

# Value Relevance of Mandated Comprehensive Income Disclosures

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## 1. INTRODUCTION

Under 'clean surplus' accounting, any change in book value is either due to income or dividends net of capital contributions from owners (e.g., Paton and Littleton, 1940; and Ohlson, 1995). In the US as well as other countries (e.g., the UK, Canada, Australia and New Zealand), accounting standards sometimes allow non-owner changes in assets and liabilities to by-pass the earnings statement. For example, in the US, accounting standards on marketable securities, foreign currency translation, futures contracts, pensions, and financial instruments permit some deviation from 'clean surplus' accounting.

Concern over the arbitrary exclusion of certain performance-related changes in net assets from the income statement led to calls for the disclosure of comprehensive income which is net income plus all other non-income statement, non-owner related transactions. For example, the Association for Investment Management and Research (AIMR) in a 1993 report argued for

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disclosure of an 'all-inclusive' or comprehensive income statement that would display all of an entity's wealth changes except those arising from transactions with its owners. Even though the non-income statement, non-owner transactions – i.e., dirty surplus or other comprehensive income (OCI) items – were disclosed in disaggregated form in various parts of the financial statements:

[m]uch effort is required of analysts to locate and evaluate all of the [comprehensive] income statement items that have a bearing on their forecasts of the future and the valuation of the firm (AIMR 1993, p. 88).

In other words, AIMR believed that, at least, some of the OCI items are value relevant but were being ignored because of poor or inconsistent disclosure.<sup>1</sup>

Partly in response to the AIMR report, the US Financial Accounting Standards Board (FASB) began a project on comprehensive income reporting in 1995. In 1997, the FASB released *Statement of Financial Accounting Standard (SFAS) No. 130*. Under *SFAS 130*, US firms must display the components of comprehensive income:

which includes all changes in equity except those resulting from investments by owners and distribution by owners (FASB, 1997, para. 8).

*SFAS 130* allows companies the option of displaying these components as part of an extended income statement or in a separate Statement of Changes in Equity (SCE). *SFAS 130* applies to year-ends beginning after December 15, 1997.

The clean surplus framework has been linked to equity valuation (e.g., Ohlson, 1995; Feltham and Ohlson, 1995; and Stark, 1997). For example, Ohlson (1995) shows that under clean surplus accounting, the value of the firm is a function of net book value and abnormal earnings. We use this relationship to provide some market-based evidence on the usefulness of comprehensive income disclosures in a SCE. Based on the statement by AIMR, such disclosures are desirable because they clearly identify the separate components of comprehensive income and allow investors to better estimate the value of the firm. At a general level, this implies that the SCE provides information that is incremental above and beyond information provided by existing disclosures. At a specific level, it suggests two market-based tests for assessing the usefulness of the SCE. That is, we examine (1)

whether information about the separate components of comprehensive income is incrementally value relevant above and beyond the aggregate comprehensive income figure, and (2) whether disclosure of the OCI items in a SCE results in a change in the incremental value relevance of these items relative to net income.

We address these two issues by examining the incremental value relevance of the OCI items using an approach developed by Stark (1997) and extended by Pope and Wang (2000). Our first test examines the incremental value relevance of the OCI items relative to *comprehensive* income. Our second test examines the change in the incremental value relevance of the OCI items relative to *net* income and provides a market test of whether the SCE makes a difference in investors' decisions. We are unaware of any prior research which examines either of these two questions.

Because tests of the change in value relevance of the OCI items requires pre- and post-SCE observations, researchers in the US are at a disadvantage because *SFAS 130* was not required in annual reports until December 16, 1998. Thus, the post-*SFAS 130* time-series is not long enough to conduct the proposed tests (e.g., see Dhaliwal, Subramanyam and Trezevant, 1999). For our research, we use a sample of listed firms from New Zealand where disclosure of a form of comprehensive income has been required by *Financial Reporting Standard (FRS) No. 2* since January 1, 1995. Thus, depending on the adoption date, our sample from 1992–1997 includes one to three years of data before disclosure of comprehensive income was required and two to four years of data after disclosure of comprehensive income was required.

The specific OCI items differ slightly between the US and New Zealand; for the most part, OCI items in New Zealand are related to either upward asset revaluations or foreign currency translation adjustments. As accounting moves away from historical cost conventions (e.g., *SFAS 115* and *SFAS 133*), there has been growing interest in the value relevance of revalued assets (e.g., Amir, Harris and Venuti 1993; Easton, Eddey and Harris 1993; Barth and Clinch 1996 and 1998; and Aboody, Barth and Kasznik, 1998). Our study thus provides some collaborative evidence on revaluations but, more importantly, provides evidence on whether clear disclosure of the revaluation

increments in the SCE (as part of comprehensive income) increases value relevance. Likewise, while two recent studies (i.e., Dhaliwal, Subramanyam and Trezevant, 1999; and O'Hanlon and Pope, 1999) examine the value relevance of the foreign currency translation adjustments, neither study examines whether the value relevance of this item changed once it was disclosed in the SCE.

Our evidence on the incremental value relevance of the OCI items suggests that separate disclosure of the revaluation increments and foreign currency translation adjustments in a SCE is unnecessary. To be exact, we find no evidence that the individual OCI items provide information that is incrementally value relevant above comprehensive income, and we find no evidence that the incremental value relevance of the OCI items relative to net income increased after the SCE was required. While our results show some sensitivity to outliers, our results suggest that the SCE provides no additional value to investors.

The plan of this paper is as follows. First, we review the motivation behind and the provisions of *SFAS 130* and *NZ FRS 2*, which is the New Zealand standard that requires disclosure of comprehensive income. Second, we review the related research. Third, we discuss our research design. Fourth, we describe the sample and data. Fifth, we report and discuss results, and last, we summarise and conclude the paper.

## 2. BACKGROUND

### *(i) Comprehensive Income in the US*

The term 'comprehensive income' was first introduced in the *US Statement of Financial Accounting Concept (SFAC) No. 1* and was defined in *SFAC 3* (which was superseded by *SFAC 6*) as:

the change in equity (net assets) of a business enterprise during a period from transactions and other events and circumstances from non-owner sources. It includes all changes in equity during a period except those resulting from investments by owners and distributions to owners (FASB, 1980, para. 56; and FASB, 1985, para. 70).

In *SFAC 5* the FASB recommended that comprehensive income be disclosed.

As Lewis and Pendrill (1994) point out, the traditional income statement is based on a narrow concept of realisation where items are not recognised as revenue unless realised in cash or in other assets that will eventuate in cash and these items can be assessed with reasonable certainty. Comprehensive income, however, is based on a wider notion of profit where revenue is recognised even if unrealised.

As an example, under *SFAS 52*, gains and losses on foreign currency translation are not recognised under the narrow concept of income (i.e., net income) because the exchange rate may change before the exchange gains or losses are realised. However, the gains and losses would be recognised under a broader definition of income (i.e., comprehensive income) because the change in value of the foreign subsidiary's net assets can be measured reliably.

The seemingly arbitrary manner in which items were included or excluded from the income statement and the lack of transparency were the main points of contention in the AIMR's report *Financial Reporting in the 1990s and Beyond*. The AIMR supported separate disclosure of comprehensive income arguing that:

We have profound misgivings about the increasing number of wealth changes that elude disclosure on the income statement. Yet individual items may be interpreted differently. That calls for the display of comprehensive income that allows components of different character to be seen and evaluated separately (AIMR 1993, p. 63).

