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**SOME EMPIRICAL EVIDENCE ON OPTIONS HOLDING
CONCENTRATION IN AUSTRALIAN LISTED CORPORATIONS**

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ABSTRACT

This paper discusses options holding concentration, which we define as the proportion of options outstanding under a firm's executive options plan held by a firm's board and the top five non board executives. We examine previous empirical literature on executive options plans and some of the incentive problems associated with the implementation of such plans which have been reported in the literature. On the basis of these discussions, we discuss why it might plausibly be expected that options holding concentration could represent a variable with the power to explain the degree to which incentive problems are encountered by organisations which employ executive options schemes. We report observed options holding concentration for a sample of Australian listed corporations between 1997 and 2002, but demonstrate that while significantly inversely associated with firm size, holdings concentration does not appear to be associated with factors which point towards organisational risk taking and cash payment policy choices. We discuss possible reasons for our findings and suggest potential future research extensions flowing from our work.

KEYWORDS: Executive Options, Holding Concentration, Incentive Compatibility

INTRODUCTION

Debates about the use of options as a component of employee compensation have burgeoned in the past few years. Much of the heat in this debate has surrounded the contentious issue of how best to account for and report on the financial consequences of using options as an element of remuneration (Core and Guay, 2001; Hall and Murphy, 2002). It is this element in particular of the wider debate which has attracted a considerable degree of attention from the business press, thus bringing the argument into the public domain.

However, concern about the use of options plans has by no means been limited to issues of financial reporting and disclosure. A considerable body of literature has now developed in which the key thematic element relates to the incentive compatibility consequences of the adoption of options plans as a component of employee remuneration. The accumulation of knowledge embodied in this stream of literature is now giving rise to concern that, contrary to the agency theory derived expectations of the value of options as tools for mitigating principal agency problems and thus generating improved shareholder value creation outcomes (Jensen and Meckling, 1976; Jensen and Murphy, 1990), a range of perverse, value destroying incentives may be introduced as a result of the implementation of options based compensation plans. Examples of problems identified in the literature thus far include evidence of opportunistically timed disclosures to capital markets (Aboody and Kasnick, 2000), questionably motivated share buyback programs (Yermack, 2001; Aboody and Kasnick, 2001), material changes to dividend policy (Lambert, Lanen and Larker, 2001) and changes to the risk profile of projects undertaken by firms (Chen, 2002).

In this paper, we examine one little researched aspect of the options debate, the question of options holding concentration, and present empirical evidence on whether holding concentration appears to be associated with the types of problems evident from the literature discussed above.

The remainder of this paper proceeds as follows. In the next section we expand our discussion of the potential for the use of options plans to introduce incentives for option recipients to act in ways which are not necessarily commensurate with the objective of shareholder value creation. We then define options holding concentration and present our arguments as to why we view the phenomenon as potentially problematic. In light of these arguments, we present data on the degree to which options holding concentration appears to be associated with a range of financial factors, including size, leverage and dividend policy. Finally, we provide analysis of our empirical results and present our conclusions.

OPTIONS AND INCENTIVE PROBLEMS

As discussed above, the use of options has been argued to represent an effective means of overcoming many agency difficulties by directly tying managerial wealth outcomes to share price, and thus to the wealth outcomes of a firm's body of shareholders at large¹. That at least, is the theory. However, we have also referred to the growing body of evidence that share options schemes are associated with a range of dubious behaviour on the part of executives.

¹ It has been estimated in some earlier literature, that the degree to which a CEO's wealth is sensitive to changes in the market capitalisation of the firm by which they are employed, in the absence of strong equity holdings, or equity based exposures such as those created by options, is very low. For example, in a seminal article by Jensen & Murphy, the authors estimated that the sensitivity of a median CEO's salary and bonus payments to a \$1000 change in firm market capitalisation was 6.7 cents. See; Jensen & Murphy 1990.

This represents a clear threat to good firm governance, since the vehicle adopted by many boards of directors to modify incentive sets with a view to greater alignment between the interests of managers and shareholders may in fact in many settings represent a Trojan horse for the stimulation of the opposite effect. In part, this can be attributed to poor contract design.

