The value relevance of equity accounting in Australia during the pre-recognition regulatory period

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Abstract

For a period of 26 years, Australian reporting requirements for equity accounting were out of step with international accounting practice, requiring equity accounting to be reported in a note to the accounts and the cost method to be employed in the statutory financial statements. This paper utilises the uniqueness of the Australian regulatory setting to investigate whether equity accounting has greater value relevance than the cost method and whether it provides information incremental to the cost method during the "note disclosure period". The results of both the valuation and returns models provide evidence that equity accounting has value relevance that is incremental to the cost method. Direct comparison of the two methods of accounting provides less conclusive evidence. Equity accounting is found to have statistically greater value relevance than the cost method for the valuation models, but not for the returns models. Differential reporting practices during the period of this study allow an extension of the study to consider two related issues. The first issue looks at the use of supplementary financial statements to report equity accounting as a signal by management of the relevance and / or reliability of equity accounted values. The results indicate that supplementary financial statements do not convey additional relevance or reliability to the market for equity accounted figures. The second extension of the study considers the effect of market value disclosure on the value relevance of equity accounting for companies with investments in publicly traded associates. The results indicate that although market value has incremental value relevance to the cost method equity, accounting has incremental value relevance to market value. © City University of Hong Kong.

1. Introduction

Tests of value relevance have proved fertile ground for accounting researchers. In a review of capital markets research and its contribution to the regulatory process, Brown and Howieson (1998) identify a number of areas for future research. One accounting issue they herald as providing an opportunity for research in Australia is equity accounting. The uniqueness of the Australian reporting requirements for equity accounting until 1998 and the paucity of evidence of the value relevance of equity accounting under different reporting regimes provide the basis for this opinion. In particular, they list the pricing implications of disclosing equity accounting by way of a footnote rather than in the body of the financial statements as a key area for research.

Historically, equity accounting for investments in associated entities has been a problematic issue for Australian accounting regulators.[1] Following the release of the first Australian exposure draft on equity accounting in 1971, objection to the use of equity accounting in consolidated financial statements was raised on the grounds that it extended the concept of the "group" beyond that defined by section 162 of the Companies Act 1961 (Vic). This impediment to equity accounting in statutory financial statements precluded recognition of equity accounting until 1997.[2] For a period of eight years, from 1989 until 1998, Australian companies were required to provide only footnote disclosure of equity accounting in compliance with AASB1016 *Disclosure of Information about Investments in Associated Companies*. Consequently, Australian companies reported two sets of accounting values to the market for investments in associated companies – values based on the cost method in the body of the financial statements and values based on equity accounting disclosed in the notes to the accounts.

This paper investigates whether equity accounting has greater value relevance than the cost method and whether it provides information incremental to the cost method during the "note disclosure period" of equity accounting regulation. In testing whether equity accounting has greater value relevance than the cost method, the two accounting methods are compared as alternatives. This type of test is congruent with the regulatory changes that took place in 1997 and addresses the question of whether the decision by Australian accounting regulators to replace the cost method with equity accounting is a value relevant decision. Tests of the incremental value relevance of equity accounting are more pertinent to investors as they indicate whether investors gain additional information from equity accounting disclosures beyond that supplied by the cost method.

The expectation that equity accounting has value relevance in excess of the cost method is advanced from three fronts. First, the equity method is expected to be more closely associated with prices and returns because dividend payments, and thus cost method income effects, are not necessarily related to the periodic changes in economic fundamentals of a company.[3] Second, equity accounting may contain new information for the market about the earnings associates. Differences in the reporting dates of the investor and the associate or investments comprising largely privately held associates may result in equity accounting providing new information to the market that would be reflected in share prices and returns. Third, contracting theory suggests that equity accounting is an efficient accounting policy choice as it removes the potential for management to inflate earnings through the receipt of excessive dividends and gains on non-arms length transactions. Thus, equity accounting would again be expected to be more closely associated with price and returns than the cost method.

Tests of the prediction of value relevance are conducted using both accounting based valuation and returns models. Data is pooled for a sample of firms over the period 1991 to 1996. Overall, the difference between earnings and book values calculated under the equity and costs methods is small. Even so, the results of both the valuation and returns model provide statistically significant evidence that equity accounting has value relevance that is incremental to the cost method. This result persists for the pooled sample even after controlling for correlated residuals. However, less conclusive evidence is found of equity accounting having greater value relevance than the cost method when the two methods are compared directly. Both the valuation and returns models have higher adjusted R^2s when equity accounted values are used in the models than when cost method values are used. The adjusted R^2 increases by 0.01 in both the valuation and returns model under equity accounting. However, a Wald test of the difference between the equity accounted model and the cost method model is significant for the valuation models, but not for the returns models.

Differential reporting practices of companies in relation to their investment in associates allow the study to be extended in order to consider the effect of supplementary equity accounted financial statements and the disclosure of market values for listed associates. The use of equity accounted supplementary financial statements, although not required by AASB1016, was not precluded by the standard and a number of companies reported these financial statements largely in multicolumn format or in the notes to the accounts. As the construction of equity accounted financial statements from the AASB1016 note is a low cost exercise, the provision of supplementary financial statements by some companies is viewed as a signal of the relevance and / or reliability of equity accounted values.[4] Disclosure of market values for listed associates was also common during the sample period. Prior research finds that fair value has greater value relevance than historical cost for equity investments (Petroni and Wahlen (1995), Barth (1994)). This raises the question of whether equity accounting has additional relevance to market value disclosures.

The findings indicate that the disclosure of equity accounting in supplementary financial statements does not enhance the value relevance of equity accounting. In fact, incremental equity accounted components are not statistically significant for companies

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[1] Associated entities are companies where the investor has significant influence but not control.

[2] In 1997, a new version of AABS1016 requiring companies to recognise equity accounting in statutory financial statements was released pending changes to the Corporations Law. Accounting regulators allowed voluntary early adoption of the standard which officially became effective for financial years starting 1 July 1998.

[3] I am grateful to S. P. Kothari for highlighting this issue.

[4] Prior research indicates that the market appears to discount information that is disclosed as compared to recognised in financial statements (Aboody (1996), Imhoff, Lipe and Wright (1995)). Bernard and Schipper (1994) provide two explanations for the differential treatment of information on the basis of the method of reporting. They suggest that the cost of interpreting information disclosed in footnotes may be high or, alternatively, information that is disclosed may be viewed as less relevant and / or reliable than information that is recognised in financial statements.

providing equity supplementary financial statements. Using a subset of companies with investments in only listed associates, the incremental value relevance of equity accounting is tested when market value disclosures are provided. Consistent with prior research, market values are found to have incremental value relevance to the cost method of accounting. However, equity accounting has incremental value relevance to market value for companies with investments solely in listed associates.

The remainder of the paper is structured as follows. Section 2 provides an overview of equity accounting research in the lead up to the development of a hypothesis of the value relevance of equity accounting. Sample selection procedure and the research method are described in section 3. The results of hypothesis testing are presented and discussed in section 4. Finally, section 5 concludes the paper by summarising the inferences that can be drawn from the results and providing direction for future research.

2. Theory and Hypothesis Development

Equity accounting provides an alternative to the cost method for measuring earnings and net assets. The two methods are diverse in the timing of revenue recognition for the investor-company and conceptually in terms of what is measured at the point of revenue recognition. Application of the equity method brings the investment to account initially at cost (or carrying amount) and then adjusts the carrying amount of the investment to reflect the investor's share of post-acquisition profits (losses) after tax and extraordinary items and post-acquisition increases or decreases in reserves. The investment is also adjusted annually for goodwill amortisation. Counter adjustments are made to group profit and reserve accounts. Dividends received by the investor from the associate are offset against the carrying amount of the investment as are gains or losses on inter-entity transactions. In contrast, under the cost method, the investment is reported at cost and dividends received by the group from the associate are reported as revenue in the group accounts. During the period of the study, the carrying amount of the investment may also be revalued to reflect increments or decrements in the value of the investment in accordance with AASB1010 *Accounting for the Revaluation of Non-current Assets.*

The assumption underlying this study is that company value can be measured as the present value of expected future cash flows (dividends). In advancing an expectation that equity accounting has greater or additional value relevance to the cost method, there is an underlying belief that equity accounting provides information that is relevant for developing expectations about future dividends. Although current dividends, as reported by the cost method, represent the cash flow actually received by shareholders, the distribution of dividends is an arbitrary decision made by management that may not reflect the creation of future wealth. Equity accounting reports earnings generated by associates rather than dividends and adjusts the book value of the investment to reflect historical earnings retained by associates.