This statement implies that OCI items can be value relevant, and that because of inadequate disclosure of the OCI items, at least some of these items were being ignored or discounted by analysts (see Linsmeier et al., 1997, for a conceptual discussion of the advantages of comprehensive income).

In the US, the FASB issued an exposure draft on comprehensive income in June 1996. The FASB received 281 comment letters on the draft (FASB, 1997, para. 50). While users like AIMR generally favoured the exposure draft, some preparers were critical. One criticism was that comprehensive income would confuse users by introducing multiple performance measures (e.g., see Zweig, 1997). Others questioned whether comprehensive income would provide any useful information. For example, in its comment letter, General Electric wrote that comprehensive income:

in stark contrast to the promise of its name, corresponds more closely to a random number than to enterprise performance (quoted in Hirst and Hopkins, 1998, p. 7).<sup>2</sup>

Another criticism, voiced especially by banks and financial institutions, was that comprehensive income would be more volatile than net income and would affect the perceptions of a firm's risk (Hirst and Hopkins, 1998). Finally, others contended that comprehensive income is redundant since the items included in it were already disclosed in disaggregated form elsewhere in the financial statements and notes to the statements.<sup>3</sup>

*SFAS 130* was issued in June 1997 and contained two significant changes from the exposure draft (FASB, 1997). First, under *SFAS 130* firms can report comprehensive income either as part of the income statement or as part of the SCE; under the exposure draft only the former was permitted. Second, *SFAS 130* dropped a requirement to disclose earning per share amounts based on comprehensive income. *SFAS 130* became effective for fiscal years beginning after December 15, 1997.

Thus, an important question for managers, investors, accounting standard-setters, and capital market regulators is whether the required disclosure of comprehensive income makes a difference. In other words, given a set of accounting rules that excludes  $x$  from net income and takes  $x$  directly to equity, we want to determine whether separate disclosure of  $x$  has incremental value relevance above the aggregate comprehensive income figure and whether the incremental value relevance of  $x$  – relative to net income – changes after  $x$  is disclosed separately as part of comprehensive income in a SCE. Since most US firms had only limited comprehensive income data at the time this study began, we use a sample of New Zealand firms to examine this issue.

### *(ii) Comprehensive Income in New Zealand*

The US was not the first country to require the reporting of comprehensive income. The UK first required reporting of comprehensive income, or total recognised revenues and expenses, when UK *FRS 3* was issued in 1992. Under *FRS 3*, total recognised revenues and expenses are disclosed in an additional primary statement.

In New Zealand, *FRS 2*, issued in 1994, requires disclosure of comprehensive income as part of a separate SCE (called the Statement of Movements in Equity). The SCE in New Zealand reconciles the beginning and ending balances of equity, but separates out the owner and non-owner elements with the non-owner changes in equity (i.e., comprehensive income) being called 'Total recognised revenues and expenses' as in the UK. Figure 1 shows the recommended form of the SCE in New Zealand.

In New Zealand, the OCI items will be of two main types – revaluations of noncurrent assets and movements in the foreign currency translation reserve. Because of sample size limitations (see Table 1 for further detail), we investigate only one type of revaluation of noncurrent assets, i.e., fixed asset revaluations.<sup>4</sup>

**Figure 1**

Example of Statement of Movements (Changes) in Equity

<b>Statement of Changes (Movements) in Equity for the Period Ended 30 June 19X1</b>		
	19X1	19X0
<b>Equity at start of the period</b>	\$	\$
Fundamental errors	\$	\$
<b>Amended equity at the start of the period</b>	\$	\$
Net income (loss) for the period	\$	\$
Increases/decreases in revaluation reserves	\$	\$
Currency translation difference	\$	\$
Other revenues and expenses <sup>a</sup>	\$	\$
<b>Total recognised revenues and expenses for the period</b>	\$	\$
Movement in Minority Interests during the period	\$	\$
Contributions from owners during the period	\$	\$
Distributions to owners during the period	\$	\$
<b>Equity at end of period</b>	\$	\$

*Notes:*

<sup>a</sup> Only those revenues and expenses specifically permitted or required to be taken directly to reserves by any financial reporting standard or provision of the law.

*Source:* Adapted from FRSB, 1994, Appendix 2.

**Table 1**

Descriptive Statistics Related to the Number of OCI Items by Year and Type

<i>Type</i>		1993	1994	1995	1996	1997
<b>Panel A: All OCI Items</b>						
OCI	Total	31	35	38	38	37
	+	16	23	22	27	27
	-	15	12	16	11	10
<b>Panel B: Revaluations</b>						
All Revaluations	Total	17	20	20	20	20
	+	11	18	20	14	16
	-	6	2	0	6	4
Fixed Assets (RFA)	Total	11	14	12	11	14
	+	5	13	12	6	13
	-	6	1	0	5	1
Investment Properties	Total	2	3	4	3	4
	+	1	2	4	2	4
	-	1	1	0	1	0
Equity Investments	Total	2	3	2	4	3
	+	1	3	1	4	3
	-	1	0	1	0	0
Asset Sales	Total	4	2	4	3	5
	+	2	2	3	3	3
	-	2	0	1	0	2
Other Revaluations	Total	3	3	4	3	3
	+	3	3	3	3	3
	-	0	0	1	0	0
<b>Panel C: Foreign Currency Translation Adjustments</b>						
CUR	Total	23	26	30	30	30
	+	6	16	12	24	22
	-	17	10	18	6	8
<b>Panel D: Other OCI Items</b>						
Other	Total	1	2	2	2	2
	+	1	1	2	2	1
	-	0	1	0	0	1

*Notes:*

Total OCI items do not equal (all revaluations + CUR + other OCI items) because a firm could report more than one type of OCI item.



Under *Statement of Standard Accounting Practice (SSAP) No. 28*, firms can, but are not required to, revalue classes of fixed assets.<sup>5</sup> Similar to revaluations in Australia (see Barth and Clinch, 1998, for a review), when a firm revalues a fixed asset upward, the increment is taken directly to equity through a revaluation reserve account, whereas if the revaluation is downward the decrement is taken to the income statement. When a previous upward revaluation is reversed, the decrement is taken directly to equity to the extent of any existing credit in the revaluation reserve account, for that class of asset, with the excess being taken to income. Similarly, when a previous downward revaluation is reversed, the upward increment is taken to income to the extent of the prior loss.

The second major OCI item is the movement in the foreign currency translation reserve. Under *SSAP 21*, the accounting for independent foreign subsidiaries requires that all of the subsidiary's accounts are translated into the domestic currency (i.e., New Zealand dollars) using the closing rate with any difference in the value of the net assets being taken to a Foreign Currency Translation Reserve account. This treatment is identical to that required by US *SFAS 52* for foreign subsidiaries where the functional currency is not US dollars except *SFAS 52* translates the income statement accounts using the average exchange rate.<sup>6</sup> Movements in the foreign currency translation reserve account can be positive (i.e., credit) or negative (i.e., debit).

*FRS 2* applies to all financial periods beginning on or after January 1, 1995. Consequently, NZ firms have been reporting comprehensive income at least three years longer than US firms. This provides us with a time-series that is appropriate to examine the incremental value relevance of the separate OCI items, and, additionally, to examine whether the incremental value relevance of these items changed after disclosure of the SCE was required by *FRS 2*.

### 3. PRIOR RESEARCH

#### (i) *Value Relevance Research*

The value relevance of fixed asset revaluations and foreign currency translation adjustments has been examined in prior

research. However, these studies have focused on the value relevance of these items above net income and have not tested whether these items provide value relevant information that is incremental to comprehensive income.

