Choice of Valuation Model: Australia Evidence on the Valuation of PPE Pursuant to Regulatory Change

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Choice of valuation model: Australian evidence on the valuation of PPE pursuant to regulatory change

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ABSTRACT

A change in Australian regulation governing the valuation of non-current assets resulted in a dramatic decline in the number of firms choosing to periodically revalue Property, Plant and Equipment. These amendments reduce flexibility in the valuation of non-current assets, create the potential for increased frequency of valuation and are likely to contribute to increased volatility in income. The higher contracting costs associated with the adoption of the revised revaluation model are found to be borne by firms that are more highly levered. However, leverage also has an indirect impact on policy choice through size, financial interdependence within the corporate group, investments in current and future assets-in-place and insider ownership.

1. INTRODUCTION

The use of historical cost in determining the carrying value of non-current assets enjoys a long tradition in accounting. Alternative measurement bases may also be used in combination with historical cost. For example, for non-current assets historical cost is adjusted for accumulated depreciation and accumulated recoverable[1] amount or impairment loss write-downs, with the latter determined by reference to values in use and/or values in exchange. Departures from historical cost are permitted in some regulatory regimes; they are typically[2] voluntary and remain the exception to the 'rule'.[3]

Yet, more flexible valuation policies possess utility in informing financial statement users of changes in a firm's future prospects and, given that management has superior information about the expected cash flows of the firm, revaluation constitutes a valuable accounting technology through which information asymmetry is lessened (Brown, Izan and Loh, 1992; Jaggi and Tsui, 2001). However unless that information has the requisite degree of reliability it is unlikely to reduce asymmetry. Empirical evidence (Aboody, Barth and Kaznik 1999, Jaggi and Tsui 2001, Loh and Tan 2002, Barth and Clinch 1998, Courtenay and Cahan 2004a, Courtenay and Cahan 2004b) of the information content and value relevance of adoption of the revaluation model is consistent with investors' reliance on the revised information contained in the revaluation. Furthermore, recent changes to accounting regulation pertaining to the revaluation of tangible non-current assets have reduced the flexibility permitted in adopting a revaluation model, with the assumption that standardisation will improve the perceived reliability of revaluations.

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1 See the definition of recoverable amount contained in AASB 1041 and its predecessor AASB 1010: in relation to an asset, the net amount that is expected to be recovered through the cash inflows and outflows arising from its continued use and disposal.

2 Lau and Ma (1997, p.67) note that in certain Asia Pacific countries tangible fixed asset revaluations have been mandated or permitted during times of hyper inflation.

3 This statement applies to non-current assets other than financial instruments. Fair values are being progressively introduced for financial instruments and are outside the scope of this study.

In addition to the reduction of information asymmetry between managers and financial statement users, other motivations for revaluation include the avoidance of debt covenant violations, the desire to enhance borrowing capacity and avoid political costs (Brown, Izan and Loh 1992, Easton, Eddey and Harris 1993, Whittred and Chan 1992, Cotter and Zimmer 1995, Jaggi and Tsui 2001).

Early studies of the determinants of revaluation in Australia show empirically the importance of the agency costs of debt associated with default risk and under-investment. Furthermore, a survey of chief financial controllers in Australia conducted by Easton, Eddey and Harris (1993) highlighted the importance of revaluation in the reduction of reported leverage. However, the more recent study by Cotter (1999) was unable to replicate the findings of earlier studies. She attributes this result to the low inflationary environment in the mid-nineties together with much greater reliance on private debt contracting which together reduce the implied benefits of revaluation. Moreover Courtenay and Cahan (2004a, 2004b) find in New Zealand and Singapore respectively that revaluations are value-relevant for low leverage firms only. Thus an apparent contradiction exists: firms with more debt are expected to derive greater benefit from the reporting flexibility provided by revaluation of non-current tangible assets, yet the adverse selection problem inhibits its pricing. This puzzle provides one motivation for the current study.

Second, the present study exploits a setting in which the costs and/or benefits of revaluation are material. The revised regulation, with an original application date of June 2001, is argued to increase the costs for firms adopting the revaluation model. Firms bearing the highest costs/smallest benefits of revaluation would be expected to switch to cost at the earliest opportunity. The present study focuses on the valuation choice itself to convey information concerning variation in the expected future cash inflows of non-current assets.

This study contributes to the literature in several ways. First, it documents a major decline in firms implementing the revaluation model. The impact of the regulatory change is significant in the broader international context in which conservatism in accounting is growing in popularity. Increasing conservatism in accounting and financial reporting since the 1990s (Kwon et al. 2001, Givoly and Hayn 2002, Watts 2003a,b) parallels increased regulation of companies in general and instruments of corporate governance in particular. Consistent with this trend, Lev and Zarowin (1999) document a growing differential between market and book values of equity for US firms. Dependent on the assumed purpose of accounting, further widening of the gap between market and book values may be problematic.

Second, this study contributes new evidence on the relation between the investment opportunity set (IOS) and valuation choice for tangible long-lived assets. While Whittred and Chan (1992) and Cotter and Zimmer (1995) growth options in general, this study restricts the IOS to growth options associated with existing and future investments in assets-in-place. In doing so it establishes a closer nexus between leverage and investments that support debt financing. In particular, commitments to invest in productive assets constitute an objective measure of the exercise of growth options (rather than their mere existence) and is uncontaminated by concomitant growth in intangible assets.

Third, the study contextualises the revaluation choice within the corporate group. A unique feature of the Australian regulatory environment is the Deed of Cross-Guarantee which is restricted to a holding company and one or more of its wholly-owned entities. Financial interdependence is created within the 'closed group' as related entities consent to "lifting the corporate veil"[4], thereby negating a primary advantage (limited liability) associated with the corporate form (Murphy 1998).[5]

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4 Consolidated statements of the 'economic entity' imply resources of the corporate group are pooled in the case of insolvency. As this assumption departs from legal principle, it is tantamount to the distinction drawn by Mian and Smith (1990) between direct (Deed of Cross Guarantee) and indirect (consolidated statements prepared under GAAP) guarantees.

5 The lifting of the corporate veil is restricted to nominated wholly-owned entities and in the case of insolvency effectively quarantines assets and liabilities of the closed group from the corporate group.

Whittred and Zimmer (1986) observed a requirement in public debt agreements for a set of consolidated statements that comprise the 'group' defined, where appropriate, over guarantor(s) and guarantee(s). Mather (1999) identified a similar requirement for consolidated statements based on guaranty in private debt agreements. [6] Empirical investigation of this distinctive feature of the economic landscape has been ignored.

This study complements Courtenay and Cahan (2004a, b). They found revaluation is value-relevant only for low leverage firms. The results here show that managers in low leverage firms that continue to revalue are motivated to act in the interests of the firm through higher levels of insider ownership. There is also evidence that only larger low leverage firms continue to revalue. Larger firms are subject to the added discipline imposed by the market such as analyst following, media coverage and institutional ownership, which in turn reduce the scope for opportunism.

