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Recognition versus Disclosure: The Case of Land and Buildings' Revaluations

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This study examines the value relevance of recognised and disclosed revaluations of land and buildings for a large sample of Australian firms from 1993 through 1997. In contrast to prior research, we control for risk and cyclical effects and find no difference between recognised and disclosed revaluations, using yearly-cross-sectional and pooled regressions and using both market and non-market dependent variables. We also find only weak evidence that revaluations of recognised and disclosed land and buildings are value relevant.

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(1) INTRODUCTION

This paper investigates the value relevance of recognising versus disclosing upward revaluations of land and buildings in the financial statements. Aboody (1996) suggests that whether users of financial statements distinguish between recognition and disclosure is an important question in accounting standard setting. Harper, Mister and Strawser (1991), using an experimental research design, suggest that financial statement users' perceptions are influenced by whether an item is recognised or disclosed within the financial statements. Bernard and Schipper (1994) highlight the importance of the distinction between recognition and disclosure, and argue that reliability is an important determinant of the decision to recognise, rather than disclose, a financial statement item.

Some prior capital market research examines the differential reaction of financial statement users to disclosure versus recognition of an item. Aboody (1996), empirically examines the differential perception of users, and reports that the effect of footnote disclosure on pricing differs from the effects of recognition within the USA oil and gas industry. Davis-Friday, Folami, Liu and Mittelstaedt (1999) find that certain disclosures are priced by the market while in other circumstances disclosures are either not completely priced or priced differently to recognised amounts. The authors note that the market reacts differently to disclosed versus recognised liabilities for non-pension retirement benefits. In a follow-up paper, Davis-Friday, Liu and Mittelstaedt (2004) examine whether the differential market reaction is due to disclosure being more reliable than the recognised liabilities, and report that the market perceives disclosed amounts as less reliable. However, apart from Cotter and Zimmer (2003), there is very little research on tangible assets such as land and buildings in a regime where there is a requirement to disclose the current values of land and buildings. Cotter and Zimmer (2003) examine the value relevance of recognised versus disclosed revaluations of land and buildings in Australia and find that recognised amounts are more value relevant than disclosed amounts. They also report that the significance of value relevance of recognised amounts declined when the basis of the valuation method (a measure of reliability) is included in the regression model.

Over a period of five years from 1993, we examine the value relevance of recognised versus disclosed land and buildings revaluations in Australia, using cross-sectional regression analysis on a large sample of 371 land and buildings revaluations. Specifically, the empirical comparison is between the recognised revaluation increment and the unrecognised difference between the disclosed current market value and year-end book value of land and buildings.

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The present study extends the literature on asset revaluations in several ways. First, a returns design is used to adjust for scale effects that were identified as a problem in previous studies (see for example, Easton, Eddey and Harris, 1993 and Barth and Clinch, 1998). Secondly, property plant and equipment revaluations are disaggregated to examine only one type of information – land and building revaluations. This means that a homogeneous set of revaluations is being studied. In other studies, aggregate revaluations have been used (see, for example, Barth and Clinch, 1998). Examining one type of information reduces the effects of differential information, such as intangibles, on firm profitability. Thirdly, associations with both market values and future accounting values are examined rather than market value alone. This provides an extension to the market value studies of Easton et al. (1993), Sloan (1999), and Maines et al. (2002). For future accounting values future earnings and future cash flow values are used, in contrast to other studies which use analysts' forecasts of future earnings (Barth and Clinch, 1998). Testing the effect of revaluations on realised future accounting values is consistent with reliability being measured by actual values. Fourthly, both recognised and disclosed revaluations are estimated by unexpected components of land and building values. This is consistent with the efficient market hypothesis of Fama (1970) which asserts that only unexpected information will be priced. Finally, the effect of revaluations on market values and future accounting values is adjusted for risk, in particular using the book to market and size factors of Fama and French (1992). Each of the five extensions above is designed to improve the power of the test as to whether recognised or disclosed revaluations have greater value relevance. Our principal finding is that for the 371 land and buildings revaluations over the period 1993-97, recognised revaluations are not more value relevant than disclosed revaluations.

This paper is structured as follows. Section 2 details the relevant accounting rules on revaluation of land and buildings. Section 3 further reviews existing research on the value relevance of recognition versus disclosure, and Section 4 develops and operationalises the model used in the paper. The empirical results are presented in Section 5 and the paper concludes with the principal findings and discussion.

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(2) FINANCIAL REPORTING RULES – RECOGNITION AND DISCLOSURE

Over the period examined in this study, 1993 to 1997, non-current asset revaluations are covered by Australian Accounting Standards Board (AASB) 1010 *Accounting for the Revaluation of Non-Current Assets*, that permits revaluations of non-current assets up to recoverable amount.[1] Recoverable amount can be measured by external valuers or internally by directors. Non-current assets except for goodwill, foreign currency monetary assets and inventory can be revalued upward at the director's discretion. The general rule is to recognise the amount of the upward revaluation (increment) in the asset revaluation reserve account in equity[2]. It is mandatory to disclose whether the recoverable amount is measured on a discounted basis or whether the revalued amount has been determined in accordance with an independent valuation (AASB 1010 paragraphs 9.4 and 9.1 (d) respectively).

Since 1987 Australian firms have been required to disclose current values of land and buildings when those assets are recognised at amounts other than at current value. Over the period examined in this study, this requirement is contained in clause 31, Schedule 7 of the *Corporations Regulations*, and after 30 June 1997 paragraphs 6.1(h) and 6.2 of AASB 1034 *Information to be Disclosed in Financial Reports*. Current value is defined in these provisions as the most recent valuation made within the three-year period prior to the end of the current-period reporting date.

In this paper these recognition and disclosure rules are examined using cross-sectional regression analysis to compare the value relevance of recognised versus disclosed land and buildings revaluations. Specifically, the empirical comparison is between the recognised revaluation increment and the unrecognised difference between the disclosed current market value and year-end book value of land and buildings.

(3) LITERATURE REVIEW: RECOGNITION AND DISCLOSURE OF NON-CURRENT ASSETS

In examining recognised revaluations, typically both market and non-market value relevance are assessed across different disaggregations; for example, by asset class, by industry, by debt-to-equity ratio, and by director or independent valuations.

1 Recoverable amount is defined as the net amount expected to be recovered through net cash inflows arising from the asset's continued use and subsequent disposal. There is no requirement to discount those cash flows, to measure recoverable amount consistently between periods, or to have the assets independently valued.

2 An exception occurs if an asset from that same asset class was revalued down and that decrement expensed in the profit and loss account, then this period's increment must be revenue. This revenue is limited in amount to the amount of previous expense. Any excess difference is recognised as a credit to the asset revaluation reserve account in equity.

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Disaggregation is used to understand how the value relevance of recognised revaluations varies across firms with different risk, across heterogeneous assets, and across revaluation measures with different reliability. In one of the earliest studies of recognised revaluations of property, plant and equipment, Easton, et al. (1993) examine upward revaluations for 72 Australian industrial-sector firms over the period 1981 through 1990. They find weak evidence that revaluation increments explain market returns after controlling for earnings and earnings changes. The significance of the revaluation coefficient increases for firms with high debt-to-equity ratios, high revaluation increment to book value ratios, and high reserve balance to book value ratios. Easton et al. (1993) also find a significant positive association between both the revaluation reserve and increment and the market-to-book ratio after controlling for earnings and book value. They conclude that in their sample, revaluations are value relevant but not timely.[3]

Easton et al.'s (1993) findings were partly reinforced in a study by Aboody, et al. (1999) of UK property, plant and equipment upward revaluations for 347 firms over the period 1983-1995. Pre-1990, Aboody et al. (1999) find that revaluation increments are significant determinants of both market and non-market values for up to three years ahead where, following Bernard (1993), non-market value is measured using future operating income and operating cash flows. However, post-1990, revaluations are not found to determine either market value or cash flow, a result the authors attribute to increased economic volatility. This finding suggests that the value relevance of revaluations is market dependent, and may not be robust across all markets.

The value relevance of asset revaluations may also be sensitive to the type of asset, and to the type of revaluation. Barth and Clinch (1998) consider the value relevance of tangible and intangible asset revaluations for 234 Australian firms in the period 1991-1995. They assess the effect of revaluations on market value and non-market value, with non-market value measured as the difference between actual earnings and analysts' forecasts of earnings. Barth and Clinch (1998) find that revaluations of property are less value relevant than for other asset types, and that revaluations have value relevance several years into the future. They examine the reliability of the revaluations in a three way classification, by director and independent valuations, by industry (mining, financial and nonfinancial), and by asset class. Their principal finding is that there is no significant difference in the reliability of director and independent valuations, where reliability is measured by value relevance.

In a study of 201 non-current asset revaluations over the period 1981-1999, Cotter and Richardson (2002) also find that for most asset classes, there is no difference in

3 When annual returns and recognised revaluations are measured over the same period timely means the revaluations are significantly associated with returns.

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the reliability of director and independent valuations. They measure of reliability is based on the extent and timing of a subsequent devaluation, not the value relevance of the revaluation. Cotter and Richardson (2002) find that the only asset class where independent valuations are more reliable is plant and equipment. The use of a subsequent devaluation, rather than the value relevance, to measure the reliability of revaluations has two limitations. First, revaluations and devaluations can be offset within an asset class and the net revaluation amount is then treated in accordance with the rules mentioned in Section 2. Devaluation of a particular asset can then be avoided by merging assets of a similar nature and function.[4] Secondly, devaluation can also be avoided by changing the policy for measuring recoverable amount from discounted to undiscounted cash flows. These limitations underscore the importance of analysing a homogeneous class of assets in tests of the reliability of revaluations.