For example, Easton, Eddey and Harris (1993) find that revaluation increments have weak explanatory power for returns over income and changes in income using a sample of 73 Australian firms. Amir, Harris and Venuti (1993) use domestic GAAP-US GAAP reconciliations of UK and Australian cross-listed firms to identify aggregate revaluation amounts and find that the revaluation reserve balance (movement in the reserve) has incremental explanatory power for prices (returns) over domestic GAAP.

More recently, Aboody, Barth and Kasznik (1998) examine upward revaluations of fixed assets of UK firms. They find that the revaluation increment and the revaluation reserve balances are positively associated with annual returns and prices respectively. Also, they find the relationship with price (but not returns) is weaker for high debt/equity firms, which suggests that the motivation for making the revaluation affects the market perception of the revalued amounts.

In a similar study, Barth and Clinch (1998) examine revaluations of Australian firms. They provide a more detailed breakdown of their sample based both on the type of revaluation (i.e., investments; plant, property, and equipment; intangibles) and industry (i.e., mining, financial, non-financial). In general, Barth and Clinch (1998) find that revaluations of investments and intangibles are positively and significantly associated with share prices while the results for revaluations of property, plant, and equipment are less consistent. They find that revaluations of plant and equipment are significant for their full sample and for mining firms while revaluations of property are not significant for either the full sample or the industry subsamples.

However, O'Hanlon and Pope (1999) specifically investigate the value relevance of OCI items and find no evidence supporting the value relevance of asset revaluations. A possible explanation for the conflicting results is that O'Hanlon and Pope (1999) use an aggregate measure of asset revaluations whereas Barth and Clinch (1998) partition their sample based on the type of revaluation (and find different results for different types of

revaluations). In this study, because of sample size limitations, we concentrate on fixed asset revaluations. While we expect that these amounts will have incremental value relevance above net income whether they are disclosed as part of the SCE or not (based on Aboody, Barth and Kaznik, 1998; and Barth and Clinch, 1998), our study focuses on whether the incremental value relevance of this item changed after the SCE was required.

With regard to the foreign currency translation reserve, two recent studies examine the value relevance of OCI items related to foreign currency translation adjustments. Dhaliwal, Subramanyam and Trezevant (1999) and O'Hanlon and Pope (1999) find no evidence that the foreign currency adjustments are value relevant. They conclude that because these adjustments are transitory, the foreign currency translation adjustments add noise to comprehensive income. Based on these studies, we expect that the foreign currency adjustment will not have incremental value relevance above net income, but again we are more interested in the change in the incremental value relevance over net income between the pre- and post-SCE periods.

While neither Dhaliwal, Subramanyam and Trezevant (1999) and O'Hanlon and Pope (1999) examine changes in value relevance due to the SCE, some studies have examined the effect of new accounting standards on value relevance. For example, Cheng, Liu and Schaefer (1997) examine whether information about cash flows from operations provided by *SFAS 95* disclosures have incremental explanatory power over estimates of cash flows that can be made from balance sheet and income statement data. Their results show that the *SFAS 95* data have incremental explanatory power for returns over the cash flow estimates. Likewise, Ayres (1998) examines whether *SFAS 109* disclosures for deferred tax provide incremental value relevance over disclosures required by *Accounting Principles Board No. 11*. He finds that the new disclosures are value relevant for users.

Our study is similar to the Cheng, Liu and Schaefer (1997) and Ayres (1998) studies in that we want to determine whether the new standard (*FRS 2* in New Zealand's case) provided information that is incrementally value relevant. However, our study is different from these studies because they examine standards that provide 'new' information that was not available or could not be precisely estimated prior to the new standard. We

examine the SCE disclosure of comprehensive income that provides separate disclosure of information *already contained* in the financial statements and notes. Since the OCI items were public information, assuming an efficient market, disclosure of the OCI items as part of an SCE should not make a difference in the firm's valuation. However, recent research by Hirst and Hopkins (1998) suggests that separate disclosure of comprehensive income may affect investors' use of that information.

(ii) *Psychology Based Research*

Hirst and Hopkins (1998, p. 1) note:

research in psychology suggests that information will not be used unless it is both available *and* readily processable (i.e., clear).

Hirst and Hopkins (1998) test this by examining whether the disclosure of comprehensive income makes a difference in estimates of firm value made by buy-side financial analysts.<sup>7</sup> In particular, they look at a setting where earnings are being managed through the timing of sales of marketable securities. In the US, unrealised gains and losses on available-for-sale marketable securities must be disclosed as part of comprehensive income. Therefore, Hirst and Hopkins (1998) hypothesise that disclosure of these items in comprehensive income would make earnings management more transparent and should, therefore, affect analysts' valuation judgements. Because *SFAS 130* permits alternative formats for reporting comprehensive income, two disclosure treatments are used. One where OCI items are reported after net income on the income statement and another where OCI items are disclosed in a separate SCE, and a non-disclosure treatment (where the OCI items are disclosed in various places in the financial statements and comprehensive income is not disclosed).

Hirst and Hopkins (1998) argue that both forms of comprehensive income disclosure should have an effect on analysts' judgements when compared to non-disclosure. They argue that the reporting of OCI items can be diverse (e.g., Smith and Reither, 1996) and that analysts do not always carry out the detailed analysis of financial statements as is often assumed (e.g.,

Hirst, Koonce and Simko, 1995). Indeed, Imhoff, Lipe and Wright (1995) find that when lease accounting information is disclosed in footnotes rather than the financial statements, users may rely on simple heuristics, and this may lead to inefficient behaviour on their part. Likewise, psychology based research that focuses on the presentation and display of information has found that users are more likely to use information when it is provided in a clear, simple manner (e.g., Johnson, Payne and Bettman, 1988; also see Harper, Meister and Strawser, 1987 and 1991, for some accounting examples). Sanbonmatsu, Kardes, Posvac and Houghton (1997) find that if individuals perceive information to be more important (e.g., OCI items may be perceived to be more important once they are disclosed as part of comprehensive income), they weight this information more heavily in their decision making.

Hirst and Hopkins (1998) find that disclosure of comprehensive income can help analysts detect earnings management although they find disclosure in the income statement (a format we are unable to examine) is more effective than disclosure in the SCE. They also find that comprehensive income disclosures make no difference in analysts' judgements in the absence of earnings management. This suggests that where the motives related to the OCI items are opportunistic, users may react to these items differently than if managers are trying to provide a 'true and fair' view.

However, as Hirst and Hopkins (1998) note, since their prices are just averages of analysts' valuations in each condition, these prices may not be reflective of what would be obtained in an actual stock market. Thus, our study provides a market test of Hirst and Hopkins' (1998) general question, i.e., does the reporting of comprehensive income in the SCE make a difference in share prices?

#### 4. RESEARCH DESIGN

##### *(i) Valuation Model*

In order to determine the value relevance of the components of comprehensive income, i.e., net income, fixed asset revaluations

and foreign currency translation adjustments, a linear information dynamic that links firm value with the components of earnings must be established.<sup>8</sup> The framework used is the model developed by Ohlson (1989) and used in Ohlson (1995) and Feltham and Ohlson (1995) as a means of developing a structure to examine the properties of earnings within a clean surplus context with conditions of dividend irrelevancy. Stark (1997) has extended the model to demonstrate the conditions where the components of clean surplus earnings are individually value relevant and therefore must be disclosed separately.