This study also finds that highly levered large firms that continue to revalue commit themselves to the higher costs of default arising from Deeds of Cross Guarantee while highly levered small firms commit to greater capital expenditures. In addition, increasing investments in current assets-in-place in high leverage firms is independent of size and consistent with enhanced capacity of borrowers and auditors to monitor (and discipline) managers.

The remainder of the paper is organised as follows. The next section provides an overview of the institutional environment. Section three presents hypothesis development. Section four describes sample selection and research design. Section five documents empirical regularities whilst the final section discusses the results together with limitations and avenues for future research.

6 Mather and Peirson (2006) note the increasing heterogeneity of debt covenant and measurement rules in both private and public lending agreements in Australia.

2. INSTITUTIONAL ENVIRONMENT

Revaluations of non-current assets have long been a feature of accounting policy choice in Australia. The Australian Accounting Standard AASB1010 *Accounting for the Revaluation of Non-current Assets* was issued in June 1981 and became operative on 1 July, 1981. AASB1010 specified the accounting procedures to be used in the revaluation of non-current assets, but did not give any guidance on the timing of the revaluations or the valuation method or basis to be used. When revaluing an asset the standard required that all assets in a single class be revalued.

2.1 AASB 1041 *Revaluation of Non-Current Assets*

AASB1041 *Revaluation of Non-Current Assets* was initially issued in December 1999 with an application date 30 June 2001. It was subsequently revised and reissued in July 2001 as AASB1041, operative for accounting periods ending on or after 30 September 2001. The revision was part of the international harmonisation project and in response to implementation issues raised during the consultation process.

Consistent with the general principle of accounting for assets at cost, non-current assets are initially recorded at fair value at the date of acquisition. Subsequent to acquisition AASB1041 requires that each class of non-current assets be measured using the cost or the fair value basis.[7] If the fair value basis is used then revaluations must be made with sufficient regularity to ensure that the carrying amount of each asset in the class does not differ materially from its fair value.[8] Paragraph 5.1.11 of AASB1041 provides that the frequency of revaluations depends on the frequency and materiality of changes in the fair values of the assets. Where the fair value of an asset in the class of non-current asset being revalued differs materially from its carrying amount, a revaluation is necessary.

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[7] AASB1041 para 5.1

[8] AASB1041 para 5.1(b)

AASB1041 permits a change from the cost basis to fair value basis, or to discontinue applying fair value basis only if such change satisfies the criteria for a voluntary change in accounting policy under AASB1001 *Accounting Policies.* Pursuant to AASB1001 a change in accounting policy can be made only in certain circumstances: if the change is necessary to comply with an accounting standard, Urgent Issue Group pronouncement, or in circumstances where no specific accounting standard applies; if the change results in an improvement in the relevance and reliability of the information contained in the financial reports; an accounting standard permits alternative accounting policies; the change from one permitted policy to another permitted policy will result in improved relevance and reliability.[9]

Initial application of the standard could apply to any reporting date from 30 June 1999 to 30 September 2001. The entities that adopted AASB1041 early were required to make an election under sub section 335(5) *Corporations Act 2001* (Cth). This election was to be made in writing by the directors. Early adoption of revised AASB1041 relieved entities from the requirement to provide a reconciliation of all classes of non-current assets other than Property Plant and Equipment. This requirement was removed in the reissued version applicable from 30 September 2001.[10]

2.2 Incremental costs of AASB 1041

The incremental costs of revaluation under the revised accounting legislation relate to reduced flexibility in choosing a basis for valuation (fair value only), greater frequency of revaluations to ensure that carrying value and recoverable amount of an asset class do not differ materially giving rise to additional out-of-pocket costs of valuation and/or management effort expended on such activities together with associated audit costs.

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9 AASB1001 6.1

10 Prior to the adoption of the revised AASB1041, entities were required to provide a reconciliation of movements in all classes of non-current assets in addition to reconciliations for property, plant and equipment.

3. PRIOR LITERATURE AND HYPOTHESIS DEVELOPMENT

3.1 Large Firm Efficiencies

Early adoption of the accounting standard is more likely for firms facing increasing costs of revaluation with little or no increase in expected benefits. On the initial application of AASB1041 entities could elect to revert back to the cost basis for measuring a class of non-current assets by either deeming the carrying amount of the non-current assets at the date of first application as the cost of the assets or alternatively make retrospective adjustments to measure the assets at their cost of acquisition less any accumulated depreciation and any accumulated recoverable amounts write-downs or impairment losses so the assets would be recorded at the amount which would have been its value if the assets had always been measured at cost.

In contrast, the future application of AASB1041 requires that non-current assets measured using fair values must be revalued with sufficient regularity to ensure that the carrying amount of each asset in the class does not differ materially from its fair value. Thus the frequency of revaluation is subject to the materiality of the change in the fair value of each asset. In the absence of material differences the standard provides three year intervals as indicative of the minimum frequency of revaluation. This contrasts with previous rules which required disclosure of the current value of property only on a triennial basis.

Larger firms with access to greater in-house resources and specialist staff are expected to be familiar with proposed and new regulation and predict its impact on the firm. Large firms are expected to time their adoption to minimise costs/maximise benefits. In contrast, small firms are more likely to buy-in expertise; they will tend to be reactive with adoption more likely to meet mandatory deadlines.

Size is a noisy proxy for the efficiencies enjoyed by large firms in reviewing and implementing policy. For example, it has been used to proxy for political costs, efficiencies and industry among other factors (Ball and Foster 1982). As in Francis (1987) size is likely to be a joint test of large firm efficiencies and other factors correlated with size. In addition, Watts and Zimmerman (1986) argue that large firms are more likely to favour income and variance decreasing accounting policies. As noted above the revised regulation has the capacity to decrease income but increase volatility in income. The maintained assumption is that the flexibility inherent in revaluation with respect to loosening debt covenants will outweigh the political costs arising from potential income volatility and is consistent with the findings of Brown, Izan and Loh (1992).

H1(a) Firms that continue to revalue are larger than firms that revert to the cost basis.

3.2 Reducing Information Asymmetry

Firms choosing to revalue under revised AASB1041 will bear higher out of pocket and opportunity cost of management time devoted to the ongoing valuation of asset classes subject to revaluation. In addition to the costs associated with monitoring changes in fair values by management and/or valuation experts there will be additional audit costs incurred by the firm.[11] Goodwin (1995) found that auditors were likely to perform additional tasks in the case of revaluation, in particular, discussing the valuation with the client and reviewing valuation methodology. The valuation was also likely to be discussed with another review partner. Therefore audit fees are expected to rise in the presence of revalued assets.

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11 Auditing Standard AUS606 *Using the Work of an Expert* operative from 31 July 1996 establishes the responsibility for the audit opinion with the auditor. To this end paragraph 14 states "The auditor should assess the appropriateness of the expert's work as audit evidence regarding the financial report assertion being considered" and in paragraph 16 the standard explains "The appropriateness and reasonableness of assumptions and measures used and their application are the responsibility of the expert. Although not having the same expertise as the expert, the auditor will need to obtain an understanding of the assumptions and methods used and to consider whether they are reasonable, based on the auditor's knowledge of the business and the results of other audit procedures." Alternatively, in the absence of use of a valuer the auditor would need to consider valuations provided by management. Auditing Standard AUS520 *Management Representations* operative 31 December 1999 establishes audit responsibility with respect to management representations.

