

DISCOUNT AND PREMIUM AWARDS IN THE CONTEXT OF PRE-EXISTING ESOP CONDITIONS

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Abstract

This study examines interactions between pre-award ESOP restrictive conditions and award discounts/premiums that characterized executive stock option awards in Australia from the mid-1980s to 2000. Shareholder wealth effects at award suggest that (i) shareholders generally do not gain from offering discounts because associated value increments do not exceed the cost of the discount, (ii) premium awards coupled with exercise restrictions appear to be used to ameliorate the risk of CEO opportunism associated with irregular awards, and (iii) shareholders suffer a wealth decrement when premium awards are used to ameliorate the disinvestment incentive of inferior CEO dilution protection. The second of these findings implies risk of CEO opportunism. A major implication is that award discounts/premiums are used to modify the conditions of pre-existing ESOPs that presumably are dated and no longer optimal for addressing current incentive problems. Analyses of the optimality of award discounts/premiums should take this into account.

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1. Introduction

Previous empirical research on the shareholder valuation consequences of adoption of executive share option plans (ESOPs) has documented a positive effect¹, but has not measured the contribution to shareholder wealth of individual grants or awards under those plans. This has been due to long announcement delays with respect to award decisions made by executive compensation committees. In the United States, stock option award announcements usually coincide with other major announcements, particularly those relating to annual financial reports. Yermack (1997) observes that the dates of most stock option awards can be established weeks or months later and then in conjunction with other announcements. A major consequence is that benefits expected by shareholders cannot be determined at award. A further limitation of US studies relates to the preponderance of at-the-money awards, so there is little empirical evidence on the incentive effects of discounted (in-the-money options) and premium (out-of-the-money) awards. This paper seeks to redress both deficiencies by examining previously untested data from an Australian setting in which shareholder returns at

award are observed for discounted and premium awards. These wealth effects are analyzed within a contractual context that recognizes the impact of two commonly-occurring pre-existing (and hence pre-effort) ESOP restrictions: exercise (or vesting) restrictions and less-than-full CEO dilution protection. Exercise restrictions stem from vesting restrictions, where options do not vest (i.e., can be exercised) until specified requirements are met. Although prior studies of the structure of executive compensation contracts have recognized the implications for exercise of restrictive ESOP conditions², none appears to have recognized the possibility of a link between these conditions and award discounts/premiums.

Stock option awards imply a pre-existing incentive alignment problem. Discount options leverage a CEO's expected payoff, while premium options reduce leverage. Hall and Murphy (2000, 2002) argue that discounts (premiums) increase (reduce) CEO incentive, and in the process show that at-the-money awards are optimal: the higher incentive of discounted awards is more than offset by the increased cost to shareholders, while the saving on a premium is more than offset by the disincentive effect. Incentive effects may be inferred from

¹ DeFusco, Johnson and Zorn (1990) and Morgan and Poulsen (2001).

² See, for example, Conyon, Peck, Read and Sadler (2000) for the UK, and Murphy (1999) and Hall (2002) for the US.

subsequent investment choices and exercise, but the obvious difficulty with ex post rationalizations is that exercise may have occurred for non-effort reasons. Another problem is that any amount of leverage is ineffective if investment opportunities do not exist, e.g., the firm is in a declining industry. When investment opportunities are abundant, shareholders face a higher risk of exercise for non-effort reasons. Shareholders can compensate by recovering some of the option cost up-front as long as value added from new investment is not lowered sufficiently to offset the cost saving³. The incentive effect of a discount or premium is modified through interaction with pre-existing ESOP conditions. All ESOP conditions that reduce CEO payoffs have a disincentive effect. In Australia, the major pre-existing conditions that impinge on the value of an award are (i) exercise restrictions, and (ii) inferior CEO dilution protection. Exercise restrictions include performance-vesting conditions as well as rationing once a tranche is exercised. CEO dilution protection typically applies to rights and bonus issues and also capital reconstructions. Since only rights issues raise capital, this protection is valuable to CEOs in the event that new investment is equity-financed⁴.

Incentive is further weakened to extent that CEOs are able to influence the timing and terms of their awards. Murphy (2002) and Bebchuk, Fried and Walker (2002) argue that CEOs potentially influence their awards notwithstanding formal independence from the remuneration-setting process. Where influence exists, we expect irregular awards to exhibit more evidence of 'good' timing than regular (e.g., annual or bi-annual) awards. Yermack (1997) documents evidence that CEO stock options are awarded immediately before earnings jumps and stock price rises, suggesting that part of CEOs' option gains may be attributed to private information rather than increased effort. The effect is notably stronger for irregular than regular awards. Shareholders are not expected to grant discounts when there is any appreciable risk of CEO opportunism, for then a discount is a deadweight cost. Since the present value of the strike price is effectively increased by the amount of the premium, premiums may also be used by shareholders to price-protect against potential CEO opportunism.