The evidence on disclosures is less conclusive than for recognised revaluations. Amir, Harris and Venuti (1993) conduct a study of the value relevance of reconciliations from domestic to US GAAP, for 101 firms over the period 1981-1991. Their sample includes revaluations for UK and Australian firms. They conclude that reconciliations are value relevant, a finding refuted by Barth and Clinch (1996) who find no value relevance for reconciliations in a study of 24 firms over the period 1985-1991. Barth and Clinch conjecture that the observed insignificance may be due to the mix of tangible and intangible assets in their sample. In a subsequent study, Barth and Clinch (1998) examine the significance of disclosures in determining market prices. They find that disclosures are significant and positive determinants of price levels for mining and financial firms. This is one of the few studies where market prices, rather than market returns, are used to measure market value. As some have observed, for example Easton (1998), significance extracted using market prices may be attributable to scale effects.

There are few studies which directly compare recognised revaluations and disclosures. An exception is the study of Cotter and Zimmer (2003), who compare the value relevance of recognised versus disclosed revaluations of land and buildings. Cotter and Zimmer (2003) measure recognised revaluation by the revaluation increment for a given year and disclosed revaluation by the difference of two differences, the current value less book value for the current year and the same difference for the most recent prior revaluation. Cotter and Zimmer (2003) 112 Australian firms over the period 1987 to 1997, and assess market value relevance using both market prices and

4 To illustrate, consider two asset classes A and B that have the same nature and function. Asset class A was revalued upward in a prior period and that increment is in the asset revaluation reserve. Disclosing A and B as one total without supplementary dissection in the current period means A and B are one class. If asset A is to be devalued this period and asset B can be revalued, the two revalued amounts can be offset. Another scenario can occur if asset A is disposed in the interim. Any devaluation of asset B is likely unrelated to the prior revaluation of asset A.

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market returns. After controlling for the effect of reliability, the effect of recognition is tested using a dummy variable. Their finding of a significant negative coefficient on revaluation and a significant positive coefficient on the recognition dummy suggests that the market discounts disclosure versus recognition. But, in the presence of a control for reliability, the significance of recognition disappears, suggesting that recognition and reliability interact. Cotter and Zimmer (2003) also find that recognisers are more likely to experience an increase in future operating income than disclosers, indicating that recognition is non-market value relevant.

The Cotter and Zimmer (2003) study amplifies the importance of recognition in revaluation of assets. However, their definition of disclosed revaluations has limitations. The two differences which are then differenced may be three years apart and may relate to different assets, generating possible inconsistencies. In addition, the revaluation measure used is not consistent, an important attribute of recognition versus disclosure research designs (Bernard and Schipper, 1994). For example, a disclosing firm could recognise the difference between the year-end market value and the year-end book value.[5]

The results of previous studies have a number of implications relevant to our study of asset revaluations. First, it is clear that the value relevance of asset revaluations depends on the type of asset. Less ambiguous results can be expected when assets are homogeneous. In the present study, we examine only one type of asset, land and buildings. Secondly, the previous studies illustrate the importance of testing both market and non-market value relevance. In our study both market relevance, measured by the effect on returns, and non-market value relevance, measured by the effect on realized future earnings and future cash flows, are tested. This provides a test of the reliability of the revaluations. Thirdly, market values are scaled to ensure that no scaling effects distort the significance of the tests. Fourthly, we define the revaluation of land and building values as the unexpected component of land and building values in the given year. This definition is applied to both recognised and disclosed revaluations. Using the unexpected component of land and building values is consistent with the efficient market hypothesis of Fama (1970) which asserts that only unexpected information will be priced. Finally, previous studies of asset revaluations have shown that value relevance depends on firm characteristics such as book-to-market ratios and debt-to-equity ratios. More generally, Fama and French (1992) have shown that the book-to market ratio and size are priced risk factors in equity markets. In the present study, we use the book-to market ratio and firm size to control for risk. The tests of value relevance are then risk-adjusted.

5 The two measures are not strictly comparable as recognised revaluations can be up to a recoverable amount and disclosed values are point estimates of market value.

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(4) MODEL DEVELOPMENT

In this section, we develop a model of market relevance for recognised revaluations and an analogous model for disclosed revaluations. We also develop two models of non-market relevance. The relative value relevance for recognised and disclosed revaluations is tested by comparing the significance of the revaluations coefficient in each equation.

4.1 Market value relevance

In testing market value relevance, we use market returns as the dependent variable. Returns are generally used in studies of value relevance because they are stationary and, as Easton (1998) observes, do not distort significance tests. The use of market returns is consistent with the efficient market hypothesis of Fama (1970), where unexpected information is tested for its effect on market returns. In this study, as in previous studies, raw returns for firm i in period t (r_{it}) are measured over the twelve-month interval beginning with the start of the fourth month after the start of the financial year[6].

4.2 Non-market value relevance

Consistent with Aboody et al. (1999), we use changes in future accounting values to assess non-market value relevance. The use of realized values is consistent with the test of value relevance being a test of the reliability of revaluations. Two dependent variables are used. First, we consider the effect of revaluations on changes in future realized earnings. To avoid a mathematical tautology between revaluations and future operating profits, amortisation, revaluations and devaluations, and gains and losses on sale of non-current assets are removed from the operating profits (Aboody et al. 1999). We then denote by $\Delta OP_{it+n,}$ the change in adjusted operating profit for firm i in period t+n. Secondly, we consider the effect of revaluations on changes in future cash flows with ΔCF_{it+n} denoting the change in operating cash flows (receipts from customers less payments to suppliers and customers) for firm i for period t+n. For stationarity, both dependent variables, the change in future net operating profit and the change in future operating cash flow, are scaled by the beginning of year market value.

We therefore estimate one model of market relevance for both recognised and disclosed revaluations, and we estimate two models of non-market relevance for both recognised and disclosed revaluations.

6 Since 1991, listed Australian entities have had to lodge their accounts within 90 days of their financial year end. The 3-month delay prior to the start of return interval therefore excludes the lodgment date of the prior-year accounts. Inferences on value relevance are made on the assumption the accounts for that year were lodged within the required time. Although to the best of this our knowledge there is no evidence on the extent of conformity with that rule in Australia, this assumption does not seem unreasonable.

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4.3 Revaluation

In constructing a measure of revaluation, we assume that it should be based on the same principle for recognisers and disclosers (Bernard and Schipper, 1994) and that it should be consistent with market efficiency. In an efficient market only unexpected relevant information is priced (Fama, 1970). As a consequence, the measure of revaluation that we use is the unexpected component of land and buildings values. Hence, revaluations for both recognisers and disclosers will be defined as the difference between the realized and expected values in a given year, where expectations are formed prior to the revaluation. Revaluations then depend on the expected values and, for both recognised and disclosed revaluations, there is no theory as to how such expectations are formed.

For recognised revaluations, the expectations of recognised revaluations are commonly assumed to be zero (see for example, Aboody and Lev, 1998). If a firm has previously recognised or previously disclosed, these past revaluations are not used in forming expectations. The recognised revaluations for firm i in year t (Rec_{it}) are then the valuation increments in that year, and this is the measure adopted in the present study.

Similarly, disclosed revaluations can be measured by the year-end disclosed value minus its prior expectation. A number of expectations of the year-end disclosed value are possible based on

(1) The beginning of year book value
(2) The most recent prior disclosed value.
(3) The year-end book value

If the revaluation uses beginning of year book values, information other than the valuation surprise may be captured in the revaluation. In particular, the estimated revaluation will comprise not only asset revaluations, but also amortisation, write-offs, acquisitions and disposals, all of which affect book values. While buildings amortisation and write-offs are disclosed and hence measurable, acquisitions and disposals will be measured with error because there is no requirement to disclose them. The revaluation estimate will then be contaminated by this error.

The use of the most recent prior disclosed value also has limitations. First, as the prior disclosed value is often very dated, it is typically a poor estimate of the amount that could be recognised. Recognition and disclosure would then be measured inconsistently. A second limitation is that the prior disclosed value may involve a different asset. If, for example, a disposal or acquisition has occurred between the two disclosure dates, the revaluation will involve different combinations of assets. Cotter and Zimmer (2003) have also proposed a measure of revaluation based on a difference of two differences, the year-end disclosed value less the year-end book value

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and the most recent prior disclosed value less that years' book value. This measure also has the limitations of using prior disclosed values, namely their relevance to the current disclosure.

Year-end book values do not suffer from the same limitations as the other estimates of expected disclosed value. They are not contaminated by other information, such as acquisitions and disposals; the asset is the same as for the disclosure; and if it were recognised, the revaluation would be the same. Year-end book values therefore impart the consistency required for comparisons of recognised and disclosed revaluations. We then measure disclosed revaluations for firm i in year t (Dis_{it}) as the difference between the market value disclosed in the current year and the year-end book value.