The out of pocket and opportunity costs associated with the use of a more restrictive set of permissible valuation methods and the frequency of revaluation suggests that more profitable firms are better able to absorb the ongoing costs of revaluation under the revised accounting standard. Furthermore, the transitional arrangements give firms the opportunity to revert to the cost basis, maintaining the balance sheet benefits of lower leverage but bearing a higher level of depreciation relative to cost.

Although Gaermynch and Veugelers (1999) found that successful (Belgian) firms were less likely to revalue, profitable firms that opt for the revaluation model signal their capacity to absorb the higher costs of revaluation in addition to satisfying any contractual constraints written around income numbers (such as interest coverage). For profitable high leverage firms that continue to revalue the decision signals an expectation that future cash inflows will continue to be sufficient to maintain solvency.

Barth and Clinch (1998) showed that revaluations provide credible signals of the exit value of non-current assets for investors. Although revaluation in low leverage firms is more consistently perceived as conveying private information about the value of existing assets (Courtenay and Cahan 2004a), high leverage firms face greater debt contracting costs and therefore place a greater value on the option to ease accounting-based constraints contained in debt contracts relative to low leverage firms. The foregoing discussion implies:

> H1(b) High leverage firms that continue to revalue are more profitable than firms that revert to the cost basis.

3.3 Avoidance of Debt Covenant Violation

A unique feature of the Australian institutional environment is the capacity to enter into a Deed of Cross Guarantee between a parent company and nominated wholly owned subsidiary. The implementation of a Deed of Cross Guarantee makes each company in the closed group liable to the creditors of every other company within the closed group. Downstream guarantees (that is parent guarantees of the debts of subsidiaries) assure creditors of the parent that attempts to remove assets from their reach will be ineffectual, while creditors of subsidiaries have access to the assets of both the subsidiary and the parent. Upstream guarantees (subsidiaries' guarantees of parent debt) are more likely to be beneficial when the parent is a holding company as opposed to a trading entity.

As the assets of members of the closed group form a common pool available to the creditors, the Deed undoes the basic principle of limited liability that otherwise attaches to the corporate structure. In essence, firms with Deeds of Cross Guarantees trade off the benefits of limited liability for greater access to debt financing. Borrowing by a member of a closed group is likely to be advantageous when private information on the quality and riskiness of a project cannot be transferred cost effectively to lenders. Furthermore, as Deeds of Cross Guarantee become enforceable if one of the companies in the group is wound up by either a court order or its creditors,[12] they provide greater certainty to creditors than allowing courts the discretion to "pierce the corporate veil".

Additional benefits to the group include lower costs of preparing separate financial reports, as well as maintaining privacy of information on the performance and position of the wholly-owned subsidiary. Dean and Clarke (2005) found that Deed of Cross Guarantee usage appears to be strategic, with company officers citing protection of market sensitive information and the quarantining of assets and liabilities as advantages of use.

Deeds of Cross Guarantee are increasingly popular in Australia. Ramsey and Stapledon (1998) reported that 20 per cent of all publicly listed companies had an ASIC approved Deed of Cross Guarantee in place; in the top 50 listed companies this percentage rises to nearly 50 per cent. Dean and Clarke (2005, page 304) report similar levels of usage citing more than 50 per cent of the top 50 and approximately 40 per cent of the top 200 firms with Deeds..

[12] Or if six months after a member company is wound up any debt of the group company has not been settled in full.

In contrast to the study of the role of Deeds of Cross Guarantees in insolvency, there has been no prior research on their implications for accounting policy choice. The closest studies examine cross guarantees other than in the context of a closed group. With respect to consolidation choice Whittred (1987) and Mian and Smith (1990) found a positive relationship between guarantees of financial obligations and voluntary consolidation in Australia and the US respectively. The decision to equity account investments in associated companies is also related to the presence of cross guarantees (Mazay, Wilkins, and Zimmer 1993).

Whittred (1987) argues that cross guarantees increase the likelihood of the repayment of debt to the extent that the guarantees reduce the likelihood of default. If default risk increases with leverage then the benefits of cross guarantees should also increase with leverage. Therefore it would be expected that there is a higher incidence of cross guarantees amongst high leverage firms. Rational lenders are aware that in the presence of cross guarantees managers of firms with high leverage have greater incentive to avoid a call on the guarantor. Also in Australia, the parties to a Deed of Cross Guarantee registered with ASIC can be unilaterally varied by the closed group permitting the group to restrict pooled resources to cover healthy group members only (Dean, Clarke and Houghton 2001). Assuming efficiency, creditors would contract to limit opportunism inherent in the arrangements by, for example, requiring that debts incurred while part of a closed group be supported by the group and/or loans be reviewed in such circumstances.

The arguments presented above suggest that Deeds of Cross Guarantee are more likely for high debt rather than low debt firms and given the higher default risk for high leverage firms, the more likely that these firms maintain flexibility in accounting policy choice by continuing to revalue their non-current assets. Thus:

H2 High leverage firms that continue to revalue are more likely to have a Deed of Cross Guarantee than firms that revert to the cost basis.

3.4 Enhancing Borrowing Capacity

"Virtually any discretionary expenditure can be viewed as growth options. Thus, growth options include capacity expansion projects, new product introductions, acquisitions of other firms, investment in brand name through advertising and even maintenance and replacement of existing assets" (Gaver and Gaver 1993, p127). Prior research (Smith and Watts 1992, Gaver and Gaver 1993, Skinner 1993) shows theoretically and empirically an inverse relationship between the investment opportunity set and leverage. That is, the higher the growth options[13] relative to assets-in-place, the lower the debt. This literature leads to the expectation that high leverage firms will have relatively more assets-in-place. The positive relationship between leverage and assets-in-place suggests that high leverage firms will continue to revalue given the incentives to loosen debt contracting constraints, minimise the costs associated with underinvestment and/or reduce information asymmetry (Cotter 1999, Whittred and Chan 1992, Brown, Izan and Loh 1992, Courtenay and Cahan 2004a). It is hypothesised that:

> H3(a) High leverage firms that continue to revalue have more assets-in-place than firms that revert to the cost basis.

Growth options associated with future investments in assets-in-place are commonly known as capital commitments. Australian regulation requires disclosure of capital commitments in three time bands (within 12 months, between 1 year and 5 years, greater than 5 years). Importantly, these growth options reflect assets that support debt financing.

Firms with higher capital commitments have less demand for revaluation the faster the rate of replacement of assets-in-place since the value of more recent acquisitions of non-current assets more closely approximate current value.

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13 Typical proxies used for the IOS are market to book value of equity: [Whittred and Chan (1992), Cotter and Zimmer (1995) and Cotter (1997)]; Price Earnings ratio or E/P [Brown, Izan and Loh (1995), Gaver and Gaver (1993), Smith and Watts (1992)]; and R&D intensity [Gaver and Gaver (1993) and Smith and Watts (1992)]. Other proxies used less frequently in the literature include the ratio of capital expenditures to firm value [Smith and Watts (1992)]; the ratio of Property Plant and Equipment to Firm Value [Skinner (1993)]; depreciation to firm value [Smith and Watts (1992)] and Tobin's Q [Skinner (1993)].