³ The cost of a grant to shareholders is the fair market value of the stock options granted, which is usually measured by the options' Black-Scholes value.

⁴ Lower relative dilution protection for a CEO has a financing effect. When new investment is funded through external financing, if new equity is sold the degree of CEO claim dilution is proportional to the extent of equity financing employed. In other words, a CEO selling equity to finance new investment bears a direct cost in the form of dilution in the value of her options. This creates an incentive for a CEO to sell debt rather than equity, which benefits shareholders under information asymmetry (Myers and Majluf (1984)).

In this study we subject two classes of commonly occurring ESOP conditions to scrutiny: exercise restrictions and the degree of CEO dilution protection. The two conditions impact on the CEO value of a stock option differently. Exercise restrictions lower the payoff to a CEO after the chain of incentive → investment → financing decisions has been optimized, so they do not disturb this underlying structure; i.e., the value of the stock options to shareholders is preserved. On the other hand, CEO dilution protection inferior to that of regular option holders (including zero dilution protection) impacts on the chain itself. Inferior CEO dilution protection means a CEO's exercise price is unprotected against a fall in the stock price (e.g., ex rights) following an equity issue. Hence, CEOs have an incentive to avoid equity issues and turn to internal or debt financing. This is costly to shareholders if underinvestment ensues⁵. To sum, exercise restrictions and inferior dilution protection both reduce CEO incentive, but inferior dilution protection independently of incentive effects can also reduce new investment.

In this paper, we seek to attribute shareholder gains/losses at award to an award discount or premium, attenuated by the presence of (pre-existing) exercise restrictions and inferior CEO dilution protection. We therefore do not analyze plain vanilla grants of at-the-money options. Instead, we focus on discount and premium awards within three groups: (i) awards not subject to these pre-existing conditions ('condition-free' options), (ii) options subject to an exercise restriction, and (iii) options subject to inferior CEO dilution protection. Combinations are not analyzed because we could not then attribute wealth effects to individual factors. Comparatively, options in the first group are the most valuable to CEOs because their expected payoff is unfettered by conditions that reduce the value of an award to the CEO. Since discounted options add to this payoff, it can be argued that discount awards free of conditions create the most incentive for a CEO. However, shareholders run the risk that exercise will occur for non-effort reasons or as a result of CEO opportunism. In the former case, exercise results from an upward trend in the stock price for reasons not associated with CEO incentive or effort, e.g., an expanding market. However, this risk cannot be insured. In the latter case, CEOs accept (or even influence) an award because they hold private information that the stock price is likely to rise. The risk of CEO opportunism is highest for irregular awards and mitigates against award discounts that are likely a deadweight cost. Hence, we interpret exercise restrictions and inferior CEO dilution protection as ex ante attempts by shareholders to protect against these risks: if gains

⁵ Underinvestment in this sense does not require the assumption of information asymmetry as in Myers and Majluf (1984).

from non-effort related exercise cannot be prevented, at a minimum the cost of exercise can be lowered. This reflects an optimization problem facing shareholders: the trick is to put in place a degree of protection that does not at the same time reduce a CEO's incentive to expend marginal effort.

We document several empirical regularities. Condition-free awards at a discount have the highest subsequent exercise rates (over 80 per cent). Discounted awards subject to exercise restrictions (comprising hurdle and rationing requirements) have the lowest exercise rates (about 45 per cent). Premium awards subject to exercise restrictions are entirely irregular awards, implying that shareholders the risk of expropriation from CEO opportunism is significant. In terms of subsequent exercise rates and the proportion of irregular awards, awards with inferior CEO dilution protection largely fall 'in between' condition-free awards and those bearing only exercise restrictions. We infer expected incentive effects from shareholder wealth effects at award. All condition-free grants have effectively zero net-of-market returns at award, suggesting that CEOs adjust their effort in accordance with the discount/premium on offer: discounts attract the same added value as the cost of the discount, while premiums result in an equivalent value decrement. In general, we find that award discounts/premiums are used to modify the incentive effects of pre-existing ESOP conditions, which presumably are dated and no longer optimal for addressing current incentive problems. Zero net-of-market returns are interpreted as evidence that discounts are used to neutralize 'inherited' ESOP conditions which otherwise would lower CEO incentive. In other words, without a discount there is a higher probability of reduced new investment and a higher probability that a given grant would never be exercised.