4.4 Risk adjustment

Most studies of value relevance do not adjust for risk. An exception is Aboody et al. (1999)[7] who adjust for both size and book to market risk factors. A model without risk adjustment either assumes that the risk is impounded by control variables other than risk factors, or that the test of value relevance is risk neutral. The evidence on risk factors in equity markets suggests that a returns model without risk adjustment is underspecified. Fama and French (1992) show that there are two priced risk factors in US equity markets, the size and the book to market ratio. If these risk factors are correlated with the revaluations, omitting them from the model biases the estimates of the revaluation coefficient and biases the tests of value relevance. As Table 4 below shows, both risk factors are indeed correlated with the revaluations, especially recognised revaluations. Consequently both $Size_{it-1}$, the logarithm of the market value of equity for firm i at t-1, and BM_{it-1}, the book-to-market ratio for firm i at t-1, are included in the market relevance models. The tests for value relevance are then risk adjusted.

4.5 Control variables

The earnings and earnings changes model (Easton and Harris, 1991) is the basis of many value relevance studies, for example, Easton et al. (1993). Earnings and earnings change variables are included as control variables in the market relevance models. These variables are defined by

(1) The net operating profit for firm i in period t (OP_{it}) adjusted for amortisation, recognised revaluations and devaluations, and gains and losses on the sale of non-current assets for firm i in period t, and scaled by the beginning of year market value.

(2) The change in the net operating profit for firm i in period t (ΔOP_{it}), again adjusted for amortisation, recognised revaluations and devaluations, and gains and losses on sale of non-current assets for firm i in period t, and scaled by the beginning of year market value.

7 Aboody et al. (1999) use market to book.

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The non-market relevance models also include control variables. In the earnings model, the change in the net operating profit for firm i in period t (ΔOP_{it}) is used as a control variable to explain future changes in net operating profits. In the cash flow model, the change in the operating cash flow for firm i in period t (ΔCF_{it}) is used as a control variable to explain future changes in net operating cash flows. The cash flow model has an additional control variable, defined by

(3) The change in working capital (ΔWC_{it}) defined for firm i by the current assets less current liabilities at t, less the current assets less current liabilities at t-1. The change in working capital is scaled by the beginning of year market value.

4.6 Cyclical effects

Since the value relevance of asset revaluations is affected by the economic cycle (Easton and Eddey, 1997) and the sample period 1993-97 includes both low and high economic growth years, both the market and non-market relevance models include yearly dummy variables as regressors. The tests for value relevance are then adjusted for cyclical effects.

We now specify the regression models used to test the value relevance of land and buildings revaluations. The model used to test market value relevance is an extension of the earnings and earnings changes model of Easton and Harris (1991), modified to include the revaluations, the risk factors, and the cyclical effects. Returns for firm i in year t are given by

$$r_{it} = \alpha_0 + \alpha_1 OP_{it} + \alpha_2 \Delta OP_{it} + \alpha_3 Rec_{it} + \sum_{t=1993}^{1997} \alpha_{6t} DY_{it} + \alpha_5 BM_{it-1} + \alpha_6 Size_{it-1} + e_{it} \quad (1a)$$

$$r_{it} = \alpha_0 + \alpha_1 OP_{it} + \alpha_2 \Delta OP_{it} + \alpha_3 Dis_{it} + \sum_{t=1993}^{1997} \alpha_{6t} DY_{it} + \alpha_5 BM_{it-1} + \alpha_6 Size_{it-1} + e_{it} \quad (1b)$$

where,

r_{it}	12-month return beginning at the start of the fourth month after the start of the financial year for firm i in year t
Rec_{it}	recognised revaluation increment of land and buildings for firm i in year t, scaled by market value of equity for firm i at t-1
Dis_{it}	disclosed revaluation increment of land and buildings (current value at t less book value at t) for firm i in year t, scaled by market value of equity for firm i at t-1
BM_{it-1}	book value for firm i in year t-1 scaled by market value of equity for firm i at t-1
$Size_{it-1}$	logarithm of market value of equity for firm i at t-1
DY_{it}	dummy variable that equals one if the observation is from year t and zero otherwise, and
e_{it}	error term

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The models used to test non-market value relevance are analogous to that of Aboody et al. (1999). Change in net operating profit and change in operating cash flow for firm i in year t+n are given by

$$\Delta OP_{t+n} = \alpha_0 + \alpha_1 \Delta OP_{it} + \alpha_2 Rec_{it}/Dis_{it} + \alpha_3 BM_{it-1} + \alpha_4 Size_{it-1} + \sum_{t=1993}^{1997} \alpha_{5t} DY_{it} + e_{it} \quad (2a/2b)$$

$$\Delta CF_{t+n} = \alpha_0 + \alpha_1 \Delta CF_{it} + \alpha_2 Rec_{it}/Dis_{it} + \alpha_3 BM_{it-1} + \alpha_4 Size_{it-1} + \alpha_5 \Delta WC_{it} + \sum_{t=1993}^{1997} \alpha_{6t} DY_{it} + e_{it} \quad (3a/3b)$$

where

OP_{it} net operating profit (adjusted for amortisation, write-offs and gains and losses on sale of non-current assets and revaluations recognised in operating result) for firm i in year t, scaled by market value of equity for firm i at t-1

ΔOP_{it} change in net operating profit (adjusted for amortisation, write-offs and gains and losses on sale of non-current assets and revaluations recognised in operating result) for firm i in year t, scaled by market value of equity for firm i at t-1

ΔCF_{it} change in operating cashflow for firm i in year t, scaled by market value of equity for firm i at t-1

ΔWC_{it} change in working capital for firm i in year t, scaled by market value of equity for firm i at t-1

All non-market value relevance regressions are estimated up to two years ahead, analogously to Aboody et al. (1999). Opening market value of equity is used to scale the dependent variables and the regressors, except for the book to market ratio and size. In specification tests, (not reported in tables), book value is used as a scaler with qualitatively similar results.

There are six regressions in total. The market value relevance model is estimated for both recognised and disclosed revaluations for the financial years 1993 to 1997. The non-market value relevance models of operating profit and operating cash flow are estimated for both recognised and disclosed revaluations for the financial years 1993 to 1997. Tests of value relevance are conducted by testing the coefficient on the revaluations. The relative significance of the revaluations can then be assessed.

(5) RESULTS

5.1. Data and descriptive statistics

Our study examines 371 recognised and disclosed revaluations for Australian firms in the five years 1993 to 1997. For these firms, market returns were obtained from the Australian Graduate School of Management (AGSM) prices and price relatives database, and the accounting information, including revaluations, extracted from the Connect4 and Primark *Global Access* databases. The sample is representative in

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two senses. First, 1993-97 is a period with varying market conditions so that value relevance is tested at different points in the economic cycle. Secondly, every industry is represented in the sample.

Our final sample of 371 revaluations for 203 different firms is determined in a series of steps. An initial sample of revaluations is selected by examining the notes to the accounts for all firms on the Connect4 database over the period 1993 through 1997, which has a total of 2,106 firm years (706 different firms) over this period. This process identified 318 recognised revaluations and positive unrecognised differences (hereafter disclosed revaluations) by 170 different firms.[8] Upward revaluations and disclosed revaluations are used for two reasons. First, the number of negative unrecognised differences is small precluding meaningful results.[9] Secondly, prior research examines only upward recognised revaluations (see for example Easton, et al. 1993 and Aboody et al. 1999).

As the *Connect4* database is biased toward large firms, the database was supplemented with a sample of 131 firm years (67 firms) not in the *Connect4* database.[10] These additional firms were selected by examining a random sample of 250 firms from the remaining population of listed firms identified from the Australian Stock Exchange (ASX) *Findata* database. For these firms, copies of the accounts were obtained from the Primark *Global Access* database and directly from the firms.

A number of observations were progressively deleted. Fifty-eight observations were deleted due to either missing accounting data or unusable returns. This gave a sample of 391 revaluations of which 146 (108 firms) are recognisers and 249 (122 firms) are disclosers. The sample was then trimmed using common techniques. One observation (a recogniser) was deleted where the firm had a negative book value. Six observations (3 recognisers and 3 disclosers) were deleted where the scaled revaluation is greater than three standard deviations from the mean. Twelve observations were deleted where a firm recognised and disclosed a revaluation in the same year. The final sample comprises 371 revaluations (203 different firms) of which 135 are recognisers (99 firms) and 236 (114 firms) are disclosers.[11] The sampling procedures are detailed in Panel A of Table 1.

8 Some firms revalue more than once in the sample period.

9 Small samples for negative disclosed amounts is unsurprising since AASB 1010 required firms to write down non-current assets to their recoverable amount when the carrying amount was greater than recoverable amount at reporting date.

10 For example, about 90 per cent of the Connect 4 firms from 1993 through 1997 have a market capitalisation in the top one third of all listed companies (measured at 30 June each year).

11 The total number of recogniser and discloser firms does not add to the total firms in the sample because some firms recognise in a year and disclose in another year. The tally is for unique firms within each of the two groups.

