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# **Control-based consolidation: FRS 37 and its effect on the value relevance of consolidated financial statements in New Zealand**

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## **Abstract**

**Purpose:** The purpose of this thesis is to determine whether the requirement for New Zealand organisations to switch from the ownership-based method of consolidation to the control-based method of consolidation increased the value relevance of consolidated financial statements in New Zealand. It takes advantage of the unique situation whereby all listed entities in New Zealand were required to comply with FRS 37: *Consolidating Investments in Subsidiaries* (FRS 37) in a year relatively free from changes to other financial standards.

**Motivation:** The study was motivated by research undertaken by Hsu et al. (2012). Their research focused on the movement from the ownership-based method to the control-based method of consolidation of financial statements and whether this better reflected market value. They took advantage of the situation in Taiwan which similarly required all public firms to adopt Taiwan's SFAS 7: *Consolidated Financial Statements* (TSFAS 7) at a set time.

**Research question:** Did the change from the ownership-based method of consolidation under SSAP 8 to the control-based method of consolidation under FRS 37 increase the value relevance of consolidated financial statements in New Zealand?

**Sample selection and design:** A sample of 54 entities listed on the New Zealand Stock Exchange (NZX) was used. The sample, although small, represented all of the final available population. Analysis of common accounting ratios was carried out and accounting variables affected by the switch to FRS 37 were analysed to determine changes in the value relevance of the consolidated financial statements.

**Findings:** The adoption of FRS 37 led to an increase in value relevance of financial statements in New Zealand. However the ability to apply judgement to the application of control highlighted entities holding a larger number of subsidiaries and associates had a more complex structure than anticipated. Therefore holdings indirectly controlled may not have been captured with a lower instance of consolidation being achieved than was anticipated.

**Key Words**

SSAP 8, FRS 37, ownership-based method of consolidation, control-based method of consolidation, value relevance,

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## **1. Introduction**

The purpose of this thesis is to determine whether an increase in value relevance of consolidated financial statements in New Zealand occurred due to the mandatory adoption of the control-based method of consolidation as compared to consolidated financial statements prepared under the ownership-based method.

Prior to both IFRS 10: *Consolidated Financial Statements* (IFRS 10) and IAS 27: *Consolidated and Separate Financial Statements* (IAS 27) was the introduction of FRS 37: *Consolidating Investments in Subsidiaries* (FRS 37), mandatory for all entities in New Zealand with years ending on or after 31 December 2002 (delayed to 31 December 2003 for Crown entities). FRS 37 incorporated specific reference to special purpose entities (SPEs) and in doing so included the control requirement when dealing with SPEs and as such consolidation of these entities was required.

FRS 37 was introduced in New Zealand to move away from consolidation of financial statements under the ownership-based method, as required under SSAP 8: *Accounting for Business Combinations* (SSAP 8), and towards the control-based method. With FRS 37, New Zealand entities, including SPEs, were required to consolidate using control, well before IFRS 10 was issued.

It is the move to control-based consolidation under FRS 37 in New Zealand and whether there was a resulting increase in value relevance of the consolidated financial reports that this research is focused on. The introduction of FRS 37 in relative isolation in New Zealand allowed for the effects of FRS 37 to be studied.

This thesis contributes to the literature on consolidation accounting. As with research undertaken by Hsu et al. (2012) and So & Smith (2009), this research looks at the impact of the control-based method of consolidation on consolidated financial statements. Where Hsu et al. (2012) and So & Smith (2009) examined data from Taiwan and Hong Kong respectively, this research looks specifically at the impact on New Zealand consolidated financial statements. Within the New Zealand environment specific research into control-based consolidation is limited. Prior literature has focused only on the impact of international financial reporting standards (IFRSs) on New Zealand entities as a whole, on financial reports and the events leading up to the need for the development and introduction of IFRSs. This

report uses New Zealand data and focuses specifically on the impact of FRS 37 on consolidated financial statements in New Zealand. It highlights the impact a change in accounting standard has on users of financial statements and may be a useful platform for future assessment of IFRS 10.

There are potential limitations to this research, with the first being that the sample obtained is relatively small in size, although, the final sample does account for all of the available population. The second limitation is that relative to many other economies, even having adjusted for the relative size of the New Zealand economy, New Zealand has a limited number of very large firms, which are not either government or co-operative owned, or alternatively controlled by offshore owners. However, work undertaken by the Ministry of Economic Development (MED) has indicated that the size distribution of companies in New Zealand is comparative with other countries. The exception to this is at the top end as New Zealand has a relatively small number of very large companies and these are smaller, on average, than in other countries (MED, 2009).

The research undertaken in this study focused on organisations listed on the New Zealand Stock Exchange (NZX) with the exception of financial and insurance companies

To understand the impact of FRS 37 on the value relevance of consolidated financial reports in New Zealand a descriptive study of common financial ratios and reported accounting amounts was undertaken.

To determine any changes to value relevance of the consolidated financial statements regression analysis using the Edwards-Bell-Ohlson valuation model was then undertaken. This was based on the model used by Hsu et al. (2012) where the anticipated changes to the value relevance of consolidated financial statements were examined.

In this research value relevance has been interpreted as reflecting the association between accounting amounts and share price levels or firm value in aggregate (So & Smith, 2009). A returns model was also included to support these findings. So & Smith (2009) noted that examining share price levels on returns was an alternative method of assessing value relevance.

The results indicated an increase in consolidated financial statements value relevance following the introduction of FRS 37, therefore supporting H1 that the introduction of FRS 37 had led to an increase in the value relevance of consolidated financial statements. The breakdown of the sample indicated that entities holding a larger number of entities did not appear to experience the incremental increase in level of value relevance as compared to entities with a smaller number of holdings in subsidiaries and associates. The results suggested that the application of control was open to some degree of interpretation and as a result, although the instances of consolidation increased, not all holdings under control were necessarily captured.

To support the findings the study was extended to determine whether other outside economic factors influenced the increase in value relevance. The change in value relevance of consolidated financial statements of entities with wholly owned subsidiaries prior to the introduction and whose holdings remained unchanged after the introduction of FRS 37 were compared to entities with partial holdings in subsidiaries and associates. It was anticipated that the introduction of FRS 37 would have a limited impact of the value relevance of the wholly owned group, provided that no other outside factors were at play.

The results of the impact of FRS 37 on the control samples indicated that there had been no significant increase in the value relevance of the consolidated financial statements of the wholly owned group. However there was an indication that there had been a significant incremental increase in the value relevance of the financial statements of the group with partial holdings. Hence the introduction of FRS 37 was a influential factor behind the increase in relevance.

Finally, a returns association regression was carried out to determine the appropriateness and reliability of design of the market value regression model. Results supported the findings under the market value regression model giving further evidence of an increase in the value relevance of consolidated financial statements in New Zealand following the introduction of FRS 37.

The following section looks at the definition of control within the context of FRS 37.

Section 3 summarises the distinction between the equity method and purchase method of consolidation.

Section 4 looks at the background to SSAP 8 and FRS 37.

Section 5 examines prior literature related to; the relevance of value relevance, the value relevance of consolidated financial statements, the value relevance of control-based consolidation of financial statements and finally value relevance and control-based consolidation in New Zealand.

Section 6 includes the hypotheses to be tested and details how they were developed.

Section 7 details the sample selection and research design.

Section 8 reports of the results of the research.

Section 9 includes additional analysis.

Section 10 includes analysis of multicollinearity.

Section 11 concludes the report.

## **2. Definition of Control under FRS 37**

The techniques and disclosure requirements of FRS 37 were basically the same as those outlined in SSAP 8. Consolidated financial statements were required when at the reporting date a parent entity controlled one or more subsidiary entities.

However under SSAP 8 the percentage of ownership of shareholder equity in another entity was used as a measurement guide to determine power over another entity and therefore control of that entity. Under FRS 37 control was determined to exist if one entity had a power element, or benefit element, or both over another entity. The existence of these criteria determined which entities were to be consolidated, and rested on indicators of the relationship between the parent entity and each of its subsidiaries. Appendix 1 includes a more detailed comparison between SSAP 8 and FRS 37

Therefore previous assumptions that; less than 20 percent ownership suggested no significant influence, 20-50 percent ownership suggested potential for significant influence by the investor over the associate investee and 50 percent or more ownership suggested a control relationship; were no longer the means to determine existence of control or the appropriate method of consolidation. The existence of control could be deemed to be based on the ability to impact decisions or where there was the potential for financial benefit. Once control had been determined, there was no option under FRS 37 other than to consolidate using the purchase method with the anticipated outcome being an increase in the occurrence of consolidation.

### **3. Distinction between equity method of consolidation and purchase method of consolidation**

With the adoption of the control-based method of consolidation the instances of consolidation were expected to increase. Specifically more investments by parent companies would be captured under the definition of subsidiary and in so doing be required to be consolidated using the purchase method of consolidation. The purchase method of consolidation, alternatively known as full consolidation, required the financial information of the parent entity to be consolidated on a line-by-line basis with that of its subsidiaries and ensured one of the parties to the business combination could be identified. The resulting consolidated financial statements showed the group as a unified economic whole even though it consisted of legally separate entities. Adjustments were then applied to any group related party transactions to eliminate intra-group transactions.

The equity method of consolidation, which was allowed under SSAP 8 if directors or governing members considered its use would better represent information, allowed for investments by parent companies, where the holding were between 20-50 percent, to report the residual net asset value of an investee without showing its liabilities. Further it showed the investee at its current book worth rather than its market value and was reported in the consolidated financial statements as an investment asset.

The extension of the definition of control under FRS 37 meant looking past the legal form of organisations and toward the economic reality and underlying substance of a group that was brought together through control. The consideration of both direct and indirect influence, resulting in either or both power over and benefit from investees, as opposed to the previous focus on a 50 percent ownership interest was expected to increase the occurrence of the purchase method of consolidation.

#### **4. Background to SSAP 8 and FRS 37**

Control-based consolidation was most recently brought to prominence following global events, particularly the global financial crisis of 2008 (GFC), and led the International Accounting Standards Board (IASB) to respond to such crises by addressing perceived inadequacies, notably the consolidation of special purpose entities (SPEs), with the development and introduction of IFRS 10. The application of this standard was to be mandatory for all entities from 1 January 2013. Its aim was to significantly broaden the definition of control and in doing so specifically include consolidation requirements for SPEs. The anticipated result was to be an increase in the instances of consolidation (Gillard & Khatri, 2011).

Prior to the development and introduction of IFRS 10 there had been a focus on control-based consolidation with the introduction of IAS 27. This standard had been introduced in 2005 (early adoption was allowed from 2005 with mandatory adoption from 2007) and was similarly focused on control-based consolidation, although there was a limit to its focus on SPEs.

However prior to both of these standards, FRS 37 was developed and became mandatory for New Zealand entities with year ending on or after 31 December 2002. (FRS 37 was to be mandatory for Crown entities from 31 December 2003). It superseded SSAP 8 and was applicable to all entities having one or more subsidiaries.

The purpose of SSAP 8 had been to ‘define a standard method of accounting’ where consolidated financial statements were to be prepared. The purpose of FRS 37 was to ‘identify the entities’ that were appropriate to be consolidated and prescribed the circumstances in which they were to be presented. These included establishing procedures to ensure the economic substance of consolidated entity were reflected in the consolidated financial statements as well as specifying minimum disclosure requirements.

Therefore all entities controlled by another entity as defined under FRS 37, were defined as subsidiaries and were to be consolidated into the group consolidated financial statements on a line-by-line basis. The expectation was that there would be more instances of consolidation than under the previous standard SSAP 8.