However, where firms with greater investment opportunities associated with assets-in-place are already highly levered, these firms face higher potential costs from underinvestment associated with the full complement of investment opportunities. The higher costs associated with underinvestment for high leverage firms suggests these firms will continue to revalue under the new rules. Hypothesis 3(b) states:

> H3(b) High leverage firms that continue to revalue have higher growth options associated with future assets-in-place than firms that revert to the cost basis.

3.5 Incentive Alignment

As the equity stake of owner-managers decline, there is greater moral hazard associated with shirking, perquisite consumption and other suboptimal behaviour since the manager only bears a portion of the associated costs (Jensen and Meckling 1976). Thus the agency costs of equity are expected to increase as insider (board) ownership decreases[14] in the absence of other monitoring mechanisms. Furthermore, as insider ownership declines, managers are less likely to expend effort in seeking out profitable investment opportunities and greater incentive to invest in negative net present value projects.

Firms with existing assets-in-place are less difficult to monitor than firms with growth options, while firms with growth options associated with future assets-in-place are less difficult to monitor than firms with growth options which are less observable, such as research and development. Since revaluation enhances borrowing capacity higher levels of insider ownership are expected to be an effective governance mechanism for firms with greater potential to act opportunistically (Hutchinson and Gul 2004). Financial slack provided through revaluation is subject to fewer governance constraints in low leverage firms. To counter this inefficiency managers of low leverage firms will be encouraged to take an equity stake in the firm. Hypothesis 4 states:

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[14] We thank an anonymous reviewer for suggesting the inclusion of the agency costs of equity.

H4 Low leverage firms that continue to revalue have higher levels of insider ownership than firms that revert to the cost basis.

4. SAMPLE AND RESEARCH DESIGN

4.1 Sample selection

The data for this study was collected using the Annual Report Collection Connect 4 database of financial reports. The financial statements for 2000, 2001 and 2002 were examined to identify firms adopting AASB 1041 early: such firms are required to disclose the change in accounting policy in the notes to the accounts and to make an election in accordance with subsection 334(5) of the *Corporations Act 2001* (Cth).

In 2000 the database consisted of 511 reports. Two of these companies BRL Hardys Limited and TAB Limited had made an early election to apply the transition arrangements of AASB1041 in 2000. These two companies appear to be the earliest adopters of the revised standard.

Annual reports totalling 513 were examined in 2001 while the annual reports' database for 2002 comprised 507 reports. All companies which had not elected to adopt early in the prior years were examined to ascertain if early adoption had occurred in 2002 prior to the operative date of the Standard of 30 September 2002, after which all companies were required to implement the revised Standard. No early adopters were identified in the 2002 year end thus this study comprises companies adopting the revised provisions in their 2001 annual report. As most companies making an election to adopt the standard early reported an adoption date at the commencement of their 2001 financial year, variables are measured using balance date information as at the end of the previous (ie 2000) financial year.

The companies were coded in accordance with the Global Industry Classification Standard code (GICS). Banks, financial institutions and insurance companies, entities involved in mining and energy, real estate and utilities were excluded from the study due to the specific reporting requirements which govern these types of entities.[15] The selection criteria are summarised below in Table 1:

Table 1 Sample selection

Companies with Annual Reports on Connect 4			513
Excluded because of Operating Activity			
Banks		14	
Diversified Financials		56	
Energy companies		20	
Insurance		8	
Mining companies		101	
Real Estate		58	
Utilities		5	262
			251
Companies with incomplete data	3		
Companies not using AASBs	4		
Companies with no PPE	1		8
			243
Companies continuously using cost			132
Reduced sample			111
Ambiguous data on managerial ownership			1
Firms with complete data for testing			110
Firms with negative return on assets			3
Firms used in testing hypotheses			107

Table 2 provides descriptive data on industry membership giving the number of companies in reverter (companies reverting to the cost basis during the transitional arrangements), revaluer (companies which continue to revalue non-current assets) and cost (companies which have always used the cost basis for accounting for non-current assets) categories.[16]

15 The findings in Barth and Clinch (1998) confirm differences across industrial, financial and mining firms.

16 Of the eight revaluers in 2000 that chose to adopt the provisions at the mandated date, half have continued to revalue.

Table 2: Companies by GICS Code and Industry

GICS Code	Industry	Reverters	Revaluers	Cost	Total
1510	Materials	13	5	7	25
2010	Capital Goods	9	2	5	16
2020	Commercial Services & Supplies	9	0	10	19
2030	Transportation	2	2	3	7
2510	Automobiles and Components	3	0	1	4
2520	Consumer Durables and Apparel	1	1	3	5
2530	Hotels, Restaurants and Leisure	3	1	8	12
2540	Media	10	2	7	19
2550	Retailing	3	3	11	17
3010	Food and Drug Retailing	1	1	0	2
3020	Food, Beverage and Tobacco	14	10	4	28
3510	Health Care Equipment and Services	2	3	9	14
3520	Pharmaceuticals and Biotechnology	4	2	13	19
4020	Diversified Financials	1	0	0	1
4040	Real Estate	0	1	5	6
4510	Software and Services	1	0	28	29
4520	Technology Hardware & Equipment	0	0	9	9
5010	Telecommunications	1	1	9	11
Total		77	34	132	243

Entities that have always used the cost basis account for just over half of all companies in the reduced sample in 2001. Technology, Software and Services and Telecommunications firms use the cost basis almost exclusively. These three groups are the largest in the cost category making up one-third of all cost firms and a large proportion of these companies do not own land and buildings.

Table 2 reveals that for the 243 companies 77 are reverters (companies which had previously used revaluation for non-current assets), 34 are revaluers (companies which continue to revalue non-current assets) and 132 companies continue to use the cost basis for reporting non current assets. Statistical tests are conducted on the first two groups of companies only (n=111).

Table 3 shows the incidence of Deeds of Cross Guarantee. Continuing and former revaluers (reverters) were more likely to have a Deed of Cross Guarantee than firms always using historical cost. Fifty nine per cent of continuing revaluers and 56 per cent of reverting companies had cross guarantees in place, compared to only 23 per cent of those firms who use the cost basis. Note that revaluers and reverters are almost equally likely to have a Deed of Cross Guarantee.

Table 3 Companies with Cross Guarantees

Status	Cross Guarantees	Percentage of Total	No Cross Guarantees	Percentage of Total	Total
Reverters	43	56%	34	44%	77
Revaluers	20	59%	14	41%	34
Cost	30	23%	102	77%	132
Total	93	38%	150	62%	243

Slightly more than half of the sample has director ownership less than 5% (Table 4). Of these 40% have boards whose members have less than 1% of the issued shares of the firm. However, there is considerable variation in insider ownership across the remainder of the firms with approximately one quarter of firms whose directors own 20% or more of the firm. Panel B indicates that revaluers are disproportionately overrepresented in the 20-40% category while underrepresented in categories less than 20%.