Positive net-of-market returns at award are recorded only for premium awards subject to an exercise restriction, but we suspect this is an artifact of regular market risk being less than the expropriation risk associated with irregular awards. Negative net-of-market returns exhibited for premium awards subject to inferior CEO dilution protection can be similarly explained. Inferior dilution protection constrains financing choices and potentially results in underinvestment which effectively reduces the risk of expropriation by CEOs. Award premiums, which are found associated with irregular awards, compensate shareholders for this risk, which negative net-of-market returns imply is less than market risk. We posit that a zero net-of-market return would have been observed if we were able to measure expropriation risk accurately.

The rest of the paper is organized as follows. The next section describes the data and sample and defines the return measures. The analysis is performed in Section 3, which is followed by the conclusions in Section 4.

2. Data and sample

Canyon and Sadler (2001) note several difficulties in using data from US annual proxy statements. US companies are required only to report the total number of unexercised options held by each director at fiscal year-end, with the result that the time to maturity and the strike price of each individual tranche cannot be always be determined accurately from a single proxy statement. Hall and Liebman (1998) deduce the identity and number of options sold from reconciliations of successive balances, but unavoidably with some error. When exercise or sold dates were not known, it was assumed that options were sold 'at the median stock price during the year', and it was further assumed that CEOs sold their oldest options first (p. 688). To circumvent these difficulties, which have a potentially material effect on calculations of option gains, Canyon and Sadler (2001) use UK data which allows more exact computation given a higher level of disclosure on numbers of options granted, exercised and lapsed during the year.

Australian stock option awards to CEOs offers two major advantages for extending our knowledge of how stock options are used by shareholders to motivate their CEOs. First, all grants are advised in a timely fashion to Australian Stock Exchange (ASX) through Corporations Act s. 235 notices, which are lodged whenever there is a change in directors' interests in their company's securities. These advice dates constitute the announcement date; in most cases, the remuneration committee meeting was held on the same day or the day before⁶. An observable announcement date confers a major data advantage relative to previously published work in that we can observe concurrent shareholder wealth effects. Announcements coinciding with other major events (e.g., earnings announcements) have been excluded. Details of exercise, including exercise dates and prices at which exercised can be accurately obtained from s. 205G notices. Second, during the sample period (mid-1980s to 2000) premium and discount awards were not uncommon, in contrast to the US practice of awarding at-the-money⁷. This means we can observe how shareholders expect CEOs to respond at the margin to up-front modifications in the strike price within the context of pre-existing ESOP conditions. This represents a marked improvement on US data used in previous

⁶ The *Corporations Act* (s. 205G) set a maximum period of 14 calendar days within which a company was to notify the ASX of any change, acquisition or disposal of company-issued securities held by directors, including stock options.

⁷ See, for example, Murphy (1999) and Hall and Murphy (2002, p. 4).

research⁸, and is on a par with Conyon and Sadler (2001)⁹.

In Australia, many executives receive their stock option awards under the same plan as senior managers¹⁰. Executive ESOPs during the sample period typically allowed discretion in the setting of the strike price. ESOPs typically granted even more discretion with respect to award timing; annual awards themselves are a discretionary decision. CEOs were invariably not members of their compensation committees, but this does not preclude CEO influence over their deliberations¹¹. Time-based vesting is commonly provided for, where an option cannot be exercised until expiration of a pre-determined interval or vest gradually (to prevent gaming or short-termism). Fixed vesting periods typically range from one to two years. Exercise restrictions comprise (i) performance-vesting options where the right of exercise is contingent on achievement of company performance targets, or hurdles, and (ii) vesting restrictions that ration the rate at which options may be exercised once exercising commences. CEOs not having the same degree of protection as regular option holders against dilution caused by equity issues have 'inferior' protection. Other refinements such as re-pricing or re-loading provisions were then rare in Australian ESOPs, which simplifies interpretation of the results.

