been excluded from the analysis due to the nature of AMP's business. AMP's business is primarily focused on financial advice and capital management. Therefore, a significant portion of AMP's business is dependent on non-banking financial services. AMP's financial data is not available during the period 1997 to 2007.
Bank of Western Australia Ltd	The Bank of Western Australia has been excluded from the analysis because it is a wholly owned subsidiary of the Commonwealth Bank of Australia.
Macquarie Bank Limited	Macquarie Bank has been excluded from the analysis due to the nature of its business as an investment bank, rather than a commercial bank.
Members Equity Bank Pty Limited	Members Equity Bank Pty Limited has been excluded from the analysis because it is a not listed on an organised exchange such as the Australian Securities Exchange. Therefore, market share price information is not available for this bank.
Rural Bank Limited	Rural Bank Limited is a subsidiary of Bendigo and Adelaide Bank Limited, and its business is primarily dependent on agriculture and related primary industry. Rural Bank's financial information is not available for the period 1997 to 2007.
Bendigo and Adelaide Bank Limited, Suncorp-Metway Limited and St. George Bank Limited	Bendigo and Adelaide Bank Limited, Suncorp-Metway Limited and St. George Bank Limited are relatively small banks in terms of market capitalisation and relative asset size. Therefore, exclusion of these banks from the data analysis did not have any significant effect on the overall analysis. Also, in 2008, Westpac Banking Corporation took over St. George Bank.

Table 3.2 shows that the Australian banking industry is composed of a small number of domestic banks; therefore, a small number of domestic banks are available for analysis. The

research is restricted to four banks to ensure that the sensitivity analysis is performed in a controlled environment without the need to obtain weighted average results, and also due to the low quality of small banking firms' disclosure.

Table 3.5 provides the list of banks that were excluded from this study, along with reasons for their exclusion. Some banks were excluded because they ceased to exist at some point in the period of 1997 to 2007 due to mergers and acquisitions, either by the four major banks or by other financial institutions. Other banks were excluded from the analysis due to the nature of their primary business: the study is restricted to those banks engaged in retail and commercial banking. Other reasons for exclusion include status as a subsidiary status of one of the four major banks, insignificant market capitalisation and relative size compared to the four major banks, and not being listed on the Australian Stock Exchange.

The study population comprises the following banks:

- Australia and New Zealand Banking Group (ANZ),
- Westpac Banking Corporation (WBC),
- National Australia Bank (NAB),
- Commonwealth Bank of Australia (CBA).

3.4 **Content Analysis of Financial Statements**

Content analysis is defined by Krippendorff (1980, p. 21) as:

> a research technique for making replicable and valid inferences from data to their context.

Content analysis is also defined by Gray et al. (2007, p. 283) as:

> a systematic attempt to examine some form of verbal or image communication.

Content analysis is further defined by Holsti (1969, p. 25) as a:

> technique for making inference by objectively and systematically identifying specified characteristics of messages.

Content analysis involves the development of a design for the analysis. Holsti (1969) described a research design for content analysis as a plan to collect data with a view to providing answers to research problems. Holsti (1969) identified three objectives of content analysis. The first objective is to describe the characteristics of communications by providing answers to what, how, and to whom something is communicated. The second objective is to make inferences from the communication by addressing the question of why that communication took place. The third objective is to analyse the impact of the communication on the recipient's behaviour.

Krippendorff (1980) identified three types of content analysis research designs. First, studies may be designed to explore some phenomenon where content analysis is applied as the sole research method. Second, designs may test substitutability, where content analysis is applied on data obtained through different methods, in order to assess the consistency of results and identify the best method. Third, designs may test hypotheses where content analysis is only one part of the project, such as where the data is available in both structured and unstructured forms, and content analysis is applied on the data that is unstructured. Figure 3.3 shows that unstructured data can be used as input to the content analysis process,

and the output of the content analysis is used to test hypotheses in combination with other structured data.

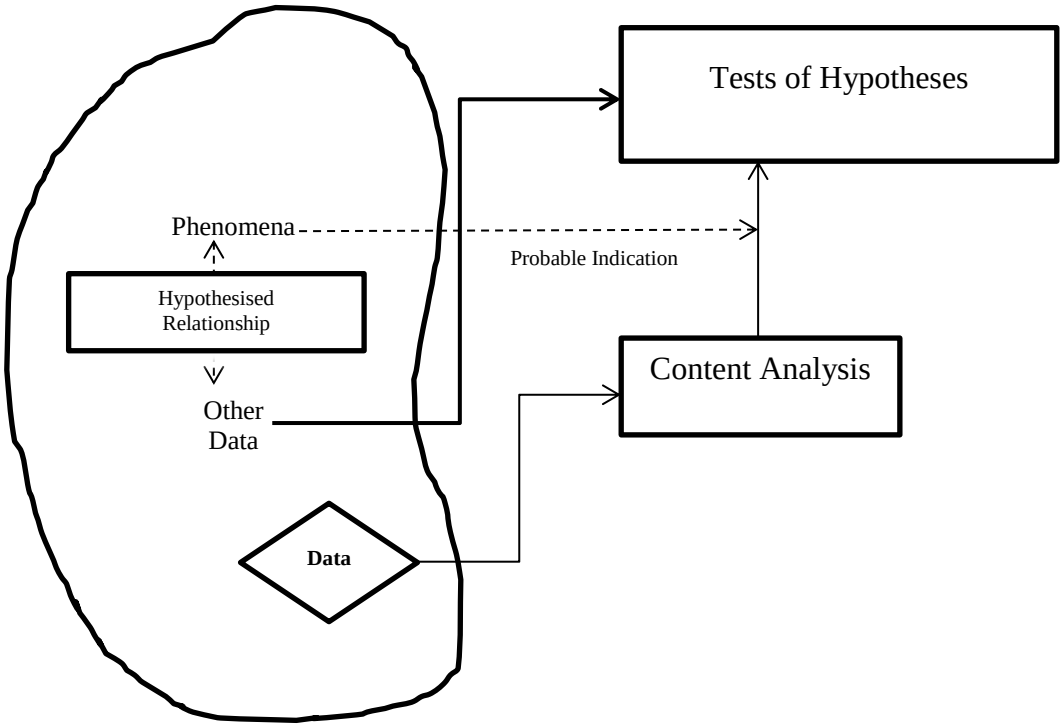

Figure 3.3: Content Analysis to Design and Test Hypothesis

Source: Krippendorff (1980)

Content analysis as a research methodology has been widely applied, not only in other disciplines, but also in accounting and finance research. Several researchers have used content analysis as a methodology for investigating relationships between accounting information, analysts' perceptions and valuation of equities (Barker & Imam 2008; Breton & Taffler 2001; Hopkins 1996; Imam et al. 2008; Previts et al. 1994; Rogers & Grant 1997).

This research uses content analysis to identify changes in accounting policies during the initial phase of the research (see Figure 3.3) through the use of content analysis approaches identified by Holsti (1969), along with Krippendorff's (1980) design. Changes in accounting policies are identified through content analysis of the annual reports of Australia New Zealand Banking Group, Westpac Banking Corporation, National Australia Bank and Commonwealth Bank of Australia from 1997 to 2007. Annual reports have been accessed from firms' websites. A total of 44 annual reports have been analysed. A large number of changes in accounting policies were reported in the annual reports of these firms during the years 2005 and 2006 due to the Financial Reporting Council and AASB's decision to adopt IAS or IFRS in Australia, harmonising Australia's financial reporting practices with the requirements of international accounting standards on 1 January 2005.

In this research, accounting policies are grouped into several categories to assess the impact of changes in accounting policies on different elements of financial statements. A similar approach was adopted by Vergoossen (1997) to investigate changes in accounting policies and functional fixation of investment analysts on accounting numbers. Vergoossen (1997) selected 40 actively traded companies from the Amsterdam Stock Exchange, excluding banking and insurance companies from the sample in order to protect sample data from distortion due to the different capital structures of banking and insurance firms. The criteria developed by Vergoossen (1997) to identify changes in accounting policies consisted of accounting changes that were disclosed in annual reports and accounting changes that had a material effect on net income or equity. Vergoossen (1997) grouped changes in accounting policies are grouped into four categories: first, changes in accounting policy on investment grants; second, capitalisation of publishing rights; third, changes from current cost to

historical cost accounting; and fourth, miscellaneous accounting changes that could not be classified in the first three categories.

Accounting policy changes are generally categorised into two broad categories: mandatory changes and discretionary changes. It should be noted that AASB 108 does not specifically distinguish between mandatory accounting policy changes and discretionary accounting policy changes. It does, however, specify conditions where firms are required to change accounting policies. According to AASB 108, firms must change their accounting policies if it is required by an Australian accounting standard or if the change in accounting policy would result in the creation of more reliable and relevant information. However, this research focuses on accounting policy changes introduced through the changes in Australian accounting standards.

The criteria used in this research to identify changes in accounting policies are based on Vergooseen's (1997) approach, as well as that of Woods and Marginson (2004). Changes in accounting policies are identified from banks' financial statements along with the following characteristics of the changes:

- A change in accounting policy is adopted by a bank and material change in accounting policy is also disclosed;
- A description of the change in accounting policy is provided by disclosing the impact of the accounting policy change;
- A reason is given for the change in accounting policy; and
- The cumulative effect of the change in accounting policy on the bank's financial statements is provided.

A comparison of the research designs of Vergoossen (1997) and Woods and Marginson (2004) shows that both had a similar approach to performing content analysis. However, Woods and Marginson's study (2004) was designed to assess the quality of narrative and numerical disclosures with a focus on derivative disclosure provided by UK banks.

In this study, data from 44 annual reports of four Australian banking firms is subject to content analysis. Content analysis is performed manually by analysing each annual report for changes in accounting policies. The focus of this research is on the changes in accounting policies due to the changes in accounting standards; therefore, only mandatory changes in accounting policies are analysed in this research. The analysis is expected to identify mandatory accounting policy changes along with related qualitative and quantitative disclosures, which are then to be used to reconstruct financial statements before the changes in accounting policies to measure forecast error before and after the changes in accounting policies.

3.5 **Conclusion**

This chapter has considered the methodological issues related to the identification of the population of Australian banks from 1997 to 2007. The Australian banking industry has undergone a significant transformation during this period due to mergers and acquisitions, allowing four large banks in Australia to dominate the industry in terms of market capitalisation, income and assets size (Sathye 2001). The number of publicly listed Australian banks reduced from 18 to 13, with nine Australian banks surviving mergers and

acquisitions, during the time horizon used in this research. Of those nine banks, only the four largest are considered in this research (see Table 3.5). The decision to select the four largest banks for this study is based on the argument that these four largest banks effectively represent the entire population of the Australian banking industry. Table 3.3 and Table 3.4 show that these four largest banks have an average market capitalisation of 88.54 per cent from 1997 to 2007, with 67.26 per cent of all assets compared to 14.10 per cent for other domestic Australian banks, and net profit after tax of 76.92 per cent in 2007 compared to 15.97 per cent for other domestic Australian banks.

This chapter has also discussed the methodology of content analysis. The content analysis in the present study utilises a combination of Holsti (1969), Krippendorff (1980), Woods and Marginson (2004) and Vergoossen's (1997) approaches. Holsti (1969) identified the objectives of content analysis, while Krippendorff (1980) identified designs for testing hypotheses to make content analysis a part of a research project where content analysis is applied on unstructured data, which in the present study takes the form of disclosures about changes in accounting policies provided in financial statements. Vergoossen (1997) developed criteria for the identification of changes in accounting policies. Accounting policy changes are generally categorised into mandatory changes and discretionary changes; mandatory accounting policy changes are introduced due to changes in accounting standards (see section 2.3). AASB 108 deals with accounting policy changes (previously required under AAS 6, 'Accounting Policies', and AASB 1001, 'Accounting Policies', prior to 2005'). AAS 6, AASB 1001 and AASB 108 allow Australian firms to adopt changes in accounting standards from other accounting standard-setting bodies if they use a similar conceptual framework in the absence of guidance provided under existing

Australian accounting standards. However, in the event of changes in accounting policies, firms are required to provide a complete account of the impact of changes in accounting policies on the financial statements.

The focus of this research is to assess the financial impact of accounting policy changes due to changes in accounting standards. Therefore, content analysis is used during the first stage to identify the changes in accounting policies that have been undertaken and the impacts of these changes. In the second stage of content analysis, changes in accounting policies are grouped into five categories based on the elements of financial statements; these categories of changes are income, expenses, assets, liabilities and equity. These can be more broadly categorised as income and equity. Chapter 4 discusses research methodology issues related to the cost of capital, use of valuation models, measurement of statistical relationships between changes in accounting policies and overall impact of changes in accounting policies on the intrinsic values of banking firms.

Chapter 4: Research Design and Methodology—Sensitivity Analysis and Valuation Models

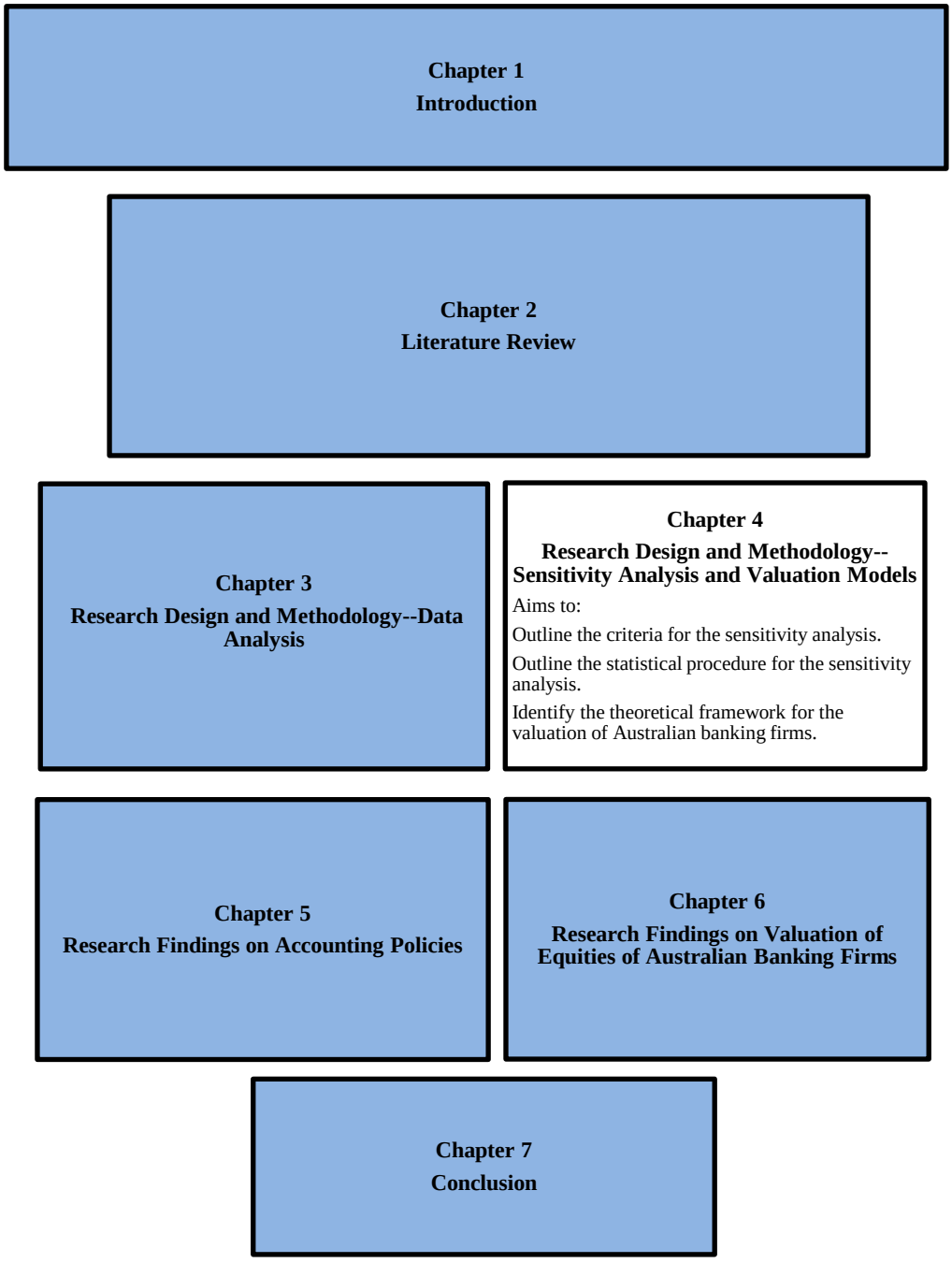

Figure 4.1: Outline of Thesis: Chapter 4

4.1 **Introduction**

Where the previous chapter addressed data analysis issues, this chapter deals with valuation models and sensitivity analysis issues. Section 4.2 in this chapter, on valuation models, draws from the findings of Demirakos et al. (2004) and Imam et al. (2008) (see Tables 2.1 and 2.2). The purpose of this chapter is to discuss the use of sensitivity analysis to discover the impact of changes in accounting policies due to changes in accounting standards. The changes in accounting policies affect the decision usefulness of information provided to investors in Australian banking firms; investors are also considered the core users of financial statements, according to the AASB Framework (AASB 2004f, 2013; see Chapter 2.4). The decision usefulness of information provided to investors depends on the outputs generated by valuation models in the form of intrinsic values, which are compared with securities market prices to explore that intrinsic value after changes in accounting policies result in reductions in forecasting error. This chapter also discusses issues related to banks' capital, cost of capital, risk premiums, beta estimations, dividend imputations and valuation models.

4.2 **Valuation Models**

Valuation theory explains that the values of equity securities are equal to the discounted future cash distributions that these securities are expected to generate. Cash distributions are made in the form of cash dividends; therefore, a basic or generic valuation equation can take the form shown in equation 4.1, which is also known as a dividend discount model (Lundholm & Sloan 2007). Imam et al. (2013, p. 12) also explained that:

> [according to] financial theory the value of a share is equal to discounted value of all future dividends. This can be applied by forecasting and discounting dividends directly (i.e. dividend discount model), or by recasting dividends in terms of free cash flow (i.e. discounted cash flow model), or by recasting dividends in terms of earnings and book value (i.e. residual income model). Valuation models can be classified as absolute or fundamental valuation and relative valuation.

According to Lundholm and Sloan (2007, p. 5):

$$Value_0 = \sum_{t=1}^{\infty} \frac{Cash\ Dividends_t}{(1+r)^t} \tag{4.1}$$

Where

$Value_0$ = Value of equity at time 0

$Cash\ Dividends_t$ = Expected amount of cash dividends to be paid in period t

r = Discount rate (cost of capital)

The concept of present value is utilised in most valuation models either directly or indirectly. Damodaran (2002) discussed the use of different categories of valuation models; some of these models use different assumptions, resulting in different outputs. Damodaran identified three approaches to valuation of shares—DCF valuations, relative valuations, and contingent claim valuations—and further acknowledges that these approaches could result in different outcomes.

4.3 **Free Cash Flow-Based Valuation**

Cash flow-based models, particularly those models that use free cash flows as variables for the estimation of a firm's forecasted value, generally rely upon positive free cash flows as input. Estridge and Lougee (2007) criticised representations of accounting earnings as

being subject to manipulation; because of this, managers and investors may alternatively look towards using cash flow as a DCF measure in equity valuation to avoid earnings illusion created by accounting distortions. Investors' preference for cash flow-based valuation over earnings lies in the misconceptions that a cash flow model is relatively simple and easy to apply, and that cash flow data is readily available. However, the accounting and finance literature has provided several definitions of cash flow and free cash flow. In order to avoid confusion and complex calculations, users resort to applying shortcuts, such as EBITDA and cash earnings. Estridge and Lougee (2007) also emphasised the FASB and IASB's inability to come up with a common standardised definition of cash flow and the inconsistency within US GAAP in terms of achieving a unified standard for measuring cash flows across the board. Weiss and Yang (2007) supported Estridge and Lougee's (2007) criticisms of statements of cash flows by analysing of financial institutions' cash flow statements. They identified several weaknesses by comparing the cash flow statements of industrial firms with those of banks. According to them, the core business activities of banking and non-banking firms are different: banks manage customers' accounts, which are classified as liabilities; they lend money to customers, which is classified as an asset in the form of debt; and they undertake trading activities, which are also classified as assets on the balance sheet. If these operations are considered the core operations of a bank, then they should be classified as the operating activities of the business, instead of as financing activities, as prescribed in the current accounting standards. However, deposits from customers are included in the financing activities of the business instead of in its operating activities. Therefore, information about cash flows generated through a current cash flow statement does not serve its purpose, in the absence of a more appropriate presentation and classification being required of banking firms. It

was also concluded by Estridge and Lougee (2007) that a statement of cash flow in its current form only provides information about the sources and uses of cash in line with net income, and does not provide information about how much cash has been reserved for dividend payments and capital expenditure, which is necessary for future decision making.

The definition of free cash flow initially identified by Jensen (1986) as cash flow in excess to fund all projects. A similar definition of free cash flow by Weiss and Yang (2007, p. 5) defines free cash flow as:

> Cash without any restrictions on its use. It is available for any purpose at any time.

These simple definitions of free cash flow is subject to several interpretations; users may use different definitions of free cash flow. The following is a partial list of the definitions of free cash flow currently in use:

- Cash provided by operations less capital expenditures;
- Cash provided by operations less capital expenditures and dividends paid;
- Net income plus depreciation less capital expenditures;
- EBITDA less capital expenditures;
- Earnings before interest and taxes (EBIT) multiplied by 1 minus the tax rate, plus depreciation and amortisation less changes in operating working capital less capital spending.

Damodaran (2002) defined free cash flow to equity and free cash flow to the firm as follows:

Free cash flow to equity = Net income − (Capital expenditure − Depreciation) - (Changes in non-cash working capital) + (New debt issued − Debt repayments)

Free cash flow to the firm = Free cash flow to equity + Interest expense (1 − Tax rate) + Principal repayments − New debt issued + Preferred dividend

or:

Free cash flow to the firm = Earnings before interest and taxes (1 − Tax rate) + Depreciation − Capital expenditure − Change in working capital

Penman (2006) defined free cash flow as the difference between cash flow from operations and cash investments. Under this definition, free cash flow can be expressed as:

Free cash flow = Cash flow from operations − Cash investment

Free cash flow is criticised as an unreliable indicator of value because it is based on the liquidation concept; firms can increase their free cash flow by reducing investments. On the other hand, an increase in cash investment compared to cash flow from operations converts positive free cash flow to negative free cash flow, which results in model failure (Penman

2006). The above definition of free cash flow to equity by Damodaran (2002) considers changes in non-cash working capital for the calculation of free cash flow to equity, but Damodaran acknowledged simultaneously that non-cash working capital estimation for banks is problematic. Therefore, dividends can be used for banks instead of free cash flow to equity for the estimation of forecast values. Gross (2006) endorsed Domodaran's (2002) view on the complexities associated with the estimation of free cash flow to equity, but suggested that analysts use net income as a proxy for free cash flow to equity where they are unable to estimate it.

4.4 **Dividend Discount Models**

Dividend discount models rely on three factors for the calculation of intrinsic values: first, expected future dividends; second, cost of equity, which is dependent on the risk factors; and third, the expected growth rate of dividends, which can be closely linked with future earnings and dividend payout ratios. As mentioned above, Damodaran (2002) discussed applications of dividend models, and identified several complexities with the application of dividend discount models, such as the difficulty in valuing a firm that pays low or no dividends, and the length and segmentation of the forecasted period.

Penman and Sougiannis (1998) noted an appreciation for the appeal of the dividend discount model for its emphasis on actual distributions of cash flows to shareholders, but simultaneously identified a potential problem with this model. They used the findings of Miller and Modigliani (1961) on dividends' irrelevance to show that the formula for the dividend discount model requires prediction of dividends indefinitely, but that share price is

unrelated to the timing of the expected dividend payout policy. Hence, forecasted dividends cannot be linked with the value of a firm. To address this problem, either a long-term dividend forecast must be utilised, or terminal value estimation is required for a shorter period. A slight change in either the cost of equity or the growth rate could significantly alter the outcome of the entire process. Penman (2007a) identified further limitations of dividend discount models in their dependence on the proportions of dividend payouts. Dividend payouts cannot be linked with value in the short run. If the holding period is finite, dividend discount models consider capital gains and require long-term forecasts, which creates uncertainty about the forecasted share price.

Damodaran (2005) identified that a dividend discount model is simple, and that dividends are cash flows that are available to investors. The model requires few assumptions to forecast dividends compared to cash flows. Dividend payout ratio is set by managers at a sustainable level in comparison with current earnings and expected future earnings, and dividends are less volatile compared to cash flows.

4.4.1 Gordon growth model

Gordon (1959) identified that the most predictable cause of growth in dividends is retained earnings. If a firm is expected to earn a return on investment and retain a portion of its income, then the firm's dividend growth rate can be obtained by multiplying return on investment with retention rate.

$$V = \frac{\mathrm{DPS_1}}{\mathrm{k_e} - \mathrm{g}} \tag{4.2}$$

Where

DPS_1 = Expected dividend per share at the end of next year

k_e = Cost of equity

g = Growth rate in dividend forever

V = Value of share

This model suggests that the value of a share is equal to the present value of all future dividends assuming a constant growth rate. Fuller and Hsia (1984) acknowledged that the dividend discount model is theoretically correct; however, they criticised its application, as it requires an infinite estimation of dividends.

The Gordon model is mainly dependent on two factors for the calculation of intrinsic value. The first factor is discount rate, which is firms' cost of equity, and the second factor is dividend growth rate. The Gordon model is highly sensitive to growth rate, whereby a variation in growth rate can significantly increase or decrease the intrinsic value of a security as the value extends to infinity. The model further assumes a constant dividend growth rate, and if the dividend growth rate is high, then the intrinsic value of the firm's shares will be higher, while the increase in risk factor, which is an integral part of the model in the form of cost of equity or discount rate, decreases the intrinsic value of a firm's equity (Damodaran 2002, 2005; Fuller & Hsia 1984).

According to Penman (2006), the two-stage valuation model can replicate the Gordon model if a constant growth rate is achieved starting in the first year. Where constant growth starts in the first year, the entire dividend stream becomes a perpetuity. It is further claimed that dividend payment is meaningless, that dividends cannot be tied with value creation, and that firms can borrow or raise capital to pay dividend.

4.4.2 Two-stage dividend growth model

The two-stage model assumes that dividends grow at a higher rate, or at a lower rate during the initial growth period and then at a stable rate thereafter. According to Damodaran (2012) and Viebig et al. (2008), the two-stage dividend valuation model can be mathematically stated as follows:

$$P_O = \frac{DPS_O \times (1+g) \times \left(1 - \frac{(1+g)^n}{(1+r)^n}\right)}{r-g} + \frac{DPS_{n+1}}{(r-g_n)(1+r)^n} \qquad (4.3)$$

Where

P_0 = Value of shares

DPS_0 = Current dividend per share

DPS_{n+1} = Expected dividend at the end of the growth period

g = Extraordinary growth rate

n = Number of periods

r = Cost of equity

g_n = Stable growth rate

The two-stage dividend discount model is divided into two phases: the initial and stable growth phases. The initial phase consists of an extraordinary growth period, which is later followed by a period of stable growth. The model calculates the present values of all future dividends during the growth phase and terminal phase. Sorensen and Williamson (1985) claimed that most brokerage firms use models with two or more growth periods; the two-stage model has an initial growth phase that generally lasts two to ten years, followed by a stable growth period.

4.4.3 Three-stage dividend growth model

According to Fuller and Farrell (1987), the three-stage dividend growth model was initially developed by Moldovsky (1965) and later refined by Bauman (1969). The three-phase model assumes that there are three phases of growth: during the initial phase, dividends grow at a high, stable growth rate; during the transition phase, dividends decrease linearly; and during the third phase, firms lose their competitive advantage and the growth rate decreases to a stable growth rate.

$$P_0 = \sum_{t=1}^{t=n_1} \frac{EPS_0 \times (1+g_a)^t \times \omega_a}{(1+k_{e,hg})^t} + \sum_{t=n_1+1}^{t=n_2} \frac{DPS_t}{(1+k_{e,t})^t} + \frac{EPS_{n2} \times (1+g_a)\omega_n}{(k_{e,st}-g_n)(1+r)^n} \quad (4.4)$$

Where

EPS_t = Earnings per share in year t

DPS_t = Dividend per share in year t

g_a = Growth rate in high growth phase

g_n = Growth rate in stable growth phase

ω_a = Payout ratio in high growth phase

ω_n = Payout ratio in stable growth phase

k_e = Cost of equity in high growth (hg), transition (t) and stable growth (st)

The three-stage growth model uses various variables, such as payout ratios, growth rates and cost of equity, during its various growth levels.

4.4.4 Fuller and Hsia (1984) H-model

Fuller and Hsia (1984) argued that users prefer a valuation model that is conceptually sound, requires few inputs, is flexible in estimating dividend growth and allows for simple calculations of either price or discount rate. They also criticised constant growth valuation and three-stage dividend discount models. According to them, the constant growth rate model simplifies the problem of dividend estimation by keeping dividends constant, but actual events do not support constant dividend assumptions. The three-phase valuation model has gained popularity by providing some flexibility in estimating dividends, based upon three growth phases. The three stages of growth provide flexibility to analysts in

estimating future dividend growth rates. However, the major drawback of the three-phase valuation model is that it requires several long periods to estimate growth rates during the different phases.