Table 4 Insider Ownership (I/O)

Insider Ownership	Number of Firms	Cumulative Percent
Panel A: All firms (n=110)		
0≤I/O <1%	44	40.0
1≤I/O <5%	16	54.5
5≤I/O <20%	16	69.1
20≤I/O <40%	18	85.5
40≤I/O <60%	13	97.3
I/O≥60%	3	100.0
Panel B: Revaluers (n=34)		
0≤I/O <1%	13	38.2
1≤I/O <5%	4	50.0
5≤I/O <20%	3	58.8
20≤I/O <40%	8	82.4
40≤I/O <60%	4	94.1
I/O≥60%	2	100.0
Panel C: Reverters (n=76)		
0≤I/O <1%	31	40.8
1≤I/O <5%	12	56.6
5≤I/O <20%	13	73.7
20≤I/O <40%	10	86.8
40≤I/O <60%	9	98.7
I/O≥60%	1	100.0

4.2 Research Design

The study is cross-sectional, comparing reverters with revaluers. The statistical analysis includes interaction terms between independent variables and leverage. The slope of the coefficient on the interaction term is expected to be positive and significant for hypotheses 1-3 respectively and negative for hypothesis 4.

The measurement of leverage using consolidated accounts is unlikely to closely align with specific covenants used in debt contracts. Moreover, Mather and Peirson (2006) find increasing heterogeneity in public and private lending agreements. The measurement of liabilities in the numerator may be measured with error if off-balance sheet commitments to future expenditures are included in debt covenants. As capital commitments are included in this study as an independent variable the proxy for leverage may contain further noise.

Furthermore the study includes firms which have significant investments in identifiable intangibles. Whittred and Zimmer (1986) and Cotter (1998) document the exclusion of intangible assets from public and private lending agreements respectively. The sample used in this study contains a number of firms for which measured leverage often exceeds unity suggesting that some identifiable intangibles are included for the purposes of debt contracts. Noise in the measurement of leverage as a continuous variable will have a greater impact on the results than if leverage is used to partition the data (Courtenay and Cahan 2004a). Interactions with leverage will exacerbate noise (McClelland and Judd 1993). Assigning observations to levels of one or more independent variables will control some of the measurement error. Analyses will include partitioning of the sample based on median leverage and size.

4.3 Measurement of Variables

4.3.1 Dependent Variable

The dependent variable for purposes of this study is measured dichotomously. It is restricted to firms that were adopting the revaluation model in the year 2000 and therefore eligible in 2001 to elect to continue to revalue (1) or revert to cost (0) as part of the transitional provisions of AASB1041.

4.3.2 Independent Variables

The independent variables and their measurement are described in Table 5. For Hypothesis 1(a) size is measured as market capitalisation at the beginning of the year of adoption. This data was collected from Datastream. All other variables are hand collected from the Connect 4 Annual Report file. Profitability is measured as return on assets (ROA). As ROA is a composite measure, it is decomposed into profit margin and asset turnover for separate analysis. The regressions are run with, and excluding, negative (3) cases of ROA. The results reported in this paper omit negative cases (107) but the results remain unchanged for the full sample (110).

Table 5 Independent Variables and their Measurement

Market Capitalisation	Number of Ordinary Shares x Price at Balance Date
Total Assets	Book Value of Total Assets at Balance Date
Return on Assets	Earnings before Net Interest, Taxes and Abnormal Items/Book Value of Total Assets
Profit Margin	Earnings before Net Interest, Taxes and Abnormal Items/Operating Revenue
Asset Turnover	Operating Revenue/Book Value of Total Assets
PPE to Firm Value	Net Book Value of PPE/Market Cap of Equity and Book Value of Total Liabilities
Leverage	Book Value of Total Liabilities/Book Value of Net Intangible assets
Capital Commitments to Firm Value	Value of Unrecognised Disclosed Capital Commitments at Balance Date/Market Cap of Equity and Book Value of Total Liabilities.
Insider Ownership	Shares held by Board of Directors/Total Issued Fully Paid Shares

Hypothesis 2 uses a categorical variable (0/1) for absence/presence of Deeds of Cross Guarantee. Firms with Deeds of Cross Guarantees were identified through a search in the annual report file using ASIC Class orders (ASIC 98/1418, ASIC98/2017 and ASIC00/0321), "closed group" and "Deed of Cross Guarantee". Sensitivity tests use an alternative measure of leverage for the subsample with Deeds, defined as total liabilities divided by total assets for the closed group.

Hypothesis 3 examines current and future investments in assets-in-place. Current investments in assets-in-place are based on the book value of Property, Plant and Equipment divided by firm value where firm value is the book value of liabilities plus the market value of equity at balance date. Future investments in assets-in-place are based on reported disclosures of capital commitments.[17]

Hypothesis 4 investigates the insider ownership of shares. Annual report disclosures identify the quantity of shares held by directors. In some instances director interests are held jointly by directors but, except for one instance, the disclosures are sufficient to avoid any double-counting. Insider ownership is scaled by total issued fully paid shares.

None of the variables are normally distributed. Market capitalisation is normalised by taking the natural logarithm. All other variables have been truncated at three standard deviations from the upper value of the mean.[18] All analyses are reported using the adjusted raw data.

5. Hypothesis Testing

A multivariate logistic regression is used to test the hypotheses. The choice of a logit regression is appropriate when there is disproportionate sampling from two populations (i.e. revaluer and reverter firm populations). Maddala (1991) notes that the unequal sampling rates from the two groups does not affect the coefficients of the explanatory variables.

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17 Capital commitments are disclosed for amounts that have not been recognised as liabilities but are contracted for as at the reporting date.

18 This procedure had the greatest impact on ROA (14 observations), leverage (12), PPE and asset turnover (9 observations each).

TABLE 6

DESCRIPTIVE STATISTICS

	Market Cap (000)	Insider Ownership	Return on Assets	Profit Margin	Asset Turnover	PPE	Leverage	Capital Commit
Panel A; All firms (n=107)								
Mean	1,609,161	0.1442	0.1002	0.1249	1.1840	0.3330	0.6412	0.0196
Median	212,760	0.0193	0.0930	0.0841	0.9701	0.2706	0.5998	0.0032
Standard Deviation	5,319,095	0.1994	0.0503	0.1473	0.7432	0.2569	0.3021	0.0686
Minimum	12,900	0	0.0025	0.0049	0.1045	0.0187	0.0932	0.0000
Maximum	46,858,440	0.8864	0.2850	1.2589	3.6405	1.5224	2.2152	0.5988
Panel B: Reverters (n=75)								
Mean	1,534,791	0.1314	0.0987	0.1292	1.1184	0.3326	0.6672	0.0230
Median	212,760	0.0189	0.0916	0.0785	0.9644	0.2683	0.6160	0.0028
Standard Deviation	5,639,188	0.1894	0.0505	0.1688	0.6175	0.2677	0.3356	0.0811
Minimum	12,900	0	0.0025	0.0049	0.1045	0.0187	0.0932	0
Maximum	46,858,440	0.8864	0.2569	1.2589	2.8459	1.5224	2.2152	0.5988
Panel C: Cont revaluers (n=32)								
Mean	1,783,465	0.1742	0.1037	0.1148	1.3380	0.3340	0.5803	0.0117
Median	221,140	0.0420	0.0959	0.1022	1.1607	0.2734	0.5605	0.0041
Standard Deviation	4,559,338	0.2214	0.0506	0.0777	0.9714	0.2337	0.1944	0.0167
Minimum	27,600	0.0001	0.0195	0.0209	0.1700	0.0242	0.2549	0
Maximum	24,906,670	0.6813	0.2850	0.3376	3.6405	0.9883	1.2190	0.0658