Appendix 1 details further the application, purpose, method of application and definition of control of both SSAP 8 and FRS 37. It highlights the similarities and differences between the two standards and shows that the objective of both SSAP 8 and FRS 37 was to consolidate entities that were controlled. However, FRS 37 had a more extensive set of definitions and guidelines (including rebuttable guidelines). The main difference was in the application of control which, under SSAP 8 was based on ownership, whereas under FRS 37 it was based on judgement. Therefore it was in the application of control under FRS 37 from which changes to the consolidated financial statements were expected to result.

The focus of this research is on the changing application of control between SSAP 8 and FRS 37, the switch from ownership as an indicator of control, to direct and indirect control through the elements of power and benefit.



## **5. Prior Literature**

This section examines prior literature relating to (1) the relevance of value relevance (2) value relevance and consolidated financial statements, (3) the change in value relevance under control-based consolidation, (4) literature relating specifically to control-based consolidated financial statements in New Zealand.

### **5.1. The value of value relevance**

Barth et al. (2001) described value relevance studies as being designed to assess whether particular accounting amounts reflected information that could be used by investors in valuing firms' equity. An accounting amount that is capable of making a difference to an investors' decision and is predicted to have significant relationship with share price may therefore be defined as value relevant.

Francis & Schipper (1999) considered market value relevance to be a measure of the ability of financial information to capture or summarize information that influenced share prices.<sup>1</sup>

Maines & Wahlen (2006) found that share prices and returns may be used to determine value relevance if investors considered accounting information to be sufficiently relevant and reliable to be useful in making investment decisions. The users in this instance were not limited to investors but also included employees, lenders, suppliers, customers and governments.

Müller (2011) suggested market value relevance could be evaluated either through event studies where the market reaction to financial information announcements was analysed, or through association studies which could be used to measure the connection between indicators of company market value, such as stock price, and financial information.

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<sup>1</sup> The proliferation of alternative information sources has reduced the relevance of consolidated financial statements due to increasing availability of investing information. Investors tend to gain timely information from different channels reducing the incremental increase in value relevance additional information disclosures to consolidated financial statements previously had. (Sinha & Watts, 2001). However this report focuses specifically on financial statements and on methods to ensure they are value relevant to users when they are used as a means of gaining investing information.

This second perspective of evaluation has been applied in most market value relevance studies (Hellström, 2006) and has similarly been applied to this study. Market relevance with in this study has been interpreted as reflecting the association between accounting amounts and share price levels or firm value in aggregate (So & Smith 2009). The incremental value relevance of accounting amounts have been measured as a means of determining the effects on value relevance of the adoption of the control-based method of consolidation.

## **5.2 Value relevance and consolidated financial statements**

There is substantial literature available concluding that consolidated financial statements offer more relevant and therefore more useful information to users than non-consolidated financial statements.

Hsu et al. (2012), the motivating literature behind this study, found previous research in general supported the argument that consolidated financial statements were of more use to users than non-consolidated financial statements. Specifically, they noted that newly introduced requirements to present not just company financial statements, but also consolidated financial statements increased the value relevance of accounting numbers.

However, support was also evident in earlier research. Harris et al. (1994) compared the value relevance of accounting measures for firms from the United States (US) and Germany, matched on industry and firm size. For the period under review, non-US companies wanting to list on the New York Stock Exchange (NYSE) were required by the Securities and Exchange Commission (SEC) to reconcile earnings and shareholders equity to US generally accepted accounting practises (US GAAP). The NYSE argued that this requirement created a competitive disadvantage and noted German companies in particular had been slow to list as traditionally their system had a greater emphasis on prescriptive regulations rather than presenting a true and fair view. The findings supported increased disclosure and Harris et al. (1994) concluded that the explanatory power of accounting data increased with the level of consolidation and that unconsolidated data performed poorly relative to the consolidated data.

Niskanen et al. (1998) examined the information content of consolidated versus parent-only earnings, using both accounting and market data from Finnish firms. Consolidated earnings were expected to be more informative to users as they reflected the economic performance of the entire economic entity in which investors held their earnings claims. Their results showed consolidated earnings to be a significant incremental explanatory variable for stock returns, while parent-only earnings were not. The indication was that consolidation improved the information content of earnings.

Abad et al. (2000) investigated the value relevance of consolidated versus parent company accounting information on a sample of Spanish firms listed on the Madrid Stock Exchange. As with research undertaken in this paper, they based their model on the Edwards-Bell-Ohlson valuation model. They similarly considered value relevance of financial statements to be dependent on statements that provided the most relevant information for pricing parent company shares. Their findings suggested that from a valuation perspective, consolidated information was more informative than non-consolidated information.

Ahmed et al. (2006) undertook research that examined the value relevance of financial instruments. They supported these findings in their research and concluded that financial assets, non-financial assets, financial liabilities and non-financial liabilities in consolidated statements were all value relevant.

Goncharov et al. (2009) examined the different roles played by consolidated and company financial statements using both accounting and market-based measures from a sample of non-financial German companies between 1994 -2004. They found no evidence to support company accounts being equally or more useful than group accounts in valuation. They determined the role of company accounts to be the provision of information to compute taxable income. The analysis concluded that higher value relevance, predictive ability, and timeliness resulted with consolidated financial statements as compared to company financial statements.

Similarly, Armstrong et al. (2010) found that the mandatory requirement to present consolidated financial statements increased the quality of accounting information as seen by investors. Their research focused on the impact on the European stock

market of the requirement to present consolidated financial statements. Findings were based on research starting with 2005 financials.

Keenan (2011) also found support for consolidated financial statements. He undertook research on the introduction of consolidated accounting during the period 1946-1957. Whilst he recognised there were costs incurred by organisations as a result of this, he noted that consolidated accounting information imposed lower information discovery costs on investors in holding company securities than alternative forms of group accounting information.

Despite the above findings, there are also studies, such as undertaken by Callao et al. (2007)<sup>2</sup> that suggest the requirement to present consolidated financial statements in line with international standards has not led to a rise in the market value relevance of consolidated financial.

The general consensus from previous research into the introduction of consolidated financial statements supports findings that they are of more use to users than non-consolidated financial statements. Therefore the move towards control-based consolidation, as a means of capturing more entities in the requirement to consolidate, was anticipated to be beneficial as it would further increase the value to users of consolidated financial statements.

### **5.3 Value relevance and control-based consolidated financial statements**

The introduction of FRS 37 was anticipated to increase the incidence of consolidation due to the wider application of control and the requirement to consolidate controlled entities under the purchase method of consolidation on a line-by-line basis.

However Hsu et al. (2012) found mixed results in relation to the increase in value relevance of consolidated financial statements under the control-based method of consolidation. They researched the specific value relevance of Taiwan's SFAS 7: *Consolidated Financial Statements* (TSFAS 7) which was revised to follow IAS 27

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<sup>2</sup> Callao et al. (2007) looked at the impact of consolidated financial statement requirements on comparability and the relevance of financial reporting in Spain. They found no improvement in the relevance of financial reporting to local stock market operators. However they acknowledged the research had a relatively short-term focus and improved usefulness may be achieved in the medium to long-term.

and effective from 2005. The results suggested that value relevance under the control-based approach compared to the ownership-based approach was higher but limited to firms with simple ownership structures rather than complex structures. The research raised a question as to whether limiting the defined boundary of subsidiaries to the direct relationship between the investor and the investee was adequate. Results highlighted the need to consider indirect influence and control. Hsu et al. (2012) suggested that implementation of the common control model, whereby an entity may not be under the control of a parent but under the indirect or common control of an individual investor or family, was essential when consolidating firms with complex ownership structures.<sup>3</sup>

So & Smith (2009) studied the value relevance of IAS 27, which similarly to FRS 37 specified a control based approach to consolidation, using evidence from Hong Kong. They found that under IAS 27 fully consolidated financial statements emphasized the single management of the entire group and provided more useful information to users. Further, they also found that minority interests had limited significance suggesting investors did not consider minority interest holders to have influence on the performance of the organisation.

Pallot (1994) had previously highlighted the usefulness of consolidated financial statements. Her findings indicated that concise summary financial reports, providing an overview of the financial position and operating results of an organisation and assisted users by providing increased accountability for actual results.

Similarly, Scofield (1996), found that fully consolidated financial statements were relevant for assessing the group's performance. It was determined that the prediction of future performance of the group was affected, not only by how well or poorly the parent company itself was performing, but the subsidiaries as well. In line with this So & Smith (2009) supported the argument that fully consolidated financial statements facilitated comparison between firms regardless of whether they choose debt financing or the admission of new equity participants. Therefore fully

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<sup>3</sup> Hsu et al. (2012) highlighted that the study only focused on voting entities without covering SPE's. FRS 37 included SPE's as controlled entities as defined by the standard and as such was moving toward limiting the ability to leave such entities out of financial reports.

consolidated financial statements under IAS 27 provided greater representational faithfulness to the underlying economic reality of the consolidated entity. From this it may be argued that by mandating the implementation of control based consolidation with an expanded definition of control there would be an inevitable increase in the instances of consolidation and therefore an increase in value relevance to users of financial statements.

Hartgraves & Benston (2002) noted the 20-50 percent guideline for applying the equity method enabled companies to manage their balance sheets by controlling their percentage ownership in subsidiaries, an example of which was The Coca-Cola Company. In the early 80s, it used the 49 percent solution to structure many of its investments in companies just below a 50 percent ownership level and therefore avoid full consolidation. Hartgraves & Benston (2002), whose research covered the period prior to control based consolidation, noted that if Coca-Cola fully consolidated its equity method investments in which it owned more than 40 percent of the outstanding voting stock, its total liabilities would have increased by almost 300 percent, substantially raising its debt-to-equity ratio.

Hartgraves & Benston (2002) concluded that a company consolidating an equity investment would appear larger, with more assets, liabilities, revenues, and expenses, than a company using the equity method for the investment. Therefore a company that could use the equity method, and avoid consolidation, would be able to improve its debt-to-equity ratios, as well as ratios for returns on assets and sales. The implication here was that an expanded definition of control would limit the ability to use the 49 percent solution and lead to consolidated financial statements that allow for more realistic analysis of an organisations financial performance and position.

However, research arguing against such findings was also in evidence. McEnroe & Sullivan (2012) examined the perceived issues related to adopting the control-based approach to financial reporting from the perspective of auditors and chief financial officers (CFO's). The general consensus was a preference for maintaining the ownership-based approach to financial reporting rather than the control based approach. Specific to control-based consolidation, the majority of those surveyed did not agree that the removal of the 50 percent guideline for control would lead to

financial statements that were more relevant for the decisions made by financial statement users.

As with the increased value relevance resulting from the introduction of consolidated financial statements, the extension of this to undertake consolidation based on the control-based method has generally resulted in findings supporting a further increase in value relevance of consolidated financial statements. However, specific to this research, is the effect on value relevance the introduction of control-based method of consolidation had in New Zealand.

#### **5.4 Value relevance and control-based consolidated financial statements in New Zealand**

A search for literature with a specific focus on the effects of the introduction of the control-based method of consolidation in New Zealand offers little. There appears to have been a reasonable amount of research with a focus on New Zealand entities moving towards the adoption of International Financial Reporting Standards (IFRSs). However, research into the specific effects of individual standards appears limited due to the relatively short time since introduction which has limited the data available to collect and collate for research studies in this area.