Capital markets research provides evidence of an association between equity accounting and company value. McKinnon and Halvorsen (1993) consider equity accounting as an alternative valuation method to the cost method and net market value. They conclude that over a 10-year period, equity accounting is a superior valuation method based on its matching to economic income. Using event study methodology, Harrison (1977) and Ricks

and Hughes (1985, consider the information content of equity accounting on the introduction of APB Opinion No. 18 *The Equity Method of Accounting for Investments in Common Stock*, the equity accounting standard in the United States. These studies find a significant positive relation between abnormal returns and equity accounted earnings from which they infer that equity accounting brings new information to the market.[5]

The above discussion overlooks the potential association between the cost method and price or returns. It is possible that the cost method may have equivalent or greater value relevance than equity accounting in various circumstances. Under AASB1010, the investment in associated entities may be revalued to reflect changes in value. This means that the carrying amount of the associate under the cost method may be at least as informative as the equity accounted carrying amount if the asset is revalued to the equity accounted carrying amount. Where a company holds investments in listed associates, revaluation of the investment may be made to market value. Furthermore, it is likely that the cost method would be more informative than the equity method when the associate earns losses. Under equity accounting, losses earned by the associate are offset against the carrying amount of the investment. Where the investor's share of accumulated losses exceeds the carrying amount of the investment, the carrying amount is reported as zero. If the losses are not expected to persist in the future, then the value of the investment reported under the cost method may be more informative about future economic benefits than the zero equity accounted balance.

Another argument for the expectation that equity accounting is value relevant compared to the cost method is that it brings information to the market that may not otherwise be available. Associates may be public or private companies. There is some Australian evidence that more associates are privately held than publicly held (Zimmer, 1994).[6] Where an associate is a publicly listed company, there are a variety of sources of public information available to shareholders about the associate. Under the assumption of efficient markets, share prices should reflect all publicly available information. Where an associate is privately held, information about the associate will not be readily available to the public. Thus, equity accounting has the potential to provide information that may not otherwise be available to the market.

In some cases, equity financial statements are prepared using unaudited accounting information from associates, where the balance date does not coincide with that of the investor. Again, equity accounting may bring to the market information that has not previously been publicly available. This possibility is expected to contribute to the value relevance of this method of accounting over the cost method.

Contracting theory provides another facet to the issue of the value relevance of equity accounting. This body of literature suggests that equity accounting is a value enhancing accounting policy because it maximises contractual efficiency. Under the cost method of

[5] Czernkowski and Loftus (1997) provide evidence of the value relevance of equity accounting using aggregate returns models in the pre-regulatory period. They aggregate returns over one, two, four and eight-year windows and find that the value relevance declines in the longest returns window.

[6] Zimmer (1994) finds that in a sample of 302 Australian associated companies in 1990, only 23% were public entities.

accounting, there is the opportunity for management to manipulate income streams from associates by influencing the flow of dividends from associates and entering into non-arms length transactions with associates (Ferris and Taylor (1983), Zimmer (1994)). These opportunistic actions have the potential to transfer wealth from shareholders to managers through earnings based compensation packages. Equity accounting reduces the chance that managers will act opportunistically by removing income and expenses that arise from dealings with associated entities.[7] The results of prior research imply that where there is increased opportunity for manipulation, companies are more likely to provide additional equity accounted financial statements, thus signalling to shareholders management's intentions to minimise contracting costs (Mazay, Wilkins and Zimmer (1993), Zimmer (1994)).

The preceding discussion leads to the expectation that (i) equity accounting has greater value relevance than the cost method and (ii) equity accounting provides information incremental to the cost method. These expectations form the basic hypotheses of this study.

During the period of this study, companies report equity accounted data in a number of formats. These include AASB1016 note disclosure, multicolumn financial statements and equity supplementary financial statements provided in the notes to the accounts. The provision of multicolumn and equity supplementary financial statements is beyond the requirements of AASB1016. The use of multicolumn and supplementary financial statements effectively recognises equity accounting on behalf of the users of financial statements. The level of note disclosure required by AASB1016 was sufficient for the users of financial statements to construct equity accounted financial statements from the statutory balance sheet and profit and loss account.

Bernard and Schipper (1994), in their analysis of the apparent difference in the pricing of information that is disclosed in footnotes as compared to recognised in financial statements, provide two potential explanations for the observed discount on information that is disclosed. The first is that the cost of interpreting information that is disclosed is high; and the second is that information that is recognised is perceived as having greater relevance and / or reliability. In the case of equity accounting, the cost of constructing equity accounted financial statements from the disclosure in the AASB1016 note is low. Thus, the voluntary provision of multicolumn and supplementary financial statements is viewed as a signal by management of the relevance and / or reliability of the equity accounted values. Signalling reliable and relevant information to the market avoids the costs that arise for managers when a company is over or under valued (Healy, Palepu and Sweeney, 1995).

The existence of alternative measures for the investment in associates gives rise to another factor that relates to the investigation of the value relevance of equity accounting. For companies with investments in publicly listed associates, a third value measure exists – market value. Prior research provides evidence that the fair value of equity investments has greater value relevance than historical cost (Petroni and Wahlen (1995), Barth (1994)). Since market value not only reflects current expectations about future earnings and past

historical earnin_ ~ut also captures information from sources other than accounting data, the analysis is extended to investigate whether equity accounting provides additional information where companies provide disclosure of market value in the notes to the accounts.

3. Research method

3.1 Sample selection

This study is conducted over a period of six years (1991–1996) during which time equity accounting was reported as note disclosure under the pre-recognition criteria of AASB1016.[8] Choice of the sample period ensures comparability by limiting the study to a time when regulatory requirements for equity accounting were consistent and legally enforceable.

Annual reports of the 500 companies recorded on the Australian Graduate School of Management (AGSM) microfiche and CD-ROM for each of the years 1991 to 1994 are examined to identify those companies that have an investment in associated companies and provide disclosure of equity accounting for their investment. The annual reports of the 500 companies listed on the Connect 4 database are also reviewed for 1995 and 1996 to identify companies with associates and equity accounting disclosures. In making the initial sample selection, property trusts and investment funds are excluded as well as companies incorporated in countries other than Australia and company reports prepared over a period greater or less than 12 months. The basis for these exclusions is incomparability of data due to differences in accounting regulations or the time period used for the preparation of the financial statements.

Three hundred and three companies are identified as holding an investment in associated companies in at least one year within the sample period. Of these 303 companies, 121 companies never use equity accounting within the sample period, while 182 companies provide equity accounting disclosures in at least one year within the sample period. Companies for which there is no difference between the cost method and equity accounting are eliminated from the sample.[9] Of the 182 companies that used equity accounting, only 154 companies had years that could be used in this study. From these 154 companies, 476 company years are included in the sample.

The greatest incidence of equity accounting in this sample is generated in 1991 (91 companies), whilst the smallest is in 1994 (67 companies). Equity supplementary financial statements are provided for 126 company years included in the sample. In 111 company years, companies with investments in listed associates disclose the market value of these investments.

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[7] Aligning compensation with equity accounted earnings will also overcome the potential for manipulation using the cost method of accounting. Zimmer (1994) provides statistical evidence that suggests equity accounting may be used in determining the compensation of the investor's most highly paid executives.

[8] The model used contains a lagged variable to ensure data availability the first year of the sample period is 1991, since AASB1016 was effective only from 30 June 1989.