About 50% of the sampled ESOPs provided for the strike price to be the average of the mean daily stock price over three to five trading days prior to the award, which can be taken as an intention to award at-the-money. Even so, many of these provisions apply a further test: that the strike price be the greater of this price and par value. However, for volatile stocks an 'averaging' provision does not guarantee that stock options are issued at-the-money because the stock price on the issue date can be at a relatively large discount or premium to the three or

five day average. One-half of the present sample comprises non-Top 200 companies, which have about double the volatility of pre-award stock returns than Top 200 companies¹². The remainder of the sampled ESOPs allow considerable discretion in the setting of strike prices, ranging to absolute discretion in many cases; by implication, at-the-money awards are not precluded. Since it is usually not possible to distinguish intended discounts/premiums versus intended at-the-money awards, we simply accept the discount/premium observed at the close of trading on the award date. The distribution of observed award discounts/premiums is shown in Figure 1 and can be seen to be quite wide. Pilot analysis indicated that even small discounts/premiums were systematically related to variables of interest, so no filters have been applied to the measure (e.g., allowing a tolerance of ± 2 per cent before recognizing a discount or premium). The median award discount is .0747 or 7.47% of the stock price at award, and the median award premium is -.1036 or -10.36%.

The sample consists of 207 awards made by 57 listed Australian companies for fiscal 1985-1999; 158 awards were made by industrially-listed companies and the remainder by companies listed on the mining and oil board¹³. Regular awards are defined as comprising annual and bi-annual awards; the remainder are irregular. The level of CEO dilution protection is specified in the stock option plan as approved by shareholders, and applies to all subsequent awards under the plan. The return consequences depend on whether unprotected capital changes occur during the life of the awarded options. When protection is afforded for all capitalization changes, the CEO suffers no dilution on exercise vis à vis regular option holders. But if uninsured equity issues occur, then the CEO suffers a dilution cost (or negative return) that effectively increases the strike price. In Australia, CEOs are typically afforded protection against some or all of bonus issues, rights issues and capital restructures, but not dividends.

Sample characteristics are reported in Table 1 across exhaustive sub-groupings for exercised and lapsed options, and regular and irregular awards, respectively. It is apparent that regular awards are less favored by top 200 companies and resource companies. Irregular awards (n = 151) dominate the sample, and $\frac{129}{207}$ or 62.3% of all awards end up being exercised. This percentage is more than double the exercise rate commonly observed in the stock options market generally. Regular and irregular awards exhibit similar exercise rates. The interval in

⁸ See Hall and Liebman (1998), Core and Guay (1999) and Murphy (1999).

⁹ In the UK, Urgent Issue Task Force (UITF) Abstract 10 of the Accounting Standards Board forms the basis of executive stock options disclosure, and is similar to the Australian disclosure rules as embodied in s.205G of the Corporations Law.

¹⁰ During the sample period, ASX Listing Rule 10.14 prescribed shareholder approval by special resolution for issues of securities to related parties (which include CEOs) by way of stock option schemes. The resolution must have been passed at a general meeting held no earlier than the last annual general meeting of the company. Issues of ordinary shares or claims thereon through such schemes and without ordinary shareholders' approval were capped at 15% of outstanding ordinary share capital (Listing Rule 7.1). Irregular grants outside such schemes similarly required shareholder approval (Listing Rule 10.11), but the 15% cap did not apply.

¹¹ Yermack (1997) cites two examples of companies acknowledging management CEO influence over the terms and conditions of CEO awards, but no such instances were observed during collection of our sample.

¹² Mean standard deviation of pre-award stock returns for non-Top 200 companies = .0680, and .0354 for Top 200 companies. The difference is statistically significant at the 1 per cent level ($t = 5.206$). Similar results are obtained for the median values.

¹³ Where portions of an awarded tranche of stock options are exercised on different dates or lapse, each portion is counted as an award for the purposes of this study.

calendar days between award and termination dips somewhat for regular awards (2.88 years) compared with the sample average (3.29), implying a small degree of early exercise for regular awards. Relative award size is measured by the ratio of the number of options awarded to the number of outstanding ordinary shares (i.e., common stock), for which the median value is almost uniform across the sub-groupings. Discount awards are slightly more numerous than premium awards (109 vs. 87). However, for subsequently exercised options in-the-money options outnumber out-of-the-money options at award by about 2:1, lending support to the positive incentive effect predicted by Hall and Murphy (2000, 2002). Discounted options are even more prevalent for irregular awards, suggesting a need for stronger

incentive. In aggregate, $\frac{69}{207}$ or 33.3% of all awards carry at least one exercise restriction, with the highest incidence occurring for irregular awards ($\frac{55}{69}$). Lapsed options also show a high incidence

of exercise restrictions ($\frac{38}{69}$), suggesting a link with non-exercise. Irrespective of their source, all exercise restrictions reduce CEO payoffs and hence incentive, so no distinction is made between hurdle and rationing requirements in subsequent analysis. Full CEO dilution protection is protection of the exercise price against a stock price fall caused by a bonus or rights issue or a capital restructuring, so inferior dilution protection occurs when one or more of these capital transactions is not protected in the ESOP. Across the whole sample, bonus issues are

protected in $\frac{166}{207}$ awards, rights issues in $\frac{148}{207}$ and capital reconstructions in $\frac{154}{207}$; all three are insured against in 117 cases. Hence, inferior dilution protection (including none) is

present in $\frac{90}{207}$ cases. As expected, inferior CEO dilution protection is relatively higher for

subsequently lapsed options ($\frac{38}{78}$); irregular awards also show a high degree of inferior dilution protection ($\frac{72}{151}$). Irregular awards show little sign of CEO opportunism, for full CEO dilution

protection is moderate ($\frac{79}{151}$).