The H-model is based on the assumption that earnings growth starts at a higher rate and decreases linearly towards a stable growth rate, with dividend payout ratio and cost of equity remaining constant during this period. The model also assumes a constant payout ratio, and that cost of equity remains constant during the period of analysis. According to Fuller and Hsia (1984) and Fuller and Farrell (1987), the H-model is mathematically stated as follows:

$$P_0 = \frac{D_0}{r - g_n}\left[(1 + g_n) + H(g_a - g_n)\right] \quad (4.5)$$

Where

H = The midpoint of the time horizon in number of years between the start of the dividend growth and beginning of the long run growth rate for the firm

g_n = Long-term constant growth rate

g_a = Starting growth rate

P_0 = Price of share

D_0 = Current dividend

4.5 **Relative Valuation**

Dividend discount models, cash flow models and residual income models provide values on the basis of expected future earnings, dividends and cash flows. The relative valuation is based on what investors are paying for comparable or similar assets (Viebig et al. 2008). Berkman et al. (2000) identified that if similar firms' relative valuations are chosen from the same industry, they should have similar characteristics, such as risk, growth and accounting methods. However, identifying similar firms becomes difficult in a market where an industry is composed of fewer firms. Imam et al. (2008) conducted interviews with financial analysts and content analysis of analysts' reports to investigate valuation model usage among financial analysts. Their research showed that, when valuing financial firms, financial analysts rank accrual-based unsophisticated models, such as price-to-earnings and price-to-book value, higher than dividend discount and DCF models, which are considered sophisticated models compared to relative valuation models. Analysts prefer to use relative valuation models because they provide faster analysis compared to cash flow-based models, and are also comparatively easier to understand, showing the current disposition of the market around an asset and its peer group (Damodaran 2002, 2005).

4.6 **Residual Income Models**

Residual income models in their current form were developed by Ohlson (1995). Stowe et al. (2007) discussed residual income as an economic concept. Traditional income statements deduct cost of debt as an expense, but ignore cost of equity. This makes shareholders accountable for adjusting income using cost of equity as opportunity cost for

the calculation of intrinsic values of shares. Residual income models can be applied on the valuation of those firms that generate negative free cash flows. According to Penman (2007a), negative free cash flow arises when a firm invests more cash in its operations than it generates from operations. The general equation for the residual income model is as follows (Stowe et al. 2007):

$$V_o = B_o + \sum_{t=1}^{\infty} \frac{(ROE_t - r) \times B_{t-1}}{(1+r)^t} \qquad (4.6)$$

Where

B_0 = Current per-share book value of equity

ROE_t = Return on equity in time t

r = Required rate of return on equity (cost of equity)

B_{t-1} = Expected per-share book value of equity at any time t

V_0 = value of a share of stock today (t = 0)

4.6.1 Constant growth residual income valuation

According to Stowe et al. (2007), a single-stage or constant growth residual income valuation model assumes a constant return on equity and growth in earnings. This model is similar to the Gordon growth model. However, a potential problem with this model is that it assumes that return on equity will always be greater than the cost of equity.

$$V_o = B_o + \frac{ROEt - r}{r - g} B_o \quad (4.7)$$

Where

B_0 = Current per-share book value of equity

ROEt = Return on equity in time *t*

r = Required rate of return on equity (cost of equity)

g = b × ROE, where b is the retention rate

V_0 = Value of a share of stock today (t = 0)

4.6.2 Two-stage residual income valuation model

According to Lundholm and Sloan (2007), Lundholm and O'Keefe (2001) and Plenborg (2002), the residual income model starts with the book value of the equity and adds residual income after discounting it; residual value can be defined as the difference between return on equity and cost of equity multiplied by the book value of equity. Therefore, the difference between the firm's book and intrinsic values arises due to the increase in residual income or growth rate in book value. The equation for the two-stage residual income is stated as follows:

$$\mathrm{P_e} = \mathrm{CE_o} + \sum_{\mathrm{t=1}}^{\mathrm{T-1}} \frac{\mathrm{RI_t}}{(1 + \mathrm{r_e})^{\mathrm{t}}} + \frac{\mathrm{RI_T}}{(\mathrm{r_e} - \mathrm{g})(1 + \mathrm{r_e})^{\mathrm{T-1}}} \quad (4.8)$$

Where

CE_0 = Shareholders' equity at time t

$RI_t = NIt - reCEt\text{-}1$

RI_T = Terminal residual income

r_e = Cost of equity capital

NIt = Net income for the period at time t

Penman and Sougiannis (1998) and Francis et al. (2000) showed that residual income valuation models are superior in terms of forecast accuracy compared to dividend discount models and DCF models.

4.7 **Validation and Selection of Models**

The objective of the research is to assess the impact of changes in accounting policies by Australian banks on forecasting error through the use of valuation models. Therefore, it is necessary to identify valuation models that can be applied to Australian banking firms. This research groups valuation models into several categories, including multiples-based valuation models, cash flow-based valuation models, dividend discount models and earnings or residual income-based valuation models. Table 4.1 shows the categories of models along with the reasons for inclusion and exclusion of valuation models from the analysis.

Table 4.1: Selection of Models for Analysis

Category of Valuation Models	Type of Data Used as Input	Reasons for Inclusion or Exclusion
Multiple-based models	Multiple-based models use market price, cash flows, sales, book value and earnings as inputs.	Multiple-based valuation models are excluded from this research because the objective of the research is to discover the intrinsic values of the banking firms' shares.
Cash flow-based models	Cash from operations, depreciation, amortisation, earnings before interest and taxes, net working capital, cost of capital and capital expenditure and net investment.	Cash flow-based valuation models are excluded from this research for the following reasons: A significant number of banks generated negative free cash flows during the period of this analysis. Firms growing rapidly generally generate negative free cash flows, which cannot be valued. Financial analysts use alternative models for valuations due to negative free cash flows. Banks' assets are mostly financial and highly liquid assets. Due to this, they cannot be categorised in current and non-current classifications, including liabilities. Therefore, it is not possible to identify the working capital of banking firms based on the traditional definition of working capital. There is no single agreed definition of free cash flow.
Dividend discount models	Dividend, cost of capital, and growth rates.	Dividend-based models are included in analysis due to the availability of input data.
Residual income-based models	Book value, earnings, cost of capital and growth rates.	Residual income-based models are included in the analysis due to the availability of data.

Damodaran (2012) identified three approaches to the valuation of shares. The first approach is based on estimation of the present value of future cash flows, also known as DCF valuation. The second approach is based on relative valuation, which compares comparable assets relative to common variables such as earnings, cash flows, sales and books values. The third approach is contingent claim valuation, which uses options pricing models. Imam et al. (2008) and Demirakos et al. (2004) also created several categories of valuation

models used by financial analysts (see section 2.7). Valuation models are categorised as multiples-based models (relative valuation), cash flow-based models, dividend discount models, returns-based valuation models and earnings-based models. In order to assess the suitability of these valuation models, the following criteria have been applied for the selection and assessment of valuation models that can be applied to the Australian banking industry.

The present research requires the forecasted values of banking firms' shares to measure the impact of accounting policy changes on forecasting errors. Therefore, multiples-based valuation models and returns-based valuation models are excluded from the research due to these models' inability to provide absolute intrinsic values. Free cash flow models provide absolute values, but one of the limitations of free cash flow models is that they cannot value negative free cash flows, and the banking firms' data from 1997 to 2007 show significant events of negative free cash flows. Further, it is difficult for an external analyst to identify banks' non-cash working capital, which is used as input to free cash flow-based valuation models (see section 4.5.1).

Cullen and Frey (1999, p. 50) defined validation as:

> an analysis that can reveal conditions under which a model fails to perform adequately.

Cash flow-based models have been rejected because they cannot be applied to Australian banking firms, due either to the unavailability of data or the limitations of models to handle inputs required for the estimation of intrinsic values.

Similarly, cash flow-based models cannot be applied to Australian banking firms because some free cash flows in the Australian banking industry are negative, and free cash flow-based models cannot handle negative cash flows. As suggested by Penman (2007a), growth firms create value despite generating negative cash flows by discovering investment opportunities. Free cash flow models obscure information about investments with their capturing of amounts of return from investments, which is based on the notion that firms' cash flows decrease when they invest cash in the business. Therefore, when firms invest cash to generate further cash from operations, their free cash flows become negative. Another difficulty in applying free cash flow models such as free cash flow to firm is the use of cost of debt for the calculation of a firm's value. Free cash flow to firm uses WACC as its required rate of return. WACC has two components: cost of equity and cost of debt. While identifying the cost of debt, Gross (2006) explained that banks' operating and investing activities are intertwined; this view was also endorsed by Damodaran (2002). Therefore, from an outsider's perspective, it is extremely difficult to identify the amount of debt and subsequently assign cost of debt due to the transitory nature of debt and deposits.

Gross (2006) further emphasised that equity valuation models, rather than enterprise or firm valuation models such as free cash flow to equity, are most appropriate for banking firms' valuation, as debt is not considered in the valuation process and cost of equity is used as the required rate of return. However, Gross (2006) ignored the limitations of free cash flow to equity models in that negative cash flows are difficult to handle under free cash flow to equity models, while at the same time, no consideration was given to the estimation of non-cash working capital, which is an integral component of free cash flow to equity models.

Damodaran (2002) defined free cash flow to equity as follows:

Free cash flow to equity = Net income – Net capital expenditures
– Changes in non-cash working capital
– (Debt repayment – New debt issued)

Free cash flow to equity uses changes in working capital as an input to value equity. Due to the nature of banking firms' assets and liabilities, and as per AASB 101, 'Presentation of Financial Statements' (2007a), banking firms' assets and liabilities are stated in order of liquidity without classifying them as current and non-current. In this scenario, it is difficult to identify working capital, and as a consequence, free cash flow to equity models cannot be applied on banking firms.

4.8 **Identification of Banks' Capital**

Several research studies have identified the use of valuation models by financial analysts (Demirakos et al. 2004; Demirakos et al. 2010; Gleason et al. 2013; Gross 2006; Imam et al. 2008; Imam et al. 2013; Koller et al. 2010; Nissim & Penman 2001; Penman 1998; Penman 2006). Valuation models can be divided into two groups for the estimation of intrinsic values based on capital. The first group of valuation models provides the firm's intrinsic value, which is based on the total value of the firm's capital, including both debt and equity. The second group of valuation models provides the intrinsic value of the firm's equity.

Identifying banks' capital for the purposes of valuation is a key issue, as banks have atypical capital structure (see section 2.9). To address this key issue, this section looks at two definitions of capital: first, the equity approach, which identifies bank capital as the difference between total assets and total liabilities; and second, the regulatory approach, in which banks' equity, hybrid instruments with characteristics of both debt and equity, and long-term debt are all identified as capital (Gup et al. 2007). Damodaran (2002) supported the use of the equity approach for the estimation of intrinsic values for banking firms by confining banks' capital to equity capital alone, because banks are considered different from other firms. While other firms raise capital in the forms of equity and debt and use this capital to invest in assets, banks transform financial products and sell them at higher returns. Therefore, banks' capital should only include equity capital (APRA 2006, 2013). In this research, the equity approach is applied to identify banks' capital and, due to the application of this approach, banks' capital is restricted to total amount of equity. This approach is also consistent with the definition of capital provided by Sharpe (1978), who defined banks' capital as the difference between assets and liabilities, with deposits falling under liabilities.

4.9 **Cost of Capital**

Banking firms are generally considered complex to value due to the nature of their operations and also due to their capital and assets structure. Copeland et al. (1995), Gross (2006) and Koller et al. (2010) identified the complexities involved in the valuation of banking firms. It has been suggested that firm valuation models such as enterprise value models that use weighted average cost of capital for discounting free cash flow to the firm

are difficult to apply on banking firms, due to the complexity involved in separately identifying banks' debt component of capital. For non-banking firms, it is relatively easy to clearly distinguish operating activities from financing activities, and to assign value to operating activities. However, for banking firms it is difficult to value operating activities by excluding interest income and other related expenses. A comparison between the input variables for the equity valuation approach and the enterprise value approach shows that enterprise value models cannot be applied on banking firms without access to internal information, and therefore, the equity approach to valuation is considered the most appropriate approach to valuing banks, where analysts forecast free cash flow to equity and discount it using cost of equity. Therefore, capital is restricted to equity, as a consequence cost of capital being confined to cost of equity for the valuation of banking firms.

The cost of capital can be estimated using several methods (Shapiro 1978; Litzenberger et al. 1980; Gitman & Mercurio 1982; McCauley & Zimmer 1991; Officer 1994; Ferson & Locke 1998; Kester et al. 1999; Lally 2000; Gebhardt et al. 2001; Christensen et al. 2002; Beneda & Colson 2003; Cannavan et al. 2004; Dye & Sridhar 2004; Pittman & Fortin 2004; Ziyun et al. 2005; Truong et al. 2008; Pratt & Grabowski 2009; Pratt & Grabowski 2010). Surveys conducted by Truong et al. (2008), Bruner et al. (1998) and Aswengen and Jedlin (2013) showed that the CAPM, introduced by Sharpe (1964), is still the preferred method for the evaluation of risk premiums for cost of capital. Theoretically, equity risk premium is a function of security beta, which measures the sensitivity of excess total returns on any security against the total excess return on the market (Pang 2001). Hence, the required return of equity is calculated through the use of CAPM. The survey conducted by Truong et al. (2008) in the Australian context discovered that 88 per cent of respondents

used cost of capital for investment valuation, and that CAPM was the most widely used method for estimating cost of equity, with a response rate of 72 per cent. Gray and Hall (2006) reported widespread use of CAPM, and Bruner et al. (1998) also reported that more than 80 per cent of corporations and financial advisers use CAPM to estimate cost of equity. The traditional version of CAPM was developed by Sharpe (1964). CAPM is expressed mathematically as follows:

$$E(R_i) = R_f + (R_m - R_f)\beta i \quad (4.9)$$

Where

$E(R_i)$ = Expected return on security i

R_f = Risk-free rate

R_m = Market index return

βi = Beta coefficient for security i is covariance between the security and the market index returns divided by variance of the market or slope of the marked model.

The risk-free rate and risk premium are integral parts of CAPM. Truong et al.'s (2008) Australian survey showed that a significant percentage of respondents (87 per cent) used Treasury bond yield for the estimation of risk-free rate. A significant proportion of respondents (60 per cent) relied on public sources of information for beta, and 47 per cent of respondents used a market risk premium of 6 per cent, while 18 per cent used a risk premium between 6.5 and 7 per cent. A large majority of respondents (87 per cent) did not adjust the market index and dividends for shares for imputation credits during the estimation of beta and market risk.

Lally (2000) argued that true risk-free rate of interest does not exist, due to the possibility of government default. However, in developed countries, domestic debt offers a close proxy for risk-free debt, due to the low probability of default. Lally (2000) identified three types of rates that can be used as proxies for risk-free rates: yield to maturity, spot interest rates and forward interest rates. The present study applies average yield to maturity on the Australian government's 10-year Treasury bonds as a proxy for risk-free rate, and selection of yield to maturity on those 10-year bonds can also be justified that long term cash flows are used to derive value. This is consistent with the findings of Truong et al. (2008), who showed that 87 per cent of analysts used Treasury bond yields as proxy for the risk-free rates instead of Treasury bill yields. The data on 10-year Treasury bonds' yield to maturity was sourced from the Reserve Bank of Australia (RBA 2011). The use of 10-year government bond yield is also supported by Officer and Bishop (2008), on the basis that most projects where CAPM is used are long-term projects. Therefore, 10-year government bond yields are used as risk-free rates for the estimation of risk premiums using CAPM.

Officer (1994), Officer and Bishop (2008), Gray and Hall (2006) and Dempsey and Partington (2008) addressed the issue of dividend imputation and its impact on the cost of capital. However, the analysis performed by Lonergan (2001) on corporate takeover reports showed that 88 per cent of reports used CAPM for the calculation of weighted average cost of capital (WACC) and ignored dividend imputation to adjust cost of capital. It has been discovered that the two methods—cost of equity capital using classical CAPM, and cost of capital adjusted for the impact of imputation—produce either identical or only slightly different results; this was confirmed by Truong et al. (2008) in Australia.

A survey conducted by KPMG (2005) based on Lonergan's (2001) methodology shows that independent expert reports prepared for takeovers used market risk premiums from 6 per cent to 8 per cent. Further, 76 per cent of independent experts adopted a market risk premium of 6 per cent, ignoring dividend imputation. Lonergan (2001) analysed corporate takeover reports and discovered that 88 per cent of reports used CAPM for the calculation of WACC, ignoring dividend imputation to adjust cost of capital. It has been discovered that both cost of equity capital using classical CAPM and cost of capital adjusted for impact of imputation produces either identical or slightly different results.

KPMG's (2005) findings were later confirmed by Truong et al. (2008). Truong et al. (2008) also reported similar survey results on the use of market risk premium in Australia. They reported that 87 per cent of respondents used Treasury bond yields as a proxy for risk-free rates, 60 per cent of respondents used publicly available beta for the assessment of risk factor, 47 per cent of respondents used a 6 per cent risk premium, and 18 per cent used a risk premium between 6.5 per cent and 7.5 per cent. It was further reported that market risk premium and share return were not adjusted for imputation tax credits, and consequently, market risk premium and cost of capital were not adjusted to incorporate the effects of imputation tax credits. In order to test the accuracy of risk premium in this study, and in line with the findings of Truong et al. (2008) and Lonergan (2001), this study does not consider imputation tax credit adjustment for the estimation of risk premium and cost of capital. Brailsford et al. (2008) discussed the view that franking credit carries no value, and therefore, no adjustment is required to the risk premium. They also noted that Dimson et al. (2003) used the same approach for the global estimation of risk premiums, including in Australia. The following approaches are applied in the present study for the estimation of

the cost of capital through sensitivity analysis to identify the approach that provides the lowest forecasting error in the form of lowest mean absolute percentage error (MAPE):

1. Required return using ASX total return index with one year monthly average risk-free return based on the yield on 10-year Treasury bonds.
2. Required return based on a 6 per cent risk premium with a five-year monthly average risk-free return, based on the yield on 10-year Treasury bonds.
3. Required return based on a 6 per cent risk premium with one year monthly average risk-free return, based on the yield on 10-year Treasury bonds.
4. Required return based on a 6.5 per cent risk premium with one year monthly average risk-free return, based on the yield on 10-year Treasury bonds.
5. Required return based on a 7 per cent risk premium with one year monthly average risk-free return, based on the yield on 10-year Treasury bonds.
6. Required return based on a 7.5 per cent risk premium with one year monthly average risk-free return, based on the yield on 10-year Treasury bonds.

In order to use the appropriate average return for the estimation of risk premiums, Brailsford et al. (2008) suggested the use of the arithmetic mean instead of the geometric mean for forward-looking decisions. Similarly, Cooper (1996) and Kritzman (1994) supported the use of the arithmetic mean instead of the geometric mean for the estimation of risk premiums. Dimson et al. (2003) also suggested the use of the arithmetic mean instead of the geometric mean for the estimation of expected future risk premiums. Therefore, this study uses the arithmetic mean for the calculations of risk-free rates and market risk premiums as inputs to the CAPM equation for the estimation of cost of equity.

4.10 **Beta Estimation**

Lally (2000, p. 26) uses the following definition of beta:

> The covariance between its return R_i and the market portfolio return R_m, divided by the variance of the market's return.

Therefore, according to Dybvig and Ross (1985), the beta is statistically expressed as follows:

$$\beta_i = \frac{Cov(R_i, R_m)}{Var(R_m)} \qquad (4.10)$$

Where

$Cov(R_i, R_m)$ = Covariance between the firm's return and market portfolio's return

$Var(R_m)$ = Variance of the market's return

The present study uses Lally's (2000) definition for beta estimation using monthly data for each bank's total return index and the ASX All Ordinaries total return index (Durack et al. 2004; Gray et al. 2013), which are sourced from the Datastream database. An adjustment for thin trading is not required, as shares of banks are traded with significant volumes every day in the market; therefore, uncertainty regarding thin trading is not applicable in this research.

4.11 **Length of Time for Beta Estimation**

An estimation of beta for a given firm requires an estimation period and a specified frequency of data recording. Harrington (1983) identified a five-year time period and frequencies of weekly, monthly and quarterly used by beta providers such as Merrill Lynch,

Value Line, Wilshire Associates and Barr Rosenberg and Associates, with most of these professional beta providers using ordinary least square regression (OLS) or Bayesian adjustment methods for beta estimation. Another study in the Australian context by Gray et al. (2005) used the mean square error, and discovered a negative relationship between the reduction of error and length of time period for the estimation of beta. It was discovered that monthly data over a period of seven years provides the lowest mean square error. Gray et al. (2005) also found that commercial data services use OLS regression on four to five years' monthly data for the estimation of beta. Other research has shown that beta providers use different lengths of time for beta estimations, varying from two years to seven years, and data frequencies varying from weekly to monthly (Lamb & Northington 2001). After comparing ordinary least square regression with least absolute deviation (LAD) regression in the CAPM for the estimation of beta, Gray et al. (2013) determined that OLS regression estimates provide better estimates compared to LAD regression.

4.12 **Adjusted Beta**

A central tendency of betas that is acknowledged and recognised is that over a period of time, betas move towards market beta, which is assumed to be that found under CAPM. The relationship between market and individual betas was discovered and statically assessed by Blume (1971, 1975, 1979), who identified the mean reversion of beta and suggested that beta be adjusted for mean reversion due to its central tendency. He identified that beta does not remain constant and estimated values of risk parameters such as beta change over a time period as high risk firms decrease their risk, which lowers the return,

and low risk firms increase their risk, which increases the return. Therefore, unadjusted estimated beta provides a biased assessment of future values.

Blume's assessment can be interpreted as a measurement error rather than an adjustment to beta. In order to address this measurement error, an adjustment is required to arrive at accurate beta for a firm (Gray et al. 2005). Blume's beta estimation mathematically is expressed as follows:

$$\beta_{Blume} = 0.67 \times \beta_{OLS} + 0.33 \times 1 \qquad (4.11)$$

Where

β_{OLS} = OLS regression beta

Professional data services such as Bloomberg, ValueLine and Merrill Lynch use Blume's approach to adjusting raw beta to reduce measurement error. In order to address design issues related to beta estimation and testing of beta, the following approaches have been used in the present study for the calculation of beta to determine which beta calculation provides the lowest MAPE where beta is used as an input to the CAPM for the calculation of cost of equity:

1. Blume's adjusted beta approach using OLS regression based on two years' weekly data (Bloomberg database uses the same approach).
2. Blume's adjusted beta approach using OLS regression based on five years' monthly data.
3. Datastream beta based on five years' monthly data.
4. Unadjusted beta based on five years' monthly data using OLS regression.

This research study utilises the Datastream total return index for the ASX, ANZ, CBA, NAB and WBC. Total return index measures the growth in a security's value over a period of time, with the assumption of dividend reinvestment to purchase additional shares of the firm. Datastream's total return index for the ASX is calculated as follows:

$$RI_t = RI_{t-1} \times \frac{PI_t}{PI_{t-1}} \times \left(1 + \frac{DY_t}{100} \times \frac{1}{N}\right) \quad (4.12)$$

Where

RI_t = Return index on day *t*

RI_{t-1}= Return index on previous day

PI_t = Price index on day *t*

PI_{t-1}= Price index on previous day

DY_t = Dividend yield percentage on day *t*

N = Number of working days in the year (taken to be 260)

For the purpose of this research, beta is tested for forecasting errors using MAPE. Beta sensitivity is measured by comparing the output in the form of intrinsic values of equity shares given by valuation models using the CAPM.

4.13 **Estimation of Growth**

A firm's value is dependent upon expected future earnings and cash flows, and assumptions about the future growth rates of those earnings and cash flows are critically important for

share price forecasts. According to Damodaran (2002), future earnings growth rates can be predicted with the help of the historical growth rate of firms' past earnings, using historical data to project future growth rates using either arithmetic or geometric averages. Future earnings growth can also be predicted through the use of financial analysts' future earnings growth estimates. Damodaran (2005) and Viebig et al. (2008) claimed that investors can also use the fundamental growth equation, which was developed by Kisor (1964) and subsequently tested by Block (1995) to forecast future earnings growth rates. Borgman and Strong (2006) also claimed that retained earnings of a firm after dividend payment must at least earn a return equal to return on equity; this return is known as 'sustainable growth rate'.

$$b = \frac{EPS_i - D_i}{EPS_i} \tag{4.13}$$

$$g_t = \frac{Retained\ earnings_{t-1}}{NI_{t-1} \times ROE} \tag{4.14}$$

$$g_t = b \times ROE \tag{4.15}$$

Where:

g_t = Growth in earnings

b = Retention ratio (1 − payout ratio)

NI = Net income

EPS_i = Earnings per share

D_i = Dividend

Equation 4.15 was derived from Equation 4.14, Equation 4.14 has been used to forecast future earnings and recent dividend payout ratio for projected dividends.

According to Penman (2001), financial analysts use average growth rates of gross domestic product (GDP) to forecast terminal values. Stowe et al. (2007) also supported the use of GDP growth rates for the calculation of terminal value. Dividend growth models and free cash flow to equity models require estimation of terminal value. Terminal value can be estimated using liquidation value, multiple approach models and stable growth models. Liquidation value cannot be applied to banking firms due to the difficulty of estimating the life of assets and the value of debt. Price-multiple approaches cannot be applied, as they cannot be combined with the DCF model. Therefore, a stable growth rate model is applied for the calculation of terminal value, with the constraint that terminal value cannot exceed the economic growth rate of the economy in which the firm operates. Analysts often use economic growth rate as a proxy for stable growth rate (Damodaran 2002; Jiménez & Pascual 2010). Claus and Thomas (2001) discussed the difficulty in assuming a growth rate, but acknowledged that historic, forecasted growth in earnings, dividends and GDP have been used as assumed growth rates. However, Truong et al. (2008) found that terminal growth rates can be determined through average industry growth rate, GDP growth rate, the firm's historical growth rate, zero growth rate and inflation rate; terminal growth rate also depends on the type of project.

In order to estimate the terminal growth rate, the growth rate of a moving average of the past five years of Australian GDP has been used as stable growth rate for the calculation of terminal values which is also consistent with recommendation provided in valuation

literature that discount rate should be greater than stable growth rate and stable growth rate should be less than or equal to economic growth rate. GDP data about growth rate has been sourced from the World Bank (2010).

4.14 **Sensitivity Analysis**

To assess the impact of changes in accounting policies and the subsequent effect of these changes on intrinsic value, sensitivity analysis is used in this research. Cullen and Frey (1999) identified sensitivity analysis as an interaction between inputs, models and outputs. Models are considered as sets of constraints restricted by the joint values of several variables. Models are also viewed as systems of interest, and sensitivity analysis is used to assess how a system of interest responds to changes in inputs.

Frey and Patil (2002) reviewed sensitivity analysis methods while identifying the decision-making objectives addressed by risk analysis models. They identified three categories of models: screening analysis models, research models and assessment or decision-making models. These three genres of models assist in attaining three different objectives. Screening analysis models are simple models, where the decision maker is involved in routine regulatory decision making for compliances. Screening models are relatively easy to implement because they have few inputs compared to other models. Research models are used where the objective is to develop an understanding of the functions of a process; they help to identify the relationships or interactions between different variables. Research models are considered complex models. They are used to identify shortcomings of the process and to develop improved models. Refined assessment models are more suitable where the objective is to develop rules for compliance; for this purpose they are more

accurate than screening analysis models. Refined assessment models are more complex because they require more data in the form of inputs and more time and experience to implement. Frey and Patil (2002) further mentioned that sensitivity analysis is important for all three types of models, a view that was earlier endorsed by Cullen and Frey (1999).

Hamby (1994) also emphasised the importance of sensitivity analysis by identifying reasons for conducting it: several of these reasons include the need to determine parameters that reduce output uncertainty, identification of insignificant parameters, inputs that contribute to the variability of output, and correlation between inputs and outputs.

Clemson et al. (1995, p. 31) identified the steps involved in the sensitivity analysis process. They stated that:

> the traditional process of sensitivity analysis involves the following steps:
>
> - List the exogenous parameters and relations about which we are making guesses. For the relations, determine which coefficients or exponents are uncertain. Lump all the uncertain exogenous parameters and uncertain coefficients or exponents together in one list, hereafter referred to as 'parameters.'
>
> - Determine the possible range for each parameter.
>
> - Pick the parameter that seems most likely to be important and, while holding everything else constant, run the model under a full range of different values for that parameter. Repeat these runs for this parameter under all the different combinations of the other parameters. Note the extent to which the model behaviour changes under different values of the parameter. If model behaviour changes significantly, the model is sensitive to that parameter, and we must reformulate the model to eliminate the parameter, learn what the real value for the parameter is, or lose confidence in the model.
>
> - Repeat the previous step for the next parameter that seems likely to be important.

- Repeat the previous two steps until patience, money, or the list of parameters is exhausted.

For the sensitivity analysis in this study, to measure the impact of changes in accounting policies, financial statements are reconstructed using Excel spreadsheets in which the effects of changes in accounting policies are reversed. This is achieved using the disclosures about these changes provided in banks' annual reports. The cumulative impacts of changes in accounting policies are grouped into five categories: impacts on accounting policies related to assets, liabilities, equity, after-tax income and after-tax expenses. These five categories are more broadly categorised as after-tax income and equity. Financial data is sourced from Datastream and FinAnalysis databases. Financial statements considered in this analysis include income statements, balance sheets and cash flow statements. Financial statements are prepared incorporating and disclosing the full impacts of changes in accounting policies. Therefore, the artificial reversal of the accounting policy changes results in the elimination of the effects of those changes on the financial statements. To capture the impacts of changes in accounting policies, Excel spreadsheets were used to link equity valuation models with financial statements to capture information provided pre- and post-accounting policy changes through financial statements. Figure 4.2 shows the structure of the Excel spreadsheets linking financial statements with valuation models to capture the impact of changes in accounting policies. It shows the impacts of changes in accounting policies by reversing the impacts of all the accounting policy changes from financial statements in a given year. The result of changes in accounting policies are calculated in the forms of pre-change and post-change intrinsic values and forecasting errors for each accounting policy change for four banks.