[9] For a number of companies, there was no difference between equity accounting and the cost method because the whole of the share of associates' earnings was paid as a dividend to the investor-company each year and the carrying amount of the asset was revalued to the equity accounted amount.

3.2 Method

Tests of value relevance employ price based valuation and returns models. Criticisms of these models have arisen, largely due to dependencies between the error term of the regression and the independent variables (Christie, 1987). These dependencies may be due to errors in variables, correlated omitted variables or variation in coefficients across observations (Christie, 1987). This study employs both valuation and returns models in order to minimise the econometric limitations arising from the use of these models (Christie (1987), Kothari and Zimmerman (1995)).

Kothari and Zimmerman (1995), assuming that earnings follow a random walk and that prices lead earnings, argue that the returns model is subject to an error-in-variable problem leading to bias in the slope coefficient, while the price-earnings model is free of this problem. The error-in-variable problem in the returns model arises because earnings contain both stale and new information components. Since returns are associated with only the new information component of earnings, the stale component leads to the independent variable being measured with error. This problem results in a downward bias on the coefficient on earnings.

Collins, Pincus and Xie (1999) argue that valuation models incorporating both earnings and book value do not suffer from this type of bias. However, inferences from valuation models can be limited due to heteroscedasticity and other forms of scale effects. The effect of heteroscedasticity is generally mitigated by the use of White's (1980) adjusted standard errors and covariances. Attempts to minimise the problems of scale have been the subject of debate in recent literature. Easton (1998) argues that scale is a dependent variable of valuation models and that inclusion of scale variables as an explanatory variable or deflating the model by scale factors induces spurious correlations between the dependent and independent variables. This position is furthered in Easton and Sommers (2000) where it is argued that scale is proxied by share price or market value and that the scale effect in valuation based regressions induces non-linearity between the dependent and independent variables. The outcome of this non-linearity is that the results of regression analysis are driven by a small number of firms. Where valuation models are used, Easton and Sommers (2000) promote deflation of the model and replacement of the intercept with the inverse of the deflator.

Barth and Clinch (2001) counter Easton (1998) and Easton and Sommers (2000) contending that share price (or market capitalisation) is the variable of interest in studies that use valuation based models rather than a proxy for scale. They define scale as arising from factors other than the variables of interest to the research question that may induce spurious correlations. In selecting the appropriate form of the valuation model for this study, this paper adopts the view of Barth and Clinch (2001).

The valuation model employed in this study is derived from the fundamental valuation model of Ohlson (1995) by Collins, Pincus and Xie (1999). The basic form of the model is presented as equation (1). Equation (1) is used to test the relative value relevance of the two methods of accounting. To test the incremental value relevance of equity accounting, the model is expanded to capture the incremental effect of equity accounting over the cost method as described by equation (2).

$$p_{it} + d_{it} = a_1 + a_2\, x_{it} + a_3\, bv_{i(t-1)} + e_{it} \tag{1}$$

$$p_{it} + d_{it} = \beta_1 + \beta_2\, xc_{it} + \beta_3\, \text{diffx}_{it} + \beta_4\, bvc_{i(t-1)} + \beta_5\, \text{diffbv}_{i(t-1)} + \varepsilon_{it} \tag{2}$$

Where:

p_{it} = closing share price of company i taken on the third month post balance date;

d_{it} = annual dividend per share for company i earned in year t;

x_{it} = operating profit after tax per share of company i for year t;

$bv_{i(t-1)}$ = book value of shareholders equity per share for company i as at $t-1$;

xc_{it} = operating profit after tax and abnormal items (and net of minority interests and preference shares) at year-end as determined by the cost method of accounting divided by the number of shares outstanding three months after balance date;

diffx_{it} = difference between the equity accounted profit and profit under the cost method for the year ended;

$bvc_{i(t-1)}$ = book value of net assets at the beginning of the year using the cost method of accounting divided by the number of shares outstanding three months after balance date; and

$\text{diffbv}_{i(t-1)}$ = difference between the equity accounted net assets and net assets under the cost method at the beginning of the year.

To mitigate the potential econometric problems associated with the price model, testing is also conducted using the returns model. Consistent results from the returns model give greater confidence in the robustness of inferences made from the price regression.

$$R_{it} = b_1 + b_2\, y_{it} + b_3\, \Delta y_{it} + u_{it} \tag{3}$$

$$R_{it} = \gamma_{1it} + \gamma_2 yc_{it} + \gamma_3 \Delta yc_{it} + \gamma_4 \text{diffy}_{it} + \gamma_5 \text{diff}\Delta_{it} + \upsilon_{it} \tag{4}$$

Where:

R_{it} = annual return for company i based on monthly price relatives starting three months post balance date for the year $t-1$;

y_{it} = operating profit after tax and abnormal items at year-end;

Δy_{it} = unexpected earnings at time t measured as the change in operating profit between time t and $t-1$;

yc_{it} = operating profit after tax and abnormal items at year-end as determined by the cost method of accounting;

Δyc_{it} = unexpected earnings at time t measured as the change in reported operating profit between time t and $t-1$;

diffy_{it} = difference between equity accounted earnings and cost method earnings at time t; and

$\text{diff}\Delta_{it}$ = difference between the unexpected equity accounted earnings and unexpected cost method earnings at time t.

All independent variables are deflated by the market value of the firm three months after the beginning of the financial year.

Monthly share prices and annual dividend data are collected from the AGSM monthly price relative file from the Centre for Research in Australia (CRIF). This database

contains information for all stocks listed on the Australian Stock Exchange during the period December 1973 to December 1998. Company share prices are collected as the closing price for the month, three months after balance date. Dividends comprise annual dividends paid to the same date.

Monthly price relatives of the sample companies are collected from the AGSM monthly price relative file from the CRIF. Annual returns are calculated using monthly price relatives.[10] Price relatives include dividends and are diluted for any capitalisation changes. To improve the association between returns and accounting earnings figures, a market adjusted return is used in the regression analysis. The market adjusted return is calculated as the difference between the company's annual return and the value weighted market return for the financial year (calculated three months after balance date). Value weighted market returns are calculated from AGSM monthly value weighted market price relatives from the CRIF.

Earnings are measured as total operating profit after tax, minority interests and preference shares. Earnings and book value of equity are divided by the number of ordinary shares outstanding three months after balance date; this is one form of the model that is useful for minimising scale effects.[11]

4. Results

4.1 Descriptive statistics

Descriptive statistics for the pooled sample are presented in Table 1.[12] Outliers are identified at the univariate and multivariate levels. Univariate outliers are identified using graphical procedures and extreme values are winsorised (Tabachnik and Fidell, 1996). The values of less than 1 per cent of sample observations are changed in this process. Multivariate outliers are identified from standardised residuals of the regressions. Observations with a standardised residual of more than three standard deviations from the mean are excluded from the sample resulting in a total sample of 458 company years for both the

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[10] Annual return = $(\prod_{i=1}^{12} Pr_i) - 1$.

PR$_i$ is the price relative for the fourth month after the start of the financial year. Calculation of annual returns in this manner has the effect of compounding the monthly return. If the price relative has a value of zero in any month (during which time the stock was listed), then the price relative is given a value of 1 for the purpose of calculating the annual return.

[11] Barth and Clinch (2001) find that deflating by number of shares is an effective means of mitigating scale effects in these models. An alternative approach to deflation has been to include size in the regression as an independent variable (Barth and Kallapur (1996), Barth and Clinch (2001)).

[12] Summary statistics are also calculated on an annual basis, but not reported in the paper. Annual statistics indicate that median earnings (under both the cost and equity methods of accounting) are lower in the years 1991 and 1992 than in the later years of the sample period. Median equity accounted earnings are smaller than earnings under the cost method for the years 1991 and 1992, but this changes in 1993 with median equity accounted earnings exceeding cost method earnings in all years except for 1995 (when the values are very similar). The proportion of companies with material equity accounted earnings is also greater in this period. The difference in book value resulting from using equity accounting appears minimal with the median value of the difference being 0.000 in all years except for 1991, when the value is 0.008. The dependent variable price plus dividend per share show an increasing trend for the first four years of the sample after which time it appears to stabilise.