Todd (2006) briefly looked at FRS 37. However the focus was on the transition from FRS 37 to IFRS (NZ IAS 27) as opposed to the transition to FRS 37 and the initial effect of adopting the control-based method of consolidation. He suggested the transition to IFRS, at least in the short term, would not be involved. Specific reference to FRS 37 noted that, although there were a number of significant differences between the requirements of FRS 37 and the requirements under NZ IFRS, the fundamental concepts, including the determination of which entities should be consolidated, remained broadly similar.

Stent et al. (2010) looked at the effect the introduction IFRS to New Zealand had on financial statements and ratios. Although not specifically looking at the effect of the control-based method of consolidation, it does look at the financial statement impact of NZ IFRS as well as examining the value relevance of IFRS and noting that a prerequisite for IFRS to have value relevance is that it must have an impact on financial statements and ratios.

The above offers support for research into the value relevance of FRS 37 as undertaken in this report. Todd (2006) highlighted the similarities between FRS 37 and IFRS, suggesting an understanding of the impact of FRS 37 could highlight potential effects of adopting IFRS which specifies continued adoption of the control-based method of consolidation and in doing so contribute to the literature. Stent et al. (2010) highlight the importance of financial standards increasing value relevance. This report offers focus on a specific standard and whilst undertaking research on its value relevance looks at the financial ratio impact as part of the analysis undertaken.



## **6. Hypotheses development**

Under FRS 37 the definition of control was broadened to extend past reliance on a 50 percent ownership holding, towards a consideration of a power element and a benefit element, either directly or indirectly.

The expectation was that there would be more instances of consolidation as the definition of a subsidiary was extended and would capture entities previously determined to be associates but now qualifying as subsidiaries.

Previous research has predominantly supported findings that more instances of consolidation have led to an increase in value relevance of consolidated financial statements. It is anticipated that the introduction of the control-based method of consolidation in New Zealand would have a similar outcome.

Therefore it is hypothesised that:

**H1: the introduction of the controlled-based method of consolidation under FRS 37 increased the value relevance of consolidated financial statements in New Zealand**

In their research Hsu et al. (2012) determined that complex structures with subsidiaries controlled both directly and indirectly needed to be captured within the control-based method of consolidation. This would result in an increase in the value relevance of their consolidated financial statements.

New Zealand firms do not have the complex structures often found in South-East Asian economies. As a result the complexity of structure of organisations in New Zealand was not anticipated to be an influencing factor impacting on the capture of controlled entities. Therefore, even for relatively large organisations holding multiple subsidiaries and associates value relevance was expected to increase due to increased capture of controlled entities in the consolidated financial statements.

Therefore it is hypothesized that:

**H2: value relevance of consolidated financial statements of companies holding a large number of subsidiaries and investments in associates would significantly**

**increase in line with, or to a greater degree than, companies holding a smaller number of subsidiaries and investments.**

## **7. Sample selection and research design**

### **7.1 Sample selection**

All financial statement data and share market data was obtained from the website of the New Zealand Stock Exchange (NZX) (<http://www.companypresearch.nzx.com>).

Companies were eligible for selection if (1) they were public companies listed on the NZX; (2) they were not in the financial and insurance industries; (3) there was no change of accounting year-ends for the years under review; (4) historical price data was available and (5) their consolidated financial statements were denominated in New Zealand dollars. Financial and insurance companies were excluded from the sample because their structure and accounting practices differed significantly from those of non-financial companies (Hellström, 2006).

All eligible organisations listed on the NZX on or before 31 December 2000 were included in the population to be sampled. This allowed for information to be collected for the two years prior to the introduction of FRS 37 and also allowed for information to be collected for the year in which FRS 37 was introduced and for the year following.

Financial reports and information relating to shares on issue for the four years from 2001 to 2004 inclusive were to be reviewed and information including number of subsidiaries, number of wholly owned subsidiaries, number of shares issued, price of shares four months after year end, equity, assets, liabilities, net income and disclosure information was collected to allow for calculation of financial ratios and regression analysis.

Table 1 reports the outcome of the sample selection procedures. As shown the initial population of 181 company was reduced to 54 due to issues arising related to companies changing their year-end during the period 2001-2004, companies delisting during the 2001-2004 period, exclusion of financial and insurance institutions due to substantially different reporting and disclosure requirements and overseas issuers not using New Zealand Dollars (NZD) to report year-end results. Data was collected for all 54 companies.

## **7.2 Models: comparing value relevance of FRS 37 and SSAP 8**

Stent et al. (2010) noted that a pre-requisite for standards to have value relevance was that they must impact financial ratios. Therefore to examine the increase in value relevance proposed in the hypotheses a descriptive study of common financial ratios and reported accounting amounts was initially undertaken. The common ratios, which looked at operating efficiency, asset use efficiency and operating efficiency, as well as the Altman Z score analysis were undertaken to offer an initial determination as to whether value relevance may have increased. The interest cover<sup>4</sup> and leverage ratios were also included as they are commonly used covenants in debt agreements. Analysis also looked at whether the numbers of subsidiaries disclosed in the financial reports were affected as a result of the introduction of FRS 37.

Regression analysis was then undertaken using the Edwards-Bell-Ohlson valuation model to determine incremental changes in value relevance of reported accounting numbers.

### **7.2.1 Ratio analysis**

Analysis using common ratios and the Altman Z score approach was undertaken using data collated from the consolidated financial statements for the years 2001 – 2004. Restated accounting data for prior year comparison figures following introduction of FRS 37 were collected and ratios recalculated.<sup>5</sup> A significant change in ratios would be an initial indicator that the introduction of FRS 37 had impacted the consolidated financial statements.

The Altman Z score approach was included as it is considered useful in providing some analysis of the perception of risk of financial distress and also captures the impact of several accounting ratios. It helps to highlight any changes that may not be financially desirable and in so doing may indicate whether there has been an increase in value relevance to users of the consolidated financial statements.

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<sup>4</sup> In line with Bishop et al. (2005), interest cover was calculated as EBIT to interest and a critical value of two and a half was assumed.

<sup>5</sup> FRS 37 deals with transitional provisions in paragraph 7.1 and states that comparative figures are not required to be presented in the first period of application. However paragraph 7.2 notes that disclosure of comparative figures that are not required as a consequence of paragraph 7.1 is encouraged.

The Altman Z scores were calculated using the Ferner & Hamilton (1987) and the Tabb & Wong (1983) adaptations of Altman's financial distress models to New Zealand data.

The Ferner & Hamilton (1987) model:

$$Z=0.86-3.55X_1+0.5X_2+8.77X_3+0.95X_4-0.99X_5$$

where:

$X_1$  = working capital to total assets ( $WC/TA$ )

$X_2$  = retained earnings to total assets ( $RE/TA$ )

$X_3$  = earnings before interest and tax to total assets ( $EBIT/TA$ )

$X_4$  = market value equity to book value of total debt ( $E/TD$ )

$X_5$  = sales to total assets ( $S/TA$ )

The critical value of Z, below which the entity is predicted to fail is -0.04.

The Tabb & Wong (1983) model:

$$Z=0.232-2.805Y_1+1.086Y_2+8.293Y_3+0.275Y_4+1.513Y_5+0.134Y_6+0.201Y_7$$

where:

$Y_1$  = working capital to total assets ( $WC/TA$ )

$Y_2$  = retained earnings to total assets ( $RE/TA$ )

$Y_3$  = cash flow measured as net profit plus depreciation to total assets ( $CF/TA$ )

$Y_4$  =  $\log(TA/1,000,000)$

$Y_5$  = earnings before tax/shareholders funds

$Y_6$  =  $\log(\text{total liabilities}/\text{total assets})$

$Y_7$  = working capital to total liabilities ( $WC/TL$ )

The critical value of Z for this model is zero

### **7.2.2 The Edwards-Bell-Ohlson valuation model**

Value relevance in this research examined the association between accounting amounts and firm value. Examining changes in return is another approach to assessing value relevance. This study examined both the firm value and return association in order to gain greater confidence in the robustness of the results. Initially the regression analysis was undertaken using firm value as a proxy for value

relevance. As with Hsu et al. (2012), the Edwards-Bell-Ohlson valuation model was used to model market value as a function of book value of equity and net income. Additional analysis was then carried out using returns as a proxy for value relevance.<sup>6</sup>

Four models are used with the first looking mainly at the value relevance and therefore predictive power of equity and net income. These independent variables are then decomposed in the following models to look at the value relevance of assets, liabilities, non-controlling interests and net income and the incremental value relevance of these components following the introduction of FRS 37.

To mitigate the scale effect all variables, except for dummy and control variables, were deflated by the number of shares on issue at the end of time t.

The first model looked at the impact of equity and net income on market value and was represented as follows:

$$Mv_{it} = \beta_0 + \beta_1 \times EQUITY_{it} + \beta_2 \times CNI_{it} + \beta_3 \times LOSS_{it} + \sum_{Y=2001}^{2004} \beta_{4Y} \times YEAR_Y + \sum_{D=1}^n \beta^s_{D} \times IND_D + \varepsilon_{it} \quad (1)$$

where:

$Mv_{it}$  denoted the market value of shares for the parent firm i four months after the end of fiscal year t.

$EQUITY_{it}$  denoted the consolidated book value of shares for firm i at the end of year t.

$CNI_{it}$  denoted the total consolidated income for firm i for year t.

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<sup>6</sup> The model was originally proposed by Edwards and Bell (1961) and developed by Ohlson (1995). Hsu et al. (2012) noted that the model had been frequently used to test the value of consolidated accounting information. It provided a method of translating accounting numbers produced under alternative accounting systems into more comparable measures of firm value.

$LOSS_{it}$  was included as an indicator that equalled 1 for firms having a negative income in year  $t$  and 0 otherwise.<sup>7</sup>

$YEAR_t$  was included as a time indicator that equalled 1 if an observation was from fiscal year  $t$  and 0 otherwise.<sup>8</sup>

$IND_i$  was included as an industry indicator for firm  $i$ .

Accounting data collected was reported on a per-share basis. In model (1) results showing significant positive values for  $\beta_1$  and  $\beta_2$  would indicate the value relevance of  $EQUITY_{it}$  and  $CNI_{it}$ .

The first model was then extended to test whether the control-based method of consolidation had greater value relevance than the owner-ship based method of consolidation (H1).

$$MV_{it} = \beta_0 + \beta_1 \times EQUITY_{it} + \beta_2 \times CNI_{it} + \beta_3 POST + \beta_4 POST \times EQUITY_{it} + \beta_5 POST$$

$$+ \beta_6 LOSS_{it} + \sum_{Y=2001}^{2004} \beta_7 \times YEAR_Y + \sum_{D=1}^n \beta_8 \times IND_D + \varepsilon_{it} \quad (2)$$

where:

$POST$  was included as an indicator variable which equalled 1 when observations were under the control-based approach and 0 otherwise.

Significant positive values for  $\beta_4$  and  $\beta_5$ , the incremental coefficients for  $EQUITY_{it}$  and  $CNI_{it}$  included in model (2), would indicate an increase in value relevance under the control-based method of consolidation and offer support for H1.

### **7.2.3 Decomposition of equity to estimate the incremental value relevance of its components**

To measure the incremental value relevance of the components of equity, the components must first be determined. Within a consolidated balance sheet and under the purchase method of consolidation, all assets and liabilities from the parent firm

<sup>7</sup> Hsu et al. (2012) noted that a loss for year  $t$  may affect the result of value relevance of accounting information.