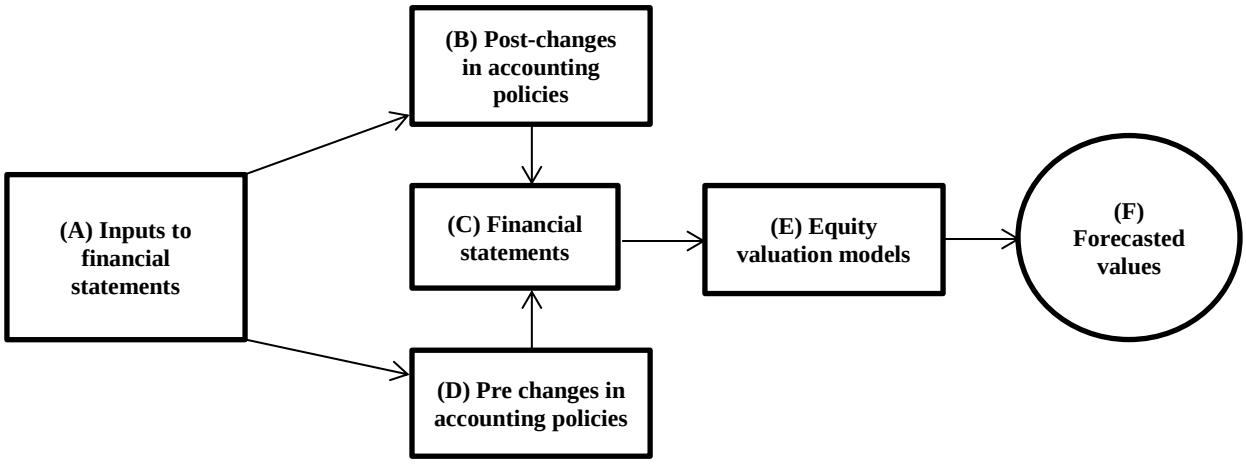

Figure 4.2: Flow of Information through Spreadsheets

(A) Inputs to financial statements: this spreadsheet is used to provide inputs to financial statements by reversing the impacts of changes in accounting policies in a given year.

(B) Post-changes in accounting policies represent the impacts of all changes in accounting policies on financial statements in a given year.

(C) Financial statements represent income statement, balance sheet and cash flow statements.

(D) Pre-changes in accounting policies represent the reversal of the impacts of changes in accounting policies from step (B) above in a given year.

(E) Equity valuation models are those models used in this sensitivity analysis.

(F) Forecasted values are those pre- and post-changes in accounting policies for each banking firm, and are provided by valuation models and then compared with the market values to determine forecasting errors.

4.15 **Sensitivity Analysis and Assumptions**

Various researchers (e.g., Hwee & Tiong 2002; Borgonovo & Peccati 2004; Moon & McClatchey 2005; Borgonovo 2007; Koutsomanoli-Filippaki & Mamatzakis 2009; Borgonovo et al. 2010; Gebhardt et al. 2004; Rastpour & Esfahani 2010) have used sensitivity analysis on banking and non-banking firms to determine the effects of changes in input parameters on the output generated by models. However, the use of sensitivity analysis to measure the impact of inputs on outputs requires several assumptions; for example, assumptions about revenue, costs, interest rates, cash flows, earnings, dividends, assets and liabilities. The use of assumptions in sensitivity analysis research is shown in Table 4.2.

Table 4.2: Use of Assumptions in Sensitivity Analysis Research

Research	Financial or Non-Financial Firms	Output	Input Sensitivity Factors	Assumptions Used for Sensitivity Analysis
Hwee and Tiong (2002)	Non-financial	Cash flow IRR	• Duration • Over-/under-measurement of the project risk • Over-/under-progress of the project measurement • Variation in the project • Material cost variance	• Factors increase by 5% over a range of ± 20% • Material cost • Project cost
Borgonovo and Peccati (2004)	Non-financial	NPV IRR	• Cash flows • Rates of return	• Variations of cash flows • Timing of the cash flows
Moon and McClatchey (2005)	Financial	NPV	• Interest rate • Tax rate • Reinvestment rate • Maturity of security	• Interest rate • Time required for the maturity of security
Rastpour and Esfahani (2010)	Non-financial	Cash flow	• Number of projects • Rates of return • Working days per year • Cost of maintenance • Cost of material handling • Installation cost • Salvage values • Lives of projects	• Interest rates • Reinvestments rates

The use of assumptions for the sensitivity analysis in this research is consistent with the view provided by Cullen and Frey (1999) that assumptions are required to make models operational. Borgonovo and Peccati (2006) also affirmed the importance of assumptions for the investment decision-making process through sensitivity analysis.

This research uses several equity valuation models to measure effects in the sensitivity analysis, which are only operable when several assumptions are made about future growth

rates of earnings, dividends and cash flows. Assumptions also act as constraints so that valuation models provide acceptable outputs. Therefore, several assumptions about models are instrumental in providing calculations of intrinsic values in the form of outputs. Those assumptions applied to the valuation models have been kept constant to measure the effects of the accounting policy changes. Details of these assumptions, along with other constraints, are discussed in Chapter 5.

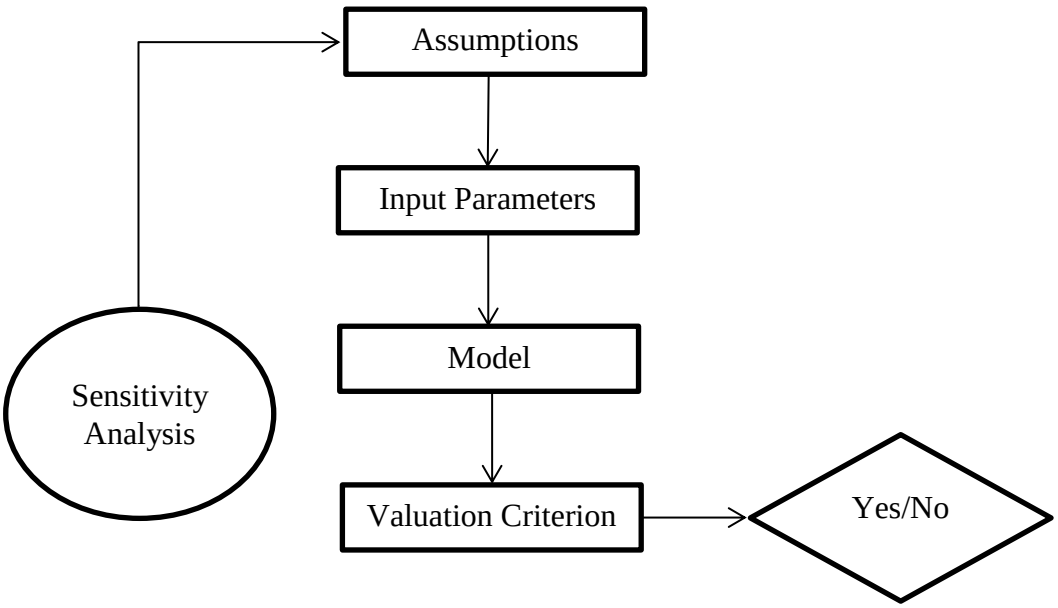

Figure 4.3: Investment Decision-Making Process

Source: (Borgonovo & Peccati 2006)

Figure 4.3 shows the valuation criteria adopted by decision makers when performing sensitivity analysis through changes to input parameters and assumptions to determine the impact of changes in assumptions and input parameters on the output of the model. The model's output is benchmarked with the valuation criteria in order to assess that output for decision making. Borgonovo and Peccati (2006) discussed three modes in which sensitivity

analysis can be used. The first mode is used for the validation of model results, and is also known as a correctness test. The second mode is used to assess sensitivity to input parameters and assumptions of model output, also known as a stress test. In the third mode, sensitivity analysis is used to determine the importance of input parameters to identify which parameters are affecting the decision making. The approach adopted in this research falls under the first and second modes, since the first objective of this research is to discover the cost of capital that provides the lowest forecast error using several combinations of betas and risk premiums. Betas and risk premiums are used as inputs to the model of cost of capital to determine which combination of inputs provides the lowest forecasting error.

4.16 **Statistical Procedures for Sensitivity Analysis**

According to Beaver et al. (1968), accounting measures are evaluated on the basis of their ability to predict future events for decision makers. Beaver et al. (1968, p. 677) defined predictive power as:

> the ability to generate operational implications (i.e., predictions) and to have those predictions subsequently verified by empirical evidence.

Therefore, in this research, the predictive power of accounting information is evaluated after changes in accounting policies by keeping all other factors constant. Financial statements are linked with valuation models through interconnected spreadsheets (see Figure 4.3), and the impact of changes in accounting policies is captured through the

changes in forecasting errors as a consequence of the changes in intrinsic values that are provided by each valuation model.

The output provided by each model in the form of forecasted share prices for the population of the banking industry for the period of 1997 to 2007 before and after changes in accounting policies is compared with the market value of each banking firm. In order to capture the sensitivity of changes in accounting policies with respect to forecasted values, MAPE is used to measure the forecasting performance of models in computing intrinsic values after changes in accounting policies are introduced. The use of MAPE as a tool to measure sensitivity was discussed by Goodwin and Lawton (1999) and Ren and Glasure (2009). They discussed that MAPE is the most widely used statistical measurement procedure that provides accurate measurement of errors with non-negative observations. Valuation models invariably show negative intrinsic values, particularly where growth exceeds cost of equity. To deal with the issue of negative intrinsic values, this research uses a similar approach to that used by Francis et al. (2000) and Isidro et al. (2006) by setting negative share values to zero. However, for this research, instead of converting negative values to zero, negative values are simply excluded from the statistical analysis, as zero values do not significantly affect the direction of the change of forecasting error.

Outliers can easily distort the results of any statistical analysis. Collins and Hopwood (1980) and Brown et al. (1987) discussed the handling of outliers in their research. Brown et al. (1987) and Ivković and Jegadeesh (2004) used a ‘truncation rule’ of 100 per cent to limit the impact of outliers for the measurement of forecasting errors. To handle extreme errors or outliers, they used a truncation rule that all errors greater than or equal to 100 per

cent are excluded from the analysis. A similar approach is adopted in this study: all errors greater than or equal to 100 per cent have been excluded from this analysis. The following equations are used for the calculation of MAPE:

$$AFE_{AC} = \left|\frac{A_t - P_{tACn}}{A_t}\right| \times 100 \quad (4.16)$$

$$AFE_{BC} = \left|\frac{A_t - P_{tBCn}}{A_t}\right| \times 100 \quad (4.17)$$

$$MAPE_{OAC} = \sum_{t=1}^{N} (AFE_{AC} - AFE_{BC}) \div N \quad (4.18)$$

Where

AFE_{AC} = Absolute percentage forecast error *after* changes in accounting policies

AFE_{BC} = Absolute percentage forecast error *before* changes in accounting policies

$MAPE_{OAC}$ = Mean absolute percentage forecast error

A_t = Actual market price per share: first trading price after the release of annual reports to the market

P_{tACn} = Predicted share price after the changes in accounting policies generated by model n

P_{tBCn} = Predicted share price of the firm before the change in accounting policy

N = Number of observations

According to Isidro et al. (2006), valuation error is measured as the intrinsic value of the share less the actual or observed share price at the valuation date. Similarly to the assumptions of Aharony et al. (2010), no change in market efficiency is assumed; therefore, no share price drift is considered due to investors' reaction. Actual or observed share prices

are obtained from the SIRCA databases, which represent the first trade prices after the release of detailed annual reports showing the full financial impact of changes in accounting policies from 1997 to 2007. The first trade prices as actual prices after the release of the detailed annual reports are selected to prevent the market prices from being contaminated by other events.

4.17 **Conclusion**

This chapter has discussed the use of sensitivity analysis as a tool for determining the impact of changes in accounting information generated through changes in accounting policies, particularly for a relatively small population. The chapter has also discussed the MAPE method for assessing forecasting error, which is based on the intrinsic values provided by several valuation models on basic valuation theory. The valuation models discussed in this chapter are free cash flow models, dividend discount models, relative valuation models and residual income models. These models are based on earlier research conducted by Ohlson (1995).

One objective of this research is to determine forecasting error after changes in accounting policies (see Chapter 1). Therefore, valuation models that provide absolute values are considered at the initial stages of this research. These models are free cash flow models, dividend discount models and residual income models. After considering these models, it is determined that free cash flow models—free cash flow to equity and free cash flows to firms—require two main inputs in the form of positive free cash flow data and identification of working capital. This raises two issues for the operationalisation of free

cash flow models. First, free cash flow requires estimations of cash flows from operations, investments, and working capital. Firms that grow rapidly generally generate negative cash flows due to significant amounts of cash investments. The banks analysed in this study show negative free cash flows. Second, banks' assets and liabilities are stated on the basis of liquidity (see AASB 101 and AASB 130 in section 2.8). They are not classified as current and non-current. Therefore, it is difficult to estimate the working capital of a bank and hence the free cash flow of a bank. Imam et al. (2008) showed that financial analysts rank dividend discount models higher than free cash flow models, and after unsophisticated models such as price-to-book and price-to-earnings models for the valuation of financial firms. However, Imam et al. (2008) did not identify which dividend discount models are preferred by analysts. Damodaran (2002), while discussing the valuation of financial services firms, stated that if capital expenditure or working capital cannot be measured, then free cash flow cannot be estimated.

This chapter has also defined capital for banking firms, and has identified issues related to the estimation of cost of capital. The approach adopted in this research to cost of capital was discussed in section 4.10; the discussion revealed that CAPM is the most common method for the estimation of cost of capital used in Australia and internationally, and that risk premium varies from 6 per cent to 7.5 per cent in Australia (Truong et al. 2008). Moreover, beta, which is an input to CAPM, involves several factors in its estimation, including the length of time required to make the estimation, method of estimation and adjustment of beta due to its mean reversion tendency (Blume 1971, 1975, 1979). Based on these issues, a sensitivity analysis is required to identify the optimum cost of capital that provides the lowest forecasting error using dividend discount models and residual income

valuation models. The cost of capital that provides the lowest foresting error is subsequently used to value Australian banking firms after removing the effect of changes in accounting policies from the statement in order to isolate and determine the impacts of changes in accounting policies on forecasting errors using MAPE. The results of the sensitivity analysis are based on risk premiums ranging from 6 per cent to 7.5 per cent. The findings on impacts of changes in accounting policies on forecasting error are discussed in Chapter 5.

The findings are covered in next two chapters. Chapter 5 provides the results of the content analysis through the identification of changes in accounting policies due to the changes in accounting standards and rules by identifying the relevant accounting standards and showing thir impacts on the elements of financial statements.

Chapter 5: Research Findings on Accounting Policies

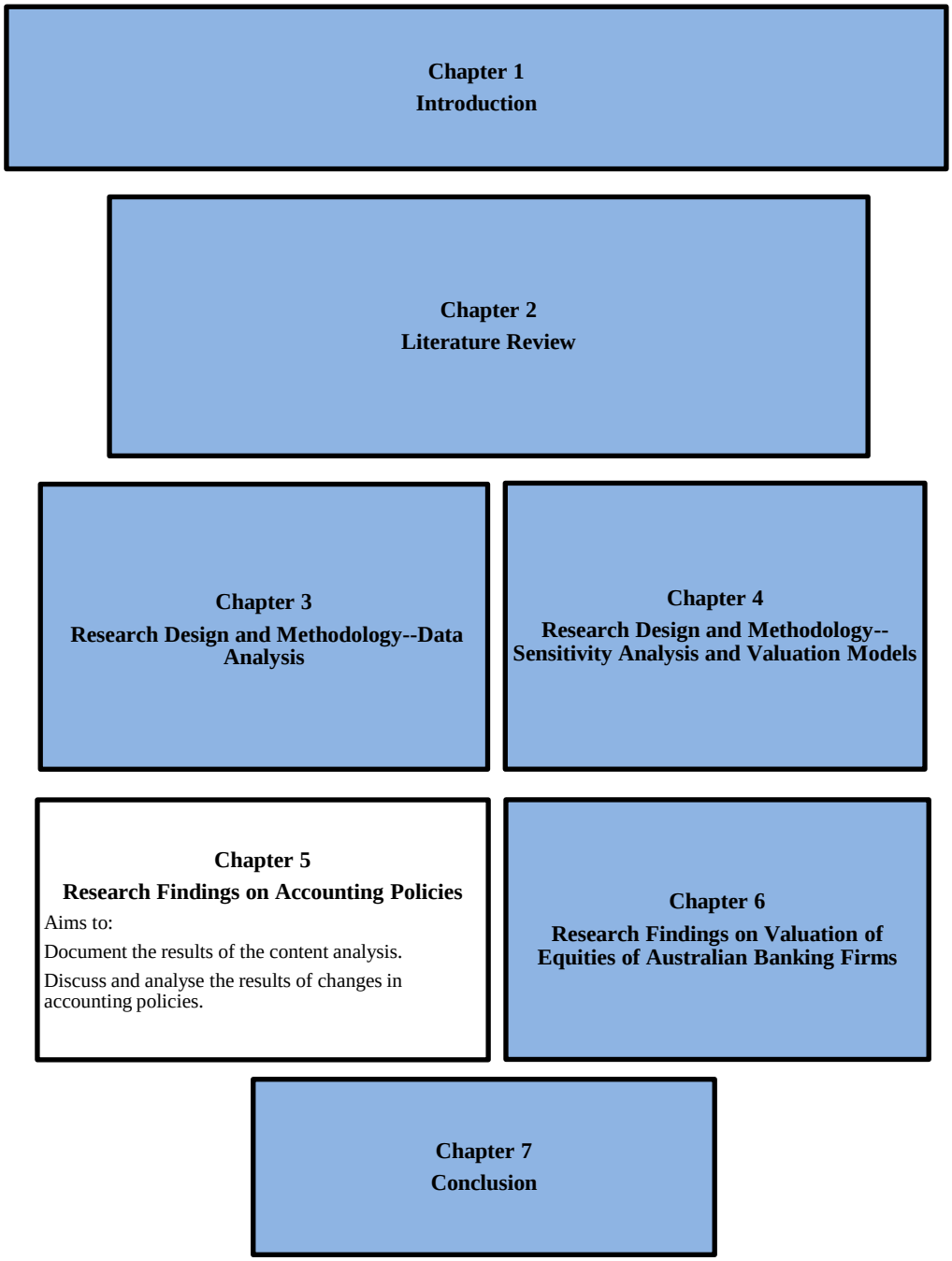

Figure 5.1: Outline of Thesis: Chapter 5

5.1 **Introduction**

This chapter presents the results of applying the research methods described in Chapters 3 and 4. First, this chapter shows the results of the content analysis of changes in accounting policies in the Australian banking industry, along with the financial impact of changes in accounting policies for the period 1997 to 2007. A large number of changes in accounting policies was reported for the period 2004 to 2006, following the decision made by the Financial Reporting Council (FRC) to implement IAS/IFRS in Australia from 2005. Therefore, Australian firms, including banking firms, provided additional disclosure on the potential impact of adopting AEIFRS due to the requirements issued by the AASB.

Reporting entities in Australia disclosed the potential impact of IFRS in 2005 without adjusting 2005 financial statements, and applied changes in accounting standards from 2006 with retrospective adjustments for the preparation of comparative financial statements. This disclosure was the result of the issuance of AASB 1, 'First-time Adoption of Australian Equivalents to International Financial Reporting Standards', and AASB 1047, 'Disclosing the Impacts of Australian Equivalents of International Financial Reporting Standards', which aimed to provide relevant and reliable information to users of financial information after acknowledging the significant impact of accounting policy changes on the financial statements of firms in Australia.

This research uses an approach to content analysis based on that applied by Vergoossen (1997) (see section 3.5), which is based on the disclosure provided under changes in accounting policies, including the reasons for the changes and the financial impact of the

changes. This chapter identifies changes in accounting policies in each year of change and provides the results of the content analysis after identifying the financial impact and disclosure related to accounting policy changes stemming from changes in accounting standards and rules.

5.2 **Accounting Policies Disclosure**

Table 5.1 provides a summary of accounting policy changes due to changes accounting standards during the period 1997 to 2007. The table shows the list of accounting policies changed by Australian banks due to changes in accounting standards including changes in accounting policies introduced through the recommendations of international accounting standards boards. The disclosure provided by banks included a description of changes in accounting rules or standards, a description of how accounting policy changes were applied and impact of changes in accounting policies on the financial position and performance. Therefore, using the criteria (see section 3.4) for the identification of changes in accounting policies developed by Vergoossen (1997) have been applied for the identification of the changes in accounting policies.

Table 5.1: Changes in Accounting Policies, All Banks, 1997–2007

Year	Accounting Policy Changes Introduced by Australian Banks
1997	• Investments in associates • Insurance and superannuation
1998	• Investments in associates • Intangible assets • Provision for loan losses
1999	• Intangible assets
2000	• Life insurance
2001	• Life insurance
2002	• Life insurance
2003	• Provision for dividends
2004	• Intangible assets
2005*	• Intangible assets • Employee benefits • Share-based compensation • Revenue recognition • Taxation • Financial instruments • Life insurance • Property, plants and equipment • Leases • Changes in foreign exchange rates • Consolidation
2006**	• Intangible assets • Employee benefits • Share-based compensation • Revenue recognition • Taxation • Financial instruments • Life insurance • Property, plants and equipment • Leases • Changes in foreign exchange rates • Consolidation
2007	None

* All banks provided additional information on the impacts of changes in accounting standards on statements in 2005.

**All banks provided information on the impacts of transition to IFRS on financial statements along with adjustments to previous impact statements provided as additional disclosures in 2005.

5.3 **Findings of the Content Analysis**

5.3.1 Investments in associates: Equity method (AAS 14, 'Accounting for Investments in Associates')

Table 5.2: Changes in Accounting Policies, 1997

1997	ANZ	CBA	Total Impact
Disclosure of accounting policies	Investments in associates: Equity method (AAS 14, 'Accounting for Investments in Associates', early adoption)	Insurance and superannuation (ASC Rules)	
Impact of change	Increase in assets: $2M Increase in after-tax income: $2M	Decrease in retained earnings: $11M Decrease in after-tax income: $11M	Decrease in retained earnings: $9M Decrease in after-tax income: $9M

In Table 5.2, the equity method of accounting for associates has been used by ANZ , which is permitted under ASC Class Order 97/798. The change in accounting policy resulted in the carrying value of associates and income after tax.

The revised AAS 14, 'Accounting for Investments in Associates', was applicable from 30 June 1998, but the ASC Class Order 97/798, dated 5 June 1997, permits the adoption of equity accounting. However, AAS 14 allows firms to apply this accounting standard before the operative date. AAS 14, 'Accounting for Investments in Associates', superseded AAS 14, 'Equity Method of Accounting'. According to AAS 14, 'Accounting for Investments in Associates', the investor's share of the net assets, the result (profit or loss) and the reserves of an associate must be determined in accordance with the investor's ownership interest in the associate firm. The carrying amount of the investment must be adjusted, and the result of the increase or decrease in the carrying amount is recognised as profit or loss.

5.3.2 Insurance and superannuation

The ASC issued Class Order 97/171 for the reporting of insurance and superannuation entities. Prior to 1997, there was no guidance available in Australian standards for controlled life companies. Life companies measure investments at net market value and recognise increases or decreases in market value as profit or loss. However, non-life firms are not covered under AASB 1024, 'Consolidated Financial Statements', which prevents the consolidation of controlled non-life firms, and measures and recognises investments at net market value and increases in the net market value of investments to profit or loss as per AASB 1018, 'Profit and Loss Accounts'. The relief provided under the Class Order allows for the application of AASB 1024, 'Consolidated Accounts', and AASB 1018, 'Profit and Loss Accounts', under which non-life companies are allowed to adjust retained earnings. The Class Order treats Insurance and Superannuation Commission Rules as accounting standards (ASC 1997). Table 5.3 shows the changes in accounting policies for the year 1998.

Table 5.3: Changes in Accounting Policies, 1998

1998	CBA	NAB	WBC	Total Impact
Disclosure of accounting policies	Investments in associates: Equity method (AASB 1016, 'Accounting for Investments in Associates', early adoption)	Provision for loan losses (AAS 32, 'Specific Disclosures by Financial Institutions')	Capitalised cost: Software (International guidance by FASB SFFAS 10, 'Accounting for Internal Use Software')	
Impact of change	Increase in after-tax expenses: $2M	Decrease in assets: $245M Increase in after-tax expenses: $245M	Increase in after-tax profit: $24M	Increase in after-tax profit: $271M Decrease in assets: $245M

5.3.3 Investments in associates: Equity method (AASB 1016, 'Accounting for Investments in Associates', early adoption)

The equity method of accounting for associates has been used, which was permitted under ASC Class Order 97/798. This change in accounting policy resulted in the decrease of income after tax. AASB 1016 'Accounting for Investments in Associates' has the same measurement requirements which was given in section 5.3.1).

5.3.4 Provision for loan losses (AAS 32, 'Specific Disclosures by Financial Institutions')

General provision is estimated using statistically based provision methodology, which uses historical loan loss data to estimate future losses. AAS 32, 'Specific Disclosures by Financial Intuitions', primarily deals with the disclosure requirements of financial institutions. However, AAS 32 also identifies the measurement and recognition issues related to credit risk. This accounting standard requires financial institutions to identify each class of financial asset, its exposure to credit risk and probable loan losses. If financial

assets are exposed to credit risk, then the carrying amount of these assets should be reported on a net fair value basis after applying the provision of loss. The accounting standard further states that the amount of probable loan losses is recognised as an expense, and reduces the net carrying amount due to the increase in the amount of provision for loan losses.

5.3.5 Capitalised cost: Software (International guidance by FASB SFFAS 10, 'Accounting for Internal Use Software')

Capitalisation of costs of purchase, development and upgrade of software is also subject to amortisation over a period of three to ten years. In the absence of specific guidance for the measurement and recognition of software costs under international and domestic accounting standards, the guidance issued by the FASB in the form of Federal Financial Accounting Standard (SFFAS) 10, 'Accounting for Internal Use Software', has been adopted. According to SFFAS 10, software should follow the same recognition criteria as property, plants and equipment, by capitalising the full cost, including direct and indirect costs incurred during software development until the software is ready for its intended use. All other costs after the successful testing of the software should be expensed. Table 5.4 shows changes in accounting polices for the year 1999.

Table 5.4: Changes in Accounting Policies, 1999

1999	ANZ	NAB	Total Impact
Disclosure of accounting policies	Capitalised cost: Software (International guidance by FASB SFFAS 10, 'Accounting for Internal Use Software')	Capitalised cost: Software (International guidance by FASB SFFAS 10, 'Accounting for Internal Use Software')	
Impact of change	Increase in after-tax profit: $39M	Increase in after-tax profit: $59M	Increase in after-tax profit: $98M

5.3.6 Capitalised cost: Software (International guidance by FASB in SFFAS 10 Accounting for Internal Use Software)

From 1 October, 1998, ANZ and NAB have changed their accounting policies by capitalising and amortising software development and acquisition costs over a period of three to five years. Costs have been expensed as they were incurred under the previous policy. This change has been adopted due to the US Statement of Position 98-1, 'Accounting for the Costs of Computer Software Developed or Obtained for Internal Use'. According to Statement of Position 98-1 (1998, p. 6), 'Internal and external costs incurred to develop internal-use computer software during the application development stage should be capitalised. Costs to develop or obtain software that allows for access or conversion of old data by new systems should also be capitalised'. Table 5.5 shows the changes in accounting policies for the year 2000.

Table 5.5: Changes in Accounting Policies, 2000

2000	CBA	NAB	WBC	Total Impact
Disclosure of accounting polices	Life insurance (AASB 1038, 'Life Insurance Business')	Life insurance (AASB 1038, 'Life Insurance Business')	Life insurance (AASB 1038, 'Life Insurance Business')	
Impact of change	Increase in assets: $26,448M Increase in liabilities: $25,282M Increase in equity: $1,166M	Increase in assets: $4,896M Increase in liabilities: $4,838M Increase in equity: $58M	Increase in assets: $7,000M Increase in liabilities: $7,000M Increase in after-tax profit: $59M	Increase in assets: $38,344M Increase in liabilities: $37,120M Increase in equity: $1,224M Increase in after-tax profit: $59M

5.3.7 Life insurance (AASB 1038, 'Life Insurance Business')

AASB 1038, 'Life Insurance Business', has also been adopted by banks. According to AASB 138, life insurance assets and liabilities are measured on the basis of net market value, and first-time adoption requires adjustments to assets, liabilities and equity, as net market value forms a basis of measurement.

AASB 1038 provides guidance to the life insurer and the group about consolidation. It provides specific guidance that life insurance subsidiaries shall recognise all of the assets, liabilities, income and expenses of that subsidiary, where assets and liabilities are recognised on a net market value basis. The AASB also provides guidance to the group that they should disclose information about restrictions on the use of assets related to the life insurance business. The Life Insurance Act 1995 imposes restrictions on life insurance firms to keep the assets of statutory funds separate from other assets and other funds. Life insurance funds' assets can only be used to retire liabilities of the funds or invested in other assets of the same fund. Therefore, a restriction has been imposed on banks on the use of

assets of life insurance funds to retire their banking business liabilities. Table 5.6 shows the changes in accounting policies for the year 2001.