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TABLE 1 Descriptive Statistics

Panel A - Details of the sample – 1993 - 1997

	All Years	1993	1994	1995	1996	1997
Number of firm years in Connect 4	2 106	300	299	501	500	506
Plus						
250 Randomly selected firm years	1 250	250	250	250	250	250
Total firm years	3 356	550	549	751	750	756
Less						
Firms with no revaluation	2 907	485	469	652	643	658
Missing data	58	9	14	13	18	4
Negative book value	1			1		
> 3 standard deviations	7	2	2		1	2
Recognised disclosed same year	12	2		4	4	2
Final sample	371	52	64	81	84	90
Recognised	135	17	22	30	31	35
Disclosed	236	35	42	51	53	55

Panel B Frequency bands of recognised and disclosed revaluations

Frequency	Recognised	Disclosed	No. Firms
1	74	55	110
2	15	29	52
3	7	9	18
4	2	9	11
5	0	12	12
Total	98	114	203

Panel C Frequency bands of recognised and disclosed revaluations by industry

	Recognised	Disclosed
Other Metals	4	20
Diversified Mining	3	33
Diversified Resources	0	7
Energy	1	6
Infrastructure & Utilities	0	1
Developers & Contractors	6	19
Building Materials	8	14
Alcohol & Tobacco	6	4
Food & Household Goods	7	20
Chemicals	0	11
Engineering	7	2

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Paper & Packaging	2	0
Retail	19	9
Transport	1	7
Media	7	11
Banks & Finance	8	3
Insurance	3	1
Telecommunications	3	3
Investment & Fin'l Services	8	3
Property Trusts	5	0
Healthcare & Biotechnology	4	5
Miscellaneous Industrials	29	32
Diversified Industrials	2	20
Tourism & Leisure	2	5
Total	135	236

Panel B of Table 1 shows the frequency of revaluations across the sample. More than one-half of the sample only revalue once, and only 12 firms (all disclosers) revalue in each of the five years. Thus, revaluations tend to be infrequent, consistent with Cotter and Zimmer (2003). In this sample, disclosers revalue more often than recognisers; the average frequency for disclosers is above 2 and for recognisers is about 1.5.

5.2. Descriptive statistics for regression variables

In Table 2, we present the yearly data on revaluations and firm characteristics. Over the five years, recognised revaluations average about 3 percent of market value, and disclosed revaluations average about 4 percent of market value. The difference is not significant. In each year of the sample and in aggregate, average disclosed revaluations exceed average recognised revaluations, but the difference is never significant.[12] Comparability with other studies is difficult because either the average values are not reported (Cotter and Zimmer, 2003), or the sample sizes are different. For example, Easton et al. (1993) report average recognised revaluations of about 6.5 percent of book value for industrial firms, and 16.7 percent of book value for mining firms. But their overall sample of 72 firms is smaller than ours, while their mining sample is larger (21 firms compared with our 7).

The data on the characteristics of the revaluing firms provide a snapshot of the firms. Recognisers are on average smaller than disclosers in every year and these differences are always highly significant. The book-to-market ratios are typically larger for recognisers suggesting that, relative to recognisers, disclosers have larger

12 We conduct t-tests of differences in means and Mann-Whitney tests of location differences for each year and do not report these results for brevity. The results from these tests for the aggregate are shown in Table 3.

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TABLE 2
Descriptive Statistics for Recognisers and Disclosers for Each Year 1993 – 1997 and for all Years

Years	Number		Revaluation to Market Value		Size ($ millions)		Book-to-Market		Leverage		% Discounted		% Independent Valuation	
	Rec	Dis	Rec	Dis	Rec	Dis	Rec	Dis	Rec	Dis	Rec	Dis	Rec	Dis
1993														
Mean	17	35	0.04	0.05	142.28	1626.49	1.15	0.89	0.63	0.51	47	100	65	26
Std dev	0.06	0.15	198.10	4,189.58	1.02	0.58	1.00	0.38						
1994														
Mean	22	42	0.04	0.05	287.52	1,422.35	1.14	0.80	0.74	0.43	36	100	73	26
Std dev	0.06	0.11	728.49	4,007.47	0.74	0.61	1.18	0.31						
1995														
Mean	30	51	0.02	0.02	863.98	1,480.96	0.65	0.63	0.53	0.54	23	100	60	31
Std dev	0.03	0.04	2,577.14	4,721.25	0.29	0.58	0.50	0.39						
1996														
Mean	31	53	0.03	0.04	169.93	1,293.73	1.09	0.91	0.59	0.59	32	100	81	30
Std dev	0.02	0.11	341.47	4,983.54	0.71	0.45	1.59	0.54						
1997														
Mean	35	55	0.03	0.05	919.53	1,470.04	0.92	0.96	0.89	0.57	47	100	63	31
Std dev	0.04	0.09	3,388.53	5,401.86	0.49	1.16	1.65	0.85						
All														
Mean	135	236	0.03	0.04	534.18	1,447.50	0.96	0.84	0.68	0.53	34	100	68	29
Std dev	0.04	0.10	2,141.96	4,721.79	0.66	0.74	1.29	0.55						

Revaluation to market value = revaluation amount for a year divided by market value at the start of that financial year, Size = market capitalisation in millions at the start of the firm's financial year, Book-to-Market = book value of equity divided by market capitalisation both measured at the start of the financial year, Leverage = Non-current liabilities at the end of the financial year divided by book value at the end of the financial year adjusted for the recognised revaluation increment for that financial year, % Discounted = the percentage of recoverable amounts measured on a discounted basis, % Independent Valuation = percentage of value at independent valuation. Std dev = standard deviation of the mean.

growth opportunities or lower firm risk.[13] However, no difference in book-to-market ratios is significant in any year. Leverage is measured as non-current liabilities at time t divided by book value of equity at time t less the recognised revaluation for period t. Adjusting the book value is for comparability. While the average leverage of recognisers exceeds that of disclosers overall, this difference is not significant and not significant in any of the five years of the sample.[14]

We also examine two characteristics of the revaluations, the use of discounting and the use of independent valuations. Recognisers tend to use undiscounted cash flows with only 34 percent of recognisers using discounted cash flows in this sample. In contrast, since the disclosure requirement is for current market value, 100 percent of disclosers use discounted cash flows. Recognisers typically use an independent valuation, with 68

13 Medians (unreported) are also generally larger for recognisers.

14 Medians (unreported) are generally higher for disclosers.

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percent of the recognised revaluations independently valued in this sample. In contrast, only 29 percent of disclosers use an independent valuation.[15] These percentages are generally consistent with previous studies. Easton et al. (1993) report that 47 percent of all revaluations are independent, and Barth and Clinch (1998) report most property, plant and equipment revaluations are based on independent valuations.

In summary, Table 2 reveals that the recognisers in our sample are smaller, have higher book-to-market ratios and higher leverage than the disclosers, but that only the size difference is statistically significant. Table 2 also reveals that recognisers tend to use undiscounted cash flows and independent valuations. Disclosers use discounted cash flows and directors' valuations.

TABLE 3
Descriptive Statistics For Regression And Other Variables

	Recognisers		Disclosers		p-values	Mann-
	Mean	Std dev	Mean	Std dev	t-test	Whitney
Regression - Dependent variables						
Returns	0.31	0.62	0.20	0.46	0.09	0.19
ΔOP+1	0.02	0.18	0.01	0.22	0.52	0.22
ΔOP+2	0.04	0.28	0.03	0.20	0.65	0.31
ΔCF+1	0.03	0.25	0.02	0.35	0.79	0.78
ΔCF+2	-0.001	0.33	0.02	0.38	0.61	0.68
Regression - Independent variables						
OP	0.22	0.31	0.23	0.31	0.69	0.71
ΔOP	0.04	0.18	0.03	0.18	0.38	0.44
ΔCF	0.00	0.21	0.03	0.23	0.23	0.71
Rev	0.03	0.04	0.04	0.10	0.11	0.62
BM	0.96	0.66	0.84	0.74	0.10	0.02
Size	7.92	0.80	8.26	0.86	0.00	0.00
ΔWC	0.03	0.40	-0.04	0.51	0.15	0.31
Other variables						
Lev	0.68	1.29	0.53	0.55	0.21	0.08
% Discounted	0.34	0.48	100.00	0.00	0.00	0.00
% Independent Valuation	0.68	0.47	0.29	0.46	0.00	0.00

Returns = raw return measured from the fourth month of the financial year through to the end of the third month after the end of that financial year, OP_{it} = net operating profit (adjusted for amortisation, write-offs and gains and losses on sale of non-current assets and revaluations recognised in operating result) for firm i in year t, scaled by market value of equity for firm i at t-1, ΔOP_{it} =change in net operating profit (adjusted for amortisation, write-offs and gains and losses on sale of non-current assets and revaluations recognised in operating result) for firm i in year t, scaled by market value of equity for firm i at t-1, ΔCF= change in operating cashflow for firm i in year t, scaled by market value of equity for firm i at t-1, ΔWC_{it} = change in working capital for firm i in year t, scaled by market value of equity for firm i at t-1

15 Some firms disclose a directors' valuation after consideration of independent valuations. These are classified as directors' valuations.

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Table 3 presents means, standard deviations and p-values from tests of differences in means for the regression and other variables. With respect to the regression variables, recognisers have a larger annual return and this difference is only significant at the .10 level in the t-test. Overall, there is little difference between the two groups apart from the risk factors that was mentioned above. Both of the other variables are significantly different.

Table 4 gives Pearson correlations between the regression variables and p-values from two-tailed tests for the pooled sample. We also calculated the correlations on yearly data, since we use yearly regressions in our tests for value relevance, but do not report the results for brevity. This information is important because if the variables are correlated, omitting a relevant control variable or risk factor will bias the revaluation coefficient, and bias the test of value relevance. Correlations for recognised revaluations are shown in the bottom left and disclosed are shown in the top right of the table.