<sup>8</sup>  $YEAR_t$  was included to control for period specific economic effects and other effects that were not captured by the explanatory variables.

and subsidiaries are reported in the consolidated balance sheet. The value of a parent firms' equity ( $PEQUITY_{it}$ ) can therefore be represented by consolidated assets ( $CASSET_{it}$ ) less consolidated liabilities ( $CLIABILITY_{it}$ ) and non-controlling interest ( $NCI_{it}$ ).

where:

$$PEQUITY_{it} = CASSET_{it} - CLIABILITY_{it} - NCI_{it}$$

The non-controlling interest balance reflects the portion of the subsidiaries net assets that are not owned by the parent firm and is separately recorded under shareholder equity. The components of consolidated equity ( $EQUITY_{it}$ ) therefore include consolidated net income ( $CNI_{it}$ ), ( $NCI_{it}$ ) and the remainder ( $OTHER_{it}$ ).

where:

$$EQUITY_{it} = CNI_{it} + NCI_{it} + OTHER_{it}$$

Therefore to continue the analysis of the value relevance of control-based consolidated financial statements the components of consolidated equity were decomposed so that the incremental value relevance of total consolidated net income, consolidated assets, consolidated liabilities and non-controlling interest could be determined.

Model (1) was reframed as model (3) whereby equity ( $EQUITY_{it}$ ) was decomposed to determine the value relevance of consolidated assets ( $CASSET_{it}$ ), consolidated liabilities ( $CLIABILITIES_{it}$ ), consolidated net income ( $CNI_{it}$ ) and non-controlling interests ( $NCI_{it}$ ).

$$MV_{it} = \beta_0 + \beta_1 x CASSET_{it} + \beta_2 x CLIABILITIES_{it} + \beta_3 x CNI_{it} + \beta_4 x NCI_{it} + \beta_5 x$$

$$LOSS_{it} + \sum_{Y=2001}^{2004} \beta_6, Y YEAR_Y + \sum_{D=1}^n \beta_7, D IND_D + \varepsilon_{it} \quad (3)$$

where:

$CASSET_{it}$  denoted consolidated assets for firm i in year t.

$CLIABILITIES_{it}$  denoted consolidated liabilities for firm i in year t.



$CNI_{it}$  denoted consolidated net income for firm i in year t.

$NCI_{it}$  denoted non-controlling interest for firm i at the end of year t.

Significant positive values for  $\beta_1$  and  $\beta_3$  would indicate the value relevance of consolidated assets, and consolidated net income. A significant negative value for  $\beta_2$  would indicate value relevance of consolidated liabilities and offer support for H1. A significant value for  $\beta_4$ , if negative, would suggest  $NCI_{it}$  was viewed as a liability to the firm and as such repayable by the firm. However a significant positive value would indicate that  $NCI_{it}$  was viewed as a contributor to capital in the same capacity as shareholders of the parent company.

Model (4) continued with the decomposition of equity, but also included the indicator variable  $POST_{it}$ . Therefore model (2) was reframed as model (4).

$$MV_{it} = \beta_0 + \beta_1 x CASSET_{it} + \beta_2 x LIABILITY_{it} + \beta_3 x CNI_{it} + \beta_4 x NCI_{it} + \beta_5 x POST_t + \beta_6 POST_t x CASSET_{it} + \beta_7 POST_t x LIABILITY_{it} + \beta_8 POST_t x CNI_{it} + \beta_9 POST_t x NCI_{it} + \beta_{10} x LOSS_{it} + \sum_{Y=2001}^{2004} \beta_{11, Y} YEAR_Y + \sum_{D=1}^n \beta_{12, D} IND_D + \varepsilon_{it} \quad (4)$$

Coefficients  $\beta_6, \beta_7, \beta_8$  and  $\beta_9$ , the coefficients for the incremental value relevance of consolidated assets, consolidated liabilities, consolidated net income and non-controlling interest respectively, were the focus of model (4). Significant positive values for  $\beta_6$  and  $\beta_8$  and a negative value for  $\beta_7$  would indicate support for H1. Further a significant value for  $\beta_6$  could indicate a change in user perception of non-controlling interest.

## **8. Results**

### **8.1.1 Descriptive statistics: ratio analysis**

Descriptive statistics for ratio analysis are reported in Table 2 and Table 3.

Panel A of table 2 details descriptive statistics for the ratios analysed for the full period 2001-2004 using unadjusted consolidated financial statements. The mean values for return on equity (ROE) of -0.095 and return on assets (ROA) of -0.130 are substantially different to the medians of 0.094 and 0.056 respectively and show the influence on the relatively small sample of a few large entities. This is reflected in the other ratios with the leverage ratio showing a mean (median) of 1.464 (0.832), asset turnover showing a mean (median) of 1.257 (0.852), return on sales (ROS) showing a mean (median) of -0.484 (0.049) and interest cover showing a mean (median) of -17.566 (4.015). The Altman Z scores, which are an indication of firms' wellbeing, further highlight the influence of a few outliers on a small sample. The Altman Z Ferner & Hamilton (1987) model shows a mean (median) of 2.295 (1.783) and the Altman Z Tabb & Wong (1983) model shows a mean (median) of -2.617 (0.040). The outliers suggest extreme performances with in the New Zealand environment for the four year period. However the medians which may be a more accurate reflection of the economy, due to the existence of the outliers, suggest that under both models the majority of firms were operating above critical values.

Table 2 Panel B details the descriptive statistics for the ratios analysed for the full period 2001-2004 using restated comparatives for 2002. For the year of adoption of FRS 37 prior year comparatives were restated by some entities. Although the transitional provision in paragraph 7 of FRS 37 did not require this, it was an option and undertaken by some entities. The mean (median) values for the ratios; operating efficiency, asset use efficiency, and financial leverage again show the relatively large difference between the median and mean and continue to highlight the effect a few large firms have on the measurements, causing significant outliers. A comparison between panel A and panel B indicates minimal change in interest cover with the mean decreasing slightly to -17.567 but showing no change in the median. The Altman Z scores show small positive movements in the mean values with median values again remaining unchanged. The results indicate that the restatement of the 2002 consolidated financial statements had little impact on the ratios. This could

initially be taken to indicate minimal change to value relevance as a result of the introduction of FRS 37. However the allowance not to restate comparatives was likely to be an influencing factor.

Table 2 panels C and D split the results of the ratio analysis into two sub groups therefore separately report the mean and median values for observations during the period 2001-2002 and 2003-2004 respectively. However panel D uses the restated comparatives. When comparing values across the two panels change, although small, is seen for the 2001-2002 period. The financial leverage mean increased from 1.226 in panel C to 1.227 in panel D. There was a similar movement in ROS with the mean moving from -0.767 to -0.766 and movement in Altman Z scores. The Altman Z Ferner & Hamilton (1987) model result suggests no imminent threat of business failure in general. However the mean value for the Altman Z Tabb & Wong (1983) model remains below zero, the critical value. These results support the findings in panel A and panel B. The comparison between the two periods indicate some measures to determine the ratios have been affected, although not substantially. Therefore the limited impact on accounting ratios may be an indicator that the introduction of the new standard did not lead to an increase in value relevance of consolidated financial statements. However, the small movement in some ratios and the lack of requirement to restate 2002 comparatives suggests that an increase in value relevance cannot be disproved based on the results of the ratio analysis.

### **8.1.2 Descriptive statistics: accounting variables**

Shifting the focus from ratio analysis to accounting variables allows for analysis of individual components of the consolidated financial statements and the potential change in value relevance resulting from the changes to the components.

Descriptive statistics for accounting variables analysed are reported in Table 3 and are reported on a per share basis. Panel A shows the mean (median) per share values of the market value of shareholders equity ( $MV_{it}$ ) as 2.792 (1.630), consolidated equity ( $EQUITY_{it}$ ) as 1.481 (0.895), consolidated assets ( $CASSET_{it}$ ) as 2.815 (1.938), consolidated liabilities ( $LIABILITY_{it}$ ) as 1.338 (0.888) and non-controlling interests ( $NCI_{it}$ ) as 0.019 (0.000). The mean value of  $EQUITY_{it}$  per share of NZD1.48 is equal to the mean value of  $CASSET_{it}$  per share less  $LIABILITY_{it}$  per share. The difference between the mean and median values again highlights the impact that a few large

firms can have on a relatively small sample where the majority of the sample is made up of small to medium firms.

Panel B offers a breakdown between the pre FRS 37 and post FRS 37 values. The mean values for observations during 2001-2002 and the mean values for observations during 2003-2004 are compared. As with the ratio analysis, small increases are noted.

The mean values of number of subsidiaries ( $SUBSIDIARY_{it}$ ) and number of fully held subsidiaries ( $100\%SUBSIDIARY_{it}$ ) for the two periods are also compared. Interestingly there is minimal change in either value. The mean number of subsidiaries held increased from 11.92 to 12.13 and the mean number of fully held subsidiaries showed a small movement from 10.69 to 10.92. This suggests that there had been no substantial increase in entities defined as subsidiaries and therefore the capture of entities deemed as being controlled under FRS 37 remained relatively unchanged. Again initial indications were that the impact of FRS 37 was relatively minor.

Panel C of table 3 shows the Pearson and Spearman correlation coefficients for all variables under analysis. The results show that  $MV_{it}$  is positively and significantly associated with  $CASSET_{it}$  and  $CNI_{it}$  at the 1 % level and significantly associated with  $CLIAILITIES_{it}$  at the 1% level. There is also a positive and significant relationship between  $CNI_{it}$  and  $RET_{it}$  at the 1% level.

## **8.2 Value relevance of consolidated financial statements under FRS 37**

To further analyse whether there has been an increase in the value relevance of consolidated financial statements as a result of FRS 37 regression analysis was carried out. Table 4 reports estimates of regression equations (1), (2), (3) and (4) on the full sample collected. Regression (1) reports results based on regressing parent firm market value ( $MV_{it}$ ), which has been used as a proxy for value relevance, on the book value of consolidated equity for firm  $i$  ( $EQUITY_{it}$ ) and consolidated net income for firm  $i$  ( $CNI_{it}$ ). The coefficients  $\beta_1$  on  $EQUITY_{it}$  and  $\beta_2$  on  $CNI_{it}$  are 1.155 (14.847) and 2.653 (7.149) respectively with t-statistics in parenthesis. Both  $\beta_1$  and  $\beta_2$  are positive and significant at the 1% level. These results support prior literature which

found the book value of consolidated equity and consolidated net income offered some predictive explanatory association with stock prices.

Regression (2) as with regression (1) shows results of regressing parent firm market value ( $MV_{it}$ ) on the book value of consolidated equity for firm  $i$  ( $EQUITY_{it}$ ) and consolidated net income for firm  $i$  ( $CNI_{it}$ ). However it extends regression (1) to show estimates on the value relevance of consolidated financial statements before and after the introduction of control-based consolidation under FRS 37 with the inclusion of  $POST \times EQUITY_{it}$  and  $POST \times CNI_{it}$ . These parameters measure the incremental change in value relevance of the variables and therefore the difference between the effects of control-based consolidation rules and ownership-based consolidation rules on the relationship between  $MV_{it}$ ,  $EQUITY_{it}$  and  $CNI_{it}$ . Significantly positive results for the coefficients of interest,  $\beta_4$  on  $POST \times EQUITY_{it}$  and  $\beta_5$  on  $POST \times CNI_{it}$  would indicate support for H1. The results of the regression show  $\beta_4$  and  $\beta_5$  with values of 0.074 (0.516) and 1.109 (1.552) respectively with t-statistics in parenthesis. Both exhibit the predicted positive result, however only  $\beta_5$ , the incremental coefficient for  $CNI_{it}$ , is significant at the 10% level. The coefficient for  $POST \times EQUITY_{it}$  is not significant. This result does not indicate support for H1 as an incremental increase in the value relevance of consolidated equity following the implementation of FRS 37 has not occurred.