The model takes the following form:

$$P_{it} = \beta_1 BVE_{it} + \beta_2 DIV_{it} + \beta_3 E_{it} \quad (1)$$

where  $P_{it}$  is the value of firm at time  $t$ ,  $BVE_{it}$  is the book value of equity at time  $t$ ,  $DIV_{it}$  are the dividends paid by firm  $i$  in time  $t$  net of any shareholder contributions, and  $E_{it}$  are the earnings for year  $t$ . Letting  $E$  equal clean surplus earnings or comprehensive income (CI), then:

$$E_{it} = CI_{it} = NI_{it} + OCI_{it} \quad (2)$$

where  $NI_{it}$  is the net income of firm  $i$  during year  $t$  and  $OCI_{it}$  is the sum of the OCI items for firm  $i$  during year  $t$ . Substituting (2) into (1) and estimating separate coefficients for each variable, we have:

$$P_{it} = \beta_1 BVE_{it} + \beta_2 DIV_{it} + \beta_3 NI_{it} + \beta_4 OCI_{it}. \quad (3)$$

In addition, OCI can be decomposed into its individual components, and equation (3) can be expressed as:

$$P_{it} = \beta_1 BVE_{it} + \beta_2 DIV_{it} + \beta_3 NI_{it} + \beta_4 RFA_{it} + \beta_5 CUR_{it} \quad (4)$$

where  $RFA_{it}$  is the revaluation increment due to revaluations of fixed assets and  $CUR_{it}$  is the increment or decrement due to foreign currency translation adjustments related to independent foreign subsidiaries.<sup>9</sup>

We elect to confine the reporting of test results to tests of value relevance with price levels and not returns on the basis of Stark (1997) and Pope and Wang (2000). Due to the manipulation of (4) to obtain a returns model, tests for value relevance of components of comprehensive income will need to be directed at the change in comprehensive income components. However, as noted by Barth and Clinch (1998), not all companies revalue

their fixed assets each year, and as a result, in the revaluation year  $\Delta RFA$  equals  $RFA$  and that in the following year,  $\Delta RFA$  equals  $-RFA_{t-1}$ . In our sample, only four of the 48 firms (8.3 percent of the sample) revalued fixed assets in each of the five years of our sample period. Thus, using a returns approach is problematic.

In addition, Rees (1997) cites three other problems with the returns approach. First, data on a year-to-year basis may not be comparable, e.g., a change in capital structure or group structure may confound the change measure. Second, the returns models are sensitive to specification of the window period in which the returns are collected. Third, the returns models only reveal short-run trends and these may not be representative of the associations over a longer period of time. Thus, we restrict our analysis to a levels approach.

*(ii) Basis for Tests of Value Relevance*

To provide evidence on the usefulness of the SCE, we want to determine: (1) whether the individual OCI items provide information above and beyond the total comprehensive income figure (i.e., does reporting the separate OCI items provide useful information), and (2) whether the incremental value relevance of the OCI items relative to net income increased after the SCE was required (i.e., does the SCE enhance users' ability to process information regarding dirty surplus items).

Stark (1997) establishes a context for valuation of earnings, and therefore, comprehensive income components. Given the valuation model (4) above, it can be shown that there is no need to disaggregate the components of comprehensive income if  $\beta_3 = \beta_4 = \beta_5$ . If the hypothesis of no difference is accepted, then (4) can be reduced to:

$$P_{it} = \beta_1 BVE_{it} + \beta_2 DIV_{it} + \beta_3 [NI_{it} + RFA_{it} + CUR_{it}], \quad (5)$$

and there is no value relevance from individual disclosure of the components of comprehensive income. Thus, the test of  $\beta_3 = \beta_4 = \beta_5$  provides evidence on the incremental value relevance of the components of comprehensive income above their aggregate sum.

Pope and Wang (2000) extend the work of Stark (1977) to include further conditions where components of comprehensive

income may or may not be value relevant. If the null hypothesis  $\beta_3 = \beta_4(\beta_3 = \beta_5)$  is rejected, Pope and Wang (2000) suggest supplementing equation (4) with two additional tests concerning valuation irrelevance. For example, given the valuation model (4), if  $\beta_3 \neq \beta_4 = 0(\beta_3 \neq \beta_5 = 0)$ , then revaluations of fixed assets (foreign currency translation adjustments) are not value relevant and no information would be lost if they are subsumed within net income and not disclosed separately. Additionally, Pope and Wang (2000) use the definitions for irrelevancy set out by Ohlson (1999) to identify a third type of valuation irrelevance. Extending their analysis to our equation (4), if  $\beta_3 \neq \beta_4 = -\beta_2$  and  $\beta_3 \neq \beta_5 = -\beta_2$ , then (4) may be restated as:

$$P_{it} = \beta_1 \text{BVE}_{it} + \beta_2 [\text{DIV}_{it} + \text{RFA}_{it} + \text{CUR}_{it}] + \beta_3 \text{NI}_{it}, \quad (6)$$

and no information is lost if the OCI items are subsumed in dividends.

While the above equations would allow us to assess the incremental value relevance of the OCI items in relation to the aggregate comprehensive income figure, we also want to determine whether the value relevance of the OCI items changed after the SCE became a required disclosure. In particular, we want to know if the incremental value relevance of the OCI items above net income changed in the post-SCE period. In equation (4), whether RFA (CUR) provides information that is incremental to NI can be tested by examining the null hypothesis that  $\beta_4 = 0(\beta_5 = 0)$ . To determine whether the value relevance of the OCI items – in relation to net income – changed after the SCE, we include two interactive terms in equation (4) to develop the following:

$$P_{it} = \beta_1 \text{BVE}_{it} + \beta_2 \text{DIV}_{it} + \beta_3 \text{NI}_{it} + \beta_4 \text{RFA}_{it} + \beta_5 \text{CUR}_{it} + \beta_6 \text{RFA\_SCE}_{it} + \beta_7 \text{CUR\_SCE}_{it} \quad (7)$$

where  $\text{SCE}_{it}$  is equal to 1 if the firm provided a SCE in year  $t$  and 0 otherwise and where  $\text{RFA\_SCE}_{it}$  equals  $\text{RFA}_{it}$  multiplied by  $\text{SCE}_{it}$  and so on. If the value relevance of the OCI items was different after the SCE was required, we expect  $\beta_6$  and  $\beta_7$  to be significant. Thus, we use equation (7) to provide a market test of Hirst and Hopkins (1998) hypothesis that disclosure of comprehensive income in a single statement will affect investor behaviour and (presumably) firm value.<sup>10</sup>



While equation (4) does not contain a constant or error term, these can be added to cope with omitted variables. Also because scale effects are potentially severe (e.g., Easton, 1998; and Lo and Lys, 1999), we deflate all terms by the opening market value of equity ( $P_{it-1}$ ).<sup>11</sup> Thus, we estimate the following model based on equation (4) to examine the incremental value relevance of RFA and CUR:

$$\begin{aligned} P_{it}/P_{it-1} = & \beta_0(1/P_{it-1}) + \beta_1 BVE_{it}/P_{it-1} + \beta_2 DIV_{it}/P_{it-1} + \\ & \beta_3 NI_{it}/P_{it-1} + \beta_4 RFA_{it}/P_{it-1} + \\ & \beta_5 CUR_{it}/P_{it-1} + \varepsilon_{it}, \end{aligned} \quad (4a)$$

and the following model based on equation (7) to examine the change in value relevance of RFA and CUR:

$$\begin{aligned} P_{it}/P_{it-1} = & \beta_0(1/P_{it-1}) + \beta_1 BVE_{it}/P_{it-1} + \beta_2 DIV_{it}/P_{it-1} + \\ & \beta_3 NI_{it}/P_{it-1} + \beta_4 RFA_{it}/P_{it-1} + \beta_5 CUR_{it}/P_{it-1} + \\ & \beta_6 RFA\_SCE_{it}/P_{it-1} + \beta_7 CUR\_SCE_{it}/P_{it-1} + \varepsilon_{it}. \end{aligned} \quad (7a)$$