Table 1
Descriptive Statistics of Pooled Cross-sectional and Temporal Data from the Period 1991 to 1996

Panel A: Valuation Model Variables (Deflated by Number of Shares)

N=458	P_{it}	xc_{it}	xe_{it}	$diffx_{it}$	$bvc_{i(t-1)}$	$bve_{i(t-1)}$	$diffbv_{i(t-1)}$
Mean	3.663	0.166	0.170	0.004	2.146	2.313	0.167
Median	1.945	0.101	0.100	0.000	1.443	1.473	0.000
Maximum	38.500	1.949	2.185	1.415	21.630	28.337	9.053
Minimum	0.015	−0.874	−1.043	−0.492	0.005	0.001	−1.320
Std Dev	5.207	0.337	0.385	0.116	2.847	3.407	0.940

Key:
P_{it} = Share price three months after balance date plus dividends paid during the financial year.
xc_{it} = Operating profit after tax and abnormal items at year-end as determined by the cost method of accounting.
xe_{it} = Operating profit after tax and abnormal items as determined by equity accounting.
$diffx_{it}$ = $xe_{it} - xc_{it}$
$bvc_{i(t-1)}$ = Book value of net assets at the beginning of the year using the cost method of accounting.
$bve_{i(t-1)}$ = Book value of net assets at the beginning of the year using equity accounting.
$diffbv_{i(t-1)} = bve_{i(t-1)} - bvc_{i(t-1)}$
All independent variables are divided by the number of shares outstanding three months after balance date.

Panel B: Returns Model Variables

N=458	adj ret$_{it}$	yc_{it}	Δyc_{it}	ye_{it}	Δye_{it}	$diffy_{it}$	$diff\Delta ye_{it}$
Mean	0.054	0.000	0.032	−0.013	0.027	−0.013	−0.003
Median	−0.004	0.059	0.005	0.061	0.004	0.000	0.000
Maximum	1.727	1.895	4.900	1.863	6.030	0.337	1.131
Minimum	−0.904	−1.900	−2.420	−2.570	−2.750	−0.857	−2.020
Std Dev	0.402	0.313	0.581	0.345	0.619	0.084	0.144

Key:
adj ret$_{it}$ = Annual market adjusted return calculated three months after balance date.
yc_{it} = Operating profit after tax and abnormal items at year-end as determined by the cost method of accounting.
Δyc_{it} = Unexpected earnings at time t measured as the change in reported operating profit between time t and t−1.
ye_{it} = Operating profit after tax and abnormal items at year-end as determined using equity accounting.
Δye_{it} = Unexpected earnings at time t measured as the change in equity accounted operating profit between time t and t−1.
$diffy_{it}$ = $ye_{it} - yc_{it}$
$diff\Delta ye_{it}$ = $\Delta ye_{it} - \Delta yc_{it}$
All independent variables are deflated by the market value of the firm three months after the beginning of the financial year.

valuation and returns models.

Panel A of Table 1 provides the summary statistics for the variables used in the valuation models. The median values for earnings under the cost and equity methods as presented in Panel A are similar at 0.101 and 0.100 respectively. The highest earnings figure is due to the equity method of accounting as is the lowest, reflecting the larger range of values for earnings under the equity method of accounting than under the cost method. Equity accounting results in a slightly higher median value for the book value of equity than does the cost method. Again the range of values is larger under equity accounting than under the cost method – although not as extreme as for earnings. Overall, the incremental effect of equity accounting on both earnings and book value appears to be relatively small.

The statistics pertaining to the returns model variables are contained in Panel B of Table 1. The median change in earnings is positive under both the cost and equity methods of accounting. This indicates that for the pooled data, earnings on average increased slightly from one year to the next. The median market adjusted return of the pooled sample is –0.004.

A measure of the linear relation between the variables used in the models is provided in the Pearson correlation matrices presented in Table 2. Panel A of Table 2 indicates a statistically significant relation between price plus dividends and the independent variables used in the valuation model. There is also high, statistically significant positive correlation between the independent variables used in the valuation models providing evidence of multicollinearity. Multicollinearity increases the variance and standard errors

Table 2
Pearson Correlation Matrices Testing for Linearity between Variables Used in the Valuation and Returns Models

Panel A: Correlation Coefficients for Variables Used in the Valuation Models

N=458	p_{it}	xc_{it}	$bvc_{i(t-1)}$	$diffx_{it}$	$diffbv_{i(t-1)}$	xe_{it}	$bve_{i(t-1)}$
p_{it}	1.000	0.834**	0.909**	0.400**	0.535**	0.850**	0.907**
xc_{it}	–	1.000	0.777	0.274**	0.363**	N/A	N/A
$bvc_{i(t-1)}$	–	–	1.000	0.305**	0.489**	N/A	N/A
$diffx_{it}$	–	–	–	1.000	0.509**	N/A	N/A
$diffbv_{i(t-1)}$	–	–	–	–	1.000	N/A	N/A
xe_{it}						1.000	0.775**
$bve_{i(t-1)}$						–	1.000

Key:
N/A = not applicable.
p_{it} = Share price three months after balance date plus dividends paid during the financial year.
xc_{it} = Operating profit after tax and abnormal items at year-end as determined by the cost method of accounting.
$bvc_{i(t-1)}$ = Book value of net assets at the beginning of the year using the cost method of accounting.
$diffx_{it}$ = $xe_{it} - xc_{it}$
$diffbv_{i(t-1)}$ = $bve_{i(t-1)} - bvc_{i(t-1)}$
xe_{it} = Operating profit after tax and abnormal items as determined by equity accounting.
$bve_{i(t-1)}$ = Book value of net assets at the beginning of the year using equity accounting.
Independent variables are deflated by the number of ordinary shares outstanding three months post balance date.

Table 2 (cont.)
Pearson Correlation Matrices Testing for Linearity between Variables Used in the Valuation and Returns Models

Panel B: Correlation Coefficients for Variables Used in the Returns Models

N=458	adj ret$_{it}$	yc_{it}	Δyc_{it}	$diffy_{it}$	$diff\Delta y_{it}$	ye_{it}	Δye_{it}
adj ret$_{it}$	1.000	0.235**	0.066*	0.173**	–0.029	0.254**	0.054*
yc_{it}	–	1.000	0.216**	0.275**	–0.110	N/A	N/A
Δyc_{it}	–	–	1.000	0.047	0.097	N/A	N/A
$diffy_{it}$	–	–	–	1.000	0.459**	N/A	N/A
$diff\Delta y_{it}$	–	–	–	–	1.000	N/A	N/A
ye_{it}						1.000	0.216**
Δye_{it}						–	1.000

Key:
** p< 0.01
* p< 0.05
adj ret$_{it}$ = Annual market adjusted return calculated three months after balance date.
yc_{it} = Operating profit after tax and abnormal items at year-end as determined by the cost method of accounting.
Δyc_{it} = Unexpected earnings at time t measured as the change in reported operating profit between time t and t–1.
$diffy_{it}$ = Difference between equity accounted operating profit after tax and operating profit after tax determined by the cost method.
$diff\Delta ye_{it}$ = The change in the difference in operating profit after tax as determined by the two accounting methods between time t and t–1.
ye_{it} = Operating profit after tax and abnormal items at year-end as determined using equity accounting.
Δye_{t} = Unexpected earnings at time t measured as the change in equity accounted operating profit between time t and t–1.
All independent variables are deflated by market value three months after the beginning of the financial year.

of ordinary least squares estimators. This may be reflected in a high R^2, but insignificant t ratios for the regression equation. Panel B of Table 2 shows the correlation between variables used in the returns model. These variables display a much lower correlation between the independent variables indicating that multicollinearity will have less influence on the results of the returns models.