Operating profit is positively correlated with both recognised and disclosed revaluations, although only the correlation for recognisers is significant. These two correlations are shown in the top left corner. These correlations are significant and positive in 1993 (disclosed), 1995 (disclosed) and 1996 (recognised and disclosed). The change in operating profit is positively correlated with recognised revaluations and negatively correlated with disclosed revaluations. This correlation is only significant for recognisers. These correlations are significant in 1994 (recognised and disclosed), 1995 (recognised) and 1996 (recognised).

The correlation between the revaluations and the risk factors also shows a consistent pattern over the five years of the sample. In most years, the book to market ratio is positively correlated with recognised revaluations and negatively correlated with disclosed revaluations. These correlations are significant in 1993 (recognised and disclosed), 1995 (disclosed), 1996 (recognised) and 1997 (disclosed). In most years, the size is negatively correlated with both recognised and disclosed revaluations, but only for recognised revaluations in 1996 and 1997 is the correlation significant. The importance of these correlations is reinforced by a finding that both book to market and size are significantly correlated with returns in some years.[16]

Table 4 has two implications. First, recognised and disclosed revaluations have very different statistical properties. The correlation between a control variable or risk factor and the recognised revaluation is often positive when the correlation with the disclosed

16 At the .10 level, using a one-tailed test, book to market is positively correlated with return in 3 years (Pearson and Spearman) 1993, 1994 and 1995. Size is negatively correlated with return in 4 years (Pearson and Spearman) 1993, 1994, 1996 and 1997. Size is positively correlated with return in 1995 (Spearman only).

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revaluation is negative. Secondly, while less than half the correlations in the table are significant, the correlation pattern suggests that no control variable or risk factor can be omitted from the value relevance regressions, without the risk of bias.

TABLE 4
Pearson Correlations and P-Values For The Regression Variables

	Rec	OP	ΔOP	ΔWC	BM	Size	ΔC	Return	ΔOP+1	ΔOP+2	ΔCF+1	ΔCF+2
Dis		0.06	-0.07	0.02	0.29**	-0.25**	0.04	0.02	-0.11	0.00	0.02	-0.33**
		(0.39)	(0.32)	(0.82)	(0.00)	(0.00)	(0.62)	(0.72)	(0.12)	(0.98)	(0.82)	(0.00)
OP	0.25**	1	0.39**	0.07	0.12	-0.29**	0.07	0.43**	-0.22**	-0.00	0.08	-0.00
	(0.01)		(0.00)	(0.35)	(0.09)	(0.00)	(0.35)	(0.00)	(0.00)	(0.96)	(0.23)	(0.90)
ΔOP	0.40**	0.37**	1	0.16*	0.01	-0.20**	0.01	0.27**	0.14*	-0.12	0.32**	0.09
	(0.00)	(0.00)		(0.02)	(0.92)	(0.00)	(0.89)	(0.00)	(0.05)	(0.09)	(0.00)	(0.22)
ΔWC	0.21*	0.32**	0.29**	1	-0.71**	0.01	-0.09	0.12	-0.02	-0.11	0.05	-0.03
	(0.02)	(0.00)	(0.00)		.000	(0.89)	(0.21)	(0.08)	(0.76)	(0.13)	(0.47)	(0.71)
BM	0.56**	0.20*	0.30**	0.08	1	-0.26**	0.24**	0.04	0.02	0.15*	-0.01	-0.08
	(0.00)	(0.03)	(0.00)	(0.36)		.000	.001	(0.61)	(0.78)	(0.03)	(0.94)	(0.29)
Size	-0.39**	-0.30**	-0.18	-0.08	-0.47**	1	-0.09	-0.23**	0.05	-0.08	-0.05	0.03
	(0.00)	(0.00)	(0.06)	(0.39)	(0.00)		(0.23)	(0.00)	(0.44)	(0.29)	(0.47)	(0.69)
ΔCF	0.05	-0.03	0.13	0.12	0.08	-0.01	1	0.01	-0.06	0.47**	-0.56**	0.15*
	(0.55)	(0.75)	(0.15)	(0.21)	(0.41)	(0.92)		(0.92)	(0.43)	(0.00)	(0.00)	(0.04)
Return	0.50**	0.49**	0.55**	0.29**	0.30**	-0.19*	-0.01	1	-0.17*	0.02	0.09	-0.02
	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.03)	(0.92)		(0.02)	(0.76)	(0.19)	(0.82)
ΔOP+1	0.33**	0.09	0.08	-0.15	0.32**	-0.22*	-0.22*	0.28**	1	0.01	0.32**	0.17*
	(0.00)	(0.29)	(0.38)	(0.09)	(0.00)	(0.02)	(0.01)	(0.00)		(0.85)	(0.00)	(0.02)
ΔOP+2	-0.23*	-0.16	-0.16	-0.08	-0.09	0.03	0.38**	-0.35**	-0.49**	1	-0.29**	0.38**
	(0.01)	(0.08)	(0.09)	(0.36)	(0.29)	(0.72)	(0.00)	(0.00)	(0.00)		(0.00)	(0.00)
ΔCF+1	-0.02	0.08	0.13	0.10	0.22*	-0.09	-0.19*	-0.02	0.12	0.04	1	-0.48**
	(0.80)	(0.36)	(0.17)	(0.26)	(0.02)	(0.34)	(0.04)	(0.82)	(0.21)	(0.64)		(0.00)
ΔCF+2	0.13	0.09	0.07	-0.11	-0.06	0.06	-0.02	0.15	0.17	0.27**	-0.39**	1
	(0.17)	(0.29)	(0.47)	(0.24)	(0.54)	(0.55)	(0.85)	(0.11)	(0.07)	(0.00)	(0.00)	

Returns = raw return measured from the fourth month of the financial year through to the end of the third month after the end of that financial year, OP_{it} = net operating profit for firm i in year t scaled by market value of equity for firm i at t-1, ΔOP_{it} =change in operating profit for firm i in year t, scaled by market value of equity for firm i at t-1, ΔCF= change in operating cashflow for firm i in year t, scaled by market value of equity for firm i at t-1, ΔWC_{it} = change in working capital for firm i in year t, scaled by market value of equity for firm i at t-1, ** Correlation is significant at the 0.01 level (2-tailed), * Correlation is significant at the 0.05 level (2-tailed)

5.2 Regression results

Market Value Relevance

Table 5 presents results from estimating model 1 from 1993 through 1997, for a pooled sample and for each of five years without the yearly dummies. In the pooled sample, recognised revaluations are more value relevant (coeff = 4.26, t-stat = 3.67) than disclosed revaluations (coeff = -0.04, t-stat = -0.14). The model explains returns quite well, with R^2 values of 0.50 and 0.30 for the recognised and disclosed revaluation equations respectively. Consistent with prior research, the coefficients on earnings and earnings changes are significantly positive, and the size coefficient is negative

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when significant (Fama and French, 1992). The coefficient for book to market is positive, but insignificant. The yearly cross-sectional regression results provide no evidence of value relevance, with no revaluation coefficient significant in any year except 1995 for recognised revaluations (at the 10 percent level). We conclude that, based on the pooled sample, revaluations appear to be value relevant, with recognised revaluations more value relevant than disclosed. However, the value relevance is not present when yearly samples are examined suggesting that, to test value relevance completely, cyclical effects need to be accounted for.

TABLE 5
Regression Results From Estimating Models 1a And 1b For Each Year 1993-1997 And On The Pooled Sample

Year		Constant	OP	ΔOP	Rec / Dis	BM	Size	DY 93	DY 94	DY 95	DY 97	R^2	N
1993	Rec	-0.31 (-0.17)	2.69 (2.46)	-0.59 (-0.47)	-1.76 (-0.46)	0.06 (0.33)	0.04 (0.19)					0.69	17
	Dis	-0.46 (-0.54)	2.11 (4.16)	-0.27 (-0.48)	-0.25 (-0.50)	-0.22 (-1.34)	0.07 (0.79)					0.35	35
1994	Rec	1.91 (0.60)	0.31 (0.78)	3.42 (2.22)	4.38 (1.05)	-0.18 (-0.70)	-0.23 (-0.65)					0.60	22
	Dis	0.41 (0.69)	0.34 (2.34)	0.21 (0.49)	-0.68 (-1.03)	0.08 (0.61)	-0.05 (-0.74)					0.27	42
1995	Rec	-1.52 (-2.87)	2.37 (4.30)	0.17 (0.17)	2.48 (1.69)	0.05 (0.33)	0.13 (2.24)					0.58	30
	Dis	-0.77 (-1.43)	-0.07 (-0.53)	1.20 (3.45)	0.54 (0.47)	0.21 (2.54)	0.08 (1.23)					0.18	51
1996	Rec	-0.71 (-0.81)	0.82 (2.29)	0.01 (0.02)	-0.48 (-0.14)	-0.02 (-0.22)	0.10 (1.01)					0.09	31
	Dis	0.94 (1.74)	1.53 (8.98)	0.10 (0.49)	0.57 (1.26)	-0.18 (-1.44)	-0.12 (-2.00)					0.70	53
1997	Rec	-0.04 (-0.06)	0.64 (1.79)	1.52 (3.10)	-0.09 (-0.05)	0.06 (0.50)	0.02 (0.29)					0.54	35
	Dis	1.49 (2.74)	0.47 (0.84)	0.29 (0.34)	-0.28 (-0.49)	-0.05 (-1.25)	-0.16 (-2.46)					0.26	55
Pooled	Rec	-0.65 (-1.34)	0.63 (4.60)	1.12 (4.60)	4.26 (3.67)	0.00 (0.02)	0.07 (1.32)	0.33 (2.51)	-0.01 (-0.06)	-0.14 (-1.19)	0.11 (1.03)	0.50	135
	Dis	0.62 (2.21)	0.55 (5.69)	0.42 (2.62)	-0.04 (-0.14)	-0.03 (-0.98)	-0.06 (-1.90)	0.24 (2.34)	-0.12 (-1.95)	-0.19 (-2.99)	0.04 (0.53)	0.30	236