## 5. SAMPLE AND DATA

We use a sample of 48 firms. These firms include all firms on the NZSE for which (1) we had access to their annual reports over the years 1992–1997 and (2) trade sufficiently to generate reliable measures of returns.<sup>12</sup> Similar to other revaluation studies (e.g., Easton, Eddey and Harris, 1993; and Barth and Clinch, 1998), we hand collect data from the annual reports about net income, the fixed asset revaluation reserve, and the foreign currency translation reserve. For years prior to 1995 when the SCE was first required as part of the financial statements, we prepare a SCE on a *pro forma* basis using numbers gathered from various places in the financial statements. We compute comprehensive income as: (Net income +/–  $\Sigma$  changes in revaluation reserves +/– changes in currency translation reserves +/– other revenues and expenses) (see NZSA, 1994, Appendix A). For years in which a SCE is provided, we use numbers directly from the SCE.

In total, we have 237 firm/year observations related to the 48 firms. Table 1, Panel A provides a breakdown by year of the

number of firms reporting fixed asset revaluations and foreign currency translation adjustments and includes for descriptive purposes all other OCI items we encountered. The mean (median) difference between net income and comprehensive income is 7.3 (0.2) percent of net income (i.e.,  $|CI - NI|/NI$ ). This ranged from 0 to 373 percent. For 149 firm/year observations (63.1 percent of all firm/year observations), net income and comprehensive income were different. Excluding the firm/year observations where net and comprehensive incomes are the same, we get a mean (median) difference of 11.3 (1.1) percent of net income. This suggests that for some firms the difference between net and comprehensive incomes can be substantial, but on the whole, the difference is modest.

## 6. RESULTS

Table 2, Panel A provides some descriptive statistics for the 48 sample firms, and Table 2, Panel B provides descriptive statistics for the dependent and independent variables. The difference between the mean and median indicate a skewed distribution; which is expected since the NZSE is dominated by several large companies. However, skewedness and kurtosis are common in cross-sectional valuation studies (Rees, 1997).

We examine the data for collinearity by examining the variance inflation factor (VIF) for each independent variable. Neter, Wasserman and Kutner (1985) note that a VIF in excess of 10 is usually seen as a sign of multicollinearity. For our variables, the highest VIF is 2.418 which suggests multicollinearity is not severe in our sample. We also test for the possibility of heteroscedasticity using a series of Goldfeld-Quandt (1965) tests where the data is partitioned into thirds based on size (i.e., market value of equity, total assets, total revenue, net surplus) or the values of the independent variables in equation (4a) (i.e., BVE, DIV, NI, RFA, CUR). In none of the cases do we reject the null that the error variances are homoscedastic.

Table 3 provides the estimation results for equation (4) which regresses  $P$  on BVE, DIV, NI, RFA, and CUR. The model has a  $R^2$  of 32.7 percent.<sup>13</sup> As expected, we find that BVE and DIV are value relevant, and consistent with Ohlson (1995) and Stark

**Table 2**Descriptive Statistics Related to the Sample Firms and Regression Variables<sup>a</sup>

<b>Panel A: Descriptive Statistics for Sample Firms<sup>b</sup></b>			
<i>Variable</i>	<i>Mean</i>	<i>Std. Dev.</i>	<i>Median</i>
Market Capitalization	606,105.5	1,519,913.3	89,176.8
Total Assets	1,027,906.3	2,681,532.0	86,165.0
Total Revenue	592,022.3	1,429,269.5	62,411.0
Net Income	47,017.74	127,390.3	4,604.0
Market-to-Book Ratio	4.282	8.828	1.381
<b>Industry Breakdown<sup>c</sup></b>			
Building and Public Works	2		
Commercial Services	14		
Entertainment	0		
Hotels and Tourism	3		
Manufacturing	16		
Production	16		
Trading	7		
Transport and Communication Service	5		
<b>Panel B: Descriptive Statistics for Regression Variables</b>			
<i>Variable<sup>d</sup></i>	<i>Mean</i>	<i>Std. Dev.</i>	<i>Median</i>
<i>P</i>	1.100	0.500	1.000
<i>BVE</i>	1.588	2.884	0.689
<i>DIV</i>	0.130	1.121	0.021
<i>NI</i>	0.142	0.356	0.055
<i>RFA</i>	0.016	0.098	0.000
<i>CUR</i>	-0.012	0.067	0.000

*Notes:*

<sup>a</sup> Descriptive statistics are based on 237 firm/year observations related to 48 firms.

<sup>b</sup> Market capitalisation, total assets, total revenue, and net income are reported in thousands in NZ\$.

<sup>c</sup> Industry breakdowns are based on the *Kompass: The Authority on NZ Business* database.

<sup>d</sup> Variable definitions:

*P* = (Share price<sub>*t*</sub> × number of outstanding shares<sub>*t*</sub>)/opening market value of equity<sub>*t-1*</sub> (i.e., *P*<sub>*t-1*</sub>);

*BVE* = Book value of equity<sub>*t*</sub>/*P*<sub>*t-1*</sub>;

*DIV* = Total dividends less new equity subscriptions<sub>*t*</sub>/*P*<sub>*t-1*</sub>;

*NI* = Net income<sub>*t*</sub>/*P*<sub>*t-1*</sub>;

*RFA* = Fixed asset revaluation increment<sub>*t*</sub>/*P*<sub>*t-1*</sub>;

*CUR* = Foreign currency translation reserve adjustment<sub>*t*</sub>/*P*<sub>*t-1*</sub>.

**Table 3**  
 Regression Results for the Estimation of Equation (4a)<sup>a</sup>

<i>Variable</i> <sup>b</sup>	<i>Coefficient</i>	<i>t-value</i>
1/P	5458.458	5.532 <sup>c</sup>
BVE	0.111	3.369 <sup>c</sup>
DIV	-0.172	-2.399 <sup>c</sup>
NI	0.388	1.579 <sup>d</sup>
RFA	1.264	1.868 <sup>c</sup>
CUR	-0.016	-0.016
<i>n</i>	237	
<i>R</i> <sup>2</sup>	0.327	

*Notes:*

<sup>a</sup> Regression model is:

$$P_{it}/P_{it-1} = \beta_0(1/P_{it-1}) + \beta_1 \text{BVE}_{it}/P_{it-1} + \beta_2 \text{DIV}_{it}/P_{it-1} + \beta_3 \text{NI}_{it}/P_{it-1} + \beta_4 \text{RFA}_{it}/P_{it-1} + \beta_5 \text{CUR}_{it}/P_{it-1} + \varepsilon_{it}.$$

<sup>b</sup> See Table 2 for variable definitions.

<sup>c</sup> Significant at the 0.05 level based on a one-tailed test.

<sup>d</sup> Significant at the 0.10 level based on a one-tailed test.