4.2 Analysis

The results of testing the value relevance of equity accounting relative to the cost method are documented in Table 3. Equity accounting is compared with the cost method by running two regressions using equation (1). The first regression incorporates accounting numbers determined by the cost method while the second regression is based on equity accounted values. Panel A of this table indicates that the coefficients on both earnings and book value are positive and significant in the two regressions. The coefficient on the earnings variable is 4.987 for the cost method model and 4.983 for the equity model. These values are consistent with the theoretical expectation of earnings coefficients. The coefficient on book value is

higher than the expected value of 1 at 1.204 for the cost method and 0.950 for the equity method. The cost method model results in an adjusted R^2 of 86.8 per cent while the equity accounted model has an adjusted R^2 of 87.7 per cent. This suggests that the equity accounted model has greater explanatory power relative to the cost method. The finding is statistically supported by the results of Biddle, Seow and Siegel's (BSS) (1995) Wald test, which tests for a difference between competing non-nested models. A significant Wald statistic of 5.120 is achieved with p=0.016.

Panel B of Table 3 reports the results of the returns model. The regression results are consistent with those of the valuation model. Coefficients on the earnings variables are significant in both the equity and cost method models. The adjusted R^2 of the models is small but significant (5.1 per cent for the cost method and 6.1 per cent for equity account-ing).[13] Again there is greater explanatory power when the equity accounted model is

Table 3
Analysis of the Relative Value Relevance of the Cost and Equity Accounting Methods Using OLS Regression for Pooled Company Years

Panel A: Valuation Model (Per Share) – (With White's Consistent Standard Errors)

All company years (1991 to 1996) N = 458 company years
$$p_{it} = a_{0c} + a_{1c}xc_{it} + a_{2c}bvc_{i(t-1)} + e_{itc}$$

	Intercept	xc_{it}	$bvc_{i(t-1)}$	Adj. R^2
Cost method	0.250	4.987	1.204	0.868
(p-value)	(0.062)	(0.000)	(0.000)	(0.000)

$$p_{it} = a_{0c} + a_{1c}xe_{it} + a_{2c}bve_{i(t-1)} + e_{itc}$$

	Intercept	xe_{it}	$bve_{i(t-1)}$	Adj. R^2
Equity method	0.616	4.983	0.950	0.877
(p-value)	(0.000)	(0.000)	(0.000)	(0.000)
Comparison of the two models				
Wald statistic (BSS 1995)			5.120	
(p-value)			(0.016)	

Key:
p_{it} = Share price three months after balance date plus dividends paid during the financial year.
xc_{it} = Operating profit after tax and abnormal items at year-end as determined by the cost method of accounting.
xe_{it} = Operating profit after tax and abnormal items as determined by equity accounting.
$bvc_{i(t-1)}$ = Book value of net assets at the beginning of the year using the cost method of accounting.
$bve_{i(t-1)}$ = Book value of net assets at the beginning of the year using equity accounting.
All independent variables are divided by the number of shares outstanding three months after balance date.

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[13] Reviews of capital markets research have noted the low explanatory power of the returns model (Lev (1989), Brown (1994), Kothari (2001)).

Table 3 (cont.)
Analysis of the Relative Value Relevance of the Cost and Equity Accounting Methods Using OLS Regression for Pooled Company Years

Panel B: Returns Model

All company years (1991 to 1996) N = 458 company years
$$adj\ ret_{it} = b_{1c} + b_{2c}yc_{it} + b_{3c}\Delta yc_{it} + u_{itc}$$

Cost Method	Intercept	yc_{it}	Δyc_{it}	Adj. R^2
Coefficient	0.054	0.297	0.011	0.051
(p-value)	(0.003)	(0.000)	(0.733)	(0.000)

$$adj\ ret_{it} = b_{1c} + b_{2c}ye_{it} + b_{3c}\Delta ye_{it} + u_{itc}$$

Equity Method	Intercept	ye_{it}	Δye_{it}	Adj. R^2
Coefficient	0.058	0.297	0.000	0.061
(p-value)	(0.002)	(0.000)	(0.990)	(0.000)
Comparison of the two models				
Wald statistic (BSS 1995)			2.161	
(p-value)			(0.142)	

Key:
$adj\ ret_{it}$ = Annual market adjusted return calculated three months after balance date.
yc_{it} = Operating profit after tax and abnormal items at year-end as determined by the cost method of accounting.
Δyc_{it} = Unexpected earnings at time t measured as the change in reported operating profit between time t and t–1.
ye_{it} = Operating profit after tax and abnormal items at year-end as determined using equity accounting.
Δye_{it} = Unexpected earnings at time t measured as the change in equity accounted operating profit between time t and t–1.
All independent variables are deflated by market value three months after the beginning of the financial year.

compared to the cost method model; however, the BSS (1995) Wald test statistic of 2.161 is insignificant indicating no significant difference between the competing models.

Additional comparison of the methods of accounting can be achieved by restating the regression equation to consider the incremental value relevance of equity accounting (as in equations (2) and (4)). For the valuation model, this is the difference between equity accounted values and cost method values for earnings and the book value of equity. For the returns model, the difference arises in relation to current earnings and changes in earnings variables. The results of the regressions are documented in Table 4.

Panel A of Table 4 indicates that in the valuation model, the coefficients on the earnings variables xc_{it} and $diffx_{it}$ are both positive and greater than one as predicted by the theoretical model. The magnitude of the coefficients is also very similar for the two variables. Both are significantly different from zero at p<0.001, from which we can infer that equity accounted earnings are incrementally value relevant to cost method earnings. The coefficients on the book value variables $bvc_{i(t-1)}$ and $diffbv_{i(t-1)}$ differ in magnitude, but are

Table 4

Results of Incremental Analysis of the Value Relevance of Equity Accounting Using OLS Regressions for Pooled Years

Panel A: Valuation Model

$p_{it} = \beta_1 + \beta_2\, xc_{it} + \beta_3\, diffx_{it} + \beta_4\, bvc_{it-1} + \beta_5\, diffbv_{it-1} + \varepsilon_{it}$

All company years (1991 to 1996)
Sample = 458 company years
With White's consistent standard errors

intercept (p-value)	xc_{it} (p-value)	$diffx_{it}$ (p-value)	$bvc_{i(t-1)}$ (p-value)	$diffbv_{i(t-1)}$ (p-value)	Adj. R² (p-value)
0.421 (0.000)	4.911 (0.000)	4.027 (0.000)	1.087 (0.000)	0.458 (0.001)	0.885 (0.000)

Key:

p_{it} = Share price three months after balance date plus dividends paid during the financial year.

xc_{it} = Operating profit after tax and abnormal items at year-end as determined by the cost method of accounting.

$diffx_{it}$ = $xe_{it} - xc_{it}$

bvc_{it-1} = Book value of net assets at the beginning of the year using the cost method of accounting.

$diffbv_{it-1}$ = $bve_{it-1} - bvc_{it-1}$

Independent variables are divided by the number of shares outstanding three months after balance date.

Panel B: Returns Model

adj ret$_{it}$ = $\gamma_1 + \gamma_2 yc_{it} + \gamma_3 \Delta yc_{it} + \gamma_4 diffy_{it} + \gamma_5 diff\Delta_{it} + e_{it}$

All company years (1991 to 1996)
Sample = 455 company years

Intercept (p-value)	yc_{it} (p-value)	Δyc_{it} (p-value)	$diffy_{it}$ (p-value)	$diff\Delta y_{it}$ (p-value)	Adj. R² (p-value)
0.0570 (0.002)	0.332 (0.000)	0.044 (0.258)	0.822 (0.005)	−0.302 (0.072)	0.070 (0.000)

Key:

adj ret$_{it}$ = Annual market adjusted return for company *i* calculated three months after balance date.

yc_{it} = Operating profit after tax and abnormal items at year-end as determined by the cost method of accounting.

Δyc_{it} = Unexpected earnings at time *t* measured as the change in reported operating profit between time *t* and *t–1*.

$diffy_{it}$ = Difference between equity accounted operating profit after tax and operating profit after tax determined by the cost method.