Regression (3) reports results based on regressing market value on the decomposed elements of equity; consolidated assets ( $CASSET_{it}$ ), consolidated liabilities ( $CLIABILITY_{it}$ ), non-controlling interest ( $NCI_{it}$ ) and consolidated net income ( $CNI_{it}$ ). Value relevance of  $CASSET_{it}$ ,  $CNI_{it}$  and  $CLIABILITY_{it}$  was anticipated if  $\beta_1$  and  $\beta_3$ , the coefficient for  $CASSET_{it}$  and  $CNI_{it}$ , were significantly positive values and  $\beta_2$ , the coefficient for  $CLIABILITY_{it}$ , negative. The coefficients  $\beta_1$  on  $CASSET_{it}$ ,  $\beta_2$  on  $CLIABILITY_{it}$ ,  $\beta_3$  on  $CNI_{it}$  and  $\beta_4$  on  $NCI_{it}$  are 0.864 (10.471), -0.356 (-2.624), 3.265 (9.500) and -3.302 (-2.112) respectively with t-statistics in parenthesis. The signs for the coefficients for  $CASSET_{it}$  and  $CLIABILITY_{it}$  are consistent with the nature of assets and liabilities. The coefficients for  $CASSET_{it}$  and  $CNI_{it}$  are positive and relevant at the 1% level and the coefficient for  $CLIABILITY_{it}$  is negative and relevant at the 5% level. The results indicate that  $CASSET_{it}$ ,  $CLIABILITY_{it}$  and  $CNI_{it}$  impact on the value relevance of consolidated financial statements. The negative and

significant result for the coefficient of  $NCI_{it}$  suggests the  $NCI_{it}$  may be regarded by users of the financial statements as a liability to the firm.

Regression (4) reports on the value relevance of consolidated financial statements before and after the introduction of FRS 37. The focus is on the coefficient  $\beta_6$  on  $POST \times CASSET_{it}$ , the coefficient  $\beta_7$  on  $POST \times LIABILITY_{it}$ , the coefficient  $\beta_8$  on  $POST \times CNI_{it}$ , and the coefficient  $\beta_9$  on  $POST \times NCI_{it}$ , which are the coefficients for the incremental value relevance during the period following the introduction of FRS 37 relative the period under SSAP 8. Significant positive values for  $\beta_6$  and  $\beta_8$  and a negative value for  $\beta_7$  would offer support for H1. A significant positive value for  $\beta_9$  may indicate a change in perception by users in regards to  $NCI_{it}$  being considered a liability to the firm.

The incremental change in the coefficient  $\beta_8$  on  $POST \times CNI_{it}$  is positive but insignificant, suggesting there has been no increase in the predictive power and usefulness of consolidated net income.

The incremental change in coefficient  $\beta_9$  on  $POST \times NCI_{it}$  although positive is insignificant. Notably under FRS 37 there is no requirement for disclosure of non-controlling interests. Rather the disclosure is in accordance with other financial reporting standards; FRS 2: *Presentation of Financial Reports* (FRS 2) and FRS 9: *Information to be disclosed in Financial Statements* (FRS 9). FRS 37 paragraph 5.21 does however provide for negative non-controlling items to be recognised separately except if the parent agrees to bear responsibility for and outgoings resulting from an equity deficit. In this case the negative amount is allocated to the parent equity balance.

However, the results show  $\beta_6$  at 0.292 (1.963) and  $\beta_7$  at -0.566 (-2.227) with t-statistics in parenthesis. These are the coefficients for  $POST \times CASSET_{it}$ , and  $POST \times LIABILITY_{it}$  and are significant at the 5% level. There is an indication that the control-based method of consolidation has increased the value relevance to users of consolidated financial statement information offered in regards to consolidated assets and consolidated liabilities. Hence there is support for H1 that control-based consolidated financial statements improve value relevance.

The above results therefore offer support for H1.

### **8.3 Value relevance comparison of firms holding a small number of subsidiaries and associates relative to firms with a large number of subsidiaries and associates**

To test H2 the full sample was split into two groups based on the numbers of subsidiaries and associates held. Group A contained data for firms holding fewer than five subsidiaries and any number of associates. Group B contained data for firms holding five or more subsidiaries and any number of associates.

Regression models (2) and (4) were used to analyse H2 with results recorded in Table 5. Regression (2) for group A shows coefficients for  $CASSET_{it}$  and  $CNI_{it}$  of 0.910 (8.921) and 3.592 (8.090) respectively with t-statistics in parenthesis. Both coefficients as anticipated are positive and significant at the 1% level. The coefficient for  $CLIABILITY_{it}$  is negative value of -0.399 (-1.214) with t-statistic in parenthesis and significant at the 10% level.

Regression (4) for group A shows a positive but insignificant value for the coefficient of  $POST \times CASSET_{it}$  of 0.020 (0.109) with t-statistic in parenthesis. The coefficient for  $POST \times CLIABILITY_{it}$  is insignificant, although it is negative as expected with a value of -0.115 (-0.288) with t-statistic in parenthesis. The coefficients for  $POST \times CNI_{it}$  is positive with a value of 2.055 (1.749) with t-statistic of in parenthesis and significant, but only at the 10% level. The incremental coefficient for  $POST \times NCI_{it}$  is however insignificant and negative with a value of -2.098 (-0.140) with t-statistic in parenthesis. Results suggest there has been no significant incremental increase in value relevance to the consolidated financial statements of group A following the introduction of FRS 37. It appears that  $NCI_{it}$  continues to be viewed as a liability to the firm.

Regression analysis for group B was expected to indicate a greater impact on value relevance of their consolidated financial statements as a result of the introduction of FRS 37. Regression (2) for group B shows positive coefficients for  $CASSET_{it}$  and  $CNI_{it}$  of 0.673 (4.715) and 3.077 (5.789) respectively with t-statistics in parenthesis and both significant at the 1% level. However regression (4) indicates that incremental coefficients for  $POST \times CASSET_{it}$ ,  $POST \times CLIABILITY_{it}$ ,  $POST \times NCI_{it}$  and  $POST \times CNI_{it}$  are all insignificant.

The results indicated that firms with a smaller number of holdings showed a more significant improvement than the firms with a larger number of holdings in value relevance of consolidated net income following introduction of FRS 37. The firms with a larger number of holdings did not exhibit the same improvement in value relevance which suggests that the introduction of the control-based method of consolidation under FRS 37 did not appear to have been as successful as anticipated at capturing entities held that may be controlled indirectly. These results do not support H2 and leave room for future research on the application of the definition of control under FRS 37 and the potential improvement in capture of indirectly controlled entities under IFRS 10.



## **9. Additional analysis**

### **9.1 Difference in difference tests**

The mandatory introduction of FRS 37 in New Zealand was arguably undertaken in relative isolation from other standard changes, being the only new standard implemented for years ending on or after 31 December 2002. However with the ability for firms to early adopt, the reality that some organisations were slow in their implementation and the issuance of new standards occurring in years either side of this, there was the possibility that the results were influenced by some factors other than the switch from SSAP 8 to FRS 37.

To determine whether other factors influenced a change in the value relevance companies with only wholly owned subsidiaries and no associates prior to introduction of FRS 37 and whose holdings remained unchanged after introduction of FRS 37 were recorded as group C and were compared to the remaining sample group D. Expectations were that the value relevance of the consolidated statements of companies of group C would remain relatively stable, showing no significant change to coefficients of the change variables denoted by  $POST_{it}$ , if no other factors outside the switch from SSAP 8 to FRS 37 were significantly influential. Group D would exhibit significant changes to the incremental post FRS 37 coefficients.

Value relevance analysis using regression models 2 and 4 were undertaken. Results showing no significant change in coefficients of the control group would support findings of minimal impact by other factors and significant changes to coefficients in group B would offer further support to H1.

Table 6 shows the results for the difference in difference analysis. Regression (2) for group C shows positive coefficients for  $CASSET_{it}$  and  $CNI_{it}$  with values of 1.927 (4.712) and 3.063 (5.239) with t-statistics in parenthesis and significant at the 1% level. The coefficient for  $CLIBILITY_{it}$  shows the expected negative result with a value -1.140 (-1.730) with t-statistics in parenthesis and significant at the 10% level. The results support findings that the book value of consolidated assets, liabilities and net income can help explain stock prices.

Results for regression (4) for group C shows the incremental coefficient for  $POST \times CNI_{it}$ , although negative, is significant at the 10% level. The significant result appears

indicate a change in value relevance associated with net income has occurred. However the negative result does not support a positive incremental increase in value relevance. Further the incremental coefficients for  $POST \times CASSET_{it}$ ,  $POST \times LIABILITY_{it}$ ,  $POST \times NCI_{it}$  are all insignificant. This supports expectations that the value relevance of the consolidated statements of companies with wholly owned subsidiaries would remain relatively stable if no other factors outside the switch from SSAP 8 to FRS 37 were significantly influential.

Results for regression (2) for Group D show positive coefficients for  $CASSET_{it}$  and  $CNI_{it}$  with values of 0.809 (6.416) and 2.589 (5.469) respectively with t-statistics in parenthesis and both significant at the 1% level. The coefficient for  $LIABILITY_{it}$  is negative with a value -0.321 (-1.753) which is again consistent with the nature of liabilities and significant at the 10% level. The results support findings that the book value of consolidated assets, liabilities and net income are associated with stock prices.

As with the regression (4) for group C, the results for regression (4) for group D show a significantly negative coefficient for  $POST \times CNI_{it}$  of -1.038 (-1.215) with t-statistics in parenthesis and significant at the 10% level. However group D also shows  $POST \times LIABILITY_{it}$  to be significant at the 10% level with a value of -0.503 (-1.458) with t-statistics in parenthesis.

The remaining incremental coefficients for group D are insignificant with values for  $POST \times NCI_{it}$  and  $POST \times CASSET_{it}$  showing values of 1.769 (0.572) and 0.604 (1.280) respectively with t-statistics in parenthesis.

The indication is that the introduction of FRS 37 contributed to value relevance of consolidated financial.

## **9.2 Returns model**

Prior studies have suggested that the Edwards-Bell-Ohlson valuation model has several shortcomings. Kothari and Zimmerman (1995) suggested that omitted variables and scale problems were likely to affect the level regression (market value as the dependent variable) more than the change regression (returns as the dependent variable). Therefore, as with Hsu et al. (2012), a returns model has been included for robustness tests.

$$\begin{aligned}
RET_{it} = & \beta_0 + \beta_1 x CNI_{it} + \beta_2 x \Delta CNI_{it} + \beta_3 POST + \beta_4 POST x CNI_{it} + \beta_5 POST x \\
& \Delta CNI_{it} + \beta_6 LOSS_{it} + \sum_{Y=2001}^{2004} \beta_7, Y YEAR_Y + \sum_{D=1}^n \beta_5, D IND_D + \varepsilon_{it}
\end{aligned} \tag{5}$$

Where:

$RET_{it}$  denotes the firm's annual stock returns, cumulated from 8 months before the end of fiscal year t through four months after the end of fiscal year t.

$\Delta CNI_{it}$  is the change in consolidated net income per share during each accounting period.

Table 7 reports the results from the return association regression on the whole sample, firms with less than five subsidiaries (group A) and firms with five or more subsidiaries (group B).

It was anticipated that if consolidated statements under FRS 37 were more value relevant than consolidated statements under SSAP 8 the coefficients for  $POST x CNI_{it}$  and  $POST x \Delta CNI_{it}$  would be positive and significant.