(1997), the coefficient for BVE is positive and the coefficient for DIV is negative. In addition, on an individual basis, we find that NI and RFA are both positive and significantly related to *P* at the 0.10 and 0.05 levels respectively. This suggests that both net income and the revaluation reserve increment, a dirty surplus component, are each value relevant on an individual basis, i.e., each contains information that is important for valuation. The finding that fixed asset revaluations provide information which is incremental to net income is consistent with studies such as Aboody, Barth and Kasznik (1998) and Barth and Clinch (1998) but not O'Hanlon and Pope (1999). Additionally, we find CUR is not incrementally value relevant above net income which is consistent with the results of O'Hanlon and Pope (1999) and Dhaliwal, Subramanyam and Trezevant (1999). Because the foreign currency translation adjustment fits Ohlson's (1999) definition of transitory earnings (specifically, adjustments arising from translation are unpredictable, irrelevant in predicting other income sources, and have no relevance in estimating the intrinsic value of the firm), we are not surprised by this result.

However, the incremental value relevance of the OCI items above net income is not the core focus of this study. Rather, in

the first of our two market based tests, we want to determine whether the OCI items have incremental value relevance above the aggregate comprehensive income figure. We are interested in the incremental value relevance above comprehensive income because it allows us to assess whether separate disclosure of the OCI items provides any extra information above and beyond comprehensive income that is useful for valuation, or more simply, whether separate disclosure of the individual OCI items is desirable.

Following Stark (1997) and Pope and Wang (2000), we examine the null hypothesis that  $\beta_3 = \beta_4 = \beta_5$  by estimating the deflated version of equation (5). Based on an  $F$ -test ( $F = 0.930$ ) with 4 and 231 degrees of freedom, we are unable to reject the null that the three coefficients are equal. This means that the individual components of clean surplus earnings do not provide any value relevant information above and beyond the aggregate amount, i.e., RFA and CUR are not incrementally value relevant relative to comprehensive income. Thus, the mandated disclosure of the separate components of comprehensive income (e.g., as in *SFAS 130*, *NZ FRS 2*, *UK FRS 3*) may not be necessary because the aggregate comprehensive income figure will suffice for valuation purposes.

Also while we find no difference in the coefficients for NI, RFA, and CUR, we examine whether  $\beta_3 = \beta_4$  and  $\beta_3 = \beta_5$ . If either null hypothesis is rejected, it is possible to further examine the conditions of valuation irrelevance using the tests proposed by Pope and Wang (2000). We are unable to reject the null that  $\beta_3 = \beta_4$  ( $F = 0.154$ ) which is not surprising. However, we are also unable to reject the null that  $\beta_3 = \beta_5$  ( $F = 1.601$ ). Thus, we do not find any statistical difference between the coefficients for NI and CUR which is somewhat unexpected given the results in Table 3. However, this may reflect a lack a power due to our small sample size. Because Ohlson (1999) argues that when an OCI item is transitory in nature it can be combined with dividends with no loss in information, we combine CUR with DIV in a model based on equation (6) above and examine whether RFA provides information that is incremental to comprehensive income. These results are reported in Table 4. While the coefficient for RFA is significant confirming its incremental

**Table 4**Regression Results for the Estimation of Equation (4a) with DIV and CUR Combined<sup>a</sup>

<i>Variable<sup>b</sup></i>	<i>Coefficient</i>	<i>t-value</i>
1/P	5441.024	5.550 <sup>c</sup>
BVE	0.112	3.506 <sup>c</sup>
DIV-CUR	-0.174	-2.444 <sup>c</sup>
NI	0.390	1.590 <sup>d</sup>
RFA	1.270	1.883 <sup>c</sup>
<i>n</i>	237	
<i>R</i> <sup>2</sup>	0.330	

*Notes:*<sup>a</sup> Regression model is:

$$P_{it}/P_{it-1} = \beta_0(1/P_{it-1}) + \beta_1 \text{BVE}_{it}/P_{it-1} + \beta_2(\text{DIV}_{it}/P_{it-1} - \text{CUR}_{it}/P_{it-1}) + \beta_3 \text{NI}_{it}/P_{it-1} + \beta_4 \text{RFA}_{it}/P_{it-1} + \varepsilon_{it}.$$

<sup>b</sup> See Table 2 for variable definitions.<sup>c</sup> Significant at the 0.05 level based on a one-tailed test.<sup>d</sup> Significant at the 0.10 level based on a one-tailed test.

value relevance above net income, a test of  $\beta_3 = \beta_4$  does not reject the null that the coefficients for RFA and NI are equal. This finding reinforces the view that the individual components of comprehensive income do not have incremental value relevance above their aggregate sum.

Thus, to answer our first question, the results in Tables 3 and 4 provide no evidence supporting the disaggregation of comprehensive income. Additionally, while not the central focus of our study, Table 3 also provides evidence from New Zealand that is slightly at odds with Dhaliwal, Subramanyam, and Trezvant's (1999) results based on US data and O'Hanlon and Pope's (1999) results based on UK data. To be specific, we find evidence that comprehensive income is superior to net income, i.e., RFA provides information that is incrementally value relevant above and beyond net income. However, this point deserves further comment. First, it does not imply that the SCE is useful because the fixed asset revaluation increment can be determined by reconciling balance sheet amounts or through footnote disclosures. Second, it suggests our data might not be comparable to other countries which would limit the generalizability of our results.

Tuning to our second question, we examine whether disclosure of a SCE made a difference in the value relevance of the OCI items relative to net income. This is a key issue because the statements by AIMR and the findings of Hirst and Hopkins (1998) suggest there are non-trivial costs associated with searching for, aggregating, and analyzing the OCI items. To examine this empirically, we estimate equation (7a) which includes two interactive variables based on the dichotomous variable SCE which is coded 1 if the SCE was disclosed in period  $t$  and 0 if not. In this framework, RFA\_SCE (CUR\_SCE) allows for a different slope coefficient for the association between RFA (CUR) and  $P$  in the post-SCE years. Table 5 contains these results. While BVE, DIV, NI, and RFA remain significant at the 0.10 level or better, neither of the two interactive variables is significant, i.e., we are unable to reject the null hypotheses that  $\beta_6 = 0$  and  $\beta_7 = 0$ . Thus, we find no evidence that the incremental value relevance of the OCI items above net income changed in the post-SCE period.

**Table 5**

Regression Results for the Estimation of Equation (7a)<sup>a</sup>

Variable <sup>b</sup>	Coefficient	<i>t</i> -value
1/ $P$	5433.355	5.471 <sup>c</sup>
BVE	0.113	3.364 <sup>c</sup>
DIV	-0.174	-2.358 <sup>c</sup>
NI	0.393	1.588 <sup>d</sup>
RFA	1.306	1.850 <sup>c</sup>
RFA_SCE	-0.523	-0.218
CUR	0.132	0.118
CUR_SCE	-0.902	-0.313
<i>n</i>	237	
$R^2$	0.318	

Notes:

<sup>a</sup> Regression model is:

$$P_{it}/P_{it-1} = \beta_0(1/P_{it-1}) + \beta_1 BVE_{it}/P_{it-1} + \beta_2 DIV_{it}/P_{it-1} + \beta_3 NI_{it}/P_{it-1} + \beta_4 RFA_{it}/P_{it-1} + \beta_5 CUR_{it}/P_{it-1} + \beta_6 RFA\_SCE_{it}/P_{it-1} + \beta_7 CUR\_SCE_{it}/P_{it-1} + \varepsilon_{it}$$

<sup>b</sup> See Table 2 for variable definitions except:

SCE = 1, if a SCE disclosed in year  $t$  and 0, otherwise.