$diff\Delta y_{it}$ = The change in the difference in operating profit after tax as determined by the two accounting methods between time *t* and *t–1*.

Independent variables are deflated by market value three months after the beginning of the year.

positive and statistically significant at p<0.01. Consistent with the theoretical model, the coefficient on diffbv$_{i(t-1)}$ is less than one (but greater than zero). The coefficient on bv$_{i(t-1)}$, however, is slightly greater than one. The coefficient on the equity accounting increment is approximately half the size of the coefficient on the book value of the group's equity. The conclusion from the valuation model is that equity accounted earnings and book values are associated with market value incremental to that of the cost method.

The results of the regression on the returns model are given in Panel B of Table 4. The cost earnings variables yc$_{it}$ and diffy$_{it}$ are both positive and statistically significant. The statistical significance of diffy$_{it}$ implies that the incremental value of current equity accounted earnings is associated with returns (or the percentage change in share price). The coefficient for the incremental equity accounted earnings is 0.822 while the coefficient on cost method earnings for the group is only 0.332. This difference is likely explained by the new information contained in the equity accounted increment. This variable captures the investor's incremental share of associates' earnings (*i.e.* the difference between the investor's share of the associates' earnings and the dividend paid to the investor) that is earned from investment in both public and private companies. While earnings information about publicly listed associates is available to the market, information about the earnings of privately held associates is less likely to be readily available.[14] Change in earnings, Δyc_{it}, which proxies for unexpected earnings, does not explain changes in returns at a significant level. However, the coefficient on the change in the difference between equity accounted earnings and cost method earnings from one year to the next, diffΔy_{it}, is statistically significant with a t-statistic of –1.804. The negative value on the coefficient suggests that if the difference between equity accounted earnings and cost method earnings increases from last year, then the rate of change in share price would decline by 30 per cent. The results from the returns model provide further evidence of the value relevance of equity accounting, thus providing support for hypothesis one.

These tests have relied on pooled data. To overcome the problem of making incorrect inferences from the results of the pooled OLS regression, the robustness of the results are tested. Regressions are rerun on an annual basis and the average coefficient calculated for each independent variable. The significance of these coefficients is then assessed using three different methods. The first employs the method of Abarbanell and Bernard (2000) who recognise that the residuals of pooled cross-sectional and temporal OLS are likely to be dependent. Consequently, they rely on time-series based standard errors of mean coefficients, which are adjusted assuming the serial correlation of annual coefficients is first-order autoregressive.[15] Additionally, Aboody and Lev (1998) Z-statistics are calcu-

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[14] For 368 sample years, companies had more than 50 per cent of the book value of their investment in associates in unlisted companies.

[15] Standard errors are calculated for the distribution of annual coefficients for the sample period and are then adjusted for serial correlation using the adjustment factor employed by Abarbanell and Bernard (2000). The adjustment is calculated as: $\sqrt{\dfrac{(1 + \phi)}{(1 - \phi)} - \dfrac{2\phi(1 - \phi^n)}{n(1 - \phi)^2}}$

where ϕ is the first-order autocorrelation estimated from the series of yearly coefficients and *n* is the number of years in the sample. No adjustment is made to the standard error where the estimated autocorrelation is less than zero. The adjusted standard error is then used to calculate a t-statistic for the mean coefficient.

lated to test the robustness of the t-statistics from the pooled regression. The Z-statistics are calculated using the standard deviation of the annual coefficients. Adjustments are then made such that the first Z-statistic assumes residual independence, while the second accounts for cross-sectional and temporal residual dependence.

The results of cross-sectional OLS regressions using the valuation model for each of the years 1991 to 1996 are presented in Table 5. Cross-sectional regressions are not conducted for the returns model due to the small sample size in each year. The coefficients from the annual regressions are used to calculate mean coefficients for the period. The results of the annual regression indicate variability in the results across time. The annual coefficients on book value ($bv_{i(t-1)}$) show the least variability in magnitude and statistical significance. Of the incremental equity accounted components in the model, the coefficient on incremental equity accounted earnings is significant (at p<0.10) in only two of the sample period years (1994 and 1996). The incremental equity accounted book value ($diffbv_{i(t-1)}$) variable is significant in four of the six years (1991, 1992, 1993 and 1995).

The mean coefficients are similar to those of the pooled regression in Panel A of Table 5 except on the variable measuring the incremental contribution of equity accounted earnings which is smaller (2.903) than that of the coefficient in the pooled regression (4.027). The mean coefficients are all statistically significant using the methodology of both Abarbanell and Bernard (2000) and Aboody and Lev (1998).

4.3 Supplementary equity accounting disclosure

To investigate the influence the method of reporting has on the value relevance of equity accounting, a dummy variable is included in both the valuation and returns model. The dummy variable measures the method of disclosure and takes a value of one in company years when supplementary equity accounted financial statements are provided. The regression is run twice. The first time, the dummy variable captures all forms of supplementary equity financial statements, either in the accounts or in the notes to the accounts. In the second regression, the dummy variable is re-specified taking a value of one only for supplementary financial statements that are reported "up-front" – either as a third column or on a separate page before the statutory financial statements.

The results in Table 6 indicate that incremental equity accounted components of earnings and book value are not value relevant when supplementary equity accounted financial statements are provided. The dummy variable is statistically significant only when supplementary financial statements are provided "upfront". However, neither of the interaction variables are significant in the regressions. There is an overall lack of result in the returns model as well.

In order to identify if there are any systematic differences between companies that provide supplementary equity financial statements and those that provide only AASB1016 note disclosure, chi square tests of differences are conducted. The sample is split between companies that provide supplementary financial statements "upfront", those that provide supplementary financial statements in the notes to the accounts, and those that disclose equity accounting in AASB1016 format only. The results are presented in Table 7.

Zimmer (1994) infers from the reporting practices of companies using third column equity accounted financial statements that companies use equity supplementary

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Table 5
Results of OLS Regression on an Annual Basis for All Company Years

$$p_i = \beta_1 + \beta_2\, xc_{it} + \beta_3\, diffx_{it} + \beta_4\, bvc_{i(t-1)} + \beta_5\, diffbv_{i(t-1)} + \varepsilon_{it}$$

Panel A: Annual Regressions

Variable	1991	1992	1993	1994	1995	1996
Sample Size	87	77	83	65	70	77
Intercept	−0.395	0.005	0.355	0.820	0.248	1.061
t-statistic	−1.864	0.021	2.351	4.154	1.555	2.518
(p-value)	(0.066)	(0.983)	(0.021)	(0.000)	(0.125)	(0.014)
xc_{it}	5.744	3.968	6.763	3.932	2.246	2.776
t-statistic	5.542	4.154	4.223	2.114	1.684	1.114
(p-value)	(0.000)	(0.000)	(0.000)	(0.039)	(0.097)	(0.268)
$diffx_{it}$	−0.583	2.033	4.281	4.034	1.610	6.044
t-statistic	−0.286	0.946	1.223	2.027	0.896	1.949
(p-value)	(0.775)	(0.348)	(0.225)	(0.047)	(0.374)	(0.055)
$bvc_{i(t-1)}$	1.416	1.292	1.039	0.933	1.315	1.099
t-statistic	7.970	7.461	6.933	6.725	6.660	2.766
(p-value)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.007)
$diffbv_{i(t-1)}$	0.394	0.335	0.590	0.297	1.542	0.350
t-statistic	3.194	2.241	2.731	1.094	3.112	0.214
(p-value)	(0.002)	(0.028)	(0.008)	(0.278)	(0.003)	(0.831)
Adj. R^2	0.926	0.935	0.942	0.919	0.893	0.500
(p-value)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)

Panel B: Mean Coefficient Estimates for the Period 1991 to 1996

	xc_{it}	$diffx_{it}$	$bvc_{i(t-1)}$	$diffbv_{i(t-1)}$
Mean coefficient	4.238	2.903	1.182	0.585
Number of coefficients >0	6	5	6	6
Number of t-statistics >1.65	5	2	6	4
Abarbanell and Bernard (2000) t-statistic	5.216*	2.685*	15.113*	4.346*
Z1 (Aboody and Lev, 1998)[18]	7.584*	2.717*	15.505*	5.068*
Z2 (Aboody and Lev, 1998)[19]	4.019*	2.976*	7.727*	3.907*

Key
* p<0.01

p_{it}	= Share price three months after balance date plus dividends paid during the financial year.
xc_{it}	= Operating profit after tax and abnormal items at year-end as determined by the cost method of accounting divided by the number of shares outstanding three months after balance date.
$diffx_{it}$	= $xe_{it} - xc_{it}$
$bvc_{i(t-1)}$	= Book value of net assets at the beginning of the year using the cost method of accounting divided by the number of shares outstanding three months after balance date.
$diffbv_{i(t-1)}$	= $bve_{i(t-1)} - bvc_{i(t-1)}$

[18] $Z1 = (1/\sqrt{n}) \times S\{t_i/\sqrt{[k_i/(k_i-2)]}\}$ where n is the number of years, t_i is the t-statistic for year i and k_i is the degrees of freedom.