Table 5.6: Changes in Accounting Policies, 2001

2001	CBA	Total Impact
Disclosure of accounting policies	Life insurance (AASB 1038, 'Life Insurance Contract')	
Impact of change	Increase in assets: $1,458M Increase in equity: $1,458M	Increase in assets: $1,458M Increase in equity: $1,458M

5.3.8 Life insurance (AASB 1038, 'Life Insurance Business')

See section 5.3.7. CBA adopted the AASB 1038 in 2001 compared to other banks. Table 5.7 shows the changes in accounting policies for the year 2002.

Table 5.7: Changes in Accounting Policies, 2002

2002	WBC	Total Impact
Disclosure of accounting policies	**Acquisition costs: Life and fund management (AASB 1038, 'Life Insurance Business')** Increase in assets: $119M **Employee benefits: Superannuation (AASB 1028, 'Employee Benefits', early adoption of IAS 19, 'Employee Benefits')** Decrease in assets: $160M Increase in after-tax expenses: $160M	
Impact of change	Increase in assets: $142M Increase in equity: $142M Increase in income: $161M	Increase in assets: $142M Increase in equity: $142M Increase in income: $161M

5.3.9 Acquisition costs: Life and fund management (AASB 1038, 'Life Insurance Business')

Previously expensed acquisition costs in relation to life insurance are deferred and amortised over the life of insurance products, which is consistent with the requirements of AASB 1038 for the treatment of acquisition costs. AASB 1038 specifies that costs are added to the carrying amounts of the assets acquired and subsequently amortised.

5.3.10 Employee benefits: Superannuation (AASB 1028, 'Employee Benefits'; early adoption of IAS 19, 'Employee Benefits')

Changes in accounting policy have been introduced on the basis of IAS 19, 'Employee Benefits'. The previous policy was based on UK accounting standard SSAP 24, 'Accounting for Pension Costs'. The change in policy resulted in the writing down of assets and recognition of expenses that were capitalised in the previous reporting period. Table 5.8 shows the changes in accounting policies for the year 2003.

Table 5.8: Changes in Accounting Policies, 2003

2003	ANZ	CBA	NAB	WBC	Total Impact
Disclosure of accounting policies	**AASB 1044, 'Provisions, Contingent Liabilities and Contingent Assets'**	**AASB 1044, 'Provisions, Contingent Liabilities and Contingent Assets'**	**AASB 1044, 'Provisions, Contingent Liabilities and Contingent Assets'**	**AASB 1044, 'Provisions, Contingent Liabilities and Contingent Assets'**	
Impact of change	Decrease in liability: $777M Increase in equity: $777M	Decrease in liability: $1,027M Increase in equity: $1,027M	Decrease in liability: $1,151M Increase in equity: $1,151M	Decrease in liability: $651M Increase in equity: $651 M	Decrease in liability: $3,606M Increase in equity: $3,606M

5.3.11 AASB 1044, 'Provisions, Contingent Liabilities and Contingent Assets'

AASB 1044, 'Provisions, Contingent Liabilities and Contingent Assets', became effective for the Australian firms from 1 October 2002. Under the new standard, provision for dividends cannot be recognised as a liability unless dividends are declared, determined or publicly recommended on or before the balance date.

Dividends applicable to the current reporting period have not been recognised as liabilities in this report. However, dividends declared after the balance date are still required to be disclosed in the notes. AASB 1044 does not allow firms to create a provision for undeclared dividends. Therefore, dividend provision is only recognised when it is declared by the firm. If a dividend is announced after the balance date, then it must be disclosed separately if the amount is material. The restriction imposed under AASB 1044 resulted in the reduction of liability and increase of equity. Table 5.9 shows the changes in accounting policies for the year 2004.

Table 5.9: Changes in Accounting Policies, 2004

2004	CBA	Total Impact
Disclosure of accounting polices	Intangibles: Software capitalisation	
Impact of change	Increase in after-tax expenses: $147M	Increase in after-tax expenses: $147M

This change was adopted in accordance with the American Institute of Certified Public Accountants Statement of Position 98-1, 'Accounting for the Costs of Computer Software Developed or Obtained for Internal Use' (see section 5.3.6).

5.3.12 Disclosure Related to Transition to Australian Equivalents to IFRS

The disclosures provided by ANZ, CBA, NAB and WBC show no changes in accounting policies for the year 2005. However, banks were required to provide information on the potential impacts of AEIFRS under AASB 1047, 'Disclosing the Impacts of Adopting Australian Equivalents to International Financial Reporting Standards', which requires reporting entities to disclose the impacts of adopting AEIFRS. Firms are required under AASB 1047 to explain the key differences in accounting policies that are expected to arise after adoption of AEIFRS. The AASB identifies the following expected changes in accounting policies after adoption of AEIRFS:

- Share-based payment
- Business combinations
- Income tax
- Employee benefits
- Effects on foreign exchange rates
- Financial instruments: disclosure and presentation

- Impairment of assets
- Provisions, contingent liabilities and contingent assets
- Intangible assets
- Financial instruments: recognition and measurement
- Investment property

AASB 1047 allows Australian firms to adopt a flexible approach to presenting information on these changes in financial statements, and recommends that entities should provide financial information to the user, as AEIFRS results in significant changes to accounting policies. Banks prepared financial statements on the basis of current Australian accounting standards and provided information on the potential impacts of AEIFRS on current financial statements as separate disclosures.

AASB 1, 'First-time Adoption of Australian Equivalents to IFRSs', provides guidance for the implementation of AEIRFSs. AASB 1 requires firms in Australia to prepare an opening balance sheet at the date of transition using AEIFRS. Firms must use the same accounting policies during the transition phase, and policies must comply with the requirements of AEIFRS. AASB 1 also allows firms to apply new accounting standards earlier than their operative dates.

AASB 1 also requires firms to provide disclosure of transition from Australian GAAP to AEIFRS and the effect of this transition on financial statements. In order to comply with transition requirements, firms are required to provide reconciliations of equity, profit or loss

under Australian GAAP and AEIFRS. Table 5.10 shows the changes in accounting policies for the year 2005.

Table 5.10: Changes in Accounting Policies, 2005

2005	ANZ	CBA	NAB	WBC	Total Impact
Disclosure of accounting policies	Fee revenue recognition (AASB 139, 'Financial Instruments Recognition and Measurement) 1 Oct 2004 Increase in liability $3M Decrease in equity $3M Taxation (AASB 112, 'Income Taxes') 1 Oct 2004 Increase in assets: $14M Increase in equity: $14M Financial instruments: Credit loss provisioning (AASB 139, 'Financial Instruments: Recognition and Measurement') Increase in assets: $191M Increase in equity: $191M Revenue: Fees related to loans (AASB 139, 'Financial Instruments: Recognition and Measurement') Decrease in assets: $266M Decrease in equity: $266M Derivatives Increase in assets: $9M	Reclassification of liabilities (AASB 139, 'Financial Instruments Recognition and Measurement') Increase in liabilities: $2,159M Decrease in equity: $2,159M Deferral of income: (AASB 139, 'Financial Instruments Recognition and Measurement') Decrease in equity: $61M Life insurance (AASB 1038, 'Life Insurance Contracts') Decrease in equity: $1,495M Reclassification of financial assets (AASB 139, 'Financial Instruments Recognition and Measurement') Increase in equity: $65M Property revaluation (AASB 116, 'Property, Plant and Equipment') Increase in equity: $28M Revenue recognition leases (AASB 117, 'Leases') Increase in equity: $17M	Life insurance (AASB 1038, 'Life Insurance Contracts') 1 Oct 2004 Decrease in assets: $738M Decrease in equity: $738M Increase in expenses: $335M 30 Sep 2005 Decrease in equity: $68M Decrease in assets: $68M Taxation: Deferred taxes (AASB 112, 'Income Taxes') 1 Oct 2004 Increase in assets: $423M Increase in liability: $99M Increase in equity: $560M Decrease in expenses: $6M Revenue and expense recognition (AASB 118, 'Revenue') 1 Oct 2004 Decrease in equity: $100M Increase in expenses: $12M Foreign currency translation reserves (AASB 121, 'The Effects of Changes in Foreign Exchange Rates')	Taxation (AASB 112, 'Income Taxes') Increase in expenses: $3M Increase in liabilities: $23M Increase in assets: $12M Decrease in equity: $11M Classification of compound (hybrid) financial instruments (AASB 139, 'Financial Instruments Recognition and Measurement') 30 Sep 2005 Increase in expense: $186M Decrease in equity: $2,473M Increase in liability: $2,473M Treasury shares (AASB 132 and AASB 139, 'Financial Instruments: Recognition and Measurement') Increase in expenses: $32M Decrease in assets: $97M Decrease in equity: $97M Debt vs. equity classification (AASB 139, 'Financial Instruments: Recognition and Measurement) 30 Sep 2005 Increase in expenses: $84M	

	Increase in equity: $9M Financial instruments: Reclassification (AASB 139, 'Financial Instruments: Recognition and Measurement') Decrease in assets: $5M Decrease in equity: $5M Financial instruments: Reclassification (AASB 132 and 139, 'Financial Instruments') Increase in liabilities: $987M Decrease in equity: $987M Joint ventures Decrease in assets: $181M Decrease in equity: $181M		Decrease in equity: $47M Life insurance (AASB 1038, 'Life Insurance Contracts') 1 Oct 2004 Decrease in assets: $551M Decrease in equity: $551M 30 Sep 2005 Decrease in assets: $164M Increases in equity: $3M Decrease of expenses: $167M Asset revaluation reserves (AASB 116, 'Property, Plant and Equipment') 1 Sep 2004 Decrease in equity: $38M 30 Sep 2005 Increase in equity: $13M Derivatives (AASB 139, 'Financial Instruments: Recognition and Measurement') 30 Sep 2005 Increase in assets: $299M Increase in liabilities: $575M Decrease in equity: $276M Increase in assets: $315M Increase in liability: $235M	Increase in liabilities: $1,344M Decrease in equity: $1,340M Fee revenue (AASB 139, 'Financial Instruments: Recognition and Measurement) Decrease in assets: $228M Decrease in liabilities: $59M Decrease in equity: $287M Derivatives (AASB 139, 'Financial Instruments: Recognition and Measurement') Decrease in assets: $425M Decrease in liabilities: $400M Decrease in equity: $25M Increase in assets: $152M Increase in liabilities: $168M Decrease in equity: $16M	

			Decrease in equity: $353M Decrease in assets: $40M Decrease in liability: $28M Decrease in equity: $12M Increase in assets: $364M Increase in liabilities: $29M Increase in equity: $335M Decrease in equity: $3M Loan loss provisioning (AASB 139, 'Financial Instruments: Recognition and Measurement') 30 Sep 2005 Increase in assets: $350M Increase in equity: $350M Revenue recognition (AASB 139: 'Financial Instruments: Recognition and Measurement') 30 Sep 2005 Decrease in assets: $373M Decrease in equity: $373M Valuation of financial instruments (AASB 139, 'Financial Instruments: Recognition and Measurement')		

			30 Sep 2005 Increase in liability: $16M Decrease in equity: $16M Classification of compound (hybrid) financial instruments (AASB 139, 'Financial Instruments: Recognition and Measurement') 30 Sep 2005 Increase in liability: $81M Decrease in equity: $81M Increase in assets: $103M Increase in equity: $103M Customer-related financial liability (AASB 139, 'Financial Instruments: Recognition and Measurement') 30 Sep 2005 Increase in liability: $60M Decrease in equity: $60M Life insurance contracts (AASB 1038, 'Life Insurance Contracts') 30 Sep 2005 Increase in liability: $384M Decrease in equity: $384M Decrease in liability: $17M Increase in equity: $17M		

			Taxation (AASB 112, 'Income Taxes') Increase in assets: $176M Increase in liabilities: $155M Increase in equity: $21M Other Decrease in equity: $144M Decrease in equity: $38M		
Overall impact	Increase in after-tax profit: $164M Decrease in assets: $1,130M Decrease in equity: $1,130M	Decrease in after-tax income: $587M Decrease in assets: $7,337M Decrease in equity: $7,337M	Decrease in after-tax profit: $146M Decrease in assets: $9,591M Decrease in equity: $9,591M	Decrease in after-tax profit: $216M Decrease in assets: $1,964M Decrease in equity: $1,964M	Decrease in after-tax profit: $785M Decrease in assets: $20,022M Decrease in equity: $20,022M

Table 5.11: Changes in Accounting Policies, 2006

2006	ANZ	CBA	NAB	WBC	Total impact
	1 Oct 2004 Employee benefits: Defined benefit superannuation (AASB 119, 'Employee Benefits') Increase in assets: $59M Increase in liabilities: $200M Decrease in equity: $141M Share-based compensation (AASB 2, 'Share-Based Payment') Increase in liabilities: $24M Decrease in equity: $24M Consolidation (AASB 127, 'Consolidation') Increase in assets: $5,026M Increase in liabilities: $5,029M Decrease in equity: $3M Taxation (AASB 112, 'Income Taxes') Decrease in liabilities: $18M Increase in equity: $18M Other Increase in assets: $5M Increase in liabilities: $51M Decrease in equity: $46M	1 July 2004 Insurance contract: Life insurance contract (AASB 1038, 'Life Insurance Contracts') Decrease in assets: $301M Decrease in equity: $371 Loans: (AASB 139, 'Financial Instruments: Recognition and Measurement') Increase in assets: $24 Non-current assets: (AASB 116, 'Property, Plant and Equipment') Increase in assets: $31M Taxation: Deferred taxes (AASB 112, 'Income Taxes') Increase in assets: $23M Increase in liabilities: $188M Share-based compensation (AASB 2, 'Share-Based Payment') Decrease in liabilities: $85M Employee benefits: Defined benefit superannuation (AASB 119, 'Employee Benefits') Increase in liabilities: $77M Increase in equity: $501M	1 Oct 2004 Financial assets: (AASB 139, 'Financial Instruments: Recognition and Measurement') Increase in assets: $8M Due from other banks: (AASB 139, 'Financial Instruments: Recognition and Measurement') Increase in assets: $177M Trading securities: (AASB 139, 'Financial Instruments: Recognition and Measurement') Increase in assets: $111M Insurance contract: Life insurance contract (AASB 1038, 'Life Insurance Contracts') Decrease in assets: $553M Loans: (AASB 139, 'Financial Instruments: Recognition and Measurement') Increase in assets: $4,568M Non-current assets: (AASB 116, 'Property, Plant and Equipment') Decrease in assets: $1,789M	1 Oct 2004 Intangible assets: Goodwill (AASB 138, 'Intangible Assets') Increase in assets: $6M Increase in liabilities: $8M Decrease in equity: $2M Consolidation: (AASB 127, 'Consolidated and Separate Financial Statements') Increase in assets: $5,596M Increase in liabilities: $5,596M Treasury shares: (AASB 132, 'Financial Instruments: Disclosure and Presentation') Decrease in assets: $60M Decrease in equity: $60M Hybrid securities: (AASB 139, 'Financial Instruments: Recognition and Measurement') Increase in assets: $7M Increase in equity: $7M Others Decrease in assets: $271 Increase in liabilities: 108M Decrease in equity: $379	

	30 Sep. 2005 Intangible assets: Goodwill (AASB 138, 'Intangible Assets') Increase in assets: $18M Increase in equity: $18M Employee benefits: Defined benefit superannuation (AASB 119, 'Employee Benefits') Decrease in assets: $7M Decrease in liabilities: $31M Increase in equity: $24M Share-based compensation (AASB 2, 'Share-Based Payment') Increase in assets: $5M Increase in liabilities: $4M Increase in equity: $1M Consolidation (AASB 127, 'Consolidation') Decrease in assets: $388M Decrease in liabilities: $388M Other Decrease in assets: $5M Decrease in liabilities: $2M Decrease in equity: $3M Increase in after tax income: $157M	Others Decrease in assets: $2,512M Decrease in equity: $3,045M 30 June 2005 Insurance contract: Life insurance contract (AASB 1038, 'Life Insurance Contracts') Decrease in assets: $337M Loans: (AASB 139, 'Financial Instruments: Recognition and Measurement') Increase in assets: $12 Non-current assets: (AASB 116, 'Property, Plant and Equipment') Increase in assets: $25M Intangible assets: Goodwill (AASB 138, 'Intangible Assets') increase in assets: $321M Taxation: Deferred taxes (AASB 112, 'Income Taxes') Increase in assets: $24M Increase in liabilities: $204M Share-based compensation (AASB 2, 'Share-Based Payment') Decrease in liabilities: $24M	Joint ventures: (AASB 131, 'Interest in Joint Ventures') Decrease in assets: $91M Intangible assets: Goodwill (AASB 138, 'Intangible Assets') Increase in assets: $4,831M Regulatory deposits: (AASB 139, 'Financial Instruments: Recognition and Measurement') Decrease in assets: $177M Taxation: Deferred taxes (AASB 112, 'Income Taxes') Increase in assets: $458M Increase in liabilities: $46M Increase in liabilities: $8M Deposits: (AASB 139, 'Financial Instruments: Recognition and Measurement') Increase in liabilities: $2,179M Insurance contract: Life insurance contract (AASB 1038, 'Life Insurance Contracts') Decrease in assets: $337M Debt and Bonds: (AASB 139, 'Financial Instruments:	30 Sep 2005 Intangible assets: Goodwill (AASB 138, 'Intangible Assets') Increase in assets: $146M Increase in equity: $146M Share-based compensation (AASB 2, 'Share-Based Payment') Increase in assets: $6M Increase in liabilities: $19M Decrease in equity: $13M Consolidation: (AASB 127, 'Consolidated and Separate Financial Statements') Increase in assets: $6,840M Increase in liabilities: $6,840M Treasury shares: (AASB 132, 'Financial Instruments: Disclosure and Presentation') Decrease in assets: $97M Decrease in equity: $97M Hybrid securities: (AASB 139, 'Financial Instruments: Recognition and Measurement') Increase in assets: $8M Increase in equity: $8M Others Decrease in assets: $393	

	1 Oct 2005 Financial instruments: Credit loss provisioning (AASB 139, 'Financial Instruments: Recognition and Measurement') Increase in assets: $184M Increase in equity: $184M Revenue: Fees related to loans (AASB 118, 'Revenue'; AASB 139, 'Financial Instruments: Recognition and Measurement') Decrease in assets: $276M Decrease in equity: $276M Derivatives: (AASB 139, 'Financial Instruments: Recognition and Measurement') Increase in assets: $89M Increase in liabilities: $81M Increase in equity: $8M Remeasurement: (AASB 139, 'Financial Instruments: Recognition and Measurement') Decrease in assets: $199M Decrease in liabilities: $145M Decrease in equity: $54M Reclassification: (AASB 139, 'Financial Instruments: Recognition	Decrease in equity: $385M Employee benefits: Defined benefit superannuation (AASB 119, 'Employee Benefits') Increase in liabilities: $79M Increase in equity: $819M Others Decrease in assets: $3,203M Decrease in equity: $3,851M Decrease in after tax income: $138M 1 July 2005 Insurance contract: Life insurance contract (AASB 1038, 'Life Insurance Contracts') Decrease in assets: $352M Increase in liability: $342M Deposits: (AASB 139, 'Financial Instruments: Recognition and Measurement') Increase in liabilities: $66M Derivatives: (AASB 139, 'Financial Instruments: Recognition and Measurement') Decrease in assets: $2,292M Increase in liability: $609M	Recognition and Measurement') Increase in liabilities: $3,533M Provision: (AASB 137,'Provisons, Contingent Liabilities and Contingent Assets') Increase in liabilities: $48M Employee benefits: Defined benefit scheme (AASB 119, 'Employee Benefits') Increase in liabilities: $1,286M Decrease in equity: $1,286M Others Decrease in assets: $6,882M Decrease in liabilities: $1,020M Decrease in equity: $1,397M 30 Sep 2005 Due from other banks: (AASB 139, 'Financial Instruments: Recognition and Measurement') Increase in assets: $118M Trading securities: (AASB 139, 'Financial Instruments: Recognition and Measurement') Increase in assets: $75M Held to maturity investments: (AASB 139, 'Financial	Decrease in liabilities: $30M Decrease in equity: $363M Decrease in after tax income: $120M 1 Oct 2005 Financial instruments: (AASB 132, 'Financial Instruments: Disclosure and Presentation' and AASB 139, 'Financial Instruments: Recognition and Measurement') Increase in assets: $151M Increase liabilities:$172M Decrease in equity: $21 Hybrid securities: (AASB 139, 'Financial Instruments: Recognition and Measurement') Decrease in assets: $4M Increase in liabilities: $2,169M Decrease in equity: $2,173M Insurance contract: Life insurance contract (AASB 1038, 'Life Insurance Contracts') Increase in assets: $41M Increase in liabilities: $173M Decrease in equity: $132M Effective yield: Financial assets and liabilities, (AASB 139, 'Financial Instruments: Recognition and Measurement')	

	and Measurement') Increase in assets: $89M Increase in liabilities: $81M Increase in equity: $8M Joint ventures: (AASB 131, 'Interest in Joint Ventures') Decrease in assets: $138M Decrease in equity: $138M Other Decrease in assets: $14M Increase in liabilities: $6M Decrease in equity: $20M	Available for sale instruments: (AASB 139, 'Financial Instruments: Recognition and Measurement') Increase in assets: $85M Deposits: (AASB 139, 'Financial Instruments: Recognition and Measurement') Increase in assets: $574 Debt issue: (AASB 139, 'Financial Instruments: Recognition and Measurement') Decrease in liabilities: $1,046M Non-current assets: (AASB 116, 'Property, Plant and Equipment') Increase in assets: $25M Intangible assets: Goodwill (AASB 138, 'Intangible Assets') increase in assets: $321M Taxation: Deferred taxes (AASB 112, 'Income Taxes') Increase in assets: $241M Increase in liabilities: $444M Share-based compensation (AASB 2, 'Share-Based Payment')	Instruments: Recognition and Measurement') Increase in assets: $3M Insurance contract: Life insurance contract (AASB 1038, 'Life Insurance Contracts') Decrease in assets: $164M Loans: (AASB 139, 'Financial Instruments: Recognition and Measurement') Decrease in assets: $951M Non-current assets: (AASB 116, 'Property, Plant and Equipment') Decrease in assets: $1,879M Joint ventures: (AASB 131, 'Interest in Joint Ventures') Decrease in assets: $75M Intangible assets: Goodwill and other assets (AASB 138, 'Intangible Assets') increase in assets: $760M Regulatory deposits: (AASB 139, 'Financial Instruments: Recognition and Measurement') Decrease in assets: $118M	Decrease in assets: $211M Decrease in liabilities: $57M Decrease in equity: $154M Loan loss provision: (AASB 139, 'Financial Instruments: Recognition and Measurement') Increase in assets: $556M Increase in liabilities: $160M Increase in equity: $396M Derivatives: (AASB 139, 'Financial Instruments: Recognition and Measurement') Decrease in assets: $465M Decrease in liabilities: $402M Decrease in equity: $63M Others Increase in assets: $1M Increase in liabilities: $1M	

		Decrease in liabilities: $24M Decrease in equity: $385M Employee benefits: Defined benefit superannuation (AASB 119, 'Employee Benefits') Increase in liabilities: $282M Increase in equity: $349M Loans: (AASB 139, 'Financial Instruments: Recognition and Measurement') Increase in liabilities: $194M Others Decrease in assets: $3,670M Decrease in equity: $3,729M	Taxation: Deferred taxes (AASB 112, 'Income Taxes') Decrease in assets: $154M Decrease in liabilities: $70M Increase in liabilities: $6M Other assets Decrease in assets: $1,522M Trading derivatives: (AASB 139, 'Financial Instruments: Recognition and Measurement') Increase in liabilities: $206M Hedging derivatives: (AASB 139, 'Financial Instruments: Recognition and Measurement') Increase in liabilities: $1,688M Deposits: (AASB 139, 'Financial Instruments: Recognition and Measurement') Increase in liabilities: $1,299M Debt and Bonds: (AASB 139, 'Financial Instruments: Recognition and Measurement') Increase in liabilities: $1,281M Employee benefits: Defined benefit scheme (AASB 119, 'Employee Benefits')		

			Decrease in liabilities: $301M Provision: (AASB 137, 'Provisons, Contingent Liabilities and Contingent Assets') Decrease in liabilities: $24M Others Decrease in liabilities: $1622M Decrease in equity: $50M Decrease in after tax income: $140M 1 Oct 2005 Financial assets: (AASB 139, 'Financial Instruments: Recognition and Measurement') Decrease in assets: $560M Due from other banks: (AASB 139, 'Financial Instruments: Recognition and Measurement') Decrease in assets: $12M Trading derivatives: (AASB 139, 'Financial Instruments: Recognition and Measurement') Increase in assets: $295M Trading securities: (AASB 139, 'Financial Instruments: Recognition and Measurement')		

			Decrease in assets: $5,507M Available for sale investments: (AASB 139, 'Financial Instruments: Recognition and Measurement') Increase in assets: $45M Held to maturity investments: (AASB 139, 'Financial Instruments: Recognition and Measurement') Decrease in assets: $4,389M Insurance contract: Life insurance contract (AASB 1038, 'Life Insurance Contracts') Increase in assets: $9M Financial assets at fair value: (AASB 139, 'Financial Instruments: Recognition and Measurement') Increase in assets: $18,890M Hedging derivatives : (AASB 139, 'Financial Instruments: Recognition and Measurement') Increase in assets: $645M Loans: (AASB 139, 'Financial Instruments: Recognition and Measurement')		

			Decrease in assets: $14,490M Due from customers on acceptances: 'Financial Instruments: Recognition and Measurement') Increase in assets: $6,140M Taxation: Deferred taxes (AASB 112, 'Income Taxes') Increase in assets: $175M Increase in liabilities: $150M Decrease in liabilities: $1M Others Decrease in assets: $71M Due to other banks: (AASB 139, 'Financial Instruments: Recognition and Measurement') Decrease in liabilities: $418M Trading derivatives: (AASB 139, 'Financial Instruments: Recognition and Measurement') Increase in liabilities: $474M Financial liabilities at fair value: (AASB 139, 'Financial Instruments: Recognition and Measurement') Increase in liabilities: $9,606M		

			Hedging derivatives: (AASB 139, 'Financial Instruments: Recognition and Measurement') Increase in liabilities: $2,913M Deposits: (AASB 139, 'Financial Instruments: Recognition and Measurement') Decrease in liabilities: $8,293M Liability on acceptance: (AASB 139, 'Financial Instruments: Recognition and Measurement') Decrease in liabilities: $202M Insurance contract: Life insurance contract (AASB 1038, 'Life Insurance Contracts') Increase in liability: $809M Debt and Bonds: (AASB 139, 'Financial Instruments: Recognition and Measurement') Decrease in liabilities: $292M Other Debt: (AASB 139, 'Financial Instruments: Recognition and Measurement') Increase in liabilities: $879M Managed fund units: (AASB 139, 'Financial Instruments: Recognition and Measurement') Increase in liabilities: $6,224M		

			Others Decrease in liabilities: $3,089M Decrease in equity: $7,537M		
Overall impact	Decrease in after-tax income: $7M Decrease in equity: $109M	Decrease after-tax income: $4M Increase in equity: $154M	Increase in after-tax income: $6M Decrease in equity: $679M	Increase in after-tax income: $96M Decrease in equity: $183M	Increase in after-tax income: $91M Decrease in equity: $817M

5.3.13 Share-based compensation (AASB 2, 'Share-Based Payments')

Firms in Australia are not required under Australian GAAP to recognise performance options, performance share rights and new shares under employee share plans. However, under AASB 1, firms are encouraged but not required to apply AASB 2. The recognition criteria of AASB 2 state that entities shall recognise the receipt or acquisition of goods or services in share-based transactions as corresponding increases in equity, and where the goods or services do not qualify as assets in share-based payments, then they are recognised as expenses. However, Chalmers and Godfrey (2005) assessed the aggregate impact of share-based compensation, such as expensing the fair value of options due to the application of AASB 2, as immaterial.

5.3.14 Taxation (AASB 112, 'Income Taxes')

According to AASB 1020, 'Accounting for Tax (Tax-Effect Accounting)', the liability method of tax-effect accounting is based upon certain assumptions about deferred tax provision and future tax benefit. According to AASB (1999, para 13):

> The liability method (sometimes referred to as the accrual method) is based on the assumption that a provision for deferred income tax arises whenever:
>
> an item of revenue is recognised in the determination of pre-tax accounting profit or loss before it is included in taxable income or tax loss; or an expense is deducted in calculating taxable income or tax loss before it is recognised in the determination of pre-tax accounting profit or loss; and conversely, that an asset in the nature of a future income tax benefit arises whenever:
>
> an item of revenue is included in taxable income or tax loss before it is recognised in the determination of pre-tax accounting profit or loss; or an expense is recognised in the determination of pre-tax accounting profit or loss before it is deducted in calculating taxable income or tax loss.

> The estimated amounts of this liability and this asset are determined by calculating the difference between income tax expense and income tax payable, using the tax rate or rates that are expected to apply when the underlying timing differences reverse. The estimates are later amended if the expected tax rates change or new taxes are imposed.