<sup>c</sup> Significant at the 0.05 level based on a one-tailed test.

<sup>d</sup> Significant at the 0.10 level based on a one-tailed test.

To assess the sensitivity of our results, we re-estimate equation (4a) with the top (bottom) 1 percent of each of the variables winsorized at the 1st (99th) percentile value. The results, which are not reported, are similar to the results contained in Table 3. BVE, DIV, and RFA are each significant at the 0.10 level or better and have coefficients that are correctly signed. However, NI is no longer significant at conventional levels ( $t = 1.116$ ) although it still has a positive coefficient. The  $F$ -statistic (1.477) for the test of the null that  $\beta_3 = \beta_4 = \beta_5$  is not significant so again we find no evidence that RFA or CUR are incrementally value relevant above the aggregate comprehensive income amount.<sup>14</sup> Likewise, our results for  $\beta_6$  and  $\beta_7$  in a re-estimated equation (7a) are unchanged.

While the result for NI is unexpected and contrary to prior studies (e.g., Dhaliwal, Subramanyam and Trezvant, 1999; and O'Hanlon and Pope, 1999), it raises an issue that is ever present when using New Zealand data. Given the small number of firms in New Zealand and the great disparity in size, skewed data cannot be avoided, and identifying outliers is problematic. Specifically, it is difficult to ascertain if extreme values are outliers since unusual observations will commonly occur in a reporting environment such as New Zealand. Thus by winsorizing extreme observations, we may be losing economically meaningful information. In any event, while the results for NI show some sensitivity to extreme cases, our primary results are unchanged.

## 7. CONCLUSION

The purpose of this study is to provide some market based evidence on accounting standards which require the disclosure of a SCE (e.g., *SFAS 130*, *NZ FRS 2*, *UK FRS 3*). Even though all OCI items were already contained in footnotes and included in equity on the balance sheet, users of financial statements (e.g., AIMR, 1993) lobbied vigorously for standards such as *SFAS 130*. In particular, statements by AIMR suggest that the SCE provides positive benefits by showing the separate components of comprehensive income which allows investors and analysts to better value the firm.

In line with AIMR's comments, we provide two market based tests of the usefulness of the SCE. First, we examine whether the



separate OCI items provide information that is incremental to the aggregate comprehensive income figure. Second, we examine whether the incremental value relevance of the OCI items relative to net income increased in the post-SCE period. To carry out our tests, we focus on two OCI items – fixed asset revaluations and foreign currency translation adjustments.

We examine data from 48 New Zealand firms over the period 1993–1997 and find that comprehensive income is more value relevant than net income. Additionally, using an approach adapted from Stark (1997) and Pope and Wang (2000), we find that asset revaluation increments and foreign currency translation adjustments do not have incremental value relevance beyond comprehensive income. This implies that investors value comprehensive income, but that there is no benefit in reporting the separate components of comprehensive income (i.e., net income and OCI items), at least for revaluations of fixed assets and foreign currency translation adjustments. In addition, we find no evidence that the SCE made a difference in the incremental value relevance of fixed asset revaluations or foreign currency translation adjustments relative to net income. Thus, we find no evidence to suggest that the SCE provides additional information that is useful to investors.

Our study extends the prior research (e.g., Dhaliwal, Subramanyam and Trezevant, 1999; and O'Hanlon and Pope, 1999) by focusing on the disclosure of comprehensive income in the SCE rather than on the comprehensive income figure itself. Taken together, our evidence in conjunction with the prior research has implications for standard setters. The cumulative evidence to date suggests that the SCE may not be needed which, interestingly, is contrary to the views of AIMR as well as the views of the American Accounting Association's Financial Accounting Standards Committee (i.e., Linsmeier et al., 1997). However, at the same time, we recognise that our sample size is small and that our results are sensitive to outliers.

#### NOTES

- 1 For example, Smith and Reither (1996) note that prior to required disclosure of comprehensive income, some US companies displayed the

- OCI items in a separate Statement of Changes in Equity. Others aggregated these items and included them in a single, but separate, account in equity or included them in either retained earnings or paid-in capital.
- 2 This argument focuses on the predictive ability of the financial statements. Black (1993) argues that the best earnings figure is one that removes the noise or transitory component in earnings and leaves the permanent component of earnings.
  - 3 Some respondents to the FASB exposure draft on comprehensive income also noted that comprehensive income is not truly 'comprehensive' because some changes in value of net assets are not recognised at the time the change in value takes place (FASB, 1997, para. 71). For example, in the US and Canada, fixed assets are not revalued even though their economic values may have changed. In this paper, it is not our intention to determine the 'true' comprehensive income.
  - 4 New Zealand firms may also revalue investment properties, equity investments, and intangibles other than goodwill (e.g., brands, masthead) although the incidence of such revaluations is relatively infrequent.
  - 5 SSAPs are the 'old' name for accounting standards in New Zealand. All SSAPs will eventually be replaced by FRSS.
  - 6 Based on *FRS 21* which was issued in 1998, New Zealand now uses the average rate for translating the income statement accounts of an independent foreign subsidiary.
  - 7 Maines and McDaniel (1999) provide a similar test using non-professional investors.
  - 8 As Rees (1997) and Lo and Lys (1999) point out, many prior studies have applied the valuation models (e.g., the Ohlson model) in an *ad hoc* fashion. Green (1996), Rees (1997), and Garrod and Rees (1998) are notable exceptions.
  - 9 To be complete, equation (4) should include variables for revaluations related to investment properties, equity investments, and intangibles. However, as previously discussed, because of sample limitations, we do not explicitly include them.
  - 10 For example, Hirst and Hopkins (1998) note that aggregation of individual responses does not always result in complete information revelation (e.g., see Bloomfield and Libby, 1996). In this way, Hirst and Hopkins' (1998) results for individual analysts may not reflect how market prices would be affected by various comprehensive income disclosures.
  - 11 Book value of equity was also used as a deflator with no difference in results.
  - 12 Because thin trading is common in New Zealand, we require that shares of our sample firms trade on at least 50 percent of all trading days.
  - 13 The  $R^2$  for models which do not contain a constant may not be comparable to the  $R^2$  for models which contain a constant. Ramanathan (1992) suggests a way to compute the  $R^2$  for the no constant model to make it comparable to the constant model. He suggests that in all cases,  $R^2 = 1 - [(ESS/(T - k))/(TSS/(T - 1))]$  where ESS is the residual sum of squares, TSS is the total sum of squares,  $T$  is the total observations, and  $k$  is the number of independent variables. The  $R^2$  values in Tables 3-5 have been computed in this manner.
  - 14 We also run the same tests with the top (bottom) 1 percent of the top (bottom) of each variable deleted on a casewise basis with similar results.