The case of Sprint Telecommunications provides a useful insight into one reason why this may be so. It is common for options plans to contain “change of control” clauses, by which executives who have been the recipients of options grants have their interests conserved in the event that board membership or stock ownership changes sufficiently to yield control to another party, with potential implications for terms and conditions of employment, or indeed, loss of employment. Such a clause existed within the Sprint executive options plan, in which change of control was defined to incorporate a range of situations, including that in which shareholders voted to approve a mooted merger or disposal of the business.

However, the fact that a meeting of shareholders votes to approve a merger or business disposal does not mean that such events will actually transpire, for example as a result of regulatory (e.g antitrust) intervention. In Sprint’s case, in the aftermath of an outside acquisition proposal, shareholders met and approved the disposal of the business, which in turn triggered Sprint’s executive option plan change of control clause. This caused immediate vesting of options held by executives, many of whom are reported to have exercised their rights (while the share price was boosted by the mooted acquisition deal) and immediately left the company (Monks, 2003). Ultimately, the acquisition did not proceed, due to a range of antitrust considerations.

This type of situation seems difficult to reconcile with the objective of shareholder wealth creation. Corporate value appropriation seems a label which rings truer.

In other cases, the desired incentive alignment outcome is subverted by the expedient of executives entering into third party contractual arrangements which have the effect of relieving the executives of all or part of the risk which would otherwise burden them as a result of their receipt of executive options. Over recent years, financial institutions have engineered a range of mechanisms effectively allowing managers to realise value from and or reconfigure the risk profile of their options holdings, including fences and zero cost collars (Ali and Stapledon, 2000; Bettis et al, 1999; Ellis, 1998). That this possibility is not explicitly excluded from many executive options plans also represents a material contractual design flaw.

A third species of contractual design flaw apparent in many executive options plans is the lack of control for the indiscriminate reward of managers irrespective of actual performance in situations where equity valuations are rising in general. Allowing the value of executive options to vary solely based on the underlying share price has been described as giving rise to a situation where the options are “wildly capricious in their distribution of rewards, inefficient as motivators and inordinately expensive for shareholders.” (Cairncross, 1999). Despite this, the incorporation of devices which strip out the impact of whole of market price movements leaving managers exposed to that component of price change explained by outperformance relative to peers has been reported to represent the exception rather than the rule (Meulbroek, 2001).

The existence of these types of contractual design flaws (and others not catalogued here), while damaging, does not explain the full extent of scepticism voiced as to the likelihood that executive options schemes will fail to appropriately align the interests of managers with those of the shareholders as a general body. Conceivably, opportunistically timed voluntary information disclosures (Aboody and Krasnik, 2000) released strategically prior to grant dates (where bad news releases may depress share price and thus exercise price) and vesting dates (where good news releases may increase share prices and thus option holder wealth) may take place irrespective of other contractual design weaknesses.

Similarly, there is no reason to believe that the decision to adopt higher risk profile projects, (as described by Chen 2002), or the decision to restrict dividend payments (as described by Lambert et al, 1989) is excluded merely because of the absence of the types of contractual design flaws discussed above. The same could be argued in relation to the propensity to engage in price supporting or inflating share buybacks to the possible exclusion of dividend payments or NPV positive project investments (as discussed in Aboody and Kasnik, 2001). Rather, there is reason to believe that these are problems which are general in their character, and can therefore be anticipated to present themselves, to some extent, wherever executive options schemes are in place. We contend however, that there may be reasons to expect that the likelihood of the types of behaviours described above manifesting themselves and their materiality may be accentuated as a result of the variable of particular interest within this study, options holding concentration. The next section of this paper defines this phenomenon and provides our intuition as to why it is a variable of potential explanatory interest in

the context of research into incentive compatibility problems associated with executive options schemes.

HOLDINGS CONCENTRATION DATA AND PROBLEM CONTENTION

The term “holding concentration” refers to a measurement of the degree to which the ownership of options issued pursuant to an organisation’s executive options scheme is concentrated in the hands of a select group of senior actors, defined in this study to include the board (including executive and non executive members), the chief executive officer, and highest remunerated five non director executives employed by the firm. Thus holdings concentration represents the percentage of outstanding options issued by an organisation held by the group of senior actors defined above. On the basis of disclosures contained within the annual financial statements of a sample of Australian listed public corporations, it is possible to gather data on options issuance and holdings to this level of detail.