The results for the whole sample regression show both the coefficients for  $POST x CNI_{it}$  and  $POST x \Delta CNI_{it}$  to be significant at the 1% level. However, whereas the coefficient for  $POST x CNI_{it}$  is negative at -0.480 (-5.223) with t-statistic in parenthesis, the coefficient for  $POST x \Delta CNI_{it}$  is positive at 0.361 (3.767) with t-statistic in parenthesis. The results are in line with the previous regression analysis using market value as a proxy for value relevance with the coefficient for  $POST x \Delta CNI_{it}$  providing additional evidence of an increase in the value relevance of consolidated financial statements under the control-based method of consolidation and therefore support for H1.

The results for the group A regression show both  $POST x CNI_{it}$  and  $POST x \Delta CNI_{it}$  to be negative but significant at the 1% and 5% respectively. The results from the group B regression show both the coefficients for  $POST x CNI_{it}$  and  $POST x \Delta CNI_{it}$  to be significant at the 1% level, however only the coefficient for  $POST x \Delta CNI_{it}$  is positive.

Although the signs of the coefficients are not all positive, they are all significant and the signs are consistent with those from the firm-level association regression. Further, previous study by Barth et al. (2001) found significant firm value association but a weak return association can still conclude significant value relevance. Therefore the results show some increase in value relevance following the introduction of FRS 37 and therefore support for H1. The decrease in significance of group B compared to group A supports the previous findings using the market value to proxy for value relevance therefore further indicating that H2 is not supported.

## **10. Multicollinearity**

Measures of VIF indicate that the independent variables in the market value regression are collinear with VIF values being above 5<sup>9</sup>. As the focus of this study was on the variables post introduction of FRS 37 non *POST* variables were excluded. The values of the coefficients were altered; however the signs and significance of the values remained unchanged.

All VIF values for the independent variables in the returns regression were below 5 and therefore there appeared to be no apparent multicollinearity problem in the returns model regression.

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<sup>9</sup> A common cut off threshold for VIF values is between 5 to 10. The value of 5 has been used in line with So & Smith (2009).

## **11. Conclusion**

This study was undertaken to determine the increase in value relevance of consolidated financial statements resulting from the introduction of FRS 37 in New Zealand. The study was based on an earlier study by Hsu et al. (2012) and aimed to replicate their research in the New Zealand environment.

The value relevance of consolidated financial statements using the control-based method of consolidation under FRS 37 were compared to consolidated financial statements using the ownership-based method of consolidation under SSAP 8. Using the mandatory switch to FRS 37 in New Zealand, results indicated that consolidation under the control-based method of consolidation resulted in greater value relevance as compared to consolidated financial statements under the ownership-based method of SSAP 8.

To examine the influence of the number of holdings within a group, the sample was broken down so that data could be grouped to analyse organisations with a small number of holdings as compared to organisations with a larger number of holdings. It was anticipated that, due to the relatively limited complexity of New Zealand companies, entities under the control of organisations with a small or large number of holdings would both exhibit an increase in value relevance of their consolidated financial statements. However results indicated that there was some complexity behind organisations with a large number of holdings and therefore the increase in value relevance of consolidated financial statements was more pronounced for entities with a smaller number of holdings. This also indicated that as a result of the allowance for a degree of interpretation for the application of control under FRS 37, some controlled entities, which were likely to be entities that were controlled indirectly, were not captured in the consolidation. This leaves room for a future analysis of IFRS 10 and the specific requirements for the application of control to capture more entities leading to an increase of instances of consolidation.

The results also highlighted a changing significance in non-controlling interests. Although Abad et al. (2000) found no support for value relevance for the non-controlling interest component of earnings, Swanson and Mielke (1997) found that firms should show non-controlling interests in the consolidated financial statements as it would provide meaningful information to parent shareholders. In this research,

the breakdown of non-controlling interests to determine significant influencing factors was not examined and leaves this area open for future research.

Finally the findings were based on a small sample in New Zealand. However, findings support previous research undertaken in similar areas, and therefore form a basis from which to examine the impact of IFRS 10 in New Zealand, which specifies the use of the control-based method of consolidation but includes further guidance for the application of control.

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### 13. Tables

**Table 1: Effect of sample selection criteria**

Total number of companies listed on NZX as at 31/12/2000	181
Listed as overseas issuer not using NZD	-12
Delisted prior to or part way through analysis (2001-2004)	-76
Historical share prices unavailable	-14
Change of year-end part way through years being analysed	-8
Consolidated accounts not available for full analysis	-5
Changed reporting currency part way through analysis	-2
Financial and insurance companies	-10
Available population to sample	54

**Table 2: Panel A: Descriptive statistics ratio analysis**  
**Summary statistics ratio analysis 2001-2004 for unadjusted consolidated financial statements**

	N	Mean	STD	Q1	Median	Q3
ROE	216	-0.095	1.117	0.032	0.094	0.143
ROA	216	-0.130	1.112	0.080	0.056	0.092
Leverage	216	1.464	4.412	0.385	0.832	1.549
Asset turnover	216	1.257	1.028	0.418	0.852	2.012
ROS	216	-0.484	2.949	0.008	0.049	0.113
Interest cover	216	-17.566	488.751	-3.131	4.015	9.108
Altman Z Ferner	216	2.295	17.732	-0.172	1.783	4.125
Altman Z Tab	216	-2.617	12.011	-0.854	0.040	0.571

All data for ratio analysis was collected from the New Zealand Stock Exchange (NZX). Return on equity (ROE) was calculated as earnings before income and tax/total assets (EBIT/TA); return on assets (ROA) was calculated as net profit/total assets (net profit/TA); leverage was calculated as total liabilities/equity (TL/E); asset turnover was calculated as revenue/total assets (Rev/TA); return on sales was calculated as net profit/revenue (net profit/Rev); interest cover was calculated as earnings before income and tax/interest expense (EBIT/int); the Altman Z Ferner & Hamilton (1987) model (Altman Z Ferner) was calculated as  $Z = 0.86 - 3.55(WC/TA) + 0.5(RE/TA) + 8.77(EBIT/TA) + 0.95(E/TL) + 0.99(Sales/TA)$  with critical value = -0.04; the Altman Z Tabb & Wong (1983) model (Altman Z Tab) was calculated as  $Z = 0.232 - 2.805(WC/TA) + 1.086(RE/TA) + 0.293(CF/TA) + 0.275(\log(TA/1,000,000) + 1.513(EBT/Equity) + 0.134(\log(TL/TA) + 0.201(WC/TL))$  with critical value = 0.

**Panel B: Descriptive statistics ratio analysis**  
**Summary statistics ratio analysis 2001-2004 for restated consolidated financial statements**

	N	Mean	STD	Q1	Median	Q3
ROE	216	-0.095	1.117	0.032	0.094	0.143
ROA	216	-0.130	1.112	0.008	0.056	0.092
Leverage	216	1.464	4.412	0.384	0.832	1.550
Asset turnover	216	1.257	1.028	0.418	0.852	2.012
ROS	216	-0.484	2.949	0.008	0.049	0.113
Interest cover	216	-17.567	488.751	-3.131	4.015	9.108
Altman Z Ferner	216	2.304	17.748	-0.172	1.783	4.125
Altman Z Tab	216	-2.616	12.011	-0.854	0.040	0.571

All data for ratio analysis was collected from the New Zealand Stock Exchange (NZX). Return on equity (ROE) was calculated as earnings before income and tax/total assets (EBIT/TA); return on assets (ROA) was calculated as net profit/total assets (net profit/TA); leverage was calculated as total liabilities/equity (TL/E); asset turnover was calculated as revenue/total assets (Rev/TA); return on sales was calculated as net profit/revenue (net profit/Rev); interest cover was calculated as earnings before income and tax/interest expense (EBIT/int); the Altman Z Ferner & Hamilton (1987) model (Altman Z Ferner) was calculated as  $Z = 0.86 - 3.55(WC/TA) + 0.5(RE/TA) + 8.77(EBIT/TA) + 0.95(E/TL) + 0.99(Sales/TA)$  with critical value = -0.04; the Altman Z Tabb & Wong (1983) model (Altman Z Tab) was calculated as  $Z = 0.232 - 2.805(WC/TA) + 1.086(RE/TA) + 0.293(CF/TA) + 0.275(\log(TA/1,000,000) + 1.513(EBT/Equity) + 0.134(\log(TL/TA) + 0.201(WC/TL))$  with critical value = 0.

**Panel C: Descriptive statistics ratio analysis**  
**Summary statistics ratio analysis across two sub-periods for unadjusted consolidated financial statements**

	2001-2002 (Pre FRS 37)				2003-2004 (Post FRS 37)			
	N	Mean	Median	STD	N	Mean	Median	STD
ROE	108	-0.111	0.085	0.921	108	-0.079	0.101	1.289
ROA	108	-0.144	0.046	0.916	108	-0.116	0.063	1.283
Leverage	108	1.226	0.813	1.925	108	1.701	0.865	5.941
Asset turnover	108	1.247	0.775	1.039	108	1.266	0.928	1.022
ROS	108	-0.767	0.044	4.001	108	-0.202	0.058	1.140
Interest cover	108	-66.455	3.475	581.322	108	31.322	4.608	370.442
Altman Z Ferner	108	1.456	1.881	10.080	108	3.134	1.679	22.996
Altman Z Tab	108	-2.761	-0.032	11.330	108	-2.472	0.108	12.707

All data for ratio analysis was collected from the New Zealand Stock Exchange (NZX). Return on equity (ROE) was calculated as earnings before income and tax/total assets (EBIT/TA); return on assets (ROA) was calculated as net profit/total assets (net profit/TA); leverage was calculated as total liabilities/equity (TL/E); asset turnover was calculated as revenue/total assets (Rev/TA); return on sales was calculated as net profit/revenue (net profit/Rev); interest cover was calculated as earnings before income and tax/interest expense (EBIT/int); the Altman Z Ferner & Hamilton (1987) model (Altman Z Ferner) was calculated as  $Z = 0.86 - 3.55(WC/TA) + 0.5(RE/TA) + 8.77(EBIT/TA) + 0.95(E/TL) + 0.99(Sales/TA)$  with critical value = -0.04; the Altman Z Tabb & Wong (1983) model (Altman Z Tab) was calculated as  $Z = 0.232 - 2.805(WC/TA) + 1.086(RE/TA) + 0.293(CF/TA) + 0.275(\log(TA/1,000,000) + 1.513(EBT/Equity) + 0.134(\log(TL/TA) + 0.201(WC/TL))$  with critical value = 0.

**Panel D: Descriptive statistics ratio analysis**  
**Summary statistics ratio analysis across two sub-periods for restated consolidated financial statements**

	2001-2002 (Pre FRS 37)					2003-2004 (Post FRS 37)				
	N	Mean	Median	STD	N	Mean	Median	STD		
ROE	108	-0.111	0.085	0.921	108	-0.079	0.101	1.289		
ROA	108	-0.144	0.046	0.916	108	-0.116	0.063	1.283		
Leverage	108	1.227	0.813	1.925	108	1.701	0.865	5.941		
Asset turnover	108	1.247	0.775	1.039	108	1.266	0.928	1.022		
ROS	108	-0.766	0.044	4.002	108	-0.202	0.058	1.140		
Interest cover	108	-66.455	3.475	581.322	108	31.322	4.608	370.442		
Altman Z Ferner	108	1.474	1.881	10.135	108	3.134	1.679	22.996		
Altman Z Tab	108	-2.760	-0.032	11.330	108	-2.472	0.108	12.707		

All data for ratio analysis was collected from the New Zealand Stock Exchange (NZX). Return on equity (ROE) was calculated as earnings before income and tax/total assets (EBIT/TA); return on assets (ROA) was calculated as net profit/total assets (net profit/TA); leverage was calculated as total liabilities/equity (TL/E); asset turnover was calculated as revenue/total assets (Rev/TA); return on sales was calculated as net profit/revenue (net profit/Rev); interest cover was calculated as earnings before income and tax/interest expense (EBIT/int); the Altman Z Ferner & Hamilton (1987) model (Altman Z Ferner) was calculated as  $Z = 0.86 - 3.55(WC/TA) + 0.5(RE/TA) + 8.77(EBIT/TA) + 0.95(E/TL) + 0.99(Sales/TA)$  with critical value = -0.04; the Altman Z Tabb & Wong (1983) model (Altman Z Tab) was calculated as  $Z = 0.232 - 2.805(WC/TA) + 1.086(RE/TA) + 0.293(CF/TA) + 0.275(\log(TA/1,000,000) + 1.513(EBT/Equity) + 0.134(\log(TL/TA) + 0.201(WC/TL))$  with critical value = 0.