[19] $Z2 = $ (mean t-statistic)/[standard deviation of t-statistics/$\sqrt{(n-1)}$] where n is the number of years.

Table 6
Results of Pooled OLS Regressions Testing the Influence of the Method of Disclosure on the Value Relevance of Equity Accounting

Pooled data – All company years 1991 to 1996

Variable (N=458)	Disclosure 1 All supplementary equity financial statements	Disclosure 2 Third column only
Intercept (p-value)	0.413 (0.003)	0.376 0.001
xc_{it} (p-value)	4.946 (0.000)	5.016 (0.000)
$diffx_{it}$ (p-value)	3.834 (0.002)	4.437 (0.000)
$bvc_{i(t-1)}$ (p-value)	1.076 (0.000)	1.062 (0.000)
$diffbv_{i(t-1)}$ (p-value)	0.467 (0.000)	0.457 (0.001)
$dummy_{it}$ (p-value)	0.095 (0.619)	0.652 (0.030)
$dummy_{it} * diffx_{it}$ (p-value)	0.693 (0.722)	−3.963 (0.121)
$dummy_{it} * diffbv_{i(t-1)}$ (p-value)	−0.016 (0.969)	2.102 (0.133)
Adj. R^2 (p-value)	0.884 (0.000)	0.889 (0.000)

financial statements opportunistically in order to report higher profits. Thus, the first two panels of Table 7 investigate whether there is a difference in reporting practice based on whether (i) the company makes a profit or loss and (ii) whether the associate makes a profit or loss. The results do not lend support to the view that companies effectively recognise equity accounted profits opportunistically. Two differences that appear to result in a statistical difference are the payment of dividends and whether the company has listed associates. Companies that use supplementary equity financial statements are more likely to have associates that pay a dividend, while companies that report equity supplementary financial statements "upfront" are more likely to have listed associates.

4.4 Market value disclosures

For companies with investment in publicly listed associates, a third value measure exists for the investment – market value. Market value is by definition a value relevant measure for an investment. Market value not only reflects current expectations about future earnings and past historical earnings, but also captures non-accounting information.

Table 7
Comparison of the Characteristics of Companies and Their Investment Conditional on the Method of Equity Accounting Disclosure

Panel A: Comparison of Method of Disclosure on the Basis of Whether the Associates Made a Profit or Loss

	Loss associates	Profit associates	Total
Supplementary financial statements (FS) upfront	13	32	**45**
Supplementary FS in notes	29	46	**75**
AASB1016 Note	129	209	**338**
Total	**171**	**287**	**458**

Chi Square = 1.529, p>0.100

Panel B: Comparison of Choice of Disclosure Method on the Basis of Whether the Group Made a Profit or Loss (this includes dividends received from associates)

	Loss company	Profit company	Total
Supplementary FS upfront	7	38	**45**
Supplementary FS in notes	23	52	**75**
AASB1016 Note	65	273	**338**
Total	**95**	**363**	**458**

Chi Square = 5.699, p<0.100

Panel C: Comparison of Choice of Disclosure Method on the Basis of Whether the Company Had Any Associates Listed on a Public Stock Exchange

	No listed assoc	Listed assoc	Total
Supplementary FS upfront	18	27	**45**
Supplementary FS in notes	44	31	**75**
AASB1016 Note	287	51	**338**
Total	**349**	**109**	**458**

Chi Square = 59.374, p<0.001

Panel D: Comparison of Choice of Disclosure Method on the Basis of Whether the Associates Paid a Dividend

	Dividend paid	No dividend paid	Total
Supplementary FS upfront	42	3	**45**
Supplementary FS in notes	47	28	**75**
AASB1016 Note	192	146	**338**
Total	**281**	**177**	**458**

Chi Square = 22.414, p<0.001

Table 8
The Incremental Value Relevance of Market Value Disclosures and Equity Accounting over the Cost Method of Accounting and the Incremental Value Relevance of Equity Accounting over Market Value

Pooled data 1991 to 1996
With White's consistent standard errors and covariance

N= 40 Company years	Market Value to Cost Method	Equity Accounting to Cost Method	Equity Accounting to Market Value
Intercept (p-value)	−0.534 (0.049)	−0.010 (0.936)	−0.002 (0.989)
xc_{it} (p-value)	8.449 (0.000)	4.488 (0.000)	4.914 (0.000)
bvc_{it-1} (p-value)	1.068 (0.000)	1.107 (0.000)	–
bvm_{it-1} (p-value)	–	–	0.980 (0.000)
$diffx_{it}$ (p-value)	–	4.737 (0.000)	4.964 (0.000)
$diffbv_{it-1}$ (p-value)	–	0.454 (0.000)	–
$diffmv_{it-1}$ (p-value)	2.106 (0.004)	–	–
$diffme_{it-1}$ (p-value)	–	–	0.428 (0.000)
Adj. R^2 (p-value)	0.934 (0.000)	0.979 (0.000)	0.980 (0.000)

Key:
P_{it} = Share price three months after balance date plus dividends paid during the financial year.
xc_{it} = Operating profit after tax and abnormal items at year-end as determined by the cost method of accounting.
bvc_{it-1} = Book value of net assets at the beginning of the year using the cost method of accounting.
bvm_{it-1} = Book value of net assets at the beginning of the year using the market value of the investment in associated entities.
$diffx_{it}$ = Share of associate entities' earnings less dividends paid by associates to the investor company.
$diffbv_{it-1}$ = Difference between the equity accounted value of investment in associates and the cost method value of investment in associates.
$diffmv_{it-1}$ = Difference between the market value of investment in associates and cost method value of investment in associates.
$diffme_{it-1}$ = Difference between the equity accounted value of investment in associates and the market value of investment in associates.
All independent variables used in the models above are divided by the number of shares outstanding three months after balance date.

In order to determine whether equity accounting is value relevant when market value disclosures are provided, the sample is reduced to capture company years for which the investment in associates consists only of publicly traded companies. Inspection of the investment in associates results in 40 company years for which 100 per cent of annual reports of sample companies and market value disclosure was provided in the notes to the accounts. Regression analysis is conducted using models that capture the incremental value relevance of equity accounting and market value. The results of three regressions are presented in Table 7.

The first regression measures the incremental relevance of market value as compared to the cost method. The second regression measures the incremental value relevance of equity accounting compared to the cost method. The third regression compares equity accounting to market value by replacing the cost method carrying amount of the investment in book value with market value. The results of the first two regressions show that both market value and equity accounting have incremental value relevance to the cost method. However, the results of the third regression bring forth an unexpected finding. It appears that equity accounting has incremental value relevance to market value.