Our sample consisted of the 100 largest corporations (as measured by market capitalisation) whose equity securities were listed for quotation on the Australian Stock Exchange (ASX) as at 1997. We gathered data relating to the options plans and in place within these corporations, as well as other operational and financial variables of interest, for a six year period ending in 2002². Of the 100 companies in our sample, only 17 had no option plan of any sort in place during the period spanning 1997 through 2002. Therefore, 83% of the companies in our sample did have an options plan in place at some stage during the six years studied.

² In two cases, we were unable to collect data for the entire six year period. In the first case, a firm within the sample became insolvent and was delisted, and in the second case, a firm within the sample was acquired and subsequently delisted. We collected data on these organisations for the period during which they remained listed going concerns.

Based on financial statement disclosures made by the companies in our sample, we were able to measure the degree of options holding concentration (as defined above) for each organisation with an options plan in place during each of the years under consideration. This data is set out in Table 1, below.

Table 1
Concentration of option holdings among senior management
(average holdings by company)
1997-2002

Year	Board Chair	CEO	Executive Director	Non Executive Director	Board Senior Executive	Non Board Senior Executive	Total Senior Executives ³
1997	14%	31%	15%	12%	40%	7%	40%
1998	14%	26%	15%	10%	34%	12%	42%
1999	10%	20%	11%	8%	26%	11%	38%
2000	14%	19%	15%	11%	27%	10%	40%
2001	11%	20%	12%	9%	28%	12%	38%
2002	9%	17%	14%	10%	24%	17%	40%

Our data suggests a significant degree of holdings concentration in large publicly listed Australian corporations. In the only other published research of which we are aware which touches on this issue, Blasi et al (2003, p. 190) suggest senior executive holding concentration in top 100 U.S. based firms at around 33%. It would therefore seem that at least in aggregate, the Australian experience is similar to that of the United States.

Though options holding concentration has not received a high volume of attention in the literature on executive options, earlier work does offer some conjectures on the questions of the situations in which options holding concentration is likely to be most defined, as well as the problems which might arise as a consequence. Blasi et al

³ This is the sum of all board option holdings (irrespective of position on board, executive or non executive status) as well as the holdings of the top 5 non board executives employed by the firm.

(2003) suggest that options holding concentration is most likely to be pronounced in larger, more established enterprises. They also suggest that smaller, more dynamic enterprises are less likely to experience high options concentration. Further, they argue that less concentrated options ownership is likely to be associated with lower rates of corporate malfeasance, implying that higher options holding concentration may be associated with greater manifestation of undesirable wealth transfer behaviour.

Though they provide many interesting and useful insights, Blasi et al (2003) do not provide structured arguments in favour of these conjectural statements. However, in relation to the question of the relationship between options holding concentration and corporate wealth appropriations by option holders, a possible theoretical explanation goes as follows. Altering capital structure mix, systematic alteration of firm risk profile, the management of information flows between the firm and capital markets, the timing of options issue and vesting and the management of dividend and buyback policy are all initiated by a very narrow but powerful constituency within a firm.

In firms with high option holdings concentration this same constituency would stand to gain disproportionately from wealth transfers generated as a result of choices made with respect to these types of policies which are aimed at maximising option holder (rather than shareholder) value. In other words, the narrow decision making constituency holding a disproportionate exposure to outstanding options has both the means and the motive necessary to give effect to actions which endanger shareholder wealth creation and therefore represent poor governance outcomes.

DATA ANALYSIS

Since previous authors have conjectured a relationship between firm size and the degree to which options holdings are concentrated in a select group of senior actors within an organisation, we collected data on two measures of firm size, total assets and total revenue, with a view to examining correlations between these variables and observed options holding concentration.

Further, because earlier empirical literature has demonstrated that the existence of options plans can introduce perverse incentives for shareholder wealth destruction (and managerial wealth appropriation), we were interested to determine whether there appeared to be any meaningful association between factors which might proxy for the types of phenomena discussed earlier in this paper (reductions in dividend payouts, increases in share buybacks, increases in leverage) and options holding concentration.