Market Capitalisation = Number of Ordinary Shares x the Price at Balance Date
Insider Ownership =Percentage of Shares held by Members of the Board of Directors/Total Issued Shares
Return on Assets = Earnings before Net Interest, Taxes and Abnormal Items/Book Value of Total Assets
Profit Margin = Earnings before Net Interest, Taxes and Abnormal Items/Operating Revenue
Asset Turnover = Operating Revenue/Book Value of Total Assets
PPE to Firm Value =Book Value of Net PPE/Market Cap of Equity + Book Value of Total Liabilities
Leverage = Book Value of Total Liabilities/Book Value of Net Tangible Assets
Capital Commitments to Firm Value = Unrecognised Disclosed Value of Capital Commitments/Market Cap of Equity + Book Value of Total Liabilities

5.1 Descriptive Statistics

Table 6 provides descriptive statistics on independent variables. The raw data on market capitalisation indicate a mean of $1,609m (median $213m) ranging between $13m and $46,858m. The mean (median) insider ownership of 14%(2%) is high relative to that reported in Hutchinson and Gul 2004 of 7%(0.02) respectively. The latter study focuses on growth options and thus contains a more diverse industry sample. For example their study includes energy, mining, real estate and utility companies which are excluded here. In terms of profitability, return on assets is ten percent with a median of 9.3% and ranges from 0.2% to 28.5%. The average profit margin is 12.5% (8.4%) while asset turnover for the sample averages 1.18 times (0.97).

Average firm leverage is 64% (60%) with a maximum of 220%. This latter result is driven by firms predominately in media and the food and beverage industries. For example they include Lion Nathan, Burns Philp, John Fairfax, Prime Television, Southern Cross Broadcasting and Ten Network. These firms have substantial amounts of intangible assets for which the standard derivation of the leverage ratio (that is, excluding intangibles) would appear to be inappropriate. For existing investment in assets-in-place, property, plant and equipment varies between 2% of firm value and 152%. Commitments to invest in future PPE have less variation, averaging 2% (0.03) with a maximum of 60%.

Panels B and C of Table 6 describe the sample based on valuation choice. The descriptive data indicate that continuing revaluers are larger ($1,783m cf $1,534m) with higher ROA and turnover (but not profit margin) and higher insider ownership (17% cf 13%). In contrast reverters have higher leverage (67% cf 58%) and capital commitments.

Table 7 presents the results of the correlation matrix. As expected there is a high correlation between the three measures of profitability: profit margin, asset turnover and return on assets. Accordingly two logit models are specified in which profit margin and asset turnover are specified in Model 1 and return on assets in Model 2. Other than the correlation between asset turnover and profit margin, the next highest correlation is -0.501 between Insider Ownership and market capitalisation, suggesting that multicollinearity is unlikely to affect the interpretation of the coefficients in the regressions. The positive relationship between Deed of Cross Guarantee and firm size is confirmed; counter intuitively leverage based on consolidated GAAP has a significant negative relationship with PPE. None of the variables is related to valuation policy.

TABLE 7

CORRELATION MATRIX

	Valuer Status	Market Cap	Cross Gtee	Capital Commit	PPE	Profit Margin	Asset Turnover	ROA	Lev
Market capitalisation	0.086								
Cross Guarantees	0.060	0.358**							
Capital Commitments	0.070	0.158	0.196*						
PPE to Firm Value	0.035	-0.282**	0.047	0.272**					
Profit Margin	0.037	0.267**	0.088	-0.151	-0.227*				
Asset Turnover	0.043	-0.178	-0.031	0.170	-0.038	-0.668**			
Return on Assets	0.035	0.127	0.072	-0.059	-0.361**	0.522**	0.213*		
Leverage	-0.149	0.243*	0.188	0.140	-0.309**	-0.102	0.117	0.016	
Insider Ownership	0.100	-0.501**	-0.165	-0.116	0.004	0.046	0.018	0.076	0.011

Spearman's rho
** p< 0.01 (2-tailed)
* p< 0.05 (2-tailed)

Valuer Status = 1 if continuing revaluer, otherwise (reverting to cost) 0
Market Capitalisation = Number of Ordinary Shares x the Price at Balance Date
Cross Guarantees = 1 if Deed of Cross Guarantee; otherwise 0
Capital Commitments = value of unrecognised disclosed capital commitments/ Market Cap of Equity + Book Value of Total Liabilities
PPE =Book Value o f Net PPE/ Market Cap of Equity + Book Value of Total Liabilities
Asset Turnover = Operating Revenue/Book Value of Total Assets
ROA = Earnings before Net Interest, Taxes and Abnormal Items/Book Value of Total Assets
Lev = Total Liabilities/Book Value of Net Tangible Assets

5.2 Hypotheses Testing

Hypothesis 1(a) predicted that large firms are more likely to adopt standards early given their specialist staff involved in compliance activities. Table 8 shows that size of the firm is independent of the decision to maintain or change valuation policy. However for Model 1 there is a main effect for Capital Commitments, significantly negative at p=0.081 and the interaction term with Leverage significantly positive (p=0.035). In Model 2 only the interaction term is significant (p=0.081). Leverage is negative and insignificant in both models. In Model 1, the interactions between leverage and cross guarantees is marginally significant (p=0.078) as is the interaction with current investments in PPE. Further testing of the relationship between size and leverage and their impact on the other independent variables is reported in Tables 9 and 10.

TABLE 8

LOGIT REGRESSION INCLUDING INTERACTION TERMS FOR LEVERAGE

		Model 1			Model 2		
Variable	Expected Sign	Coeff	Wald	Significance two-tail	Coeff	Wald	Significance two-tail
Constant	+/--	1.676	0.020	0.887	-6.831	0.458	0.499
Market Capitalisation	+	0.200	0.080	0.778	0.578	0.808	0.369
Leverage	+	-15.224	0.610	0.435	1.326	0.007	0.934
Cross Guarantees	+	-3.049	1.747	0.186	-1.430	0.458	0.499
Capital Commitments	+	-124.442	3.049	0.081*	-78.182	1.742	0.187
PPE	+	-7.550	1.799	0.180	-2.194	0.239	0.625
Asset Turnover	+	2.294	1.123	0.289			
Profit Margin	+	-13.787	0.822	0.365			
Insider Ownership	--	4.212	0.627	0.428	4.633	0.873	0.350
Return on Assets	+				13.878	0.372	0.542
				Significance one-tail			Significance one-tail
Market Cap*Lev	+	0.177	0.024	0.438	-0.425	0.178	0.327
Cross Gtee*Lev	+	5.407	2.024	0.078*	2.581	0.565	0.226
Capital Commit*Lev	+	220.927	3.311	0.035**	139.870	1.969	0.081*
PPE *Lev	+	15.127	2.301	0.065*	5.140	0.426	0.257
Profit Margin*Lev	+	34.613	1.635	0.101			
Asset Turnover*Lev	+	-2.199	0.368	0.272			
Insider Own*Lev	--	-3.365	0.152	0.349	-3.318	0.174	0.338
ROA*Lev	+				-16.389	0.185	0.334
n			107			107	
-2 Log Likelihood			109.377			116.139	
Significance			0.131			0.345	
% Correct Classification			74.8			72.0	