AASB 112, 'Income Taxes', superseded AASB 1020, 'Accounting for Tax (Tax-Effect Accounting)', on 1 January 2005. AASB 1020 specifically defines deferred liabilities and deferred assets as temporary differences. A deferred tax liability is recognised for all temporary differences excluding initial recognition of goodwill, business combination and transactions that do not affect accounting and taxable profits. A deferred tax asset is recognised for temporary differences to the extent that it is probable that taxable profit will be available against which the deductible temporary difference can be utilised. Deferred tax assets also exclude business combinations and transactions that do not affect accounting and taxable profits. Current tax and deferred tax can charge or be credited directly to equity. ANZ bank adopted the same approach to recognising current and deferred taxes.

5.3.15 Property revaluation (AASB 116, 'Property, Plant and Equipment')

Prior to the introduction of AASB 116, 'Property, Plant and Equipment', there were three accounting standards—AASB 1015, 'Acquisition of Assets', AASB 1021, 'Depreciation', and AASB 1041, 'Revaluation of Non-Current Assets'—dealing with issues of the measurement and recognition of property, plants and equipment, including their revaluation. NAB compared the revaluation of assets under Australian GAAP and AASB 116, disclosing that valuation increments and decrements are offset against each other, where net movement of the same group of assets is shown in the asset revaluation reserves.

However, under AASB 116, the valuation increases or decreases are recognised on the basis of each class of asset.

5.3.16 Revenue recognition (AASB 118, 'Revenue', and AASB 139, 'Financial Instruments: Recognition and Measurement')

Revenue recognition is discussed in AASB 118. AASB 118 refers to AASB 139 for the recognition of interest revenue: interest revenue is recognised using the effective interest method, including fees, which are an integral part of effective interest rates for a financial instrument.

5.3.17 Employee benefits: Defined benefit superannuation (AASB 119, 'Employee Benefits')

According to AASB 119, superannuation contributions are recognised as expenses, and include other employee benefits that are payable within or after 12 months. Superannuation assets and liabilities are recognised using their present values, and are also adjusted for unrecognised actuarial gains and losses. In order to calculate the present value of defined benefits, liabilities and estimated future cash flows are discounted using Australian government Treasury bond yields or high quality government bond yields.

5.3.18 Foreign currency translation reserves (AASB 121, 'The Effects of Changes in Foreign Exchange Rates)

In accordance with AASB 121, exchange differences arising from the translation of assets and liabilities of overseas branches and subsidiaries are recognised as a separate component of equity in the form of foreign currency translation reserves.

5.3.19 Consolidation of special purpose vehicles (AASB 127, 'Consolidated and Separate Financial Statements')

Banks were required to consolidate all securitisation-related entities that were not required for consolidation in the accounting standards; however, the consolidation of securitisation resulted in equal amounts of assets and liabilities, with no material impact reported on banks' equities and incomes. Therefore, accounting policy changes due to consolidation were not considered in the analysis.

5.3.20 Intangible assets: Goodwill (AASB 138, 'Intangible Assets')

It is no longer required that goodwill be amortised under AASB 138; it is now considered an intangible asset with indefinite life. Goodwill is subject to impairment testing periodically, and impairment loss will be recognised. AASB 136, 'Impairment of Assets', requires firms to perform impairment testing on intangible assets. Impairment testing requires companies to estimate the present value of future cash flows specifically associated with an intangible asset.

AASB 138 imposes several restrictions on intangible assets, including goodwill. AASB 136 is also applied in conjunction with AASB 138. Under AASB 136, if no impairment loss is recognised, then an entity would continue carrying the amount of intangible assets with indefinite life such as goodwill for an indefinite period.

5.3.21 Financial instruments (AASB 7, 'Financial Instruments: Disclosure', AASB 132, 'Financial Instruments: Disclosure and Presentation', and AASB 139, 'Financial Instruments: Recognition and Measurement')

Three accounting standards deal with financial instruments: AASB 7, 'Financial Instruments: Disclosure', AASB 132, 'Financial Instruments: Presentation', and AASB 139, 'Financial Instruments: Recognition and Measurement'. All four banks clearly acknowledge the impact of AEIFRS, and particularly the impact of financial instruments, including derivatives, on financial statements. AASB 139 provides guidance for the measurement and recognition of financial assets and liabilities, which are initially recognised at the fair value. All financial assets are subsequently measured at fair value, excluding loans and receivables, held-to-maturity investments, equity investments without a quoted price and financial assets as part of hedging transactions. Financial liabilities are measured at amortised cost using the effective interest method, except for financial liabilities that are part of a hedging transaction, financial liabilities associated with assets that do not qualify for derecognition, and financial guarantees.

AASB 139 also provides criteria for the recognition of hedging transactions. The accounting standard identifies differential criteria for the recognition of hedged items and hedging instruments related to cash flow, fair value hedges and hedges of a net investment.

Gains or losses on hedging instruments and hedged items emanating from fair value hedges are recognised in profit or loss. The guidance given in AASB 139 for cash flow hedges states that the gains or losses on the hedging instruments that are determined to be effective are recognised in equity, while the ineffective portion of the gains or losses on the hedging instruments must be recognised as profit or loss. Hedges of a net investment must be accounted for using the criteria of cash flow hedges.

5.3.22 Life insurance (AASB 1038, 'Life Insurance Contracts')

The liabilities related to the insurance policies are calculated on the basis of the margin of service method given in the guidance provided by the Life Insurance Actuarial Standards Board's Actuarial Standards AS 1.03 in addition to the guidance provided by AASB 1038 for the recognition actuarial gains or losses.

5.4 **Conclusion**

The results of the content analysis have shown the changes in the accounting policies of Australian firms due to corresponding changes in accounting standards and rules. The discussions on these accounting policies have shown how the decisions of Australian banks to introduce changes to their accounting standards responded to the AASB decision to adopt its international harmonisation policy in 1996. However, the content analysis has also shown that banks sought guidance from other accounting standards boards, such as the FASB, where guidance was not available on Australian accounting standards or international accounting standards, particularly in the case of information technology and software costs.

The AASB uses two kinds of approaches for the implementation of accounting standards. It provides flexibility to firms in the form of allowing for application of some standards before their implementation date, while for other accounting standards, firms were not allowed to undertake this early implementation. The results have shown that banks mainly relied on the AASB accounting standards for implementing changes to their accounting policies, but in some instances, changes in accounting policies were not implemented simultaneously by all banks due to the flexibility provided by the AASB in the accounting standards for the implementation of the changes.

The Australian banks disclosed the impact of the adoption of IFRS in Australia in the form of describing the changes to their accounting policies in the financial statements of 2005, and also showed the remaining and residual impacts of IFRS in the financial statements of

2006. Banks did not disclose any impacts of changes due to changes in accounting standards in the year 2007.

The changes in accounting standards impose restrictions on firms for the recognition of provisions for the payment of dividends, unless dividends are declared and publicly recommended for payment. Haswell and McKinnon (2003) criticised the recognition criteria for liabilities and provisions in that they centre around the presence of obligations, which can be categorised as either legal or constructive obligations, past events and probable outflow of economic benefits. Therefore, any announcements by firms about proposed dividends create valid expectations about the payment and receipt of dividends. A restriction of public announcement or declaration to recognise dividends as liabilities could remove potential liabilities from financial statements, and impact the decision usefulness of the financial information therein for its users.

According to Wines et al. (2007), it is difficult to assess impairment of goodwill because goodwill cannot be separately identified in the absence of another group of assets, and it is not possible to estimate recoverable amounts of goodwill accurately. Moreover, AASB 138 does not allow the reversal of impairment loss for goodwill if firms assess that the goodwill is recovered. Hence, impairment of goodwill is considered permanent, and cannot be reversed under AASB 138. The permanent impairment of goodwill does not provide decision-useful information to users, particularly if impairment is reversed, which creates the difference in the market-to-book value of equity. Instead of working towards improved information through the development of measurement models for the subsequent recognition of goodwill, the IASB and AASB decided to permanently derecognise the

impaired portion of the goodwill, which affects the decision usefulness of financial information related to the goodwill due to the under-statement of goodwill assets.

Bloom (2009) criticised the measurement and recognition of goodwill under AEIFRS by exploring issues of the limitations of measurement and recognition. He proposed an alternative model for the recognition of goodwill by differentiating between acquired goodwill and internally generated goodwill, where goodwill is measured on a market capitalisation approach. Another criticism is the impairment of goodwill; impairment is based on the present value of forecasted cash flows, which cannot be verified and is subject to manipulation due to the use of several assumptions about the capability of cash-generating units and discount rates.

AASB 1011, 'Accounting for Research and Development Costs', provides general guidance for the treatment of research and development costs, but does not provide any specific guidance for the accounting treatment of software development costs. Therefore, banks adopted the relatively conservative policy of treating software development costs as expenses. Hence, banks decided to apply US Statement of Position 98-1, 'Accounting for the Costs of Computer Software Developed or Obtained for Internal Use'.

The disclosures in the 2005 financial reports reveal the impact of AEIFRS on financial statements prepared under Australian GAAP. The disclosures provided in financial statements provide information that share-based payments are recognised as expenses under AEIFRS, which meets the requirements of AASB 2. AASB 2 requires firms to measure the fair value of equity granted using market value; if market price is not available, then firms

use valuation techniques to assess the fair value of equity, which has introduced subjectivity to the assessment of fair value.

Internally generated intangible assets, such as brand names and customer lists, are not recognised. It is no longer required that goodwill be amortised under AASB 138, as it is considered an intangible asset with indefinite life. Therefore, goodwill is subject to impairment testing periodically, and impairment loss is recognised. AASB 136, 'Impairment of Assets', requires firms to perform impairment testing on intangible assets. Impairment testing requires companies to estimate the present value of future cash flows specifically associated with an intangible asset. Similarly to AASB 116, AASB 138 allows the use of either cost model or revaluation after initial recognition of purchased intangible assets; however, the revaluation model is often not applied on intangible assets due to the absence of an active market for most intangible assets. Therefore, for most intangible assets, the cost model is used, which understates their value and affects the decision usefulness of accounting information. Moreover, the restriction on the recognition of internally generated intangible assets by AASB 138 also restricts firms from providing decision-useful information to users.

AASB 136, 'Impairment of Assets', is also applied in conjunction with AASB 138. According to AASB 136, if no impairment loss is recognised, then an entity would carry intangible assets with indefinite life, such as goodwill, for an indefinite period. It is difficult to assess the impairment of goodwill because goodwill cannot be separately identified in the absence of another group of assets, and it is not possible to estimate recoverable amounts of goodwill (Wines et al. 2007). Moreover, AASB 138 does not allow the reversal

of impairment loss, which has been recognised previously. Hence, recovered amounts of goodwill that have been previously recognised as impairment losses cannot be reflected in current and future statements of financial position.

Under the previous accounting standards, goodwill is amortised to maintain its value goodwill. However, according to AASB 138, internally generated goodwill is hidden from the users of financial information, as only purchased goodwill is recognised in financial statements. Therefore, goodwill is grossly understated. Goodwill impairment is based upon the present value of forecasted cash flows, which cannot be verified because they are based upon several assumptions about the capability of cash-generating units and discount rates (Bloom 2009).

Haswell and Langfield-Smith (2008) criticised the structure and drafting of AASB 139, 'Financial Instruments: Measurement and Recognition'. They identified that the differences between the recognition criteria for the initial and subsequent measurements and recognition of financial assets and liabilities create potential problems in terms of decision usefulness of information. Financial instruments are initially recognised at fair value and on the basis of effective interest rate methods. The use of effective interest rate methods for the subsequent measurement of liabilities, including considerations of transaction costs and discounts, could understate the value of liabilities compared to the amount of cash received or the amount of cash paid towards the repayment of financial liabilities. Therefore, financial liability recognised using the effective interest method could not be considered fair value.

Haswell and Langfield-Smith (2008) also identified a problem related to transaction costs related to the issuance of equity. AASB 132, 'Financial Instruments: Presentation', recognises transaction costs as reductions in equity. Haswell and Langfield-Smith (2008) pointed out that the transaction costs for the issuance of equity should not be recognised as reductions in equity, but should rather be recognised as expenses, as they are not paid to equity holders. They also criticised the non-recognition of income or expenses on the repurchase and extinguishment of shares in share buy-back transactions. However, Bradbury (2008) in turn criticised the findings of Haswell and Langfield-Smith (2008), arguing that prior to the introduction of AASB 139, there was no Australian equivalent accounting standard available for comparison, therefore lessening the weight of the argument that AASB 139 has diluted the comparability and understandability of financial information as it allows different accounting methods for the recognition of financial assets and ensures that financial instruments including derivatives are recognised in the balance sheet. Bradbury further argued that there is no empirical evidence to suggest the benefit of recognising transaction costs as an expense rather than a reduction in equity.

Chapter 6 provides the results of the sensitivity analysis for the identification of cost equity that provides the lowest forecasting error. The cost of equity that provides the lowest forecasting error is subsequently used in the valuation models to discover the impact of changes in accounting policies on forecasted share prices.

Chapter 6: Research Findings on Valuation of Equities of Australian Banking Firms

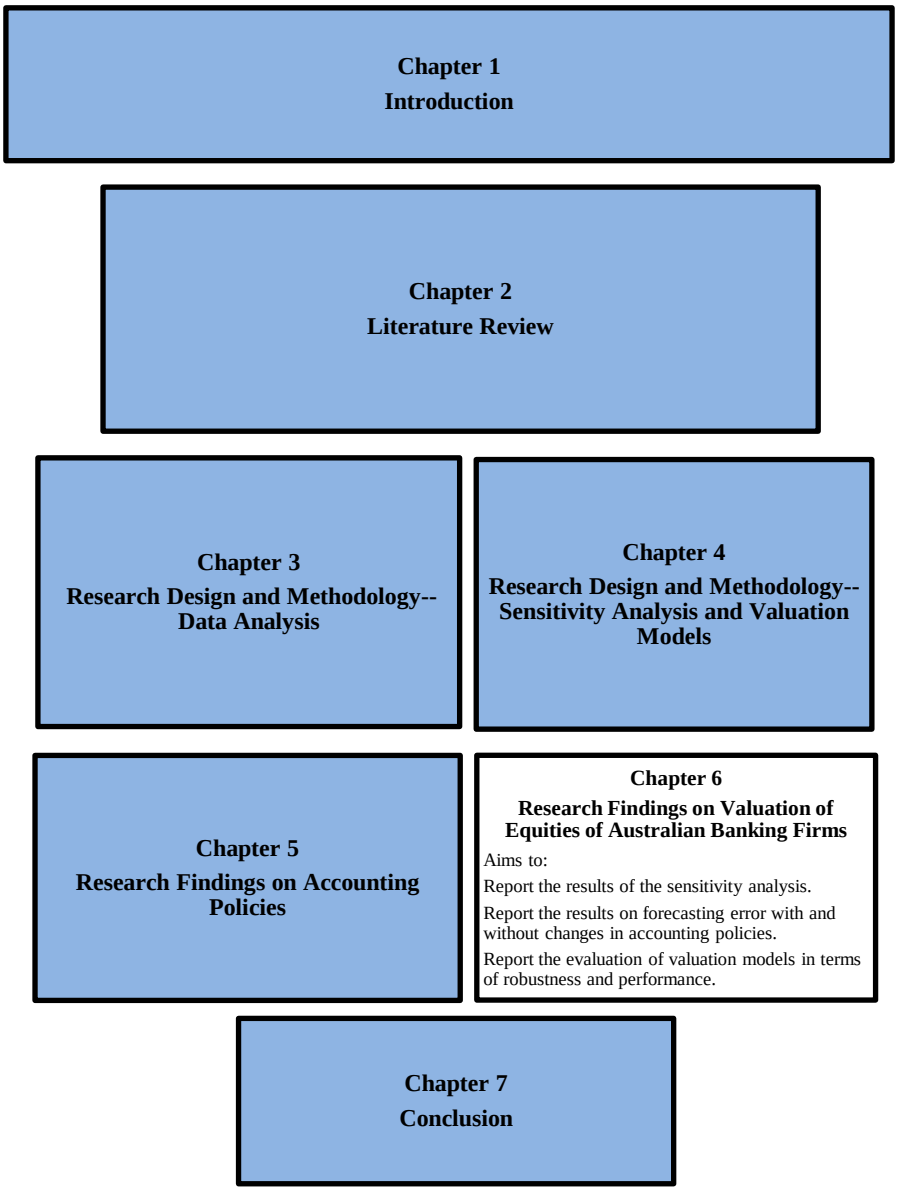

Figure 6.1: Outline of Thesis: Chapter 6

6.1 **Introduction**

This chapter uses the results of the content analysis presented in Chapter 5 to perform sensitivity and scenario analyses. Section 6.2 discusses the findings of a sensitivity analysis conducted to determine the cost of capital that provides the lowest aggregate forecasting error following changes in accounting policies. Section 6.3 discusses the findings of a sensitivity analysis conducted after removing the impacts of changes in accounting policies to determine their effect on aggregate forecasting error. Section 6.4 discusses and assesses the performance of each valuation model for the estimation of aggregate forecasting error with and without the changes in accounting policies. Section 6.5 discusses the performance of the valuation under both scenarios (before and after changes in accounting policies).

6.2 **Cost of Equity–Sensitivity Analysis**

The objective of the sensitivity analysis is to discover the combination of input variables for the identification of cost of equity that provides the lowest MAPE of intrinsic values after changes in accounting policies. The cost of equity that provides the lowest MAPE is used in further analysis after removing the impact of the changes in accounting policies on company accounts to assess the impact of accounting policy changes on MAPE. The research approach for the identification of cost of equity that was discussed in section 4.14 uses three inputs to CAPM. These inputs are risk-free rate of return, beta and risk premium. The first input, risk-free rate, is based on 10-year Treasury bond yields. The second input, beta, which was calculated using four different time intervals for four banks, is shown in the tables below.

Table 6.1: ANZ—Beta with Different Time Intervals

Year	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	Mean	Standard Deviation
1. Adjusted Beta: 2 years' weekly data	1.31	1.33	1.16	0.69	0.88	1.11	1.12	1.06	0.82	0.90	0.91	1.03	0.20
2. Datastream Beta: 5 years' monthly data	0.91	0.98	1.20	1.16	1.11	0.96	0.73	0.67	0.78	0.77	0.80	0.92	0.18
3. Unadjusted Beta: 5 years' monthly data	0.96	0.97	1.18	1.14	1.09	1.00	0.72	0.66	0.78	0.79	0.83	0.92	0.18
4. Adjusted Beta: 5 years' monthly data	0.98	0.98	1.12	1.09	1.06	1.00	0.82	0.77	0.85	0.86	0.89	0.95	0.12

Table 6.2: CBA—Beta with Different Time Intervals

Year	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	Mean	Standard Deviation
1. Adjusted Beta: 2 years' weekly data	0.99	0.96	0.94	0.64	0.47	0.92	0.98	0.98	0.76	0.81	0.86	0.85	0.17
2. Datastream Beta: 5 years' monthly data	0.90	0.80	0.80	0.66	0.63	0.72	0.72	0.61	0.81	0.78	0.67	0.74	0.09
3. Unadjusted Beta: 5 years' monthly data	0.85	0.74	0.75	0.58	0.55	0.66	0.61	0.51	0.70	0.75	0.67	0.67	0.10
4. Adjusted Beta: 5 years' monthly data	0.90	0.83	0.83	0.72	0.70	0.77	0.74	0.67	0.80	0.83	0.78	0.78	0.07

Table 6.3: NAB—Beta with Different Time Intervals

Year	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	Mean	Standard Deviation
1. Adjusted Beta: 2 years' weekly data	0.87	0.72	0.80	0.73	0.80	0.78	0.74	0.66	0.84	0.66	0.70	0.75	0.07
2. Datastream Beta: 5 years' monthly data	1.04	0.98	0.96	0.92	1.03	1.22	1.04	1.08	0.78	0.78	0.86	0.97	0.13
3. Unadjusted Beta: 5 years' monthly data	0.87	0.73	0.78	0.74	0.79	0.74	0.82	0.66	0.85	0.63	0.73	0.76	0.07
4. Adjusted Beta: 5 years' monthly data	0.87	0.72	0.80	0.73	0.80	0.78	0.74	0.66	0.84	0.66	0.70	0.75	0.07

Table 6.4: WBC—Beta with Different Time Intervals

Year	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	Mean	Standard Deviation
1. Adjusted Beta 2 years' weekly data	1.20	1.09	1.02	0.76	0.77	0.97	1.02	1.06	0.95	0.86	0.86	0.96	0.14
2. Datastream Beta 5 years' monthly data	0.91	0.98	1.20	1.16	1.11	0.96	0.73	0.67	0.78	0.77	0.80	0.92	0.18
3. Unadjusted Beta 5 years' monthly data	1.10	0.98	0.78	0.66	0.73	0.77	0.73	0.69	0.84	0.88	0.81	0.82	0.13
4. Adjusted Beta 5 years' monthly data	1.06	0.99	0.85	0.77	0.82	0.85	0.82	0.80	0.89	0.92	0.87	0.88	0.09

Tables 6.1–6.4 show betas for ANZ, CBA, NAB and WBC respectively from 1997 to 2007. The betas shown in these tables are subsequently used as input to calculate the cost of equity using CAPM (see section 4.8). These tables show four variations of betas (see sections 4.9, 4.10 and 4.11) on the basis of two years' weekly data, five years' monthly data, unadjusted beta and adjusted beta using the findings of Blume (1979) on the central tendency of betas. The results in these tables show that adjusted beta with five years' monthly data consistently shows the lowest standard deviation for all four banks compared to other betas.

Table 6.5: Market Return Based on All Ordinaries Accumulation Index

Year	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	Mean Market Return	Standard Deviation
Market Return*	13.64%	10.71%	11.65%	12.37%	10.75%	9.80%	10.00%	10.75%	11.97%	12.27%	13.38%	11.57%	1.29%
Market Return**	13.47%	11.74%	12.23%	12.40%	11.80%	10.12%	9.94%	9.94%	11.58%	12.06%	12.81%	11.64%	1.18%
Mean	13.56%	11.23%	11.94%	12.39%	11.28%	9.96%	9.97%	10.35%	11.78%	12.17%	13.10%	11.61%	1.23%

*ANZ, WBC and NAB's financial years end on 30 September.

**CBA's financial year ends on 30 June.

Table 6.6: Market Risk Premium Based on All Ordinaries Accumulation Index

Year	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	Mean Market Risk Premium	Standard Deviation
Risk premium*	6.38%	4.93%	6.06%	5.87%	5.05%	3.95%	4.69%	5.06%	6.65%	6.74%	7.50%	5.72%	1.065%
Risk premium**	5.78%	5.71%	6.83%	5.87%	6.01%	4.22%	4.57%	4.28%	6.16%	6.67%	7.01%	5.74%	0.987%
Mean	6.08%	5.32%	6.45%	5.87%	5.53%	4.09%	4.63%	4.67%	6.41%	6.71%	7.26%	5.73%	0.981%

*ANZ, WBC and NAB's financial years end on 30 September.

**CBA's financial year ends on 30 June.

Table 6.5 presents the findings of the market return, and Table 6.6 presents the findings of the risk premiums based on the All Ordinaries Accumulation Index from 1992 to 2007. The results show risk premium and market return at the end of September and June from 1997 to 2007, because the end-of-reporting-periods of ANZ, WBC and NAB are on 30 September, while the end-of-reporting-period of CBA is on 30 June. The results show a mean risk premium of 5.73 per cent with a standard deviation of 0.98 per cent, and mean market return of 11.61 per cent with a standard deviation of 1.23 per cent. The results indicate that the highest risk premium was 7.50 per cent in September 2007 and the lowest risk premium was 3.95 per cent in September 2002. The market risk premium starts increasing from 2002 and peaks in 2007 at 7.50 per cent, which could be attributed to the beginning of the global financial crisis. However, although market risk premium varies from 6 per cent to 7.5 per cent in Australia, a market risk premium of 6 per cent is considered more acceptable in Australia (Brailsford et al. 2008; Officer & Bishop 2008, 2009; Truong & Partington 2008; Truong et al. 2008; Lonergan 2001).

Table 6.7: Sensitivity Inputs of Beta

Beta	Mean Error	Rank
1. Adjusted Beta: 2 years' weekly data	33.89%	4
2. Datastream Beta: 5 years' monthly data	30.24%	2
3. Unadjusted Beta: 5 years' monthly data	29.81%	1
4. Adjusted Beta: 5 years' monthly data	30.28%	3

Table 6.8: Sensitivity Inputs of Required Return

Required Return	Mean Forecasting Error of Share Price	Rank
1. Required return based on All Ordinaries Accumulation Index with 1 year monthly average risk-free return	28.75%	1
2. Required return based on 6% risk premium with 5 year monthly average risk-free return	32.35%	5
3. Required return is based on risk-free return on 1 year monthly average with 6% risk premium	29.67%	2
4. Required return is based on risk-free return on 1 year monthly average with 7.5% risk premium	33.10%	6
5. Required return is based on risk-free return on 1 year monthly average with 7% risk premium	31.61%	4
6. Required return is based on risk-free return on 1 year monthly average with 6.5% risk premium	30.83%	3

Tables 6.7 and 6.8 report the rankings of beta and required return in the form of MAPE ranking without interaction with each other. Table 6.7 shows that unadjusted beta on the basis of five years' monthly data shows the highest ranking with the lowest MAPE, and Table 6.8 shows that required return based on All Ordinaries Accumulation Return Index with one year monthly average risk-free return shows the highest ranking with the lowest MAPE.

Table 6.9 reports the results of the sensitivity analysis on the interaction of two input variables in CAPM in order to identify the combination of beta and required return that produces the lowest MAPE. To arrive at this ranking, 24 input iterations were performed on the basis of four variations of beta and six variations of required return. The results show that when beta and required return interact with each other as two input variables, then adjusted beta with five years' monthly data and required return, based on the All Ordinaries Accumulation Index with one year monthly average risk-free return, yields the lowest

MAPE (27.74 per cent). The highest MAPE (36.38 per cent) is yielded by adjusted beta on the basis of two years' weekly data and required return based on risk-free return on a one year monthly average with 7.5 per cent risk premium. The same combination that provided the lowest MAPE was used in later stages to assess the impact of changes in accounting policies on valuation models.

Table 6.9: Results of Sensitivity Analysis for the Identification of Lowest MAPE

Forecasting Error at Iteration	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X
Gordon model	36.91%	43.34%	40.22%	48.36%	45.83%	43.19%	31.87%	36.06%	33.89%	42.92%	40.16%	37.08%	30.08%	35.28%	31.66%	40.94%	38.09%	34.92%	32.82%	39.14%	35.48%	44.85%	41.92%	38.89%
Two-stage dividend discount model	27.18%	28.44%	25.27%	35.29%	31.97%	28.40%	24.41%	23.96%	21.81%	28.78%	26.37%	23.93%	25.28%	24.03%	21.07%	27.07%	24.93%	22.96%	24.44%	24.41%	21.74%	29.68%	26.93%	24.26%
Three-stage dividend discount model	23.85%	27.28%	23.04%	33.09%	29.49%	26.01%	24.12%	25.36%	21.92%	27.08%	24.39%	22.56%	23.64%	25.27%	20.58%	25.24%	22.98%	21.34%	22.92%	24.60%	20.00%	28.00%	25.01%	22.34%
Single-stage residual income valuation model (RIV1)	29.28%	34.72%	35.26%	32.49%	31.36%	34.19%	24.02%	35.10%	27.91%	33.63%	32.06%	30.61%	23.10%	32.15%	26.85%	31.10%	28.86%	31.96%	23.16%	34.39%	29.55%	29.89%	28.87%	31.32%
Multi-stage residual income valuation model (RIV2)	36.57%	38.82%	41.26%	32.68%	34.96%	37.83%	35.49%	37.87%	37.40%	29.79%	33.06%	33.56%	40.56%	39.26%	40.03%	32.55%	35.24%	37.15%	35.38%	37.57%	38.43%	28.52%	29.79%	34.18%
Mean error	30.76%	34.52%	33.01%	36.38%	34.72%	33.92%	27.98%	31.67%	28.59%	32.44%	31.21%	29.55%	28.53%	31.20%	28.04%	31.38%	30.02%	29.67%	27.74%	32.02%	29.04%	32.19%	30.50%	30.20%
Beta*	1	1	1	1	1	1	2	2	2	2	2	2	3	3	3	3	3	3	4	4	4	4	4	4
Required return**	1	2	3	4	5	6	1	2	3	4	5	6	1	2	3	4	5	6	1	2	3	4	5	6
Ranking	12	22	20	24	23	21	2	16	5	19	14	7	4	13	3	15	9	8	1	17	6	18	11	10

*Beta:

1. Adjusted beta based 2 years' weekly data
2. Datastream beta based 5 years' monthly data
3. Unadjusted beta based 5 years' monthly data
4. Adjusted beta based 5 years' monthly data

**Required Return:

1. Required return based on All Ordinaries Accumulation Index with 1 year monthly average risk-free return
2. Required return based on 6% risk premium with 5 year monthly average risk-free return
3. Required return based on risk-free return on 1 year monthly average with 6% risk premium
4. Required return based on risk-free return on 1 year monthly average with 7.5% risk premium
5. Required return based on risk-free return on 1 year monthly average with 7% risk premium
6. Required return based on risk-free return on 1 year monthly average with 6.5% risk premium

6.3 **Impact of Accounting Policy Changes on Forecasting Error**

The impacts of changes in accounting policies were examined by comparing two scenarios: first, with no changes in accounting policies, and second, with the changed accounting policies. Under each scenario, the objective is to use the matching financial information to forecast share prices using a range of forecasting models, so as to be able to calculate the MAPE when compared to the actual share price. The MAPE can then be calculated across all banks and time periods.