In order to facilitate analysis of this question, we also gathered data on firm leverage, interest cover ratios and dividend payout ratios. Our basis for gathering data on these ratios was as follows. As discussed above, previous empirical literature has produced evidence that there exist relationships between dividend and other cash payment policy, capital structure and risk profile, and the use of executive options by organisations. It has been demonstrated that in those organisations where executive options are employed, there is a greater propensity to employ share buybacks, to reduce dividend payouts and to increase risk profile. We use leverage, interest cover and dividend payout ratios as data points which point towards the existence of these phenomena.

If options holding concentration accentuates these types of problems, as conjectured above, then one would expect to identify positive correlations between options holding concentration and leverage, and negative correlations between options holding concentration and interest cover, and options holding concentration and dividend payout. We have used the Pearson correlation coefficient as the basis for measuring the degree of linear association between options concentration and the variables selected for the study. The positive correlation with leverage would be anticipated on the basis that the small group of senior managers in receipt of options are able to take exerted steps to increase risk, which should be visible via increases in leverage. In turn, this would reduce interest cover (hence our expected negative correlation). Further, since managers in receipt of options would arguably prefer to deploy cash towards share buybacks rather than dividend payments, it could be plausible to argue that higher concentration would be negatively correlated with dividend payout ratios.

Our total available dataset consisted of 352 observations gathered from our sample of Australian listed corporations between (and including) 1997 and 2002. We analysed a total of six variables, options holding concentration (as defined earlier in this paper), total assets and total revenues (as proxies for firm size), leverage and interest cover (as proxies for degree of risk) and dividend payout ratio (as an indicator of firm cash payment preferences). Descriptive statistics for the total dataset are set out in Table 2, below. (Assets and revenues were measured in millions of Australian dollars, all other variables were measured as ratios or percentages as appropriate).

Table 2 – Data Descriptive Statistics

	N	Minimum	Maximum	Mean	Std. Deviation
Concentration	352	.00	1.00	.3705	.30439
Total Assets	352	13.00	377387.00	20273.8574	56495.91665
Total Revenue	352	1.00	33145.00	4037.7665	7009.69988
Leverage	352	-3.55	23.34	3.9763	4.62127
Interest Cover	352	-67.20	206.00	7.0779	18.94246
Dividend Payout	352	-21.72	8.84	.5033	1.54109
Valid N (listwise)	352				

Our results are presented in Table 3. We find that correlation coefficients between option holdings concentration and the selected variables run contrary to the expectations discussed above on the basis of work by Blasi et al (2003). While the coefficients for firm size (both assets and revenue) did appear to be statistically significantly associated with options holding concentration (at the $p = .01$ level, 2 tailed), the direction of the correlation (for both total assets and total revenue) was inverse to that discussed by Blasi et al (2003). That is, they asserted that options holding concentration would be observed most acutely in larger organisations, whereas, at least in our sample, there was an inverse correlation between size and concentration. This suggests that in larger Australian listed companies with options plans, options are spread more widely throughout the organisation than in relatively smaller organisations.

There was weak evidence of a statistically significant association between leverage and options concentration (at the $p = .05$ level), but again, the direction of this association appears to run inverse to the expectations we derived from Blasi et al's (2003) work on concentration. However, this apparent statistically significant

association may be no more than a data artefact. When we re-examined the correlation coefficients between our studied variables after excluding financial institutions from our sample (reducing the number of total observations to 296), leverage was no longer significant, but both total assets and total revenue remained so. The lack of significant correlation between leverage and options concentration in non-financial firms is not entirely unexpected, given that changes in leverage are unlikely to substantially increase the size of potential payoffs to equity holders (or holders of options). While it is true that higher leverage may increase returns to equity holders (through conventional mechanisms such as the tax-deductibility of interest expenses), the potential for higher cash flows is significantly enhanced if senior management engage in the acquisition of riskier assets, such as may be achieved through corporate acquisitions or investment in non-core activities. This fits with the reasoning presented by Chen (2002), being that firms with large executive option plans are likely to carry more volatile assets. If we were to identify a link between leverage and options concentration, it would perhaps be more likely to reflect asset substitution on the part of senior executives: the investment of debt proceeds into assets carrying a greater speculative component than that envisaged by the holders of the debt at origination.

In neither dataset was there any statistically significant association between concentration and interest cover, or concentration and the dividend payout ratio.