*p<0.1
**p<0.05

Dependent variable Status = 1 if continuing to revalue, otherwise (reverting to cost) 0
Market Capitalisation = Number of Ordinary Shares x Price at Balance Date
Cross Guarantees = 1 if Deed of Cross Guarantee; Otherwise 0
Capital Commitments to Firm Value = Value of Unrecognised Disclosed Capital Commitments/ Market Value of Equity + Book Value of Total Liabilities
PPE =Book Value of Net PPE/ Market Value of Equity + Book Value of Total Liabilities
Asset Turnover = Operating Revenue/Book Value of Total Assets
Profit Margin = Earnings before Net Interest, Taxes and Abnormal Items/Operating Revenue
Leverage = Book Value of Total Liabilities/Book Value of Net Tangible Assets
Return on Assets = Earnings before Net Interest, Taxes and Abnormal Items/Book Value of Total Assets
Insider Ownership = Percentage of Shares held by Members of the Board of Directors/Total Issued Shares

To test the incremental power of the variables of interest conditioned on leverage, Table 9 shows results of separate regressions for high and low leverage firms. For high leverage firms Models 1 and 2 provide consistent results for Deed of Cross Guarantee, PPE and Capital Commitments (Model 1 $p<0.05$; Model 2 $p<0.1$). Profit margin is also significant at conventional levels ($p=0.04$) providing support for Hypothesis 1(b). There is no incremental power in market capitalisation or leverage in the regressions for high leverage firms.

Hypothesis 4 predicts a positive association between directors' shareholdings and revaluation for low leverage firms only. There is a significant inverse relationship with insider ownership (Model 1 $p=0.064$, Model 2 $p=0.038$) for continuing revaluers. While insider ownership is in the direction hypothesised and applicable only to low leverage firms, the result on size deserves some comment. Size is significant in both models ($p<0.05$). The result suggests that low debt firms can reduce the agency costs associated with financial slack by restricting revaluation policy to (larger) firms that face the discipline of the market (greater analyst and media coverage, institutional ownership etc). Incentives problems are reduced further where insider ownership is increasing. Additional analysis of the effects of leverage and size is discussed shortly.

Although Deed of Cross Guarantee is significant at $p=0.031$ and $p=0.082$ in Models 1 and 2 respectively, the measurement of leverage may be misspecified where additional financial constraints apply to a subset of firms. An alternative specification of leverage[19] is tested for the sub-sample of firms with Deeds of Cross Guarantee ($n=54$). Using a continuous measure of leverage for the closed group, for low leverage firms all variables are insignificant. For high leverage firms only profit margin and asset turnover are significant at $p<0.05$. If future cash inflows are reliably predicted by profitability then more profitable firms are better able to absorb the cost of revaluation.

[19] Using gross assets and liabilities for the closed group is, however, likely to be deficient in capturing classification and measurement provisions contained in actual debt covenants.

TABLE 9

LOGIT REGRESSION WITH PARTITIONING ON LEVERAGE

		High Leverage						Low Leverage					
		Model 1			Model 2			Model 1			Model 2		
Variable	Expected Sign	Coeff	Wald	Sig 1 tail	Coeff	Wald	Sig 1 tail	Coeff	Wald	Sig 1 tail	Coeff	Wald	Sig 1 tail
Constant	+/-	-7.546	1.872	0.171#	-3.537	0.704	0.402#	-8.881	3.062	0.080#	-8.575	2.985	0.084#
Market Capitalisation	+	0.172	0.406	0.262	0.186	0.587	0.222	0.556	3.235	0.036**	0.546	3.175	0.038**
Leverage	+	-3.371	0.627	0.215	-2.544	0.363	0.274	0.750	0.062	0.402	1.171	0.158	0.346
Cross Guarantees	+	1.663	3.505	0.031**	1.152	1.946	0.082*	-0.599	0.600	0.220	-0.463	0.383	0.268
Capital Commitments	+	41.142	3.098	0.039**	34.680	2.461	0.059*	-16.566	0.776	0.189	-12.807	0.575	0.224
PPE	+	6.758	4.315	0.019**	3.487	1.835	0.088*	-0.514	0.096	0.378	-0.452	0.072	0.394
Asset Turnover	+	1.327	1.325	0.125				1.043	1.843	0.088*			
Profit Margin	+	18.292	3.085	0.040**				1.755	0.129	0.360			
Insider Ownership	--	0.387	0.024	0.439	1.800	0.577	0.224	3.170	2.334	0.064*	3.728	3.149	0.038**
Return on Assets	+				-3.517	0.091	0.382				7.375	0.558	0.228
n			54			54			53			53	
-2 Log Likelihood			45.558			48.906			55.836			57.656	
Significance			0.167			0.307			0.072			0.083	
% Correctly Classified			79.6			81.5			73.6			73.6	

#two- tail probability; *p<0.1, **p<0.05

Dependent variable Status = 1 if continuing to revalue, otherwise (reverting to cost) 0

Market Capitalisation = Number of Ordinary Shares x Price at Balance Date

Cross Guarantees = 1for Deed of Cross Guarantee; Otherwise 0

Capital Commitments = Value of Unrecognised Disclosed Capital Commitments

PPE = Book Value of PPE/ Market Cap of Equity + Book Value of Total Liabilities

Asset Turnover = Operating Revenue/Book Value of Total Assets

Profit Margin = Earnings Before Net Interest, Taxes and Abnormal Items/Operating Revenue

Return on Assets = Earnings Before Net Interest, Taxes and Abnormal Items/Book Value of Total Assets

Insider Ownership = Percentage of Shares held by Members of the Board of Directors/Total Issued Shares

Table 9 provides support for Hypothesis 3(a). High leverage firms have increasing relative proportions of current property plant and equipment to firm value. The relationship is positive and significant at conventional levels in Model 1 and marginally significant in Model 2. Hypothesis 3(b), relating valuation choice to future investments in assets-in-place is also supported. Again, the relationship is positive and significant for high leverage firms (Model 1 p=0.039, Model 2 p=0.059). The results are consistent with a demand for revaluation to minimise the underinvestment problem.

Table 10 reports the results of regressions where both size and leverage are used to partition the sample. The results demonstrate that both leverage and size are important in valuation policy. Highly levered continuing revaluers have larger investments in current PPE independent of size. Highly levered large firms that continue to revalue drive the results for Deeds of Cross Guarantee while highly levered small firms drive the result on capital commitments. Finally a positive relationship between revaluation and insider ownership is confined to the subsample of small low leverage firms.