r_{it} = 12-month raw return beginning at the start of the fourth month after the start of the financial year for firm i for period t, OP_{it} = operating result (adjusted for amortisation, write-offs, gains and losses on sale of non-current assets and revaluations recognised in operating result) for firm i for period t scaled by beginning-of-financial-year t book value, ΔOP_{it} = change in operating result (adjusted for amortisation, write-offs, gains and losses on sale of non-current assets and revaluations recognised in operating result) for firm i for period t scaled by beginning-of-financial-year t book value, Rec_{it} = revaluation increment of land and buildings for firm i scaled by beginning-of-financial-year book value, Dis_{it} = disclosed increment of land and buildings for firm i scaled by beginning-of-financial-year book value, BM_{it-1} = book to market ratio for firm i at t-1, and $Size_{it-1}$ = logarithm of market capitalisation for firm i at t-1. DY = dummy variable that equals one if the observation is from year n where n equals 1993 to 1997 and zero otherwise, e_{it} = error term.

Non-Market Value Relevance

Table 6 presents results from estimating model 2 with next year's operating profit change (scaled by market value) as the dependent variable. For the pooled sample, the non-market value relevance is rather low. The coefficients on both recognised and disclosed revaluations have P-values greater than 10 percent, with disclosed revaluations marginally more value relevant than recognised. The sign of the coefficient for recognised revaluations is positive, consistent with the results for model 1 and with Aboody et al. (1999). However, the sign of the coefficient on disclosed revaluations is negative. The non-market value relevance model has low explanatory power in the pooled sample, with R^2 values of only 2 percent. None of the independent variables is significant, apart from the yearly dummy for 1997 in the disclosed revaluations equation.

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TABLE 6
Regression Results From Estimating Models 2a and 2b for Each Year 1993-1997 and on a Pooled Sample for One Year Ahead Change In Operating Profit

Year		Constant	ΔOP	Rec / Dis	BM	Size	DY 93	DY 94	DY 95-Rec DY 96-Dis	DY 96-Rec DY 97-Dis	R2	N
1993	Rec	-1.52 (-1.73)	1.07 (3.10)	-2.05 (-1.09)	0.10 (1.06)	0.18 (1.60)					0.34	17
	Dis	-0.09 (-0.36)	0.15 (0.96)	-0.44 (-2.75)	0.00 (0.00)	0.02 (0.58)					0.25	34
1994	Rec	-0.73 (-1.34)	-0.95 (-2.31)	3.96 (3.32)	-0.01 (-0.13)	0.09 (1.35)					0.26	22
	Dis	-0.03 (-0.08)	0.59 (2.19)	-0.91 (-2.27)	0.11 (1.45)	-0.00 (-0.06)					0.42	42
1995	Rec	0.29 (1.16)	0.20 (0.46)	0.10 (0.14)	-0.08 (-1.17)	-0.03 (-1.01)					-0.06	28
	Dis	0.11 (0.80)	-0.37 (-3.66)	0.16 (0.49)	-0.12 (-5.37)	-0.01 (-0.36)					0.45	50
1996	Rec	0.44 (1.20)	-0.22 (-1.77)	-0.78 (-0.54)	0.06 (1.30)	-0.06 (-1.34)					0.14	30
	Dis	-0.99 (-1.86)	0.35 (1.68)	0.07 (0.14)	0.16 (1.26)	0.09 (1.66)					0.04	49
1997	Rec	0.01 (0.03)	-0.57 (-2.72)	-0.27 (-0.34)	0.09 (1.65)	-0.01 (-0.19)					0.20	29
	Dis	0.48 (2.71)	-0.78 (-7.59)	0.38 (2.11)	-0.01 (-0.83)	-0.05 (-2.45)					0.58	45
Pooled	Rec	0.05 (0.28)	0.02 (0.20)	0.67 (1.36)	0.03 (1.13)	-0.01 (-0.42)	-0.04 (-0.84)	-0.03 (-0.61)	0.00 (0.03)	-0.00 (-0.02)	0.02	126
	Dis	-0.07 (-0.45)	0.08 (0.99)	-0.24 (-1.64)	0.01 (0.84)	0.00 (0.27)	0.05 (1.09)	0.05 (1.04)	-0.02 (-0.39)	0.10 (2.16)	0.02	220

ΔOPit+n = change in operating result (adjusted for amortisation, write-offs, gains and losses on sale of non-current assets and revaluations recognised in operating result) for firm i for period t+n scaled by beginning-of-financial-year t market value of equity, Recit = recognised revaluation increment of land and buildings for firm i for period t scaled by beginning-of-financial-year t market value of equity, Disit = disclosed revaluation increment of land and buildings for firm i for period t scaled by beginning-of-financial-year t market value of equity, BMit-1 = book to market ratio for firm i at t-1, Size it-1 = logarithm of market value of equity at t-1, DY = dummy variable that equals 1 if the observation is from that year and zero otherwise, eit = error term.

In contrast to model 1, the yearly cross sectional results for the non-market relevance model provide stronger evidence of value relevance than in the pooled sample. However, the direction of the value relevance is ambiguous. Recognised revaluations are significantly positive in 1994, but disclosed revaluations are significantly negative in 1993, 1994 and significantly positive in 1997. Consistent with Aboody et al. (1999), the coefficients for the other independent variables have low significance, and their signs vary. We conclude that the results in Table 6 provide little evidence of non-market value relevance of revaluations. Where there is evidence of value relevance, it appears in the yearly cross sections. And, in these cross sections, disclosed revaluations are more value relevant than recognised.

Table 7 presents results from estimating model 2 with the change in operating profit two-years-ahead (scaled by market value) as the dependent variable. As for the one-year-ahead results in Table 6, the non-market value relevance model has poor explanatory power in the pooled sample, with R^2 values of 1 and 2 percent. However, in contrast to the one-year-ahead model, recognised revaluations are more value relevant than disclosed, with the recognised coefficient now significantly negative at the 10 percent level. The negative coefficient is, however, inconsistent with Aboody et al. (1999). Of course, our study differs because we examine a different period and one type of revaluation and Australian GAAP is different on this topic. The only

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TABLE 7
Regression Results From Estimating Models 2a and 2b for Each Year 1993-1997 and on a Pooled Sample For Two Years Ahead Change In Operating Profit

Year		Constant	ΔOP	Rec / Dis	BM	Size	DY 93	DY 94	DY 95 – Dis DY 96 – Rec	DY 97	R^2	N
1993	Rec	0.75 (1.22)	-0.77 (-2.98)	1.67 (1.28)	-0.11 (-1.78)	-0.07 (-0.89)					0.47	16
	Dis	0.05 (0.12)	0.78 (2.69)	-0.55 (-1.94)	-0.11 (-1.14)	0.00 (0.07)					0.34	32
1994	Rec	-0.02 (-0.03)	-0.08 (-0.14)	-3.52 (-2.18)	0.10 (1.15)	0.00 (0.05)					0.32	21
	Dis	0.12 (0.19)	-0.04 (-0.10)	0.74 (1.16)	-0.12 (-0.98)	-0.01 (-0.11)					-0.02	37
1995	Rec	-0.29 (-1.09)	0.23 (0.51)	-0.69 (-0.91)	0.01 (0.14)	0.04 (1.31)					-0.06	27
	Dis	0.10 (0.45)	-0.29 (-1.87)	0.12 (0.23)	0.25 (7.52)	-0.03 (-1.41)					0.58	47
1996	Rec	0.91 (1.52)	0.00 (0.01)	-0.42 (-0.18)	-0.02 (-0.30)	-0.10 (-1.42)					-0.07	28
	Dis	0.08 (0.32)	-0.13 (-0.99)	0.17 (0.71)	0.10 (1.51)	-0.02 (-0.49)					0.09	40
1997	Rec	-0.07 (-0.06)	0.79 (0.89)	1.38 (0.38)	-0.16 (-0.49)	0.02 (0.16)					-0.14	26
	Dis	0.14 (0.70)	-0.08 (-0.63)	0.09 (0.46)	0.00 (0.21)	-0.01 (-0.46)					-0.08	42
Pooled	Rec	0.22 (0.71)	-0.13 (-0.81)	-1.39 (-1.75)	0.00 (0.10)	-0.01 (-0.32)	-0.02 (-0.56)	-0.08 (-0.96)	-0.07 (-0.86)	-0.06 (-0.81)	0.01	118
	Dis	0.11 (0.74)	-0.14 (-1.65)	-0.12 (-0.89)	0.04 (1.98)	-0.01 (-0.82)	-0.02 (-0.37)	-0.02 (-0.32)	0.04 (0.90)	0.04 (0.79)	0.02	198

ΔOPit+n = change in operating result (adjusted for amortisation, write-offs, gains and losses on sale of non-current assets and revaluations recognised in operating result) for firm i for period t+n scaled by beginning-of-financial-year t market value of equity, Recit = recognised revaluation increment of land and buildings for firm i for period t scaled by beginning-of-financial-year t market value of equity, Disit = disclosed revaluation increment of land and buildings for firm i for period t scaled by beginning-of-financial-year t market value of equity, BMit-1 = book to market ratio for firm i at t-1, Size it-1 = logarithm of market value of equity at t-1, DY = dummy variable that equals 1 if the observation is from that year and zero otherwise, eit = error term.

significant control variable is book to market in the disclosed equation. In the yearly cross sections, only the 1993 (disclosed) and 1994 (recognised) revaluations are significant at the 10 percent level. There is no evidence that recognised revaluations are more value relevant than disclosed. We conclude that, as for the one-year-ahead changes, the regressions based on two-year-ahead changes in operating profit provide little evidence of non-market value relevance of revaluations. Based on the pooled sample, recognised revaluations are more value relevant than disclosed. Again, the yearly cross sectional results are inconclusive.