**Table 3: Panel A: Descriptive statistics accounting variables**  
**Summary statistics accounting variables 2001-2004**

	N	Mean	STD	Q1	Median	Q3
$MV_{it}$	216	2.792	3.490	0.603	1.630	4.162
$RET_{it}$	216	0.255	1.264	-0.116	0.134	0.325
$EQUITY_{it}$	216	1.481	2.061	0.407	0.895	1.830
$CASSET_{it}$	216	2.815	3.138	0.765	1.938	4.226
$CLLABILITY_{it}$	216	1.338	1.539	0.239	0.888	1.831
$NCI_{it}$	216	0.019	0.066	0.000	0.000	0.011
$C_N I_{it}$	216	0.152	0.421	0.006	0.116	0.259

All data was collected from the New Zealand Stock Exchange (NZX). All variables were in New Zealand Dollars (NZD).  $MV_{it}$  denotes the market value of firms  $i$ 's shareholders' equity four months after the fiscal year  $t$  end;  $RET_{it}$  denotes the firms' annual stock return cumulated for eight months before the end of fiscal year  $t$  and four months following the end of fiscal year  $t$ ;  $EQUITY_{it}$  denotes the consolidated book value of firm  $i$ 's shareholder equity at the end of year  $t$ ;  $CASSET_{it}$  denotes consolidated assets for firm  $i$  at the end of year  $t$ ;  $CLLABILITY_{it}$  denotes the consolidated liabilities for firm  $i$  at the end of year  $t$ ;  $NCI_{it}$  denotes non-controlling interest for firm  $i$  at the end of year  $t$ ;  $C_N I_{it}$  denotes consolidated net income in year  $t$ . All regression variables have been deflated by the number of shares on issue at year-end.



**Panel B: Descriptive statistics accounting variables**  
**Summary statistics across two sub periods**

	2001-2002				2003-2004			
	N	Mean	Median	STD	N	Mean	Median	STD
$MV_{it}$	108	2.508	1.495	2.954	108	3.075	2.110	3.948
$RET_{it}$	108	0.295	0.103	1.726	108	0.295	0.103	1.726
$EQUITY_{it}$	108	1.442	0.879	1.945	108	1.520	0.914	2.179
$CASSET_{it}$	108	2.773	2.076	2.955	108	2.857	1.869	3.324
$CLLABILITY_{it}$	108	1.330	0.862	1.533	108	1.345	0.892	1.552
$NCI_{it}$	108	0.022	0.000	0.073	108	0.018	0.000	0.058
$C_{NI_{it}}$	108	0.110	0.089	0.357	108	0.194	0.158	0.474
$SUBSIDIARY_{it}$	108	11.92	5.50	23.246	108	12.13	5.00	23.22
$100\%SUBSIDIARY_{it}$	108	10.69	5.00	22.169	108	10.92	5.00	22.50
$ASSOCIATES_{it}$	108	1.45	1.00	1.964	108	1.83	1.00	2.65

All data was collected from the New Zealand Stock Exchange (NZX). All variables were in New Zealand Dollars (NZD).  $MV_{it}$  denotes the market value of firms  $i$ 's shareholders' equity four months after the fiscal year  $t$  end;  $RET_{it}$  denotes the firms' annual stock return cumulated for eight months before the end of fiscal year  $t$  and four months following the end of fiscal year  $t$ ;  $EQUITY_{it}$  denotes the consolidated book value of firm  $i$ 's shareholder equity at the end of year  $t$ ;  $CASSET_{it}$  denotes consolidated assets for firm  $i$  at the end of year  $t$ ;  $CLLABILITY_{it}$  denotes the consolidated liabilities for firm  $i$  at the end of year  $t$ ;  $NCI_{it}$  denotes non-controlling interest for firm  $i$  at the end of year  $t$ ;  $C_{NI_{it}}$  denotes consolidated net income in year  $t$ . All regression variables have been deflated by the number of shares on issue at year-end.  $SUBSIDIARY_{it}$  is the number of subsidiaries included in the reporting entity;  $100\%SUBSIDIARY_{it}$  is the number of wholly owned subsidiaries included in the reporting entity;  $ASSOCIATES_{it}$  is the number of associates included in the reporting entity.

**Panel C: Pearson and Spearman correlation table**

Variables	$MV_{it}$	$RET_{it}$	$CASSET_{it}$	$CLLIABILITY_{it}$	$C_{N}I_{it}$	$NCI_t$
$MV_{it}$	1	0.810 <sup>***</sup> (0.001)	0.842 <sup>***</sup> (0.000)	0.550 <sup>***</sup> (0.000)	0.788 <sup>***</sup> (0.000)	0.015 (0.826)
$RET_{it}$	0.862 <sup>***</sup> (0.000)	1	0.729 <sup>***</sup> (0.000)	0.385 <sup>***</sup> (0.000)	0.673 <sup>***</sup> (0.000)	0.020 (0.959)
$CASSET_{it}$	0.838 <sup>***</sup> (0.000)	0.692 <sup>***</sup> (0.000)	1	0.826 <sup>***</sup> (0.000)	0.584 <sup>***</sup> (0.000)	0.104 (0.127)
$CLLIABILITY_{it}$	0.743 <sup>***</sup> (0.000)	0.625 <sup>***</sup> (0.000)	0.946 <sup>***</sup> (0.000)	1	0.223 <sup>***</sup> (0.000)	0.099 (0.146)
$C_{N}I_{it}$	0.832 <sup>***</sup> (0.000)	0.792 <sup>***</sup> (0.000)	0.673 <sup>***</sup> (0.000)	0.576 <sup>***</sup> (0.001)	1	0.075 (0.273)
$NCI_t$	0.274 <sup>***</sup> (0.000)	0.247 <sup>***</sup> (0.000)	0.356 <sup>***</sup> (0.000)	0.380 <sup>***</sup> (0.000)	0.250 <sup>***</sup> (0.000)	1

All data was collected from the New Zealand Stock Exchange (NZX). All variables were in New Zealand Dollars (NZD).  $MV_{it}$  denotes the market value of firms  $i$ 's shareholders' equity four months after the fiscal year  $t$  end;  $RET_{it}$  denotes the firms' annual stock return cumulated for eight months before the end of fiscal year  $t$  and four months following the end of fiscal year  $t$ ;  $EQUITY_{it}$  denotes the consolidated book value of firm  $i$ 's shareholder equity at the end of year  $t$ ;  $CASSET_{it}$  denotes consolidated assets for firm  $i$  at the end of year  $t$ ;  $CLLIABILITY_{it}$  denotes the consolidated liabilities for firm  $i$  at the end of year  $t$ ;  $NCI_t$  denotes non-controlling interest for firm  $i$  at the end of year  $t$ ;  $C_{N}I_{it}$  denotes consolidated net income in year  $t$ . All regression variables have been deflated by the number of shares on issue at year-end. T-statistics are given in parentheses. <sup>\*\*\*</sup>, <sup>\*\*</sup>, and <sup>\*</sup> denotes significance at the 1%, 5% and 10% levels respectively, in a two-tailed test.

**Table 4: Value relevance of shareholders' equity, assets, liabilities and earnings from consolidated financial statements.**

	Regression (1)	Regression (2)	Regression (3)	Regression (4)
	<i>MV</i>	<i>MV</i>	<i>MV</i>	<i>MV</i>
<i>Intercept</i>	1.053 (4.212)***	1.195 (4.634)***	0.441 (1.964)**	0.715 (2.880)**
<i>EQUITY<sub>it</sub></i>	1.155 (14.847)***	1.113 (11.695)***		
<i>CASSET<sub>it</sub></i>			0.864 (10.471)***	0.728 (6.754)***
<i>CLIABILITY<sub>it</sub></i>			-0.356 (-2.624)*	-0.096 (-0.501)
<i>NCI<sub>it</sub></i>			-3.302 (-2.112)**	-3.575 (-1.902)*
<i>CNI<sub>it</sub></i>	2.653 (7.149)***	1.850 (3.520)***	3.265 (9.500)***	3.361 (6.679)***
<i>POST<sub>i</sub></i>		0.601 (0.928)		0.704 (1.190)
<i>POST<sub>i</sub> x EQUITY<sub>it</sub></i>		0.074 (0.516)		
<i>POST<sub>i</sub> x CASSET<sub>it</sub></i>				0.292 (1.963)**
<i>POST<sub>i</sub> x CLIABILITY<sub>it</sub></i>				-0.566 (-2.227)**
<i>POST<sub>i</sub> x NCI<sub>it</sub></i>				0.630 (0.225)
<i>POST<sub>i</sub> x CNI<sub>it</sub></i>		1.109 (1.552)*		-0.275 (-0.403)
<i>LOSS</i>	-0.156 (-0.574)	-0.278 (-1.027)	-0.111 (-0.452)	-0.138 (-0.553)
<i>Industry</i>	Yes	Yes	Yes	Yes
<i>Year</i>	Yes	Yes	Yes	Yes
<i>N</i>	216	216	216	216
<i>Adj R<sup>2</sup></i>	0.823	0.829	0.861	0.863

Regression Models 1-4 are estimated data for non-financial firms from 2001-2004.  $MV_{it}$  denotes the value of the firm  $i$  four months after the end of the fiscal year  $t$ ;  $EQUITY_{it}$  denotes the consolidated book value of firm  $i$ 's shareholders at the end of the fiscal year  $t$ ;  $NCI_{it}$  denotes non-controlling interest for firm  $i$  at the end of the year  $t$ ;  $CNI_{it}$  denotes consolidated net income for firm  $i$  in year  $t$ ;  $POST_t$  equals 1 when observations are under the control-based approach (2003-2004), and 0 when the observations are under the ownership-based approach (2001-2001);  $YEAR_t$  is a time indicator that equals 1 if an observation is from fiscal year  $t$ , and 0 otherwise. All regression variables have been deflated by the number of shares on issue at year end. T-statistics are given in parentheses. \*\*\*, \*\*, and \* denotes significance at the 1%, 5% and 10% levels respectively, in a two-tailed test.