Table 6.10: Forecasting Error without Changes in Accounting Policies

Model	**Rank**	**MAPE**	**Contribution to Forecasting Error**
Gordon model	4	30.44%	22.78%
Two-stage dividend discount model	3	27.84%	20.83%
Three-stage dividend discount model	2	25.48%	19.07%
Single-stage residual income valuation model (RIV1)	1	16.66%	12.47%
Multi-stage residual income valuation model (RIV2)	5	33.22%	24.86%
Total error		133.64%	100%
Average forecasting error		26.73%	

Table 6.10 presents the results of the forecasting error before changes in accounting policies. These results are consistent in terms of their ranking of valuation models. RIV1 is ranked at the highest level due to its lowest MAPE, followed by the three-stage dividend discount model, two-stage dividend discount model, RIV2 and the Gordon model.

The results show that the Single-Stage Residual Valuation Model (RIV1) performs significantly better than the other models. The MAPE of the RIV1 is 16.66 per cent, which

is significantly lower than that of the other models. The superiority of RIV1 in terms of forecasting error can be attributed to the model's capability in prescribing earnings and book values rather than dividends as a forecasting target when residual income models are compared with dividend discount models (Penman 2005).

Table 6.11: Forecasting Error with Changes in Accounting Policies

Model	Rank	MAPE	Contribution to Forecasting Error
Gordon model	5	31.07%	23.25%
Two-stage dividend discount model	3	28.56%	21.37%
Three-stage dividend discount model	2	26.27%	19.66%
Single-stage residual income valuation model (RIV1)	1	15.86%	11.87%
Multi-stage residual income valuation model (RIV 2)	4	30.48%	22.81%
Total error		132.24%	100%
Mean forecasting error		26.45%	

Table 6.11 presents the results of the forecasting error after changes in accounting policies. These results show that the single-stage residual income valuation model is ranked highest, yielding the lowest MAPE at 15.86 per cent. This is followed by the three-stage dividend discount model, showing the second-best forecasting error at 26.27 per cent, and the two-stage dividend discount model, showing a forecasting error of 28.56 per cent. The RIV2 model shows a forecasting error of 30.48 per cent, and the lowest in ranking was the Gordon model, also known as the constant growth model, at 31.07 per cent. The average MAPE of all of these models was 26.45 per cent.

The results shown in Tables 6.10 and 6.11 illustrate that residual income valuation models provide more accurate information compared to dividend discount models before and after

changes in accounting policies. This ranking of valuation models confirms the findings of Penman and Sougiannis (1998) and Francis et al. (2000) that valuation models not only differ in terms of forecast accuracy, but that residual earnings models' value estimates are superior compared to dividend discount and free cash flow models. The results of the present analysis show that the single-stage residual income valuation model provides relatively reliable estimates of firms' value due yielding the lowest MAPE. Therefore, these findings confirm those of Penman and Sougiannis (1998) and Francis et al. (2000) that residual income models provide more accurate forecasts compared to dividend discount models. However, in contrast, the findings of Imam et al. (2008) provide support for the use of dividend discount models. Imam et al. discovered that dividend discount models were ranked the highest by financial analysts for the valuation of financial firms' shares, but were ranked the lowest for the valuation of non-financial firms' shares. The limitation of Imam et al.'s (2008) research was that it did not consider residual income valuation models, which were earlier considered by Demirakos et al. (2004) in their research on valuation of firms' shares.

Table 6.12 presents the MAPE results after removing the impacts of changes in accounting policies. The overall result shows that accounting policy changes decrease the average MAPE by 0.28 per cent, which shows that the changes in accounting policies have improved decision usefulness for users of financial statements in the form of a reduction in forecasting error.

The research investigates the impact of accounting policy changes due to the changes in accounting standards on the financial statements of Australian banking firms. It did not

focus on the assessment of economic impact of the changes in accounting policies. The financial impact of accounting policy changes on the financial statements of Australian banking firms was not large. Therefore, the average decrease in MAPE as a consequence of accounting policy changes was not significant. These results are consistent with prior research by Ashbaugh and Pincus (2001), Hodgdon et al. (2008) and Cotter et al. (2012) that showed that financial analysts' forecasting errors have been reduced under IFRS; however, the limitations of these results are that they do not specify which valuation models were used by financial analysts to forecast either share price or earnings. The results are also consistent with the findings of Jiao et al. They reported that analysts' earnings forecast decreases after the mandatory adoption of IFRS. The findings also show that analyst accuracy of forecasted earnings increase by 0.8 per cent and analysts' dispersion of earnings forecast decreases by 0.2 per cent.

Table 6.12: Changes in Forecasting Error with Changes in Accounting Policies

Model	**MAPE**
Gordon model	0.63%
Two-stage dividend discount model	0.72%
Three-stage dividend discount model	0.80%
Single-stage residual income valuation model	-0.80%
Multi-stage residual income valuation model	-2.74%
Change in forecasting error	-0.28%

6.4 **Robustness of Results**

The performance of the valuation models is consistent both before and after changes in accounting policy scenarios, and the results show that the ranking of valuation models on the basis of average MAPE does not change under both scenarios. Single-stage residual income valuation models outperform all other valuation models in terms of accuracy of forecasting, and produce the lowest MAPE. However, some valuation models show their limitations in capturing the impact of changes in accounting policies.

Table 6.13: Forecasting Error with Changes in Accounting Policies

Model	MAPE
Dividend discount models	0.72%
Residual income valuation models	-1.77%

The results presented in Table 6.13 show the reduction in average forecasting error of 1.77 per cent under residual income by valuation models. However, forecasting error is increased by 0.72 per cent under dividend discount models. These results show that residual income models are more robust in capturing the impact of changes in accounting policies, as these models show an increase in error after removing the impact of changes in accounting policies compared to dividend discount models, which show a decrease in forecasting error after removing the impact of changes in accounting policies.

Table 6.14: Forecasting Error with Changes in Accounting Policies for Each Bank

Model	ANZ	WBC	NAB	CBA
Gordon model	38.97%	27.37%	30.09%	29.64%
Two-stage dividend discount model	36.48%	30.68%	21.78%	26.56%
Three-stage dividend discount model	34.09%	30.81%	17.85%	24.29%
Single-stage residual income valuation model	23.99%	9.16%	11.23%	17.65%
Multi-stage residual income valuation model	32.19%	24.59%	36.22%	25.25%
Mean forecasting error	33.14%	24.52%	23.43%	24.68%

Table 6.14 shows the forecasting error for each bank after the changes in accounting policies produced by the dividend discount models and the residual income valuation models, including the mean forecasting error. The mean forecasting error for ANZ is the highest, at 33.14 per cent, and lowest, at 23.43 per cent, is shown by NAB.

Table 6.15: Forecasting Error without Changes in Accounting Policies for Each Bank

Model	ANZ	WBC	NAB	CBA
Gordon model	40.02%	27.82%	28.40%	27.94%
Two-stage dividend discount model	38.49%	31.26%	19.62%	24.58%
Three-stage dividend discount model	36.24%	31.12%	16.19%	21.48%
Single-stage residual income valuation model	22.13%	20.17%	11.33%	15.70%
Multi-stage residual income valuation model	27.53%	26.25%	42.87%	29.81%
Mean forecasting error	32.88%	27.32%	23.68%	23.90%

Table 6.15 shows the forecasting error before the changes of accounting policies for individual banks. ANZ bank shows the highest mean forecasting error, at 32.88 per cent, and NAB shows the lowest, at 23.90 per cent. The consistency of mean forecasting error does not change under the before and after changes in accounting policy scenarios; ANZ still shows the highest mean forecasting error and NAB still shows the lowest.

Table 6.16: Impact of Changes in Accounting Policies on Forecasting Error for Each Bank

Model	ANZ	WBC	NAB	CBA
Gordon model	-1.05%	-0.45%	1.69%	1.70%
Two-stage dividend discount model	-2.01%	-0.58%	2.15%	2.32%
Three-stage dividend discount model	-2.15%	-0.31%	1.66%	2.82%
Single-stage residual income valuation model	1.85%	-11.00%	-0.09%	1.96%
Multi-stage residual income valuation model	4.66%	-2.08%	-6.65%	-4.56%
Mean change in forecast error for each bank	0.26%	-2.89%	-0.25%	0.85%
Mean change in forecast error by dividend growth models	-1.74%	-0.45%	1.83%	2.28%
Mean change in forecast error by residual income valuation models	3.26%	-6.54%	-3.37%	-1.30%

The results shown in Table 6.16 confirm earlier findings that, as a category of models, residual income valuation models outperform dividend growth models in capturing the impact of changes in accounting policies. The mean forecasting error of each bank yields inconclusive results, with two banks showing increases in aggregate forecasting error, and the remaining two banks showing decreases in forecasting error. However, the disaggregated results show that the mean forecasting error provided by the residual income valuation models is more robust in capturing the results of changes in accounting policies compared to the dividend discount models.

Table 6.17: Impact of Changes in Accounting Policies on Mean Forecasting Error

Models	Mean	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	Standard Deviation
Gordon model	0.31%	0.22%	2.62%	-1.54%	-0.74%	0.00%	-1.06%	0.00%	0.21%	3.51%	-0.11%	1.58%
Two-stage dividend discount model	0.17%	0.34%	3.76%	-2.28%	-1.61%	-0.72%	-3.38%	-0.36%	0.97%	3.55%	1.43%	2.34%
Three-stage dividend discount model	-0.01%	0.37%	2.73%	-2.50%	-1.56%	-0.53%	-3.52%	-0.35%	-1.63%	4.62%	2.31%	2.55%
Single-stage residual income valuation model	-0.62%	0.59%	-2.49%	-2.89%	2.87%			0.76%	-2.34%	0.69%	-2.12%	2.11%
Multi-stage residual income valuation model	-0.38%	0.80%	-7.93%	6.31%	4.43%	4.28%		2.94%	1.43%	-13.29%	-2.41%	6.45%
Mean forecasting error	-0.16%	0.46%	-0.26%	-0.58%	0.68%	0.76%	-2.65%	0.60%	-0.27%	-0.19%	-0.18%	1.00%

Table 6.17 shows the yearly results of all four banks from 1997 to 2006. These results show that the mean forecasting error improved in six out ten years, and show a consistent pattern that residual income models outperform dividend valuation models in terms of forecast accuracy.

Table 6.18: Impact of Changes in Accounting Policies on Forecasting Error of Banks

	ANZ		WBC		NAB		CBA		Total Counts	
Decrease in forecasting error	18	81.82%	16	66.67%	12	46.15%	10	29.41%	56	52.83%
Increase in forecasting error	4	18.18%	8	33.33%	14	53.85%	24	70.59%	50	47.17%
Total counts	22	100%	24	100%	26	100%	34	100%	106	100%

Table 6.19 shows the frequencies of changes in forecasting errors by showing the total number of counts of increases and decreases of forecasting errors for each bank. The table shows that forecasting errors for ANZ and WBC decreased with the changes in accounting policies, NAB shows a marginal increase in forecasting error, and CBA shows a significant increase in forecasting error. The examination of the overall results of all valuations models for the period 1997 to 2007 shows that forecasting error is decreased over 56 observations and increased over 50 observations. The tests of robustness show weak support of the hypothesis that changes in accounting policies reduce forecasting error for Australian banking firms' forecasted equity share prices.

6.5 **Summary of Findings**

This chapter has discussed the findings of the sensitivity analysis to identify inputs that produce the lowest MAPE, and has subsequently assessed the impact of changes in accounting policies on the intrinsic values of Australian banking firms by applying the Gordon model, two-stage dividend discount model, three-stage dividend discount model, single-stage residual income valuation model and multi-stage residual income valuation model. The sensitivity analysis identified variations of betas and risk premiums that are used as inputs to CAPM to identify the combination of inputs that produces the lowest MAPE. The results from the sensitivity analysis were used to discover the aggregate impact of changes in accounting policies on the forecasting error.

Overall, the results the support the view that changes in the accounting policies of Australian banking firms for the period 1997 to 2007 decreased forecasting error. Therefore, it was assessed that these changes in accounting policies, which were introduced by the AASB and IASB in Australia and applied to Australian banking firms, achieve the objective of furthering the public interest by providing more decision-useful information to the users of financial statements. Unlike previous studies, which have not considered financial services firms for analysis due to their capital structure, or have analysed financial firms alongside non-financial firms, thus hiding the impact of financial firms on the aggregate data, this study has solely considered the Australian banking industry and analysed its effective population in isolation. This study differs from other studies in that it uses sensitivity analysis and scenario analysis approaches through spreadsheet modelling;

these methods have not previously been used in the Australian context, particularly for Australian banking firms.

The results also generally support the view that valuation models provide different intrinsic values of equity shares, as they use different assumptions (Penman 2001, 2006; Penman & Sougiannis 1998). Therefore, the argument that some valuation models provide superior forecasted share values compared to other models is confirmed by the results that residual income models are superior compared to other valuation models in providing more decision-useful information. However, the tests of robustness show only weak support for the hypothesis that changes in accounting policies have reduced forecasting error for Australian banking firms.

This study can be further differentiated from other studies in that it has used sensitivity analysis and scenario analysis approaches through spreadsheet modelling for the identification of risk premiums, and consequently discovered the cost of equity capital that provides the lowest forecasting error during the first phase of the research. The research uses scenario analysis to identify the impact of accounting policy changes on forecasting errors under the scenarios before and after the changes in accounting policies.

The results of the sensitivity analysis show that a combination of adjusted beta using Blume's adjustment of central tendency (Blume 1975, 1979), which is also used by the Bloomberg database, on the basis of five years' data for all four banks and required returns based on the All Ordinaries Accumulation Index with a one year monthly average risk-free return provides the lowest forecast error of intrinsic values in the form of MAPE.

The research initially considered free cash models for analysis, but it was discovered that a free cash flow model is relatively difficult to apply due to difficulties in the estimation of free cash flow, which requires an estimation of working capital. The difficulty associated with the estimation of working capital for banks thus creates limitations for the use of free cash flow models for the valuation of banking firms. Moreover, free cash models generated negative cash flows (Penman 2007a; Estridge & Lougee 2007) for banks even when alternative definitions were applied (Weiss & Yang 2007), which resulted in the models' failure, as free cash flow models do not provide intrinsic values using negative free cash flows. Therefore, the research only considered the dividend discount models and residual income models to determine the intrinsic values, which were later used to assess the forecasting error using MAPE.

This research has determined a consistency in the rankings of valuation models; the overall ranking of valuation models with and without changes in accounting policies does not change. Moreover, the performance of the residual income models (RIV1 and RIV2) remains consistent in both scenarios in terms of rankings and forecasting errors with and without changes in accounting policies. The results also suggest that overall forecasting error decreases after the introduction of changes in the accounting policies of Australian banking firms. The magnitude of error seems relatively small, but the research has used the effective population of Australian banks for data analysis; therefore, the direction of change is significantly more important than the magnitude of change.

Chapter 7: Conclusion

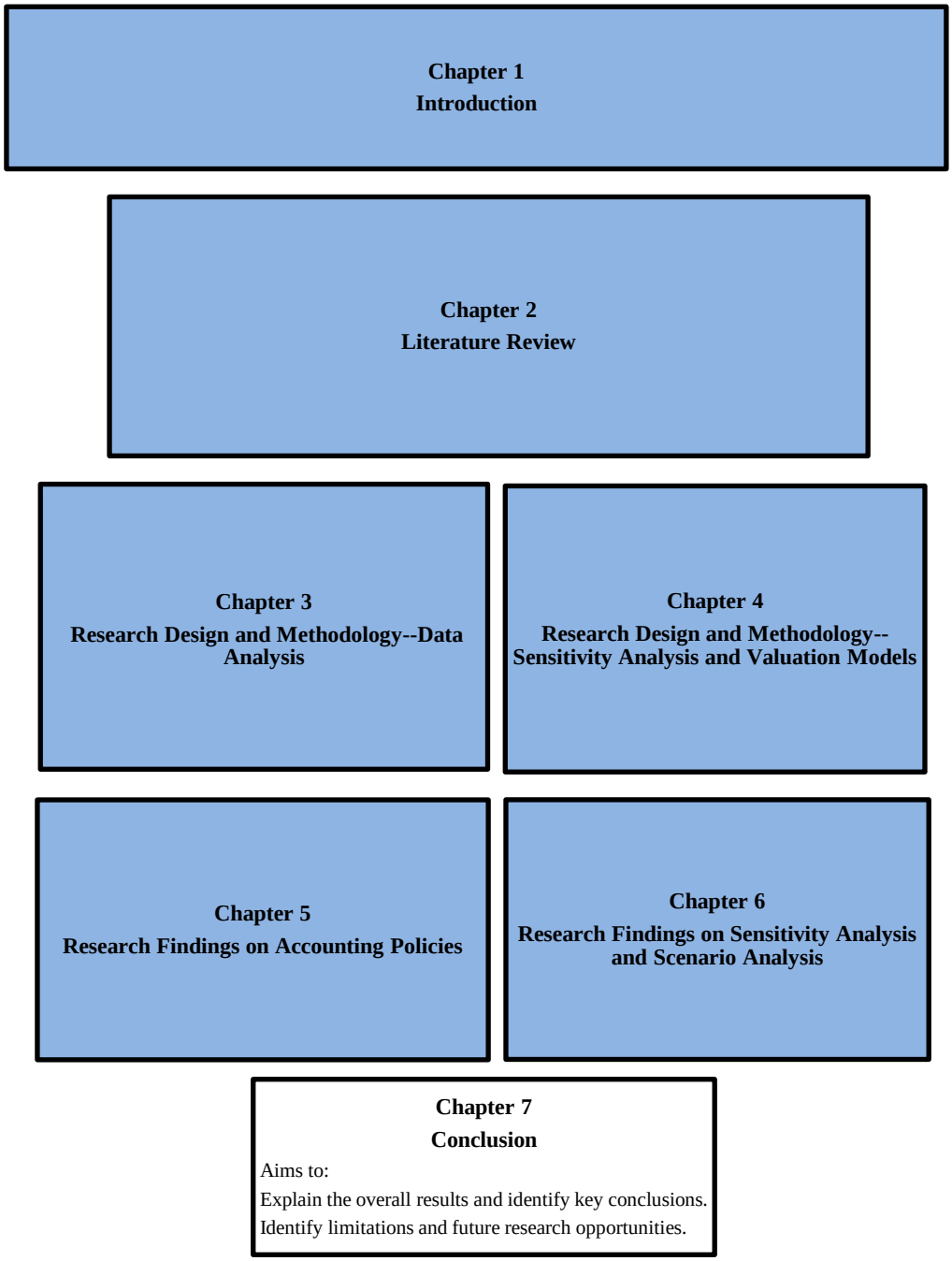

Figure 7.1: Outline of Thesis: Chapter 7

7.1 **Introduction**

This chapter concludes the thesis. The thesis informs accounting policy research with a focus on mandatory changes to the accounting policies of Australian banking firms and the consequences of those changes on the intrinsic values of the firms. The context of this study is confined to the Australian banking industry, as banking firms in Australia are exposed to more changes in accounting policies compared to non-banking firms due to the nature of their capital structure, the financial nature of their assets and liabilities, and the greater emphasis on fair value for the measurement of those assets and liabilities. The earlier research of Barker and Imam (2008), Imam et al. (2008), Imam et al. (2013), Barker (2001) and Demirakos et al. (2004) exploring the valuation practices of financial analysts serves to establish the foundation of this research. This study identifies changes in accounting policies due to accounting standards changes during the period 1997 to 2007 and the impact of those changes on forecasting error using valuation models. This study not only identifies the categories of valuation models suitable for measuring the intrinsic value of banking firms, but also identifies the types of models in each category that can be applied on Australian banking firms for measuring forecasted values.

This research uses the inputs to valuation approach identified by Holthausen and Watts (2001), using valuation models to assess changes in accounting policies due to changes in accounting standards. The accounting information is considered an input to the valuation models, and financial statements serve both valuation and non-valuation functions.

7.2 **Summary of the Thesis**

Chapter 1 introduced the thesis, providing readers with the aims and scope of the research and what readers could expect to find in each chapter of the thesis. Chapter 2 examined and identified issues related to accounting policy research, the notion of the public interest in accounting, the decision usefulness of accounting information and the valuation of banking firms. Accounting standards boards emphasise the importance of the public interest in motivating changes to accounting standards. The public interest as a process is developed during interactions between individuals; this view considers the role of the individuals who participate in this process in describing and dealing with public interest issues. The weakness of the process view of the public interest is that the process involves limited participation of individuals, and majority-passed rules and regulations could impose unnecessary costs on those who tend to disagree with the majority due to competing interests (Box 2007).

The public interest is applied in accounting at two levels. On the first level, accounting standard-setting bodies use the public interest as an objective for introducing new accounting standards or changing existing standards to increase the decision usefulness of accounting information. On the second level, the accounting standards prepared by accounting standards boards are applied for the preparation of financial reports to enhance the decision usefulness of financial information for the maintenance of the public interest. It is this notion of the public interest that influences the investigation in this research to assess whether the AASB's policy of aligning itself with the IASB achieves the objective of

furthering the public interest through the creation of decision-useful information for the users of financial statements.

The AASB/IASB framework identifies primary users of financial information as investors, creditors and their advisers, with the assumption that if information is considered useful by the primary user, then it is also considered useful by other users. Accounting standard-setting boards make changes to existing standards and introduce new standards to provide more decision-useful information to users in order to protect the public interest. Accounting policy changes significantly affect the income and equity of firms, and consequently, also significantly affect the earnings forecasts and intrinsic values of firms where accounting information is used as input to valuation models along with other information. The current literature has mainly concentrated on the assessment of the correlation between changes in accounting policies and market price and/or cost of capital. Therefore, this research contributes to the existing literature in investigating the role of accounting information as input to valuation models for the reduction of forecasting error after accounting policies are changed due to mandatory changes in accounting standards. Accounting policy changes affect the financial statements of banks and financial institutions to a greater extent than they affect those of non-banking and non-financial firms, particularly due to the presence of significant amounts of financial assets and financial liabilities including derivatives. The research literature has generally excluded banking firms from analysis due to their atypical capital structure; this research thus contributes to the literature as it concentrates solely on Australian banking firms.

Chapter 3 identified methodological issues related to the identification of the population of Australian banks for the period 1997 to 2007. The Australian banking industry underwent a significant transformation during this period due to mergers and acquisitions, allowing the Australia's four largest banks to dominate the industry in terms of market capitalisation, income and assets size (Sathye 2001); the number of publicly listed Australian banks was reduced from 18 to 13, with only nine Australian banks surviving the mergers and acquisitions during the time horizon used in this research. Of those nine banks, only the four largest banks are considered for this research. The decision to select only these four largest banks for this study is based on the argument that these four banks represent the effective population of the Australian banking industry. This argument is supported by data that shows that the four largest banks have an average market capitalisation of 88.54 per cent from 1997 to 2007, with 67.26 per cent of total assets and net profit after tax of 76.92 per cent in 2007, compared to 14.10 per cent of total assets and net profit after tax of 15.97 per cent in 2007 for the other domestic Australian banks.

Chapter 3 also examined the research design of the content analysis. This design utilised a combination of the approaches of Holsti (1969), Krippendorff (1980), Woods and Marginson (2004) and Vergoossen (1997). Holsti (1969) identified the objectives of content analysis, while Krippendorff (1980) identified designs for testing hypotheses to make content analysis a part of a research project. In this study, content analysis is applied on unstructured data in the form of disclosure about changes in accounting policies provided in financial statements, following the criteria developed by Vergoossen (1997) for the identification of changes in accounting policies. Accounting policy changes are generally categorised as either mandatory or discretionary; mandatory accounting policy

changes are introduced due to changes in accounting standards. AASB 108 deals with accounting policy changes (previously required under AAS 6, 'Accounting Policies', and AASB 1001, 'Accounting Policies', prior to 2005). AAS 6, AASB 1001 and AASB 108 allow Australian firms to adopt changes in accounting standards from other accounting standard-setting bodies if they use a similar conceptual framework in the absence of guidance provided under existing Australian accounting standards. However, in the event of changes in accounting policies, firms are required to provide a complete account of the impacts of changes in accounting policies in their financial statements. The focus of this research is to assess the financial impact of accounting policy changes due to changes in accounting standards. Therefore, in the first stage, content analysis to identify the changes in accounting policies and impacts of those changes on financial statements. In the second stage of the content analysis, changes in accounting policies are grouped into five categories based on the elements of financial statements as accounting policies related to income, expenses, assets, liabilities and equity; these categories are further reduced to income and equity.

Chapter 4 identified and examined the methodological issues related to the sensitivity analysis for the identification of the cost of equity that would provide the lowest forecasting error using valuation models. This chapter discussed the use of sensitivity analysis as a tool for determining the impact of changes in accounting information generated through changes in accounting policies in particular. The chapter discussed the application of the MAPE method for assessing the unsigned forecasting errors: this method is based on the intrinsic values provided by the valuation models. The valuation models initially considered, discussed and assessed for the valuation of the banking industry are free cash

flow models, dividend discount models, relative valuation models and residual income models; these models are based on earlier research conducted by Ohlson (1995).

The objective of this research is to determine forecasting error after changes in accounting policies by forecasting banking firms' share prices in the form of intrinsic values; therefore, valuation models that provide absolute values are considered in this research at the initial stages. These valuation models are free cash flow models, dividend discount models, and residual income models. After considering these models, it was determined that the free cash flow models and their variants, such as free cash flow to equity and free cash flow to firm models, require two main inputs in the form of positive free cash flow data and identification of working capital. This raises two issues for the application of free cash flow models. First, free cash flow requires estimations of cash flows from operations, investments, and working capital; firms that grow rapidly generally generate negative cash flows due to significant amounts of cash investments. Australian banks' data shows significant numbers of observations of negative free cash flows from 1997 to 2007. Second, banks' assets and liabilities are stated on the basis of liquidity and maturity according to AASB 101; they are not classified as current and non-current, which is required for non-financial firms. Hence, it is difficult to estimate the working capital of a bank and consequently the free cash flow for a bank (Damodaran 2002, 2012).

Imam et al. (2008) showed that financial analysts rank dividend discount models higher than free cash flow models after unsophisticated models such as price-to-book and price-to-earnings models for the valuation of financial firms. Damodaran (2002), while discussing the valuation of financial services firms, stated that if capital expenditure or working capital

cannot be measured, then free cash flow cannot be estimated. This is also shown in the findings of Imam et al. (2008) that financial analysts rank dividend discount models higher than free cash flow models; however, Imam et al.'s research did not identify which types of dividend discount models are preferred by analysts. Earlier research by Francis et al. (2000) and Penman and Sougiannis (1998) discovered that residual income models are superior in accuracy compared to dividend discount models and free cash flow models. The present research uses the earlier researches of Imam et al. (2008) and Demirakos et al. (2004) to identify valuation models that can be applied on banking firms for the determination of intrinsic values.

Chapter 4 also discussed the capital of banking firms and issues related to the estimation of cost of capital. The approach to cost of capital adopted in this research is based on CAPM, which is the most common method used for the estimation of cost of capital in Australia (Truong et al. 2008), the US (Graham & Harvey 2001) and the UK (McLaney et al. 2004). Risk premiums vary from 6 per cent to 7.5 per cent in Australia (Truong et al. 2008; Officer & Bishop 2009; Officer & Bishop 2008). Moreover, as an integral part of input to CAPM, estimation of beta involves several approaches, including the length of time required to estimate beta, estimation methods and adjusted beta due to its mean reversion tendency (Blume 1971, 1975, 1979). Based on these issues, a sensitivity analysis was applied to identify the optimised cost of capital that would provide the lowest forecasting error using dividend discount models and residual income valuation models. The cost of equity capital that provides the lowest foresting error was subsequently used to value Australian banking firms after removing the effect of changes in accounting policies to determine the impact of changes in accounting policies on forecasting error using MAPE.

Chapter 5 presented the findings of the content analysis by identifying the nature of the changes in accounting policies introduced through the changes in accounting standards, accounting rules and through the issuance of the new accounting standards. Chapter 5 also showed that the Australian banks also sought guidance from other accounting standards boards, such as the US FASB, when sufficient guidance was not available from the AASB accounting standards. The content analysis shows that the AASB gradually began to implement international accounting standards in collaboration with the IASB, but that banks adopted these changes at different times due to the flexibility afforded them in the form of early adoption or adoption from the operative date.

The decision to implement IFRS in Australia by the FRC from 2005 forced Australian banks, along with other firms, to use IFRS for the preparation of their financial reports to disclose the impact of changes in accounting standards on their financial statements in the form of an impact statement. All four banking firms provided this disclosure on the impact of the changes on their financial statements. The results show that over the period from 1997 to 2006, the changes in accounting policies due to the changes in accounting standards and rules resulted in increases in income and increases in equity in four out of seven years.

The results of the content analysis show that the accounting policies of Australian banks that were changed during the period 1997 to 2006 related to investments in associates, insurance and superannuation, intangible assets, life insurance, provisions for loan losses, provisions for dividends, employee benefits, share-based compensation, revenue

recognition, taxation, financial instruments, foreign exchange rates, property, plants and equipment, leases and consolidation. The accounting policy related to consolidation did affect financial statements, as it increased assets and liabilities simultaneously by equal amounts, and there was no significant impact on income. Therefore, accounting policy changes due to consolidation were not considered in the analysis, as banks' equity and income remained unchanged due to these changes in accounting policy.