Table 3 – Data Correlations

		Concentration	Total Assets	Total Revenue	Leverage	Interest Cover	Dividend Payout
Concentration	Pearson Correlation	1	-.233(**)	-.292(**)	-.120(*)	.008	-.009
	Sig. (2-tailed)	.	.000	.000	.025	.884	.866
	N	352	352	352	352	352	352
Total Assets	Pearson Correlation	-.233(**)	1	.636(**)	.694(**)	-.097	-.014
	Sig. (2-tailed)	.000	.	.000	.000	.069	.787
	N	352	352	352	352	352	352
Total Revenue	Pearson Correlation	-.292(**)	.636(**)	1	.329(**)	-.061	.004
	Sig. (2-tailed)	.000	.000	.	.000	.254	.943
	N	352	352	352	352	352	352
Leverage	Pearson Correlation	-.120(*)	.694(**)	.329(**)	1	-.138(**)	-.003
	Sig. (2-tailed)	.025	.000	.000	.	.010	.953
	N	352	352	352	352	352	352
Interest Cover	Pearson Correlation	.008	-.097	-.061	-.138(**)	1	-.006
	Sig. (2-tailed)	.884	.069	.254	.010	.	.915
	N	352	352	352	352	352	352
Dividend Payout	Pearson Correlation	-.009	-.014	.004	-.003	-.006	1
	Sig. (2-tailed)	.866	.787	.943	.953	.915	.
	N	352	352	352	352	352	352

** Correlation is significant at the 0.01 level (2-tailed).

* Correlation is significant at the 0.05 level (2-tailed).

CONCLUSIONS

The data we have presented in this paper suggests options holding concentration is a significant feature of the options plans of publicly listed Australian corporations. The effect is less pronounced in the largest companies in our sample. This suggests that even though an elite group of senior executives within the largest listed corporations may be receiving significant quantities of options, the distribution of these instruments throughout these organisations is sufficiently diffuse that the ultimate degree of observed options holding concentration is lower than the mean observed value for the sample as a whole. This result runs contrary to discussions of options holding concentration based on U.S data, and may suggest structural variations

between the form of plans adopted by large U.S corporations and their Australian counterparts.

Apart from size based measures, we did not detect statistically significant associations between measures of leverage or dividend payout rate and options holding concentration. Though the arguments as to why managers in receipt of options might prefer to see cash deployed to uses other than dividend payments have been long established in the literature, there was no apparent suggestion in our data that a high concentration of options holding in the hands of those who set dividend policy (the board and very senior executives) was associated with the dividend payout behaviour of the firms in our sample.

This may be explained by the existence of institutional factors in Australia not present in the United States during the period of our study, most particularly Australia's dividend imputation system (a means of avoiding double taxation of corporate profits) which in Australia renders dividends a more tax effective form of return for many investors than capital gains (Kohler, 2001). Even if Australian managers in receipt of options desired to reduce dividend payments in favour of alternative means of distributing cash, strong investor demand for dividends, coupled with the high visibility of dividend policy might effectively mitigate any incentives to change dividend policy which would otherwise be stimulated by options holding and accentuated by high options holding concentration.

Similarly, there appeared to be no significant association between leverage (which we used as a proxy for risk appetite) and options holding concentration. We do not

interpret this result as bringing into question the results reported by other authors such as Chen (2002), who suggested that the adoption of options plans did result in measurable increases in risk burdens adopted by business enterprises. Rather, it may be that the presence of any material executive options plan is sufficient to stimulate this outcome such that high options concentration is not additively explanatory. Alternatively, it may be that the risk proxies we adopted in this study were incapable of measuring the types of risk responses to option plans made by Australian managers. This would be so if firms maintained similar capital structures in the presence of options plans as without, but changed operational risk profiles in a manner not readily transparent via variables reported in periodic financial statements.

Finally, though apart from size measures there appeared to be little evidence of significant statistical association between our measures of options holding concentration and selected financial variables, this does not exclude significant relationships between options holding concentration and other operational, structural and institutional factors. For example, due to the relatively restricted sample size, we have not examined industry grouping as a possible associated variable.

Nor in this paper have we examined structural characteristics such as board structure (for example, proportion of executive versus non executive directors, whether or not the CEO also fills the role of board chairman and so on) which might plausibly be associated with options holding concentration. Therefore, we posit that options holding concentration remains a variable of considerable interest for future further investigation.

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