The second non-market value relevance regression uses future operating cash flow changes (scaled by market value) as the dependent variable, and the results are presented in Tables 8 and 9. Table 8 presents the results from using one-year-ahead cash flows as the dependent variable and the pooled results show the revaluation coefficient for recognised revaluations is significant at the 5 percent level; the coefficient for disclosed revaluations is insignificant at the 10 percent level. The revaluation coefficients are both negative, inconsistent with Aboody et al. (1999). The coefficients for most of the control variables have signs and significance consistent with Aboody et al. (1999). This model explains cash flow changes better than operating profit changes, with R^2 values of 0.12 and 0.30.

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TABLE 8
Regression Results from Estimating Models 3a and 3b for Each Year 1993-1997 and on a Pooled Sample for One Year Ahead Change in Operating Cashflows

Year		Constant	ΔCF	Rec / Dis	BM	Size	ΔWC	DY 93	DY 94	DY 95 – Rec DY 96 - Dis	DY 97	R2	N
1993	Rec	-1.06 (-1.06)	-1.98 (-2.14)	1.54 (0.91)	0.02 (0.16)	0.14 (1.11)	1.30 (3.93)					0.58	17
	Dis	-0.41 (-1.47)	-0.31 (-1.67)	2.14 (6.42)	0.02 (0.45)	0.03 (1.24)	0.11 (0.55)					0.92	34
1994	Rec	-1.22 (-2.47)	-0.54 (-3.15)	-2.84 (-2.96)	0.20 (2.71)	0.14 (2.52)	0.26 (3.85)					0.40	22
	Dis	0.52 (1.44)	-0.66 (-4.01)	-2.40 (-4.29)	0.18 (2.73)	-0.06 (-1.46)	0.29 (1.68)					0.86	42
1995	Rec	-0.10 (-0.38)	-0.62 (-2.98)	0.23 (0.28)	-0.02 (-0.25)	0.02 (0.64)	0.31 (0.98)					0.30	28
	Dis	0.13 (1.06)	-0.82 (-6.86)	-0.01 (-0.02)	-0.08 (-1.86)	-0.01 (-0.53)	-0.02 (-0.20)					0.86	50
1996	Rec	0.31 (0.54)	-0.01 (-0.02)	0.28 (0.12)	0.19 (2.54)	-0.05 (-0.87)	0.50 (1.90)					0.26	30
	Dis	0.50 (1.04)	-0.32 (-1.19)	-0.72 (-1.67)	0.06 (0.52)	-0.06 (-1.12)	-0.74 (-2.43)					0.11	49
1997	Rec	0.12 (0.22)	-0.16 (-0.66)	-2.86 (-1.99)	0.24 (2.48)	-0.02 (-0.47)	-0.01 (0.23)					0.16	29
	Dis	-0.48 (-1.13)	0.63 (2.77)	0.26 (0.56)	0.04 (0.42)	0.05 (1.02)	0.01 (0.11)					0.12	45
Pooled	Rec	0.05 (0.21)	-0.28 (-2.63)	-1.42 (-2.21)	0.11 (2.75)	-0.00 (-0.23)	0.13 (2.31)	-0.14 (-1.91)	-0.03 (-0.35)	0.01 (0.12)	-0.03 (-0.50)	0.12	126
	Dis	0.14 (0.64)	-0.88 (-9.95)	-0.19 (-0.96)	0.11 (2.57)	-0.02 (-0.92)	0.11 (2.02)	-0.00 (-0.07)	0.03 (0.48)	0.01 (0.09)	0.04 (0.62)	0.30	220

ΔCFit+n = change in operating cash flows for firm i for period t+n scaled by beginning-of-financial-year t market value, Recit = recognised revaluation increment of land and buildings for firm i for period t scaled by beginning-of-financial-year t market value, Disit = disclosed revaluation increment of land and buildings for firm i for period t scaled by beginning-of-financial-year t market value, BMit-1 = book to market ratio for firm i at t-1, Size it-1 = logarithm of market value of equity at t-1, ΔWCit = change in working capital for firm i for period t scaled by beginning-of-financial-year t market value, DY = dummy variable that equals 1 if the observation is from that year and zero otherwise, eit = error term.

In the yearly cross-sectional regressions, the recognised revaluation coefficient is significantly negative for 1994 and 1997. The coefficient on disclosed revaluations is significant in 1993, 1994 and 1996, but varies in sign. In the years 1993, 1994 and 1996, disclosed revaluations are more significant than recognised revaluations. The explanatory power of the model declines appreciably in the later years of the sample.

The one-year-ahead results in Table 8 suggests that, while recognised revaluations are more value relevant for cash flow changes than disclosed in the pooled sample, in the yearly regressions disclosed revaluations appear to be more value relevant. When the two-year-ahead changes in operating cash flow are considered (Table 9), the pooled results show that disclosed revaluations are more significant than recognised. As for one-year-ahead cash flow changes, in 1993, 1994 and 1996, disclosed revaluations are more value relevant than recognised. The implication of Tables 8 and 9 considered jointly is that for cash flow changes up to two years ahead, disclosed revaluations appear to be at least as value relevant as recognised revaluations.

Considered together, the results in Tables 5 to 9 do not imply that recognised revaluations are more value relevant than disclosed revaluations. In the pooled regressions, recognised revaluations are more value relevant than disclosed revaluations for market returns, for two-year-ahead changes in operating profit and one-year-

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ahead changes in cash flows. In the yearly cross sectional regressions, recognised revaluations are more value relevant than disclosed for only two of the five years in each of the tables (returns, one- and two-year-ahead changes in operating profit, one- and two-year-ahead changes in cash flow). The collective evidence does not imply that recognised revaluations are more value relevant than disclosed.

TABLE 9
Regression Results from Estimating Models 3a and 3b for Each Year 1993-1997 and on a Pooled Sample for Two Years Ahead Change in Operating Cashflows

Year		Constant	ΔCF	Rec / Dis	BM	Size	ΔWC	DY 93	DY 94	DY 95 - Rec DY 96 - Dis	DY 96 - Rec DY 97 – Dis	R^2	N
1993	Rec	0.26 (0.21)	0.63 (0.49)	3.54 (1.85)	-0.06 (-0.47)	-0.03 (-0.19)	0.56 (0.95)					0.22	16
	Dis	1.58 (2.91)	0.30 (0.83)	-3.08 (-4.63)	-0.10 (-0.92)	-0.15 (-2.61)	-0.50 (-1.21)					0.86	32
1994	Rec	1.49 (1.33)	0.04 (0.11)	4.56 (2.09)	-0.25 (-1.47)	-0.17 (-1.32)	-0.29 (-1.92)					0.18	21
	Dis	0.59 (1.50)	0.71 (4.01)	-2.08 (-3.46)	-0.04 (-0.59)	-0.06 (-1.40)	-0.17 (-0.92)					0.26	37
1995	Rec	0.43 (1.29)	0.18 (0.72)	0.78 (0.81)	-0.19 (-1.86)	-0.04 (-0.99)	-0.29 (-0.78)					0.02	27
	Dis	0.03 (0.27)	0.08 (0.64)	0.01 (0.04)	0.07 (1.48)	-0.01 (-0.56)	-0.18 (-0.99)					0.40	47
1996	Rec	0.39 (0.52)	-0.28 (-1.18)	-1.52 (-0.51)	-0.33 (-3.16)	-0.00 (-0.03)	-0.87 (-2.55)					0.32	29
	Dis	-0.14 (-0.37)	0.20 (0.72)	0.37 (1.11)	0.14 (1.39)	0.01 (0.21)	0.05 (0.18)					0.06	40
1997	Rec	-0.22 (-0.37)	-0.22 (-0.62)	-2.51 (-1.21)	0.34 (2.02)	0.01 (0.14)	-0.03 (-0.28)					0.142	25
	Dis	0.15 (0.20)	-1.85 (-4.61)	-0.12 (-0.15)	0.13 (0.78)	-0.01 (-0.14)	0.16 (0.89)					0.30	42
Pooled	Rec	-0.08 (-0.23)	-0.18 (-1.36)	2.75 (3.42)	-0.10 (-2.09)	0.01 (0.33)	-0.12 (-1.55)	0.13 (1.32)	-0.00 (-0.02)	0.01 (0.09)		0.08	118
	Dis	0.23 (0.83)	0.29 (2.49)	-1.10 (-4.23)	-0.05 (-0.81)	-0.02 (-0.68)	-0.05 (-0.63)	0.05 (0.62)	0.00 (0.03)	0.10 (1.34)	0.07 (0.86)	0.11	198

ΔCFit+n = change in operating cash flows for firm i for period t+n scaled by beginning-of-financial-year t market value, Recit = recognised revaluation increment of land and buildings for firm i for period t scaled by beginning-of-financial-year t market value, Disit = disclosed revaluation increment of land and buildings for firm i for period t scaled by beginning-of-financial-year t market value, BMit-1 = book to market ratio for firm i at t-1, Size it-1 = logarithm of market value of equity at t-1, ΔWCit = change in working capital for firm i for period t scaled by beginning-of-financial-year t market value, DY = dummy variable that equals 1 if the observation is from that year and zero otherwise, eit = error term.