## REFERENCES

- Aboody, D., M. Barth and R. Kasznik (1999), 'Revaluations of Fixed Assets and Future Firm Performance: Evidence from the UK', *Journal of Accounting and Economics* (January), pp. 149–78.
- Amir, E., T. Harris and E. Venuti (1993), 'A Comparison of the Value-Relevance of U.S. versus non-U.S. GAAP Accounting Measures Using form 20-F Reconciliations', *Journal of Accounting Research* (Supplement), pp. 230–64.
- Association for Investment Management and Research (1993), *Financial Reporting in the 1990s and Beyond* (Charlottesville, VA: AIMR).
- Ayres, B. (1998), 'Deferred Tax Accounting Under SFAS No. 109: An Empirical Investigation of its Incremental Value-Relevance Relative to APB No. 11', *The Accounting Review* (April), pp. 195–212.
- Barth, M. and G. Clinch (1996), 'International Differences in Accounting Standards: Evidence from UK, Australian, and Canadian Firms', *Contemporary Accounting Research* (Spring), pp. 135–70.
- \_\_\_\_\_ (1998), 'Revalued Financial, Tangible, and Intangible Assets: Associations with Share Prices and Non-Market-Based Value Estimates', *Journal of Accounting Research* (Supplement), pp. 199–233.
- Black, F. (1993), 'Choosing Accounting Rules', *Accounting Horizons* (March), pp. 1–17.
- Bloomfield, R. and R. Libby (1996), 'Market Reactions to Differentially Available Information in the Laboratory', *Journal of Accounting Research* (Autumn), pp. 183–208.
- Cheng, A., C.S. Liu and T. Schaefer (1997), 'The Value-Relevance of SFAS No. 95 Cash Flows from Operations as Assessed by Security Market Effects', *Accounting Horizons* (September), pp. 1–15.
- Dhaliwal, D., K.R. Subramanyam and R. Trezevant (1999), 'Is Comprehensive Income Superior to Net Income as a Measure of Firm Performance?', *Journal of Accounting and Economics*, pp. 43–67.
- 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* (Supplement), pp. 235–47.
- Easton, E., P. Eddey and T. Harris (1993), 'An Investigation of Revaluations of Tangible Long-Lived Assets', *Journal of Accounting Research* (Supplement), pp. 1–38.
- Feltham, G. and J. Ohlson, (1995), 'Valuation and Clean Surplus Accounting for Operating and Financial Activities', *Contemporary Accounting Research* (Spring), pp. 689–732.
- Financial Accounting Standards Board (1980), *Statement of Financial Accounting Concepts No. 3: Elements of Financial Statements of Business Enterprises* (Norwalk, CT: Financial Accounting Foundation).
- \_\_\_\_\_ (1981), *Statement of Financial Accounting Standard No. 52: Foreign Currency Translation* (Norwalk, CT: Financial Accounting Foundation).
- \_\_\_\_\_ (1985), *Statement of Financial Accounting Concepts No. 6: Elements of Financial Statements* (Norwalk, CT: Financial Accounting Foundation).
- \_\_\_\_\_ (1997), *Statement of Financial Accounting Standard No. 130: Reporting Comprehensive Income* (Norwalk, CT: Financial Accounting Foundation).
- Garrod, N. and W. Rees (1998), 'International Diversification and Firm Value', *Journal of Business, Finance & Accounting*, Vol. 25, Nos 9 & 10 (November/December), pp. 1255–81.

- Goldfeld, S. and R. Quandt (1965), 'Some Tests for Homoscedasticity', *Journal of the American Statistical Association* (June), pp. 539-47.
- Green, J.P., A.W. Stark and H.M. Thomas (1996), 'UK Evidence on the Market Valuation of Research and Development Expenditures', *Journal of Business, Finance & Accounting*, Vol. 23. No. 2 (March), pp. 191-216.
- Harper, R., W. Meister and J. Strawser (1987), 'The Impact of New Pension Disclosure Rules on Perceptions of Debt', *Journal of Accounting Research* (Autumn), pp. 327-30.
- \_\_\_\_\_ (1991), 'The Effect of Recognition Versus Disclosure of Unfunded Postretirement Benefits on Lenders' Perceptions of Debt', *Accounting Horizons* (September), pp. 50-56.
- Hirst, D.E. and P. Hopkins (1998), 'Comprehensive Income Disclosures and Analysts' Valuation Judgements', *Journal of Accounting Research* (Supplement), pp. 47-75.
- \_\_\_\_\_, L. Koonce and P. Simko (1995), 'Investor Reaction to Financial Analysts' Research Reports', *Journal of Accounting Research* (Autumn), pp. 335-52.
- Imhoff, E., R. Lipe and W. Wright (1995), 'Is Note Disclosure an Adequate Alternative to Financial Statement Recognition?' *Journal of Financial Statement Analysis* (Fall), pp. 70-81.
- Johnson, E., J. Payne and J. Bettman (1988), 'Information Displays and Preference Reversals', *Organizational Behavior and Human Decision Processing* (August), pp. 1-21.
- Johnson, L.T., C. Reither and R. Swieringa (1995), 'Toward Reporting Comprehensive Income', *Accounting Horizons* (December), pp. 128-37.
- Lewis, R. and D. Pendrill (1994), *Advanced Financial Accounting* (4th ed., London: Pitman Publishing).
- Linsmeier, T., J. Gribble, R. Jennings, M. Lang, S. Penman, K. Petroni, D. Shores, J. Smith and T. Warfield (1997), 'An Issues Paper on Comprehensive Income', *Accounting Horizons* (June), pp. 120-26.
- Lo, K. and T. Lys (1999), 'The Ohlson Model: Contribution to Valuation Theory, Limitations, and Empirical Applications', Working Paper (University of British Columbia).
- Maines, L. and L. McDaniel (1999), 'Effects of Comprehensive Income Characteristics on Nonprofessional Investors' Judgement: The Role of Financial Statement Presentation Format', Working Paper (Indiana University).
- New Zealand Society of Accountants (1994), *Financial Reporting Standard No. 2: Presentation of Financial Reports* (Wellington: NZSA).
- O'Hanlon, J. and P. Pope (1999), 'The Value-Relevance of UK Dirty Surplus Accounting Flows', *British Accounting Review*, pp. 459-82.
- Ohlson, J. (1995), 'Earnings, Book Values, and Dividends in Security Valuation', *Contemporary Accounting Research* (Spring), pp. 661-87.
- \_\_\_\_\_ (1996), 'Accounting Earnings, Book Value and Dividends: The Theory of the Clean Surplus Equation', in R. P. Brief and K. V. Peasnell, *Clean Surplus-A Link Between Accounting and Finance* (New York: Garland Publishing).
- \_\_\_\_\_ (1999), 'On Transitory Earnings', *Review of Accounting Studies*, Vol. 3/4, pp. 145-62.
- Paton, W. and A.C. Littleton (1940), *An Introduction to Corporate Accounting Standards* (Sarasota, FL: AAA).
- Pope, P. and P. Wang (2000), 'On the Relevance of Earnings Components:

- Valuation and Forecasting Links', Working Paper (The Management School, Lancaster University).
- Ramanathan, R. (1992), *Introductory Econometrics with Applications* (2nd ed., Fort Worth, TX: Harcourt Brace Jovanovich College Publishers).
- Rees, W. (1997), 'The Impact of Dividends, Debt and Investment on Valuation Models', *Journal of Business Finance & Accounting*, Vol. 24, Nos 7 & 8 (September), pp. 1111-45.
- Sanbonmatsu, D., F. Kardes, S. Posvac and D. Houghton (1997), 'Contextual Influences on Judgement Based on Limited Information', *Organizational Behavior and Human Decision Processing* (March), pp. 251-64.
- Smith, P. and C. Reither (1996), 'Comprehensive Income and the Effect of Reporting It', *Financial Analysts Journal* (November/December), pp. 14-19.
- Stark, A. (1997), 'Linear Information, Dynamics, Dividend Irrelevance, Corporate Valuation and the Clean Surplus Relationship', *Accounting and Business Research* (December), pp. 219-28.
- Zweig, P. (1997), 'Corporate America is Fed Up with the FASB', *Business Week* (April 21), pp. 108-10.

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