Chapter 6 presented the findings of the sensitivity analysis. The research used two inputs to measure the level of risk premium that provides the lowest MAPE using CAPM, which is subsequently used for the estimation of cost of equity. The first input to CAPM is the risk premium, which varies from 6 per cent to 7.5 per cent with increments of 0.5 per cent. Risk premiums are based on the All Ordinaries Accumulation Index using monthly return data from 1992; this range of risk premiums in Australia is based on the findings of Truong et al. (2008) and Officer and Bishop (2008, 2009). The second input to CAPM was the sensitivity of beta, which can be calculated using several time intervals—for example, daily, weekly or monthly—using two to seven years' worth of data, as discovered by Lamb and Northington (2001). Four types of beta were considered for the sensitivity analysis based on length of time and frequency of banks' weekly and monthly Shares Accumulation Return data. Two of the types of beta were based on the central tendency of beta (Blume 1971, 1979, 1975), which requires adjustments to raw beta using two years' weekly data (a similar approach was used by the Bloomberg database) and five years' monthly Shares Accumulation Return data. The third type of beta was unadjusted beta based on monthly Shares Accumulation Return data, and the fourth type of beta was sourced from Datastream, which derives it from the methodology developed by Cunningham (1973).

This chapter also showed that the combination of beta and risk premium that produced the lowest MAPE is the beta provided by Datastream (using the methodology of Cunningham, 1973) combined with the market risk premium calculated using monthly return data from the All Ordinaries Accumulation Index.

This chapter offers a conclusion to this thesis. This thesis has considered the impacts of changes in accounting policies due to changes in accounting standards on the forecasting error of Australian banking firms. The review of literature in Chapter 2 illustrates that accounting standards boards, such as the IASB, AASB and FASB, emphasise the importance of decision usefulness of accounting information in aid of protecting the public interest. In order to protect the public interest through the enhancement of the decision usefulness of accounting information, accounting standards boards such as the AASB introduce either new accounting standards or changes to existing accounting standards.

7.3 **Summary of Main Findings**

The main findings of this research are reported in Chapters 7 and 8. This section summarises the main findings by examining four interrelated areas: (1) the effect of accounting policy changes on the financial statements of Australian banking firms; (2) the appropriateness of valuation models for the valuation of Australian banking firms; (3) the effect of accounting policy changes on forecasting error; and (4) the relative effects of accounting policy changes on valuation models.

7.4 **Effect of Accounting Policy Changes on the Financial Statements of Australian Banking Firms**

Chapter 5 discussed the findings of the content analysis through the identification of changes in accounting policies. The chapter identified changes for each year of the period 1997 to 2007, along with the impacts of changes in accounting policies on the financial statements of Australian banking firms, by categorising them according to the elements of financial statements: assets, liabilities, equity, income and expenses. The financial reports subject to the content analysis show that changes in accounting policies are related to investments in associates, insurance and superannuation, intangible assets, life insurance, provisions for loan losses, provisions for dividends, employee benefits, share-based compensation, revenue recognition, taxation, financial instruments, property, plants and equipment, leases, changes in foreign exchange rates and consolidation.

The results of the content analysis show that banks were inconsistent in their application of accounting standards for the preparation of financial statements; some banks used the provision of early application of the standards, while others waited for the application date to implement the accounting standards. Banks also applied changes in accounting standards using FASB guidance for areas where guidance was not available in the AASB accounting standards.

7.5 **Appropriateness of Valuation Models for the Valuation of Banking Firms**

One of the objectives of this research was to assess forecasting error using forecasting models that provide intrinsic values. Therefore, this research initially considered free cash flow valuation models, dividend discount models and residual income valuation models for the valuation of Australian firms, using the findings of Imam et al. (2008), Imam et al. (2013), and Demirakos et al. (2004).

The research initially considered and analysed free cash flow valuation models as tools for measuring intrinsic value. Free cash flow models are further subdivided into free cash flow to equity and free cash flow to firm models. These models are difficult to apply on banking firms because free cash flow models require the estimation of working capital for both types of free cash flow models and investments in capital expenditure necessary for future growth. It was determined that banks invest in intangible assets instead of tangible assets such as property, plants and equipment, and that therefore, banks' financial statements show relatively small amounts of capital expenditure compared to other firms. However, if investments in loans and other investments are considered as proxies for capital expenditure, free cash flows turn negative for several years; free cash flow models fail to value negative free cash flows (Penman 2006; Damodaran 2002, 2012).

The net working capital of non-financial firms is calculated as the difference between current assets and current liabilities; however, significantly large proportions of banks' assets and liabilities are composed of either liquid or highly liquid assets. Banks' balance

sheets group assets and liabilities to reflect the liquidity of assets and maturity of liabilities, instead of classifying them as current and non-current under the previous accounting standard AASB 130, and more recently under AASB 101; this makes banks' balance sheets inappropriate for estimating banks' working capital. The traditional description of working capital or net working capital that is used for non-financial firms therefore cannot be applied to banking firms. Thus, it is difficult for an external financial analyst to value banking firms using free cash flow models without an estimation of net working capital.

The definition of free cash flow seems relatively straightforward: free cash flow is defined as cash flows from operations that a company can distribute to its providers of capital after investing in working capital and fixed assets (Viebig et al. 2008). However, Estridge and Lougee (2007) identified that cash flows are defined differently under different accounting regimes, cash flow statements do not provide useful categorisations of operating and financing activities. Finance theory considers taxes paid, capital expenditure, acquisitions and disposals of assets, and dividends received from associates as part of cash flow from operating activities; in contrast, IFRS leave it to the discretion of the firm to decide whether interest paid, received dividends or pension plan contributions should become a part of operating cash flow activities or other activities. However, the US GAAP clearly identifies the items that are included in the calculation of cash flow from operating activities. Estridge and Lougee further discussed that free cash flow is a non-GAAP measure with no standard definition; therefore, firms' use of varied definitions of free cash flows, along with the inclusion or exclusion of certain items, creates measurement errors, inconsistency, misclassification and prospects for manipulation.

Damodaran (2012) criticised the use of free cash flow models for the valuation of banking firms on the basis that these models cannot be used to value firms when they generate negative free cash flows, where net capital expenditure and changes in net working capital cannot be estimated. From this argument, other models, such as dividend discount models, should be used as replacements for free cash flow models. Therefore, this research excluded free cash flow models for the valuation of banking firms; other valuation models, such as relative valuation models and return-based valuation models, were not considered in this research due to these models' inability to provide intrinsic values, which were required for this research. The research initially considered seven models for the valuation of banking firms: (1) constant growth model; (2) two-stage dividend discount model; (3) three-stage dividend discount model; (4) H-model; (5) constant growth residual income model; and (5) multi-period residual income model. The H-model was later dropped from the analysis due to its inability to capture changes in accounting policies.

7.6 **Changes in Accounting Policies and Forecasting Error by Valuation Models**

The present findings are based on the calculation of risk premium, which was measured using the sensitivity analysis approach. After the sensitivity analysis, it was determined that the combination of beta and risk premium that produced the lowest MAPE is the beta provided by Datastream and the market risk premium calculated using monthly return data from the All Ordinaries Accumulation Index, which yields an average risk premium of 5.73 per cent from 1997 to 2007 with a standard deviation of 0.98 per cent, instead of the figure, widely used in Australia, of 6 per cent to 7.5 per cent.

These results support the view that changes to the accounting policies of Australian banking firms for the period 1997 to 2007 decreased forecasting error. Therefore, it was assessed that these changes in accounting policies, introduced by the AASB/IASB in Australia and applied on Australian banking firms, do achieve the AASB/IASB's objective of furthering the public interest by providing more decision-useful information to the users of financial statements. Unlike many previous studies that did not consider financial services firms for analysis due to their capital structure, or did not analyse financial firms along with non-financial firms, thus hiding the impact of financial firms on the aggregate data, this study solely considers the Australian banking industry by analysing its effective population. This study differs from other studies in that it uses sensitivity analysis and scenario analysis approaches through spreadsheet modelling; these approaches have not previously been used in the Australian context, particularly for Australian banking firms.

The results of the sensitivity analysis show that a combination of adjusted beta using Blume's (1975,1979) adjustment of central tendency (also used by the Bloomberg database) on the basis of five-yearly data for all four banks and required return based on the All Ordinaries Accumulation Index with one year monthly average risk-free return provides the lowest forecast error of intrinsic values in the form of MAPE. The results also show that overall MAPE for the forecasting of the share prices decreases after the introduction of changes to the accounting policies of Australian banking firms.

7.7 **Limitations of the Research**

One limitation of this research is due to the lack of availability of data of both the All Ordinaries Accumulation Index return and share accumulation return indexes from 1992 in Datastream. Applying the analysis over a longer time series of data could add more value to this research.

The research was restricted to Australian banking firms and the four banks that dominate the Australian banking industry. Firms involved in banking activities with their main emphasis on other financial services, such as investment banking and insurance, were excluded from the analysis.

The research literature provides mixed results regarding the combination of preferred beta and risk premium that provides the highest degree of accuracy. Therefore, this study used four variations of betas and six variations of risk premiums as inputs to the CAPM to explore the input combination of beta and risk premium that would provide the minimum MAPE. The CAPM was used in this research as it is a relatively simple model for the valuation of equity, despite the fact that the underlying assumptions of the CAPM are not consistent with the market, as risk is confined to a single factor under the CAPM (Gray & Officer 2005).

This research was unable to apply free cash flow models due to their inability to identify the working capital of banking firms, as a traditional definition of working capital is

difficult to apply on banking firms from an independent analyst's perspective. Due to this limitation, valuation models were restricted to those used in the research.

Another limitation of this research is that it was unable to analyse the impact of each accounting standard, because firms are required to remain consistent in applying accounting policies under the AASB frameworks and AASB accounting standards. The AASB's changes to accounting standards do not require all firms to apply the changes to their accounting policies simultaneously. Therefore, this research was only able to assess the aggregate impact of changes in accounting policies.

7.8 **Recommendations for Future Research**

This thesis focuses only on Australian banking firms. Therefore, there are opportunities to extend this research to other industries or other financial firms, such as insurance firms and other non-bank financial institutions. This research could also be extended to other countries that have adopted IFRS for financial reporting.

Valuation models such as free cash flow to equity and free cash flow to firm have been excluded from this research due the limitations of these models in terms of application. A future study may examine the structure of free cash flow models and redefine it for banking industries, similarly to the separate performance and financial ratios that are applied to evaluate banking firms' performance compared to non-banking firms.

As mentioned, this research could be extended to other countries that have large banking sectors, or to other types of financial firms, such as investment banks and insurance firms. The research could also be extended by focusing only on the changes in accounting policies that are specific to a particular accounting standard, and including non-financial firms in the analysis to measure the impact of changes in accounting standards on the valuation of firms.

7.9 **Summary of the Chapter**

The findings of this research contribute to accounting knowledge and understanding with a focus on the Australian banking industry's accounting policies, changes in those policies, and the impact of those changes in accounting on the valuation of banking firms. The research shows that since the changes in accounting policies, the accounting information provided by banking firms in Australia has improved forecasting accuracy. Therefore, the AASB and IASB have achieved their objectives of furthering the public interest by providing more decision-useful information to users of financial statements after introducing changes in accounting standards. The research shows that it is not only the accounting standard-setting boards that achieve this objective of furthering the public interest, but also the accounting profession who contribute to the welfare of the users of accounting information, by adopting changes in accounting standards and providing decision-useful information to those users.

The research also shows that some valuation methods are more appropriate for the equity valuation of banking firms for the measurement of absolute value, because they provide

improved decision usefulness compared to other models. Therefore, dividend discount models and residual income valuation models are determined to be more appropriate for the equity valuation of banking firms compared to other valuation models. However, in capturing the impacts of these changes in accounting policies, residual income models perform relatively better compared to dividend discount models.

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Appendix A: MAPE and Ranking of Valuation Models after Changes in Accounting Policies

	Rank	MAPE	ANZ	WBC	NAB	CBA	ANZ	WBC	NAB	CBA	ANZ	WBC	NAB	CBA	ANZ	WBC	NAB	CBA	ANZ	WBC	NAB	CBA
Year			1997	1997	1997	1997	1998	1998	1998	1998	1999	1999	1999	1999	2000	2000	2000	2000	2001	2001	2001	2001
Gordon model	4	32.64%	52.17%	48.68%	41.82%	47.09%	25.21%	30.87%	25.31%	36.87%	42.14%	33.00%	29.56%	42.11%	46.81%	37.15%	37.23%	12.96%	39.18%	20.09%	54.29%	15.62%
Two-stage dividend discount model	3	24.44%	39.40%	36.27%	25.11%	34.07%	19.71%	25.07%	18.64%	31.10%	31.84%	22.37%	17.06%	27.98%	28.29%	16.35%	16.20%	63.04%	10.26%	17.81%	39.50%	22.19%
Three-stage dividend discount model	1	22.92%	32.29%	30.30%	16.89%	26.62%	15.24%	20.56%	11.88%	27.54%	25.68%	11.77%	6.50%	18.74%	27.96%	17.02%	15.90%	66.80%	22.90%	4.13%	49.99%	2.66%
RIV 1	2	23.16%	36.74%	31.55%	15.98%	33.87%	13.46%	16.43%	6.83%	29.07%	18.38%	10.73%	6.11%	16.18%	9.56%	5.91%	21.37%		44.23%		47.82%	
RIV 2	5	35.38%	26.28%	18.53%	4.53%	31.01%	30.94%	22.33%	30.27%	6.09%	34.50%	39.25%	55.73%	39.05%	30.36%	45.76%	59.79%		49.88%	84.72%	38.17%	31.06%
Mean		27.71%																				

MAPE and Ranking of Valuation Models after Changes in Accounting Policies *(Continued)*

	ANZ	WBC	NAB	CBA	ANZ	WBC	NAB	CBA	ANZ	WBC	NAB	CBA	ANZ	WBC	NAB	CBA	ANZ	WBC	NAB	CBA	ANZ	WBC	NAB	CBA
Year	2002	2002	2002	2002	2003	2003	2003	2003	2004	2004	2004	2004	2005	2005	2005	2005	2006	2006	2006	2006	2007	2007	2007	2007
Gordon model	18.07%	0.45%	30.52%	21.70%	16.18%	0.51%	7.96%	20.27%	18.55%	27.62%	23.96%	14.92%	34.26%	43.38%	34.66%	32.79%	50.09%	51.84%	45.80%	56.58%	45.08%	45.08%	45.08%	32.54%
Two-stage dividend discount model	24.63%	50.49%	14.33%	2.23%	77.67%	48.77%	44.83%	9.00%	16.13%	2.42%	2.90%	4.88%	7.88%	18.28%	14.89%	15.08%	25.61%	25.11%	19.05%	37.48%	20.27%	25.01%	23.24%	2.76%
Three-stage dividend discount model	30.66%	57.87%	16.99%	2.74%	81.68%	50.31%	38.53%	13.66%	31.35%	14.09%	8.18%	1.60%	6.88%	16.67%	17.14%	18.50%	23.95%	22.44%	17.15%	36.95%	12.19%	15.15%	14.96%	7.34%
RIV 1			5.23%	9.15%				4.78%		92.74%	24.50%	4.78%	39.27%		19.46%	3.08%	1.56%	5.15%	2.40%	30.36%	24.41%	81.75%	6.92%	67.67%
RIV 2			58.94%	54.98%				6.48%		85.92%	32.31%	58.79%	37.64%	30.51%	8.70%	36.14%	30.34%	24.36%	26.58%	7.15%	32.39%	27.36%	6.09%%	66.02%
Mean																								

Appendix B: MAPE and Ranking of Valuation Models before Changes in Accounting Policies

Model	**Rank**	**MAPE**	**ANZ**	**WBC**	**NAB**	**CBA**	**ANZ**	**WBC**	**NAB**	**CBA**	**ANZ**	**WBC**	**NAB**	**CBA**	**ANZ**	**WBC**	**NAB**	**CBA**	**ANZ**	**WBC**	**NAB**	**CBA**
Year			1997	1997	1997	1997	1998	1998	1998	1998	1999	1999	1999	1999	2000	2000	2000	2000	2001	2001	2001	2001
Gordon model	4	%32.28%	52.26%	48.68%	41.82%	46.55%	25.21%	32.20%	16.22%	36.76%	43.75%	33.00%	31.04%	42.11%	46.81%	39.37%	37.23%	12.96%	39.18%	20.09%	54.29%	15.62%
Two-stage dividend discount model	3	24.03%	39.55%	36.27%	25.11%	33.26%	19.71%	26.91%	5.67%	30.95%	34.18%	22.37%	19.28%	27.98%	28.29%	19.82%	16.17%	64.42%	10.26%	17.81%	39.50%	22.91%
Three-stage dividend discount model	1	22.47%	32.44%	30.30%	16.89%	25.73%	15.24%	22.48%	1.94%	27.37%	28.20%	11.77%	8.97%	18.74%	27.96%	20.42%	15.87%	68.11%	22.90%	4.13%	49.99%	3.18%
RIV 1	2	23.58%	37.02%	31.55%	15.98%	32.41%	13.46%	18.87%	12.04%	28.87%	21.41%	10.73%	8.87%	16.18%	9.56%	0.21%	21.33%		44.23%		47.82%	
RIV 2	5	36.86%	26.62%	18.53%	4.53%	29.06%	30.94%	17.68%	58.31%	6.49%	27.66%	39.25%	49.96%	39.05%	30.36%	37.04%	59.66%		49.88%	84.72%	38.17%	26.78%
Mean		27.84%																				

MAPE and Ranking of Valuation Models before Changes in Accounting Policies *(Continued)*

Model	**ANZ**	**WBC**	**NAB**	**CBA**	**ANZ**	**WBC**	**NAB**	**CBA**	**ANZ**	**WBC**	**NAB**	**CBA**	**ANZ**	**WBC**	**NAB**	**CBA**	**ANZ**	**WBC**	**NAB**	**CBA**	**ANZ**	**WBC**	**NAB**	**CBA**
Year	2002	2002	2002	2002	2003	2003	2003	2003	2004	2004	2004	2004	2005	2005	2005	2005	2006	2006	2006	2006	2007	2007	2007	2007
Gordon model	18.07%	1.50%	30.52%	21.70%	16.18%	0.51%	7.96%	20.27%	18.55%	27.62%	23.96%	14.71%	37.74%	40.45%	32.13%	20.73%	50.16%	52.89%	45.80%	55.89%	45.08%	45.08%	45.08%	32.54%
Two-stage dividend discount model	24.63%	53.87%	14.33%	2.23%	78.60%	49.48%	45.50%	8.14%	16.13%	2.42%	2.90%	3.91%	13.45%	13.82%	12.07%	2.59%	26.67%	23.68%	19.05%	32.12%	20.27%	25.01%	23.24%	2.76%
Three-stage dividend discount model	30.66%	61.39%	16.99%	2.74%	82.56%	50.97%	39.12%	12.92%	31.35%	14.09%	8.18%	3.23%	12.45%	12.14%	14.34%	1.80%	25.55%	19.34%	16.89%	29.46%	12.19%	15.15%	14.96%	7.34%
RIV 1			5.23%	9.15%				4.02%		92.74%	24.50%	7.12%	26.86%		11.53%	21.37%	3.24%	41.42%	2.87%	0.39%	24.41%	81.75%	6.92%	67.67%
RIV 2			58.94%	54.98%				3.54%		85.92%	32.31%	57.36%	25.92%	42.11%	22.09%	76.02%	29.91%	34.45%	24.33%	9.39%	32.39%	27.36%	6.09%	66.02%
Mean																								

Appendix C: Forecasting Error Provided by Valuation Models after Changes in Accounting Policies

Model	**Rank**	**MAPE**	**ANZ**	**CBA**	**WBC**	**NAB**	**CBA**	**ANZ**	**NAB**	**WBC**	**NAB**	**CBA**	**CBA**	**WBC**	**ANZ**	**WBC**	**NAB**	**CBA**	**CBA**	**ANZ**	**WBC**	**NAB**	**CBA**	**ANZ**	**WBC**	**NAB**	**CBA**
Year			1997	1997	1998	1998	1998	1999	1999	2000	2000	2000	2001	2002	2003	2003	2003	2003	2004	2005	2005	2005	2006	2006	2006	2006
Gordon model	5	31.07%	52.17%	47.09%	30.87%	25.31%	36.87%	42.14%	29.56%	37.15%	37.23%	12.96%	15.62%	0.45%	16.18%	0.51%	7.96%	20.27%	14.92%	34.26%	43.38%	34.66%	32.79%	50.09%	51.84%	45.80%	56.58%
Two-stage dividend discount model	3	28.56%	39.40%	34.07%	25.07%	18.64%	31.10%	31.84%	17.06%	16.35%	16.20%	63.04%	22.19%	50.49%	77.67%	48.77%	44.83%	9.00%	4.88%	7.88%	18.28%	14.89%	15.08%	25.61%	25.11%	19.05%	37.48%
Three-stage dividend discount model	2	26.27%	32.29%	26.62%	20.56%	11.88%	27.54%	25.68%	6.50%	17.02%	15.90%	66.80%	2.66%	57.87%	81.68%	50.31%	38.53%	13.66%	1.60%	6.88%	16.67%	17.14%	18.50%	23.95%	22.44%	17.15%	36.95%
RIV 1	1	15.86%	36.74%	33.87%	16.43%	6.83%	29.07%	18.38%	6.11%	5.91%	21.37%							4.78%	4.78%	39.27%		19.46%	3.08%	1.56%	5.15%	2.40%	30.36%
RIV 2	4	30.48%	26.28%	31.01%	22.33%	30.27%	6.09%	34.50%	55.73%	45.76%	59.79%		31.06%					6.48%	58.79%	37.64%	30.51%	8.70%	36.14%	30.34%	24.36%	26.58%	7.15%
Mean		26.45%																									

Appendix D: Forecasting Error Provided by Valuation Models before Changes in Accounting Policies

Model	**Rank**	**MAPE**	**ANZ**	**CBA**	**WBC**	**NAB**	**CBA**	**ANZ**	**NAB**	**WBC**	**NAB**	**CBA**	**CBA**	**WBC**	**ANZ**	**WBC**	**NAB**	**CBA**	**CBA**	**ANZ**	**WBC**	**NAB**	**CBA**	**ANZ**	**WBC**	**NAB**	**CBA**
Year			1997	1997	1998	1998	1998	1999	1999	2000	2000	2000	2001	2002	2003	2003	2003	2003	2004	2005	2005	2005	2005	2006	2006	2006	2006
Gordon model	4	30.44%	52.26%	46.55%	32.20%	16.22%	36.76%	43.75%	31.04%	39.37%	37.23%	12.96%	15.62%	1.50%	16.18%	0.51%	7.96%	20.27%	14.71%	37.74%	40.45%	32.13%	20.73%	50.16%	52.89%	45.80%	55.89%
Two-stage dividend discount model	3	27.84%	39.55%	33.26%	26.91%	5.67%	30.95%	34.18%	19.28%	19.82%	16.17%	64.42%	22.91%	53.87%	78.60%	49.48%	45.50%	8.14%	3.91%	13.45%	13.82%	12.07%	2.59%	26.67%	23.68%	19.05%	32.12%
Three-stage dividend discount model	2	25.48%	32.44%	25.73%	22.48%	1.94%	27.37%	28.20%	8.97%	20.42%	15.87%	68.11%	3.18%	61.39%	82.56%	50.97%	39.12%	12.92%	3.23%	12.45%	12.14%	14.34%	1.80%	25.55%	19.34%	16.89%	29.46%
RIV 1	1	16.66%	37.02%	32.41%	18.87%	12.04%	28.87%	21.41%	8.87%	0.21%	21.33%							4.02%	7.12%	26.86%		11.53%	21.37%	3.24%	41.42%	2.87%	0.39%
RIV 2	5	33.22%	26.62%	29.06%	17.68%	58.31%	6.49%	27.66%	49.96%	37.04%	59.66%		26.78%					3.54%	57.36%	25.92%	42.11%	22.09%	76.02%	29.91%	34.45%	24.33%	9.39%
Mean		26.73%																									

Appendix E: Market Capitalisation of Australian Banks, 1997–2007

Banks	1997		1998		1999		2000	
Australia & New Zealand Banking Group Limited	14,529,135,697	16.84%	16,794,684,737	17.25%	20,936,233,992	16.45%	24,892,724,494	17.10%
Bendigo and Adelaide Bank Limited	196,393,323	0.23%	418,230,368	0.43%	416,222,957	0.33%	769,451,178	0.53%
Bank of Queensland Limited	326,386,923	0.38%	368,899,316	0.38%	357,705,300	0.28%	414,775,756	0.28%
Commonwealth Bank of Australia	17,382,882,447	20.14%	22,029,045,792	22.63%	34,894,992,770	27.42%	42,483,127,788	29.19%
National Australia Bank Limited	29,459,667,162	34.14%	33,391,798,537	34.30%	38,626,798,936	30.35%	39,780,787,630	27.33%
St. George Bank Limited	4,881,744,860	5.66%	4,867,889,440	5.00%	5,097,736,909	4.01%	7,329,997,714	5.04%
Suncorp Group Limited	1,876,352,448	2.17%	1,956,601,971	2.01%	2,938,127,803	2.31%	5,880,474,688	4.04%
Westpac Banking Corporation	17,641,652,996	20.44%	17,512,805,109	17.99%	24,008,250,000	18.86%	23,988,450,000	16.48%
Total Capitalisation	86,294,215,856	100.00%	97,339,955,270	100%	127,276,068,667	100%	145,539,789,248	100%
Total Capitalisation of ANZ, WBC, CBA and NAB	79,013,338,302	91.56%	89,728,334,175	92.18%	118,466,275,698	93.08%	131,145,089,912	90.11%

Market Capitalisation of Australian Banks from 1997 to 2007 *(Continued)*

Banks	2001		2002		2003		2004	
Australia & New Zealand Banking Group Limited	27,782,954,767	17.10%	28,589,359,164	17.92%	34,586,002,369	20.15%	43,834,787,520	20.64%
Bendigo and Adelaide Bank Limited	858,819,872	0.53%	1,053,764,876	0.66%	1,328,352,991	0.77%	1,401,930,901	0.66%
Bank of Queensland Limited	504,580,676	0.31%	697,419,951	0.44%	919,752,336	0.54%	1,191,519,675	0.56%
Commonwealth Bank of Australia	41,258,700,483	25.40%	37,043,329,276	23.22%	41,181,317,499	23.99%	48,586,480,727	22.88%
National Australia Bank Limited	51,355,641,600	31.61%	46,321,844,800	29.03%	41,855,396,020	24.39%	51,762,828,564	24.37%
St. George Bank Limited	8,816,333,201	5.43%	10,359,596,799	6.49%	11,226,268,892	6.54%	14,514,164,170	6.83%
Suncorp Group Limited	6,856,123,780	4.22%	6,527,485,532	4.09%	8,078,872,768	4.71%	11,637,974,436	5.48%
Westpac Banking Corporation	25,027,057,365	15.41%	28,951,244,775	18.15%	32,455,658,060	18.91%	39,435,900,000	18.57%
Total Capitalisation	162,460,211,744	100%	159,544,045,173	100%	171,631,620,935	100%	212,365,585,993	100%
Total Capitalisation of ANZ, WBC, CBA and NAB	145,424,354,215	89.51%	140,905,778,015	88.32%	150,078,373,948	87.44%	183,619,996,811	86.46%

Market Capitalisation of Australian Banks from 1997 to 2007 *(Continued)*

Banks	2005		2006		2007	
Australia & New Zealand Banking Group Limited	49,330,327,008	20.73%	55,381,590,000	19.35%	38,262,309,075	18.45%
Bendigo and Adelaide Bank Limited	1,827,948,588	0.77%	2,217,377,504	0.77%	3,037,469,362	1.46%
Bank of Queensland Limited	1,646,852,017	0.69%	2,125,213,356	0.74%	2,405,837,958	1.16%
Commonwealth Bank of Australia	56,973,807,008	23.94%	71,436,682,668	24.96%	52,949,798,846	25.53%
National Australia Bank Limited	59,083,256,600	24.83%	63,292,815,960	22.11%	40,629,289,440	19.59%
St. George Bank Limited	15,913,720,166	6.69%	18,835,658,452	6.58%	16,193,262,800	7.81%
Suncorp Group Limited	11,420,990,573	4.80%	19,778,554,012	6.91%	13,210,441,510	6.37%
Westpac Banking Corporation	41,786,400,000	17.56%	53,152,500,000	18.57%	40,704,600,000	19.63%
Total Capitalisation	237,983,301,960	100%	286,220,391,952	100%	207,393,008,991	100%
Total Capitalisation of ANZ, WBC, CBA and NAB	207,173,790,616	87.05%	243,263,588,628	84.99%	172,545,997,361	83.20%

Appendix F: Accounting Policy Changes and Adjustments to Revert to Prior Accounting Standard, 1997–2006

1997	ANZ	CBA	Total Impact
Accounting policy disclosure	Investments in associates: Equity method (AAS 14, 'Accounting for Investments in Associates', early adoption)	Insurance and superannuation (ASIC Rules)	
Impact of accounting policy changes	Increase in assets: $2M Increase in after-tax income: $2M	Decrease in retained earnings: $11M Decrease in after-tax income: $11M	Increase in assets: $2M Decrease in equity: $11M Decrease in after-tax income: $9M
Adjustments	Decrease in after-tax profit: $2M Decrease in assets: $2M Decrease in equity: $2M	Increase in after-tax income: $11M Increase in equity: $11M Increase in assets: $11M	