(6) ADDITIONAL ANALYSES

In this section we carry out several robustness tests of the results. The regressions are estimated only on the pooled data, controlling for yearly fixed effects, for consistency with prior research and because a degrees-of-freedom problem emerges with some yearly regressions. For brevity, only the revaluation coefficients and associated t-statistics are reported in a table.

6.1 Debt-to-equity ratios

Prior research shows firms with higher debt-to-equity ratios have more incentive to revalue assets upward (Brown et al, 1992, and Whittred and Chan, 1992) and their revaluations have weaker value relevance (Aboody et al. 1999). Given that contracting-theory incentives relate only to recognised revaluations, it is possible our results are confounded by firms that have these incentives. We include the interactive variable used by Aboody et al (1999), namely DE × Rev, in all of our models, to capture

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contracting effects. DE is the debt-to-equity ratio adjusted for revaluation increments at year end and Rev is the revalued amount scaled by market value of equity at the start of the year. The interactive variable is included in the discloser models for consistency, despite the fact that contracting-theory incentives are non-existent for disclosed information. We expect the coefficient on this interactive variable to be negative and significant for recognised revaluations, consistent with Aboody et al

TABLE 10
Coefficient and t-statistics for Revaluation Variables From Additional Analyses

Dependent variable	Recognised		Disclosed	
	Coeff	t-stat	Coeff	t-stat
Panel A – Contracting effects - including interactive variable DE × Rev				
Returns	6.16	4.79	0.36	0.84
Future profit + 1	0.59	1.06	0.08	0.33
Future profit + 2	-1.16	-1.25	0.21	0.90
Future cashflow + 1	-1.48	-1.93	-0.82	-2.54
Future cashflow + 2	2.34	2.03	0.61	1.60
Panel B – Industry Effects – including three industry sector dummy variables				
Returns	4.40	3.79	-0.05	-0.18
Future profit + 1	0.70	1.43	-0.28	-1.87
Future profit + 2	-1.35	-1.69	-0.13	-0.93
Future cashflow + 1	-1.36	-2.15	-0.22	-1.04
Future cashflow + 2	2.75	3.40	-1.11	-4.20
Panel C – Revaluation Frequency – including one frequency dummy variable				
Returns	4.19	3.60	-0.01	-0.06
Future profit + 1	0.67	1.35	-0.26	-1.69
Future profit + 2	-1.40	-1.75	-0.11	-0.81
Future cashflow + 1	-1.42	-2.19	-0.22	-1.10
Future cashflow + 2	2.33	2.53	-1.08	-4.14

DE is the debt to equity ratio adjusted for the revaluation increment at the end of the financial year. Rev is the recognised / disclosed revaluation scaled by the market value of equity at the start of the financial year.

(1999), and we have no expectation for disclosed revaluations.

The top row of Panel A in Table 10 shows that in the returns model, the revaluation coefficient becomes 6.16 (t-stat = 4.79) by including the interactive variable. This is an increase from a coefficient estimate of 4.26 (t-stat = 3.67) from model 1a (see bottom row of Table 5). The interactive variable coefficient (untabulated) is -5.18 and its t-statistic is -3.02. Aboody et al. (1999) also report a negative coefficient in their equivalent model but it is insignificant (t-stat = -1.21). For disclosers, the coefficient for the revaluation is 0.36 and is insignificant (t-stat = 0.84) as Table 10, Panel A shows. This coefficient and its significance have also increased over that reported under model 1a of -0.04 and -0.14 respectively. The interactive variable is negative and insignificant (coeff= -0.457, t-stat = -1.166).

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A different picture emerges with the regressions using non-market dependent variables. None of the interactive variables is significant for recognisers, which is inconsistent with Aboody et al. (1999). Consequently, the revaluation coefficients do not change materially over those reported without the interactive variable (see bottom rows of Tables 6 through 9), but they all decrease in their significance. In contrast, the interactive variables for disclosers are all significant at the 0.10 level, and the revaluation coefficients change as a result. More specifically, the revaluation coefficients become more positive for one and two years-ahead profit and for two years ahead cash flows, over those reported without the interactive variable (see Tables 6, 7 and 9). The interactive variables for these regressions are all negative and significant at the .10 level. The coefficient for the one-year-ahead cash flows regression is negative and becomes significant compared with that coefficient estimated without the interactive variable (see Table 8). While the inclusion of the interactive variable did change revaluation coefficients and their significance, our principal interest is the relative value relevance of recognised vis-à-vis disclosed revaluations. Our overall conclusion that there is no clear difference in value relevance between recognised and disclosed revaluations is unchanged.

6.2 Industry effects

A firm's industry representation can affect inferences as Barth and Clinch (1998) have shown for recognised revaluations of different types of assets. To investigate this possibility, we include dummy variables to capture the fixed effects of industry sectors. The same three industry sectors as in Barth and Clinch (1998) are used, namely, mining, financial and nonfinancial.

Panel B of Table 10 shows that for recognisers, the revaluation coefficient is positive and significant (coeff = 4.40, t-stat = 3.79) for the returns regression. The industry dummies (unreported) are all insignificant. For disclosers, the revaluation coefficient is negative and insignificant (coeff = -0.05, t-stat = -0.18) and the industry dummies (unreported) are generally insignificant. With respect to the non-market regressions, the coefficient estimates and their t-statistics are very similar to those reported using models 2a through 3b without the industry dummies. These results are reported in Tables 6 through 9. One concludes that industry representation does not change inferences about recognition and disclosure of land and buildings' revaluations.

6.3 Revaluation frequency

One-time revaluations may contain more information than more frequent revaluations *ceteris paribus*. Conversely, it can be argued that one-time revaluations are likely to be less value relevant because they may not be as timely as more frequent revaluations. Nevertheless, our inferences may be affected by the different relative frequencies of revaluations shown in Panel B of Table 1. To investigate this issue, we include a

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dummy variable that equals 1 if the revaluation occurs only once in our sample and 0 otherwise, in all of our models. We recognise that because we do not examine the entire history of a firm's revaluation practice, our coding as a one-time revaluer over the firm's life may be measured with error.

Results for the returns model, reported in the top row of Panel C of Table 10, show that for recognisers the revaluation coefficient is positive and significant (coeff = 4.19, t-stat = 3.60). The coefficient for the frequency dummy variable (unreported) is insignificant (coeff = 0.06, t-stat = 0.79). For disclosers, the revaluation coefficient is negative and insignificant (coeff = -0.01, t-stat = -0.06). The coefficient for the frequency dummy variable is insignificant (coeff = 0.07, t-stat = 1.12). The regressions using non-market dependent variables give similar revaluation coefficients for both recognised and disclosed revaluations as for those without the frequency dummy (see Tables 6 through 9). All frequency dummies are insignificant. The frequency of revaluations does not change inferences about the relative value relevance of recognised and disclosed revaluations.

(7) CONCLUSION

In this paper, we investigate the value relevance of recognising versus disclosing upward revaluations of land and buildings in the financial statements of Australian listed firms. This is an empirical issue important in accounting standard setting. However, most of the prior research is based on U.S. data and there is limited research in Australia apart from Cotter and Zimmer (2003). The Australian setting provides a unique opportunity to examine the issue because there is a legal requirement to disclose current values of land and buildings and an accounting standard permitting upward revaluation. Using a large sample of 371 land and buildings revaluations over a period of five years from 1993 that covers all major industries, we find no conclusive evidence that recognised land and buildings revaluations are more market value relevant than disclosed revaluations. Furthermore, the results of year-wise regressions show that the sign of the revaluation coefficient is ambiguous for both recognisers and disclosers, suggesting that the market is uncertain about the reliability of these values. With respect to firm's future performance, the results show that disclosed revaluations are more often significant than recognised revaluations. The significance is especially strong for one- year-ahead operating profit and cash flows. As for market value relevance, the signs of the revaluation coefficients in the non-market relevance regressions vary across the years for both recognised and disclosed revaluations.

There are two limitations which affect the tests of value relevance reported in the paper. First, upward revaluations are discretionary, while disclosed values are not discretionary. Second, upward revaluations can be up to recoverable amount (where

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recoverable amount is loosely defined), while disclosed values are point estimates of current market value. These differences between recognised and disclosed revaluations weaken the assumption that recognition and disclosure are based on the same principle. But they are unlikely to weaken the assumption that recognised and disclosed revaluations are measured and tested consistently.

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