TABLE 10

LOGIT REGRESSION PARTITIONED ON SIZE AND LEVERAGE

		Large Firms						Small Firms					
		High Leverage			Low Leverage			High Leverage			Low Leverage		
Variable	Expected Sign	Coeff	Wald	Sig 1 tail	Coeff	Wald	Sig 1 tail	Coeff	Wald	Sig 1 tail	Coeff	Wald	Sig 1 tail
Constant	+/-	-19.249	2.065	0.151#	-14.984	1.508	0.219#	-119.885	1.752	0.186#	-12.640	1.313	0.252#
Market Capitalisation	+	0.448	0.773	0.196	1.023	1.977	0.080*	13.218	1.676	0.098*	0.801	0.767	0.191
Leverage	+	2.873	0.127	0.361	4.246	0.607	0.218	-93.499	1.483	0.112	-0.805	0.031	0.430
Cross Guarantees	+	2.820	3.654	0.028**	0.631	0.150	0.349	5.057	1.123	0.145	-0.698	0.364	0.273
Capital Commitments	+	5.306	0.014	0.453	-16.183	0.383	0.268	232.289	2.454	0.059*	-32.238	0.466	0.248
PPE	+	11.352	2.978	0.042**	-3.954	1.601	0.103	23.270	2.231	0.068*	1.549	0.282	0.298
Asset Turnover	+	2.851	2.612	0.053*	0.132	0.006	0.470	8.870	1.105	0.147	1.773	2.083	0.075*
Profit Margin	+	15.056	0.882	0.174	-0.652	0.005	0.473	50.202	1.388	0.120	4.926	0.291	0.295
Insider Ownership	–	5.677	1.003	0.159	-1.164	0.018	0.446	2.901	0.184	0.334	3.581	1.648	0.100*
n			32			22			22			31	
-2 Log Likelihood			21.761			20.841			10.249			29.714	
Significance			0.332			0.304			0.050			0.320	
% Correctly Classified			84.4			77.3			86.4			80.6	

#two- tail probability; *p<0.1, **p<0.05
Dependent variable Status = 1 if continuing to revalue, otherwise (reverting to cost) 0
Large firms = 1 if >median market capitalisation, otherwise 0.
Cross Guarantees = 1for Deed of Cross Guarantee, otherwise 0
Capital Commitments = Value of Unrecognised Disclosed Capital Commitments
PPE = Book Value of PPE/ Market Cap of Equity + Book Value of Total Liabilities
Asset Turnover = Operating Revenue/Book Value of Total Assets
Profit Margin = Earnings Before Net Interest, Taxes and Abnormal Items/Operating Revenue
Return on Assets = Earnings Before Net Interest, Taxes and Abnormal Items/Book Value of Total Assets
Insider Ownership = Percentage of Shares held by Members of the Board of Directors/Total Issued Shares

A summary of the hypotheses and the results are given below in Table 11.

Table 11 Summary of Results

Hypothesis	Result
H1(a) Firms that continue to revalue are larger than firms that revert to the cost basis.	The relationship between size of the firm and valuation choice is both direct and indirectly through leverage. Large highly levered firms that continue to revalue differ systematically from small high leverage firms, providing support for H1(a)
H1(b) High leverage firms that continue to revalue are more profitable than firms that revert to the cost basis.	The evidence on H1(b) has limited support: the result is sensitive to the measure of profitability. For this sample profit margin is positive and significant for high leverage firms and asset turnover for low leverage firms.
H2 High leverage firms that continue to revalue are more likely to have a Deed of Cross Guarantee than firms that revert to the cost basis.	Highly levered firms that continue to revalue are more likely to have a Deed of Cross Guarantee. The results are insignificant for low leverage firms and apply to large firms only. Thus Hypothesis 2 is supported.
H3(a) High leverage firms that continue to revalue have more assets-in-place than firms that revert to the cost basis.	High leverage firms with increasing investments in current Property, Plant and Equipment are more likely to continue to revalue these assets. The relationship is positive and significant and is independent of size. Hypothesis 3(a) is confirmed.
H3(b) High leverage firms that continue to revalue have larger growth options associated with assets-in-place than firms that revert to the cost basis.	Hypothesis 3(b) is supported. As predicted the relationship is positive and significant for high leverage firms and restricted to small firms.
H4 Low leverage firms that continue to revalue have higher levels of insider ownership than firms that revert to the cost basis.	Insider ownership has explanatory power for valuation choice in low leverage firms and this is further restricted to small firms. Hypothesis 4 is therefore supported.

6 DISCUSSION AND CONCLUSION

6.1 Discussion and Future Research

The results here show that managers in low leverage firms that continue to revalue are motivated to act in the interests of the firm through higher levels of insider ownership. There is also evidence that only larger low leverage firms continue to revalue: larger firms are subject to the added discipline imposed by the market such as analyst following, media coverage and institutional ownership, which in turn reduce the scope for opportunism.

This study also finds that highly levered large firms that continue to revalue commit themselves to the higher costs of default arising from Deeds of Cross Guarantee while highly levered small firms commit to greater capital expenditures. The positive relationship between valuation choice and investments in current assets-in-place applies to high leverage firms and is independent of size, consistent with an enhanced capacity of borrowers and auditors to monitor (and discipline) the managers of highly levered firms.

The empirical regularities documented here contribute to the literature on the relationship between valuation policy choice and governance mechanisms by examining the incentives to review the valuation decision given a change in the regulatory environment. It examines this choice in a time period in which the costs and benefits of revaluation change materially, increasing the power of the tests in cross section. It includes investigation of a financial contract not previously examined in the literature, viz Deeds of Cross Guarantee; it adopts a more refined measure of growth options associated with assets-in-place: capital commitments provide objective evidence of growth options which the firm intends to exercise. It also documents a complex relationship between leverage, firm size and policy choice.

The results on Deeds of Cross Guarantee extend the literature in Australia (Whittred, 1987) and the US (Mian and Smith, 1990) on the role of cross guarantees generally in accounting policy choice. The results of this study provide some early evidence on the role of this form of direct guarantee in valuation of PPE in contrast to the (indirect) relationship assumed between members of the consolidated group. The contexts in which such Deeds are efficient can be extended to include their interrelationship with other corporate governance mechanisms, such as directors' declarations of solvency. Another line of investigation is the circumstances in which relief from reporting and audit requirements by members of the closed group is valuable. While revaluation can reliably reduce some information asymmetry, the Deed of Cross Guarantee effectively limits other information disclosures.

6.2 Limitations

Care must be exercised in interpreting the evidence provided here. The scope of the study was restricted to property, plant and equipment and as such the results are unlikely to generalise across asset classes or industries. Also, although the effects of size were investigated, a selection bias is introduced by restricting the sample in the first instance to the largest companies on the annual report file.

The motivations to revalue are unlikely to be fully captured in this study. For example, the decision to revalue may be associated with other contemporaneous factors such as avoidance of a takeover bid. Studies such as these also suffer from a possible omitted variable problem. Other variables correlated with leverage could also cause highly levered firms to behave as hypothesised in this study. Despite these limitations, systematic differences are suggestive of efficient constraints and incentives to support the valuation choice for non-current tangible assets.

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