**Table 5: Value relevance of consolidated assets, liabilities, net income and non-controlling interests in consolidated financial statements with respect to number of subsidiaries and associates held.**

	Group A <5 subsidiaries		Group B >=5 subsidiaries	
	Regression (2)	Regression (4)	Regression (2)	Regression (4)
	<i>MV</i>	<i>MV</i>	<i>MV</i>	<i>MV</i>
<i>Intercept</i>	0.345 (1.314)	0.358 (1.278)	1.147 (3.388)**	0.972 (2.500)**
<i>CASSET<sub>it</sub></i>	0.910 (8.921)***	1.099 (8.095)***	0.673 (4.715)***	0.529 (2.574)**
<i>CLIAILITY<sub>it</sub></i>	-0.399 (-1.214)*	-0.792 (-2.142)*	-0.148 (-0.737)	0.199 (0.664)
<i>NCI<sub>it</sub></i>	-2.093 (-0.454)	-0.786 (-0.181)	-4.689 (-2.224)*	-5.645 (-2.319)**
<i>C<sub>NI</sub><sub>it</sub></i>	3.592 (8.090)***	1.282 (1.268)	3.077 (5.789)***	3.919 (5.759)***
<i>POST<sub>i</sub></i>		-0.043 (-0.168)		1.116 (1.345)
<i>POST<sub>i</sub> x CASSET<sub>it</sub></i>		0.020 (0.109)		0.236 (0.926)
<i>POST<sub>i</sub> x CLIAILITY<sub>it</sub></i>		-0.115 (-0.208)		-0.580 (-1.553)
<i>POST<sub>i</sub> x NCI<sub>it</sub></i>		-2.098 (-0.140)		2.317 (0.714)
<i>POST<sub>i</sub> x C<sub>NI</sub><sub>it</sub></i>		2.055 (1.747)*		-1.455 (-1.576)
<i>LOSS</i>	0.022 (0.081)	-0.250 (-0.351)	-0.500 (-1.251)	-0.465 (-1.164)
<i>Industry</i>	Yes	Yes	Yes	Yes
<i>Year</i>	Yes	Yes	Yes	Yes
<i>N</i>	72	72	144	144
<i>Adj R<sup>2</sup></i>	0.972	0.979	0.625	0.628

Regression Models 1-4 are estimated data for non-financial firms from 2001-2004.  $MV_{it}$  denotes the value of the firm  $i$  four months after the end of the fiscal year  $t$ ;  $EQUITY_{it}$  denotes the consolidated book value of firm  $i$ 's shareholders at the end of the fiscal year  $t$ ;  $NCI_{it}$  denotes non-controlling interest for firm  $i$  at the end of the year  $t$ ;  $C_{NI_{it}}$  denotes consolidated net income for firm  $i$  in year  $t$ ;  $POST_t$  equals 1 when observations are under the control-based approach (2003-2004), and 0 when the observations are under the ownership-based approach (2001-2001);  $YEAR_t$  is a time indicator that equals 1 if an observation is from fiscal year  $t$ , and 0 otherwise. All regression variables have been deflated by the number of shares on issue at year end. T-statistics are given in parentheses. \*\*\*, \*\*, and \* denotes significance at the 1%, 5% and 10% levels respectively, in a two-tailed test.

**Table 6: Value relevance of consolidated assets, liabilities, net income and non-controlling interests in consolidated statements for firms who are affected by FRS 37 relative to firms which have wholly owned subsidiaries and therefore are not.**

	Group C = 100% holdings		Group D <100% holding & subsidiaries	
	Regression (2)	Regression (4)	Regression (2)	Regression (4)
	<i>MV</i>	<i>MV</i>	<i>MV</i>	<i>MV</i>
<i>Intercept</i>	-0.346 (-0.963)	-0.278 (-0.810)	0.865 (2.543)**	-0.348 (-0.446)
<i>CASSET<sub>it</sub></i>	1.927 (4.712)***	1.766 (3.633)**	0.809 (6.416)***	0.677 (3.658)***
<i>CLIAILITY<sub>it</sub></i>	-1.140 (-1.730)*	-1.518 (-1.541)	-0.321 (-1.753)	-0.033 (-0.121)
<i>NCI<sub>it</sub></i>			-3.283 (-1.829)*	-4.034 (-1.859)*
<i>C<sub>N</sub>I<sub>it</sub></i>	3.063 (5.239)***	6.177 (3.228)**	2.589 (5.469)***	3.161 (5.329)***
<i>POST<sub>i</sub></i>		-1.077 (-1.222)		1.263 (1.726)*
<i>POST<sub>i</sub> x CASSET<sub>it</sub></i>		0.414 (1.430)		0.235 (0.995)
<i>POST<sub>i</sub> x CLIAILITY<sub>it</sub></i>		0.223 (0.241)		-0.563 (-1.455)*
<i>POST<sub>i</sub> x NCI<sub>it</sub></i>				1.769 (0.572)
<i>POST<sub>i</sub> x C<sub>N</sub>I<sub>it</sub></i>		-3.945 (-1.971)*		-1.038 (-1.215)*
<i>LOSS</i>	0.128 (0.416)	0.539 (1.414)	-0.355 (-1.114)	-0.378 (-1.064)
<i>Industry</i>				
<i>Year</i>				
<i>N</i>	60	60	156	156
<i>Adj R<sup>2</sup></i>	0.979	0.980	0.661	0.663

Regression Models 1-4 are estimated data for non-financial firms from 2001-2004.  $MV_{it}$  denotes the value of the firm  $i$  four months after the end of the fiscal year  $t$ ;  $EQUITY_{it}$  denotes the consolidated book value of firm  $i$ 's shareholders at the end of the fiscal year  $t$ ;  $NCI_{it}$  denotes non-controlling interest for firm  $i$  at the end of the year  $t$ ;  $C_{N}I_{it}$  denotes consolidated net income for firm  $i$  in year  $t$ ;  $POST_t$  equals 1 when observations are under the control-based approach (2003-2004), and 0 when the observations are under the ownership-based approach (2001-2001);  $YEAR_t$  is a time indicator that equals 1 if an observation is from fiscal year  $t$ , and 0 otherwise. All regression variables have been deflated by the number of shares on issue at year end. T-statistics are given in parentheses. \*\*\*, \*\*, and \* denotes significance at the 1%, 5% and 10% levels respectively, in a two-tailed test.

**Table 7: Value relevance of consolidated financial statement: returns model**

	Return association full sample	Return association Group A (<5 sub)	Return association Group B (>=5 sub)
	<i>RET</i>	<i>RET</i>	<i>RET</i>
<i>Intercept</i>	-0.032 (-0.856)	-0.059 (-0.239)	-0.280 (-3.061)***
<i>C<sub>N</sub>I<sub>it</sub></i>	1.186 (16.320)***	2.092 (11.286)***	0.693 (6.806)***
$\Delta C_{NI_{it}}$	-0.644 (-11.273)***	0.011 (0.761)	-0.445 (-5.779)***
<i>POST<sub>i</sub></i>	0.237 (2.394)**	0.094 (0.416)	0.346 (4.452)***
<i>POST<sub>i</sub> x C<sub>N</sub>I<sub>it</sub></i>	-0.480 (-5.223)***	-1.086 (-5.561)***	-0.199 (-1.703)*
<i>POST<sub>i</sub> x <math>\Delta C_{NI_{it}}</math></i>	0.361 (3.767)***	-0.557 (-2.282)**	0.177 (1.852)*
<i>LOSS</i>	0.078 (1.841)*	0.105 (1.109)	-0.010 (-0.265)
<i>Industry</i>	Yes	Yes	Yes
<i>Year</i>	Yes	Yes	Yes
<i>N</i>	216	72	144
<i>Adj R<sup>2</sup></i>	0.701	0.795	0.451

Regression model 5 is estimated using data from non-financial firms from 2001-2004.  $RET_{it}$  denotes the firm's annual stock returns, cumulated from eight months before the end of fiscal year  $t$  through four months after the end of fiscal year  $t$ .  $C_{NI_{it}}$  is the change in consolidated net income per share during each accounting period  $t$ .  $POST_{it}$  equals 1 when observations are under FRS 37 and 0 when observations are under SSAP 8.  $YEAR_t$  is a time indicator that equals 1 if an observation is from fiscal year  $t$  and 0 otherwise. All regression variables are deflated by the number of shares on issue at year-end, t-statistics are given in parenthesis, \*\*\*, \*\* and \* denote significance at the 1%, 5% and 10% respectively in a two-tailed test.

## 14. Appendices

### Appendix 1: Major differences between SSAP 8 and FRS 37

	SSAP 8 <i>Accounting for business combinations</i>	FRS 37 <i>Consolidating investments in subsidiaries</i>
<b>Application of standard</b>	To external financial statements of all groups of entities excluding the Crown.	To all reporting entities and groups, the Crown and all departments, Offices of Parliament and Crown entities and all local authorities.
<b>Purpose of standard</b>	To <b>define</b> a standard method of accounting for the earnings of and investments in subsidiaries, in-substance subsidiaries and associates, where consolidated financial statements (CFSs) are prepared.	Application under definition of control a) <b>Identify</b> the entities that are appropriate to be consolidated b) <b>Prescribe</b> the circumstances in which consolidated financial statements are to be presented c) <b>Establish procedures</b> for preparing CFSs that reflect the economic substance of the consolidated entity d) <b>Specify</b> minimum disclosures e) <b>Specify</b> certain disclosures relating to investments in subsidiaries in a parents own financial statements.
<b>Accounting method</b>	Subsidiaries and in-substance subsidiaries should be consolidated using: a) The purchase method where one of the parties to the business combination can be identified as the acquirer b) The pooling of interests method where none of the parties can be identified as the acquirer c) The equity method if the directors (or governing members) consider that the same or equivalent information can be better presented by this application. Associates, unconsolidated subsidiaries and unconsolidated	Subject to adjustments prescribed under the Standard, consolidated financial statements must present, as one set of combined financial statements, <b>separate line-by-line aggregations (purchase method)</b> of like items of assets, liabilities, equity, revenues, expenses and cash flows that are recognised in the financial statements of all entities in the consolidated entity.

	<p>in-substance subsidiaries should be accounted for by the equity method.</p>	
<p><b>Control</b></p>	<p>Control means the <b>power to govern</b> the financial and operating policies of another entity for the purpose of obtaining the <b>benefits</b> and or assuming the risks normally associated with ownership.</p>	<p>Control by one entity over another entity exists in circumstances where the following parts (a) <b>power element</b> and (b) <b>benefit element</b> are both satisfied:</p> <p>(a) The first entity has the capacity to determine the financing and operating policies that guide the activities of the second entity, except in the following circumstances where such capacity is not required:</p> <ul style="list-style-type: none"> <li>(i) Where such policies have been irreversibly predetermined by the first entity or its agent; or</li> <li>(ii) Where the determination of such policies is unable to materially impact the level of potential ownership benefits that arise from the activities of the second entity.</li> </ul> <p>(b) The first entity has an entitlement to a significant level of current or future ownership benefits, including the reduction of ownership losses, which arise from the activities of the second entity.</p>
<p><b>Assessing existence of control</b></p>	<p>Ownership focus</p>	<p>The existence of control as defined in this Standard is a question of fact. The determination of the fact that control exists will, however, often <b>require the application of judgement</b>. This is because control of an entity can be attained in a variety of ways, and the underlying circumstances will vary between differing</p>



		<p>situations. Paragraph 5.10 sets out a number of rebuttable presumptions, which, in the absence of any evidence to the contrary, will indicate the existence of control.</p> <p>Where a given situation does not apparently match one or more of the rebuttable presumptions, the lists of indicators of both ownership powers and ownership benefits in paragraph 5.11 may still be sufficient to establish the existence of control.</p>
<p><b>Special purpose entities (SPEs)</b></p>		<p>Control will arise in favour of a party that is entitled to a significant or greater level of the SPE's ownership benefits, irrespective of whether that party has the ultimate decision-making capacity regarding the SPE. Entities having financial assets securitised through an SPE vehicle in this manner will commonly have control</p>