5. Conclusion

For a period of 26 years, Australian reporting requirements for equity accounting were out of step with international accounting practice. This paper utilises the uniqueness of the Australian regulatory setting to investigate the value relevance of equity accounting during the time it was required that equity accounting be disclosed as a note to the accounts. Valuation and agency theories are used to establish the expectation that equity accounting has greater value relevance than the cost method and that it provides information incremental to the cost method. The results of the price models provide evidence of the value relevance of equity accounting for investments in associated companies both incrementally and relative to the cost method. However, the returns models only provide statistically significant evidence in support of the incremental value of equity accounting.

Investigation of whether the use of supplementary financial statements is viewed by the market as a signal of the relevance and / or reliability of equity accounted values did not result in any significant findings. It can be inferred from the results that although equity accounting is value relevant, the market does not perceive equity accounted values reported in supplementary financial statements to have greater relevance or reliability. Finally, equity accounting is found to have incremental value relevance over market value for investments comprising solely of listed associates, although market value is found to have additional value relevance to the cost method. A possible explanation for this result could be the timing of the market value disclosure used as the independent variable and the timing of the share price used as the dependent variable. Use of more recent market values for associates in the model may remove the incremental value relevance of equity accounting.

The inference that can be drawn from this study is that equity accounting in AASB1016 note format provides investors with additional value relevant information. No incremental value is found in company years when equity supplementary financial statements are reported. However, systematic differences between companies, on the basis of their reporting

practices, are identified and this may explain the lack of result. Companies that use supplementary financial statements are more likely to pay a dividend and companies that place supplementary financial statements "upfront" are more likely to have listed associates. Evidence of whether equity accounting is a better method of reporting than the cost method is mixed. The explanatory power of both the valuation model and the returns model when equity accounting is used increases, but only marginally. The implication of this finding is that the decision of Australian regulators to harmonise with international accounting practice on equity accounting has done little to enhance the value relevance of financial statements.[16] If the change in accounting standard results in a reduction in the level of information supplied to the market (*e.g.* the omission of cost method figures), there may be an impact on the relevance of the equity accounted figures.[17] An extension of this study would be to investigate the value relevance of equity accounting following the introduction of the current equity accounting standard requiring recognition of this method.

References

Accounting Standards Review Board, 1987 Approved Accounting Standard ASRB1010: *Accounting for the Revaluation of Non-current Assets.*

Accounting Standards Review Board, 1989 Approved Accounting Standard ASRB1016: *Disclosure of Information about Investments in Associated Companies.*

Abarbanell, J. and V. Bernard, 2000, "Is the U.S. Stock Market Myopic?", *Journal of Accounting Research* 38(2), 221–242.

Aboody, D., 1996, "Recognition Versus Disclosure in the Oil and Gas Industry", *Journal of Accounting Research* 34, Supplement, 21–32.

Aboody, D. and B. Lev, 1998, "The Value-Relevance of Intangibles: The Case of Software Capitalisation", *Journal of Accounting Research*, Supplement, 161–191.

Barth, M. E., 1994, "Fair Value Accounting: Evidence From Investment Securities and the Market Valuations of Banks", *The Accounting Review* 69, 1–25.

Barth, M. E. and G. Clinch, 2001, "Scale Effects in Capital Markets-based Accounting Research", Working Paper, Graduate School of Business Stanford University.

Barth, M. E. and S. Kallapur, 1996, "The Effects of Cross-Sectional Scale Differences on Regression Results in Empirical Accounting Research", *Contemporary Accounting Research* 13(2), 527–567.

Bernard V. and K. Schipper, 1994, "Recognition and Disclosure in Financial Reporting", Unpublished Working Paper, University of Michigan.

Biddle, G. C., G. S. Seow, and A. F. Siegel, 1995, "Relative Versus Incremental Information Content", *Contemporary Accounting Research* 12(1), 1–23.

Brown, P., 1994, *Capital Markets-Based Research in Accounting: An Introduction* (Melbourne, Australia: Coopers & Lybrand).

Brown, P. and I. Wieson, 1998, "Capital Markets Research and Accounting Standard Setting", *Accounting and Finance* 38, 5–28.

Christie, A., 1987, "On Cross-Sectional Analysis in Accounting Research", *Journal of Accounting and Economics* 9, 231–258.

Collins, D. W., M. Pincus, and H. Xie, 1999, "Equity Valuation and Negative Earnings: The Role of Book Value of Equity", *The Accounting Review* 74(1), 29–61.

Czernkowski, R. and J. Loftus, 1997, "A Market-Based Evaluation of Alternative Methods of Reporting on Investments in Associated Entities", Conference Paper, AAANZ Conference proceedings, Hobart, Tasmania.

Easton, P., 1998, "Discussion of Revalued Financial, Tangible, and Intangible Assets: Association with Share Prices and Non-Market-Based Value Estimates", *Journal of Accounting Research* 36, Supplement, 235–247.

Easton, P. and G. Sommers, 2000, "Scale Effects in Market-Based Accounting Research", Unpublished Working Paper, Ohio State University.

Ferris, K. R. and D. W. Taylor, 1983, "Creative Accounting for Corporate Investments", *The Chartered Accountant in Australia*, February, 40–43.

Harrison, T., 1977, "Different Market Reactions to Discretionary and Non-discretionary Accounting Changes", *Journal of Accounting Research* 15, 84–107.

Healy, P., K. Palepu, and A. Sweeney, 1995, "Causes and Consequences of Expanded Voluntary Disclosure", Unpublished Working Paper.

Holthausen, R. W. and R. L. Watts, 2001, "The Relevance of Value-Relevance Literature for Financial Accounting Standard Setting", *Journal of Accounting and Economics* 31, 3–75.

Imhoff Jr., E. A., R. C. Lipe and D. W. Wright, 1995, "Is Footnote Disclosure an Adequate Alternative to Financial Statement Recognition?", *The Journal of Financial Statement Analysis* 1(1), Fall, 70–81.

Kothari, S. P., 2001, "Capital Markets Research in Accounting", *Journal of Accounting and Economics* 31, 105–231.

Kothari, S. P. and J. L. Zimmerman, 1995, "Price and Return Models", *Journal of Accounting and Economics* 20, 155–192.

Lev, B., 1989, "On the Usefulness of Earnings and Earnings Research: Lessons and Directions from Two Decades of Empirical Research", *Journal of Accounting Research* 27, Supplement, 152–192.

Mazay, V., T. Wilkins, and I. Zimmer, 1993, "Determinants of the Choice of Accounting for Investments in Associated Companies", *Contemporary Accounting Research*, Fall, 31–59.

McKinnon, S. M. and K. T. Halvorsen, 1993, "Accounting for Non-majority-owned Intercorporate Investments: A Cash Flow Assessment of Alternative Methods", *Journal of Business Finance and Accounting* 20(1), 1–25.

Ohlson, J. A., 1995, "Earning, Book Values and Dividends in Equity Valuation", *Contemporary Accounting Research* 11(2), 661–687.

Petroni, K. and J. Wahlen, 1995, "Fair Values of Equity and Debt Securities and Share Prices of Property-Liability Insurance Companies", *Journal of Risk and Insurance* 62, 719–737.

Ricks, W. E. and J. S. Hughes, 1985, "Market Reactions to a Non-discretionary Accounting Change: The Case of Long-term Investments", *The Accounting Review* LX(1), January, 33–52.

Tabachnick, B. G. and L. S. Fidell, 1996, *Using Multivariate Statistics* (New York, United States: Harper Collins).

White, H., 1980, "A Heteroscedasticity Consistent Covariance Matrix Estimator and a Direct Test for Heteroscedasticity", *Econometrica* 48(4), 817–838.

Zimmer, I., 1994, "Determinants of Equity Accounting Disclosures", *Accounting and Business Review*, July, 235–255.

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[16] It is recognised that valuation relevance is only one aspect of accounting information and that in assessing the usefulness of accounting information standard setters consider the interests of a variety of users of financial information (*see* Holthausen and Watts, 2001).

[17] The disclosure requirements of the new version of AASB1016 differ from the prior version of the standard. In the context of this study, the book value of the investment in associates using the cost method is not required to be disclosed in the post recognition regime.