1998	CBA	NAB	WBC	Total Impact
Accounting policy disclosure	Investments in associates: Equity method (AASB 1016, 'Accounting for Investments in Associates', early adoption)	Provision for loan losses (AAS 32, 'Specific Disclosures by Financial Institutions')	Capitalised cost: Software (International guidance by FASB SFAS 10, 'Accounting for Internal Use Software')	
Impact of accounting policy changes	Increase in after-tax expenses: $2M	Increase in after-tax expenses: $245M Decrease in assets: $245M	Increase in after-tax income: $24M	Decrease in assets: $245M Decrease in after-tax income: $223M
Adjustments	Increase in equity: $2M Increase in assets: $2M Increase in after-tax income: $2M	Increase in assets: $245M Increase in equity $245M Decrease in after-tax expenses: $245	Decrease in assets: $24M Increase after-tax expenses: $24M Decrease in equity: $24M	

1999	ANZ	NAB	Total Impact
Accounting policy disclosure	Capitalised cost: Software (International guidance by FASB SFFAS 10, 'Accounting for Internal Use Software')	Capitalised cost: Software (International guidance by FASB SFFAS 10, 'Accounting for Internal Use Software')	
Impact of accounting policy changes	Increase in after-tax income: $39M	Increase in after-tax income: $59M	Increase in after-tax income: $98M
Adjustments	Decrease in income: $39M Decrease in assets: $39M Decrease inequity: $39M	Decrease in income: $59M Decrease in assets: $59M Decrease inequity: $59M	

2000	CBA	NAB	WBC	Total Impact
Accounting policy disclosure	Life insurance (AASB 1038, 'Life Insurance Business')	Life insurance (AASB 1038, 'Life Insurance Business')	Life insurance AASB 1038 'Life Insurance Business'	
Impact of accounting policy changes	Increase in assets: $26,448M Increase in liabilities: $25,282M Increase in equity: $1,166M	Increase in assets: $4,896M Increase in liabilities: $4,838M Increase in equity: $58M	Increase in assets: $7,000M Increase in liabilities: $7,000M Increase in after-tax income: $59M	Increase in assets: $38,344M Increase in liabilities: $37,120M Increase in equity: $1,224M Increase in after-tax income: $59M
Adjustments	Decrease in assets: $26,880M Decrease in liabilities: $25,282M Decrease in equity: $1,166M	Decrease in assets: $4,896M Decrease in liabilities: $4,838M Decrease in equity: $58M	Decrease in after-tax income: $59M Decrease in equity: $59M Decrease in assets: $59M	

2001	CBA	Total Impact
Accounting policy disclosure	Life insurance (AASB 1038, 'Life Insurance Business')	
Impact of accounting policy changes	Increase in assets: $1,458M Increase in equity: $1,458M	Increase in assets: $1,458M Increase in equity: $1,458M
Adjustments	Decrease in assets: $1,458M Decrease in equity: $1,458M	

2002	WBC	Total Impact
Accounting policy disclosure	Acquisition costs: Life and fund management (AASB 1038, 'Life Insurance Business') Increase in assets (cost recovered): $119M Employee benefits: Superannuation (AASB 1028, 'Employee Benefits', early adoption through IAS 19, 'Employee Benefits') Increase in after-tax expenses: $160M	
Impact of accounting policy changes	Increase in assets: $119M Decrease in after-tax income: $161M	Increase in assets: $119M Decrease in income: $161M
Adjustments	Increase in after-tax income: $42M Increase in assets: $42M Increase in equity: $42M	

2003	ANZ	CBA	NAB	WBC	Total Impact
Accounting policy disclosure	AASB 1044, 'Provisions, Contingent Liabilities and Contingent Assets'	AASB 1044, ' Provisions, Contingent Liabilities and Contingent Assets'	AASB 1044, 'Provisions, Contingent Liabilities and Contingent Assets'	AASB 1044, 'Provisions, Contingent Liabilities and Contingent Assets'	
Impact of accounting policy changes	Decrease in liability: $777M Increase in equity: $777M	Decrease in liability: $1,027M Increase in equity: $1,027M	Decrease in liability: $1,151M Increase in equity: $1,151M	Decrease in liabilities: $651M Increase in equity: $651M	
Adjustments	Increase in liability: $777M Decrease in equity: $777M	Increase in liability: $1,027M Decrease in equity: $1,027M	Increase in liability: $1,151M Decrease in equity: $1,151M	Increase in liabilities: $651M Decrease in equity: $651M	

2004	CBA	Total Impact
Accounting policy disclosure	Intangibles: Software capitalisation	
Impact of accounting policy changes	Increase in after-tax expenses: $147M	
Adjustments	Decrease in after-tax expenses: $147M Increase in equity: $147M Increase in assets: $147M	

2005	ANZ	CBA	NAB	WBC	Total Impact
Accounting policy disclosure	Intangible assets: Goodwill (AASB 138, 'Intangible Assets') Decrease in after-tax expenses: $224M Employee benefits: Defined benefit superannuation (AASB 119, 'Employee Benefits') 1 Oct 2004 Increase in liability: $142M Decrease in equity: $142M 30 Sep 2005 Decrease in liability: $35M Increase in equity: $35M Share-based compensation (AASB 2, 'Share-Based Payments') 1 Oct 2004 Increase in liabilities: $18M	Intangible assets: Goodwill (AASB 138, 'Intangible Assets') Decrease in after-tax expenses: $321M Employee benefits: Defined benefit superannuation (AASB 119, 'Employee Benefits') Increase in retained earnings: $499M Increase in after-tax expenses: $52M Share-based compensation (AASB 2, 'Share-Based Payments') Increase in equity: $142M Increase in after-tax expenses: $30M	Intangible assets: Goodwill (AASB 138, 'Intangible Assets') 1 Oct 2004 Decrease in expenses: $98M Employee benefits: Defined benefit superannuation (AASB 119, 'Employee Benefits') 1 Oct 2004 Increase in liability: $1,280M Decrease in assets: $448M Decrease in equity: $1,728M Decrease in expenses: $306M Share-based compensation (AASB 2, 'Share-based Payments') 1 Oct 2004 Increase in expenses: $66M 30 Sep 2005 Increase in equity: $66M	Intangible assets: Goodwill (AASB 138, 'Intangible Assets') Decrease in expenses: $168M Increase in assets: $146M Increase inequity: $146M Employee benefits: Defined benefit superannuation (AASB 119, 'Employee Benefits') Decrease in expense: $10M Decrease in liability: $26M Decrease in assets: $271M Decrease in equity: $245M Fee revenue recognition (AASB 139, 'Financial Instruments Recognition and Measurement') 30 Sep 2005 Decrease in expenses: $5M Increase in liability: $85M	

	Decrease in equity: $18M 30 Sep 2005 Increase in after-tax expenses: $64M Increase in equity: $64M Fee revenue recognition (AASB 139, 'Financial Instruments Recognition and Measurement') 1 Oct 2004 Increase in liability: $3M Decrease in equity: $3M Taxation (AASB 112, 'Income Taxes') 1 Oct 2004 Increase in assets: $14M Increase in equity: $14M Financial instruments: Credit loss provisioning (AASB 139, 'Financial Instruments: Recognition and	Life insurance (AASB 1038, 'Life Insurance Contracts') Decrease in equity: $3,403M Increase in after-tax expenses: $817M Derivatives (AASB 139, 'Financial Instruments Recognition and Measurement') Decrease in equity: $273M Reclassification of liabilities (AASB 139, 'Financial Instruments Recognition and Measurement') Increase in liabilities: $2,159M Decrease in equity: $2,159M Deferral of income (AASB 139, 'Financial Instruments	Life insurance (AASB 1038, 'Life Insurance Contracts') 1 Oct 2004 Decrease in assets: $738M Decrease in equity: $738M Increase in expenses: $335M 30 Sep 2005 Decrease in equity: $68M Decrease in assets: $68M Taxation: Deferred taxes (AASB 112, 'Income Taxes') 1 Oct 2004 Increase in assets: $423M Increase in liability: $99M Increase in equity: $560M Decrease in expenses: $6M Revenue and expense recognition (AASB 118: 'Revenue') 1 Oct 2004 Decrease in equity: $100M	Decrease in liability: $76M Consolidation of Special Purpose Vehicles (AASB 127, 'Consolidated and Separate Financial Statements') Increase in expenses: $31M Taxation (AASB 112, 'Income Taxes') Increase in expenses: $3M Increase in liabilities: $23M Increase in assets: $12M Decrease in equity: $11M Classification of compound (hybrid) financial instruments (AASB 139, 'Financial Instruments Recognition and Measurement') 30 Sep 2005 Increase in expenses: $186M Decrease in equity: $2,473M Increase in liability: $2,473M	

	Measurement') Increase in assets: $191M Increase inequity: $191M Revenue: Fees related to loans (AASB 139, 'Financial Instruments: Recognition and Measurement') Decrease in assets: $266M Decrease in equity: $266M Derivatives Increase in assets: $9M Increase in equity: $9M Financial instruments: Reclassification (AASB 139, 'Financial Instruments: Recognition and Measurement') Decrease in assets: $5M Decrease in equity: $5M	Recognition and Measurement') Decrease in equity: $61M Life insurance (AASB 1038, 'Life Insurance Contracts') Decrease in equity: $1,495M Reclassification of financial assets (AASB 139, 'Financial Instruments Recognition and Measurement') Increase in equity: $65M Property revaluation (AASB 116, 'Property, Plant and Equipment') Increase in equity: $28M Revenue rcognition leases (AASB 117, 'Leases') Increase in equity: $17M	Increase in expenses: $12M Foreign currency translation reserves (AASB 121, 'The Effects of Changes in Foreign Exchange Rates) Decrease in equity: $47M Life insurance (AASB 1038, 'Life Insurance Contracts') 1 Oct 2004 Decrease in assets: $551M Decrease in equity: $551M 30 Sep 2005 Decrease in assets: $164M Increases in equity: $3M Decrease of expenses: $167M Asset revaluation reserves (AASB 116, 'Property, Plant and Equipment') 1 Sep 2004 Decrease in equity: $38M	Treasury shares (AASB 139, 'Financial Instruments Recognition and Measurement') Increase in expenses: $32M Decrease in assets: $97M Decrease in equity: $97M Debt vs. equity classification (AASB 139, 'Financial Instruments Recognition and Measurement') 30 Sep 2005 Increase in expenses: $84M Increase in liabilities: $1,344M Decrease in equity: $1,340M Fee revenue (AASB 139, 'Financial Instruments Recognition and Measurement') Decrease in assets: $228M Decrease in liabilities: $59M Decrease in equity: $287M	

	Financial instruments: Reclassification (AASB 132 and 139, 'Financial Instruments) Increase in liabilities: $987M Decrease in equity: $987M Joint ventures Decrease in assets: $181M Decrease in equity: $181M		30 Sep 2005 Increase in equity: $13M Derivatives (AASB 139, 'Financial Instruments Recognition and Measurement') 30 Sep 2005 Increase in assets: $299M Increase in liabilities: $575M Decrease in equity: $276M Increase in assets: $315M Increase in liability: $235M Decrease in equity: $353M Decrease in assets: $40M Decrease in liability: $28M Decrease in equity: $12M Increase in assets: $364M Increase in liabilities: $29M Increase in equity: $335M Decrease in equity: $3M	Derivatives (AASB 139, 'Financial Instruments Recognition and Measurement') Decrease in assets: $425M Decrease in liabilities: $400M Decrease in equity: $25M Increase in assets: $152M Increase in liabilities: $168M Decrease in equity: $16M	

			Loan loss provisioning (AASB 139, 'Financial Instruments Recognition and Measurement') 30 Sep 2005 Increase in assets: $350M Increase in equity: $350M Revenue recognition (AASB 139, 'Financial Instruments Recognition and Measurement') 30 Sep 2005 Decrease in assets: $373M Decrease in equity: $373M Valuation of financial instruments (AASB 139, 'Financial Instruments Recognition and Measurement') 30 Sep 2005 Increase in liability: $16M Decrease in equity: $16M		

			Classification of compound (hybrid) financial instruments (AASB 139, 'Financial Instruments Recognition and Measurement') 30 Sep 2005 Increase in liability: $81M Decrease in equity: $81M Increase in assets: $103M Increase in equity: $103M Customer-related financial liability (AASB 139, 'Financial Instruments Recognition and Measurement') 30 Sep 2005 Increase in liability: $60M Decrease in equity: $60M Life insurance contracts (AASB 1038, 'Life Insurance Contracts') 30 Sep 2005		

			Increase in liability: $384M Decrease in equity: $384M Decrease in liability: $17M Increase in equity: $17M Taxation (AASB 112, 'Income Taxes') Increase in assets: $176M Increase inn liabilities: $155M Increase in equity: $21M Other Decrease in equity: $144M Decrease in equity: $38M		
Impact of accounting policy changes	Increase in after-tax profit: $164M Decrease in assets: $1,130M Decrease in equity: $1,130M	Decrease in after-tax income: $587M Decrease in assets: $7,337M Decrease in equity: $7,337M Decrease in equity: $2,130M Decrease in assets: $3,919M	Decrease in after-tax profit: $146M Decrease in assets: $9,591M Decrease in equity: $9,591M Decrease in equity: $3367M Increase in liability: $6224M Decrease in assets: $3367M	Decrease in after-tax profit: $132M Decrease in assets: $696M Decrease in equity: $1,964M Decrease in equity $624M Increase in liability $1,268M Decrease in assets $696M	Decrease in after-tax profit: $785M Decrease in assets: $20,022M Decrease in equity: $20,022M

		Increase in liabilities: $3,418M			
Adjustments	Decrease in after-tax profit: $164M Decrease in equity: $1145M Decrease in net assets: $1145M	Increase in after-tax profit: $587M Increase in net assets: $7,337M Increase in equity: $7,337M	Increase in after-tax profit: $146M Increase in assets: $9,591M Increase in equity: $9,591M	Increase in after-tax profit: $216M Increase in assets: $1,964M Increase in equity: $1,964M	

2006	ANZ	CBA	NAB	WBC	Total impact
Accounting policy disclosure	1 Oct 2004 Employee benefits: Defined benefit superannuation (AASB 119, 'Employee Benefits') Increase in assets: $59M Increase in liabilities: $200M Decrease in equity: $141M Share-based compensation (AASB 2, 'Share-Based Payment') Increase in liabilities: $24M Decrease in equity: $24M Consolidation (AASB 127, 'Consolidation') Increase in assets: $5,026M Increase in liabilities: $5,029M Decrease in equity: $3M Taxation (AASB 112, 'Income Taxes') Decrease in liabilities: $18M Increase in equity: $18M Other	1 July 2004 Insurance contract: Life insurance contract (AASB 1038, 'Life Insurance Contracts') Decrease in assets: $301M Decrease in equity: $371 Loans: (AASB 139, 'Financial Instruments: Recognition and Measurement') Increase in assets: $24 Non-current assets: (AASB 116, 'Property, Plant and Equipment') Increase in assets: $31M Taxation: Deferred taxes (AASB 112, 'Income Taxes')	1 Oct 2004 Financial assets: (AASB 139, 'Financial Instruments: Recognition and Measurement') Increase in assets: $8M Due from other banks: (AASB 139, 'Financial Instruments: Recognition and Measurement') Increase in assets: $177M Trading securities: (AASB 139, 'Financial Instruments: Recognition and Measurement') Increase in assets: $111M Insurance contract: Life insurance contract (AASB 1038, 'Life Insurance	1 Oct 2004 Intangible assets: Goodwill (AASB 138, 'Intangible Assets') Increase in assets: $6M Increase in liabilities: $8M Decrease in equity: $2M Consolidation: (AASB 127, 'Consolidated and Separate Financial Statements') Increase in assets: $5,596M Increase in liabilities: $5,596M Treasury shares: (AASB 132, 'Financial Instruments: Disclosure and Presentation') Decrease in assets: $60M Decrease in equity: $60M Hybrid securities: (AASB 139, 'Financial Instruments: Recognition and Measurement')	

	Increase in assets: $5M Increase in liabilities: $51M Decrease in equity: $46M 30 Sep. 2005 Intangible assets: Goodwill (AASB 138, 'Intangible Assets') Increase in assets: $18M Increase in equity: $18M Employee benefits: Defined benefit superannuation (AASB 119, 'Employee Benefits') Decrease in assets: $7M Decrease in liabilities: $31M Increase in equity: $24M Share-based compensation (AASB 2, 'Share-Based Payment') Increase in assets: $5M Increase in liabilities: $4M Increase in equity: $1M	Increase in assets: $23M Increase in liabilities: $188M Share-based compensation (AASB 2, 'Share-Based Payment') Decrease in liabilities: $85M Employee benefits: Defined benefit superannuation (AASB 119, 'Employee Benefits') Increase in liabilities: $77M Increase in equity: $501M Others Decrease in assets: $2,512M Decrease in equity: $3,045M 30 June 2005 Insurance contract: Life	Contracts') Decrease in assets: $553M Loans: (AASB 139, 'Financial Instruments: Recognition and Measurement') Increase in assets: $4,568M Non-current assets: (AASB 116, 'Property, Plant and Equipment') Decrease in assets: $1,789M Joint ventures: (AASB 131, 'Interest in Joint Ventures') Decrease in assets: $91M Intangible assets: Goodwill (AASB 138, 'Intangible Assets') Increase in assets: $4,831M Regulatory deposits:	Increase in assets: $7M Increase in equity: $7M Others Decrease in assets: $271 Increase in liabilities: 108M Decrease in equity: $379 30 Sep 2005 Intangible assets: Goodwill (AASB 138, 'Intangible Assets') Increase in assets: $146M Increase in equity: $146M Share-based compensation (AASB 2, 'Share-Based Payment') Increase in assets: $6M Increase in liabilities: $19M Decrease in equity: $13M Consolidation: (AASB 127, 'Consolidated and Separate Financial Statements') Increase in assets: $6,840M	

	Consolidation (AASB 127, 'Consolidation') Decrease in assets: $388M Decrease in liabilities: $388M Other Decrease in assets: $5M Decrease in liabilities: $2M Decrease in equity: $3M Increase in after tax income: $157M 1 Oct 2005 Financial instruments: Credit loss provisioning (AASB 139, 'Financial Instruments: Recognition and Measurement') Increase in assets: $184M Increase in equity: $184M Revenue: Fees related to loans (AASB 118, 'Revenue'; AASB 139, 'Financial Instruments: Recognition and Measurement')	insurance contract (AASB 1038, 'Life Insurance Contracts') Decrease in assets: $337M Loans: (AASB 139, 'Financial Instruments: Recognition and Measurement') Increase in assets: $12 Non-current assets: (AASB 116, 'Property, Plant and Equipment') Increase in assets: $25M Intangible assets: Goodwill (AASB 138, 'Intangible Assets') increase in assets: $321M Taxation: Deferred taxes (AASB 112, 'Income Taxes') Increase in assets: $24M	(AASB 139, 'Financial Instruments: Recognition and Measurement') Decrease in assets: $177M Taxation: Deferred taxes (AASB 112, 'Income Taxes') Increase in assets: $458M Increase in liabilities: $46M Increase in liabilities: $8M Deposits: (AASB 139, 'Financial Instruments: Recognition and Measurement') Increase in liabilities: $2,179M Insurance contract: Life insurance contract (AASB 1038, 'Life Insurance Contracts') Decrease in assets: $337M	Increase in liabilities: $6,840M Treasury shares: (AASB 132, 'Financial Instruments: Disclosure and Presentation') Decrease in assets: $97M Decrease in equity: $97M Hybrid securities: (AASB 139, 'Financial Instruments: Recognition and Measurement') Increase in assets: $8M Increase in equity: $8M Others Decrease in assets: $393 Decrease in liabilities: $30M Decrease in equity: $363M Decrease in after tax income: $120M 1 Oct 2005 Financial instruments: (AASB 132, 'Financial Instruments: Disclosure and Presentation' and AASB 139,	

	Decrease in assets: $276M Decrease in equity: $276M Derivatives: (AASB 139, 'Financial Instruments: Recognition and Measurement') Increase in assets: $89M Increase in liabilities: $81M Increase in equity: $8M Remeasurement: (AASB 139, 'Financial Instruments: Recognition and Measurement') Decrease in assets: $199M Decrease in liabilities: $145M Decrease in equity: $54M Reclassification: (AASB 139, 'Financial Instruments: Recognition and Measurement') Increase in assets: $89M Increase in liabilities: $81M Increase in equity: $8M Joint ventures: (AASB 131,	Increase in liabilities: $204M Share-based compensation (AASB 2, 'Share-Based Payment') Decrease in liabilities: $24M Decrease in equity: $385M Employee benefits: Defined benefit superannuation (AASB 119, 'Employee Benefits') Increase in liabilities: $79M Increase in equity: $819M Others Decrease in assets: $3,203M Decrease in equity: $3,851M Decrease in after tax income: $138M	Debt and Bonds: (AASB 139, 'Financial Instruments: Recognition and Measurement') Increase in liabilities: $3,533M Provision: (AASB 137,'Provisons, Contingent Liabilities and Contingent Assets') Increase in liabilities: $48M Employee benefits: Defined benefit scheme (AASB 119, 'Employee Benefits') Increase in liabilities: $1,286M Decrease in equity: $1,286M Others Decrease in assets: $6,882M Decrease in liabilities:	'Financial Instruments: Recognition and Measurement') Increase in assets: $151M Increase liabilities:$172M Decrease in equity: $21 Hybrid securities: (AASB 139, 'Financial Instruments: Recognition and Measurement') Decrease in assets: $4M Increase in liabilities: $2,169M Decrease in equity: $2,173M Insurance contract: Life insurance contract (AASB 1038, 'Life Insurance Contracts') Increase in assets: $41M Increase in liabilities: $173M Decrease in equity: $132M Effective yield: Financial assets and liabilities, (AASB 139, 'Financial Instruments: Recognition and Measurement') Decrease in assets: $211M	

	'Interest in Joint Ventures') Decrease in assets: $138M Decrease in equity: $138M Other Decrease in assets: $14M Increase in liabilities: $6M Decrease in equity: $20M	1 July 2005 Insurance contract: Life insurance contract (AASB 1038, 'Life Insurance Contracts') Decrease in assets: $352M Increase in liability: $342M Deposits: (AASB 139, 'Financial Instruments: Recognition and Measurement') Increase in liabilities: $66M Derivatives: (AASB 139, 'Financial Instruments: Recognition and Measurement') Decrease in assets: $2,292M Increase in liability:	$1,020M Decrease in equity: $1,397M 30 Sep 2005 Due from other banks: (AASB 139, 'Financial Instruments: Recognition and Measurement') Increase in assets: $118M Trading securities: (AASB 139, 'Financial Instruments: Recognition and Measurement') Increase in assets: $75M Held to maturity investments: (AASB 139, 'Financial Instruments: Recognition and Measurement') Increase in assets: $3M Insurance contract: Life	Decrease in liabilities: $57M Decrease in equity: $154M Loan loss provision: (AASB 139, 'Financial Instruments: Recognition and Measurement') Increase in assets: $556M Increase in liabilities: $160M Increase in equity: $396M Derivatives: (AASB 139, 'Financial Instruments: Recognition and Measurement') Decrease in assets: $465M Decrease in liabilities: $402M Decrease in equity: $63M Others Increase in assets: $1M Increase in liabilities: $1M	

		$609M Available for sale instruments: (AASB 139, 'Financial Instruments: Recognition and Measurement') Increase in assets: $85M Deposits: (AASB 139, 'Financial Instruments: Recognition and Measurement') Increase in assets: $574 Debt issue: (AASB 139, 'Financial Instruments: Recognition and Measurement') Decrease in liabilities: $1,046M Non-current assets: (AASB 116, 'Property, Plant and Equipment')	insurance contract (AASB 1038, 'Life Insurance Contracts') Decrease in assets: $164M Loans: (AASB 139, 'Financial Instruments: Recognition and Measurement') Decrease in assets: $951M Non-current assets: (AASB 116, 'Property, Plant and Equipment') Decrease in assets: $1,879M Joint ventures: (AASB 131, 'Interest in Joint Ventures') Decrease in assets: $75M Intangible assets: Goodwill and other assets (AASB 138, 'Intangible Assets') increase in assets: $760M		

		Increase in assets: $25M Intangible assets: Goodwill (AASB 138, 'Intangible Assets') increase in assets: $321M Taxation: Deferred taxes (AASB 112, 'Income Taxes') Increase in assets: $241M Increase in liabilities: $444M Share-based compensation (AASB 2, 'Share-Based Payment') Decrease in liabilities: $24M Decrease in equity: $385M Employee benefits: Defined benefit superannuation (AASB 119, 'Employee Benefits')	Regulatory deposits: (AASB 139, 'Financial Instruments: Recognition and Measurement') Decrease in assets: $118M Taxation: Deferred taxes (AASB 112, 'Income Taxes') Decrease in assets: $154M Decrease in liabilities: $70M Increase in liabilities: $6M Other assets Decrease in assets: $1,522M Trading derivatives: (AASB 139, 'Financial Instruments: Recognition and Measurement') Increase in liabilities: $206M		

		Increase in liabilities: $282M Increase in equity: $349M Loans: (AASB 139, 'Financial Instruments: Recognition and Measurement') Increase in liabilities: $194M Others Decrease in assets: $3,670M Decrease in equity: $3,729M	Hedging derivatives: (AASB 139, 'Financial Instruments: Recognition and Measurement') Increase in liabilities: $1,688M Deposits: (AASB 139, 'Financial Instruments: Recognition and Measurement') Increase in liabilities: $1,299M Debt and Bonds: (AASB 139, 'Financial Instruments: Recognition and Measurement') Increase in liabilities: $1,281M Employee benefits: Defined benefit scheme (AASB 119, 'Employee Benefits')		

			Decrease in liabilities: $301M Provision: (AASB 137, 'Provisions, Contingent Liabilities and Contingent Assets') Decrease in liabilities: $24M Others Decrease in liabilities: $1622M Decrease in equity: $50M Decrease in after tax income: $140M 1 Oct 2005 Financial assets: (AASB 139, 'Financial Instruments: Recognition and Measurement') Decrease in assets: $560M Due from other banks:		

			(AASB 139, 'Financial Instruments: Recognition and Measurement') Decrease in assets: $12M Trading derivatives: (AASB 139, 'Financial Instruments: Recognition and Measurement') Increase in assets: $295M Trading securities: (AASB 139, 'Financial Instruments: Recognition and Measurement') Decrease in assets: $5,507M Available for sale investments: (AASB 139, 'Financial Instruments: Recognition and Measurement') Increase in assets: $45M		

			Held to maturity investments: (AASB 139, 'Financial Instruments: Recognition and Measurement') Decrease in assets: $4,389M Insurance contract: Life insurance contract (AASB 1038, 'Life Insurance Contracts') Increase in assets: $9M Financial assets at fair value: (AASB 139, 'Financial Instruments: Recognition and Measurement') Increase in assets: $18,890M Hedging derivatives : (AASB 139, 'Financial Instruments: Recognition		

			and Measurement') Increase in assets: $645M Loans: (AASB 139, 'Financial Instruments: Recognition and Measurement') Decrease in assets: $14,490M Due from customers on acceptances: 'Financial Instruments: Recognition and Measurement') Increase in assets: $6,140M Taxation: Deferred taxes (AASB 112, 'Income Taxes') Increase in assets: $175M Increase in liabilities: $150M Decrease in liabilities: $1M Others		

			Decrease in assets: $71M Due to other banks: (AASB 139, 'Financial Instruments: Recognition and Measurement') Decrease in liabilities: $418M Trading derivatives: (AASB 139, 'Financial Instruments: Recognition and Measurement') Increase in liabilities: $474M Financial liabilities at fair value: (AASB 139, 'Financial Instruments: Recognition and Measurement') Increase in liabilities: $9,606M Hedging derivatives: (AASB 139, 'Financial		

			Instruments: Recognition and Measurement') Increase in liabilities: $2,913M Deposits: (AASB 139, 'Financial Instruments: Recognition and Measurement') Decrease in liabilities: $8,293M Liability on acceptance: (AASB 139, 'Financial Instruments: Recognition and Measurement') Decrease in liabilities: $202M Insurance contract: Life insurance contract (AASB 1038, 'Life Insurance Contracts') Increase in liability: $809M		

			Debt and Bonds: (AASB 139, 'Financial Instruments: Recognition and Measurement') Decrease in liabilities: $292M Other Debt: (AASB 139, 'Financial Instruments: Recognition and Measurement') Increase in liabilities: $879M Managed fund units: (AASB 139, 'Financial Instruments: Recognition and Measurement') Increase in liabilities: $6,224M Others Decrease in liabilities: $3,089M Decrease in equity: $7,537M		

Impact of accounting policy changes*	Decrease in after-tax income: $7M Decrease in equity: $109M	Decrease after-tax income: $4M Increase in equity: $154M	Increase in after-tax income: $6M Decrease in equity: $679M	Increase in after-tax income: $96M Decrease in equity: $183M	Increase in after-tax income: $91M Decrease in equity: $670M
Adjustments	Increase in equity: $116M Increase in assets: $116M Increase in after-tax profit: $7M	Decrease in equity: $150M Decrease in assets: $150M Increase in after-tax income: $4M	Increase in equity: $673M Increase in assets: $673M Decrease in after-tax income: $6M	Increase in equity: $87M Increase in assets: $87M Decrease in after-tax income: $96M	

* All four banks have provided the disclosure of potential impact of IFRS in financial statements of 2005. Therefore, banks' financial statements of 2006 disclose the overall impact of changes in accounting policies including differential impact of changes in accounting policies provided in 2006.