Two return metrics are employed: (i) a CEO award return and (ii) a net-of-market shareholder return at award also adjusted for any stock capitalization changes. The net-of-market return at award is the test metric. The measures are:

$$\text{CEO award return} = \frac{P_{-1} - X}{P_{-1}}, \text{ and}$$

$$[-1, 0] \text{ net-of-market shareholder return} = \ln(P_0/P_{-1}) - \ln(M_0/M_{-1}),$$

where P_t is the awarding company's closing stock price on day t, the award date is t_0 , X is the strike price, and M_t is the market index: in this case, the All Ordinaries Accumulation Index. All P_t are adjusted for capitalization changes and dividends. The net-of-market return implies a beta of one, which is acceptable for very short intervals (Brown and Warner, 1980). The award return is positive when an award is made at a discount to the stock price at award ($X < P_{-1}$), and negative when made at a premium ($X > P_{-1}$). Equivalently, discounted options are awarded in-the-money while premium options are awarded out-of-the-money. Award returns are contingent on exercise of a stock option. We also compute a pre-award runup measure to indicate whether stock option awards are timed opportunistically or anticipated by the market. In

return form, the runup $= \prod_{t=-1}^T \ln\left[\left(\frac{P_t}{P_{t-1}}\right) - \left(\frac{M_t}{M_{t-1}}\right)\right]$, where T is set alternatively at -180, -90, -30 and -10 days before award. Table 2 shows no sign of runups for these intervals across the sample, so there is no evidence of opportunistic award timing following stock price rundowns. In fact, the only significant jump in adjusted returns is observed on the award date itself, which given the in camera nature of executive compensation deliberations is not surprising. We therefore report a one-day [-1, 0] net-of-market return.

Award gains (losses) occur when the strike price is set at a discount (premium) to market on the same day. Since strike prices are often set in relation to stock prices over the preceding three to five trading days, in some cases discounts (premiums) may be observed because stock prices in the preceding few days were below (above) the stock price at award. However, in contrast to Lambert, Lanen and Larcker (1989), there is such a wide distribution of award discounts/premiums in our sample (refer Figure 1) that we doubt a "noisy prices" explanation¹⁴. Furthermore, significance is lost in much of the analysis when award premiums/discounts within 5% of the stock price at award are excluded from the sample, indicating that small awards premiums /discounts are non-random.

3. Analysis

Recall that award discounts (premiums) increase (reduce) CEO incentive. Ceteris paribus, increased (lower) incentive is expected to manifest in higher

¹⁴ Another possibility is that discounted options may be awarded *after* successful CEO effort as a risk-free reward. We consider this less likely than bonuses or other non-contingent benefits because both are less risky means of delivering rewards than options.

(lower) ex post shareholder returns. We commence the analysis by examining CEO award returns and net-of-market shareholder returns by exercise outcome and award frequency. The results are reported in Table 3. The most striking result is that shareholder net-of-market returns at award do not differ significantly from zero except for a small, positive mean observed at the mean for regular awards. Apart from this group, the implication is that shareholders do not expect stock options to increase their wealth significantly. This does not necessarily imply an absence of incentive because it could be that any benefits of increased CEO incentive are offset by higher discounts or lower premiums than those necessary to achieve a given outcome. The shareholder gain in relation to regular awards contrasts with the zero return of irregular awards, suggesting that if CEOs are allowed timing discretion shareholders have found another means to neutralize any CEO advantage. CEO award returns tend negative (i.e., are premiums) for (i) subsequently lapsed options and (ii) irregular awards. The first of these results is expected given the disincentive effect of premiums; the second result is not expected and suggests a degree of opportunism is present in irregular awards. We interpret an award premium as up-front shareholder compensation for the risk of opportunistic exercise. By extension, shareholders believe an award discount in this intersection would not have created enough incentive to justify the cost. The zero net-of-market return suggests that shareholders have effectively balanced these offsetting considerations.

Table 4 reports descriptive statistics for discount, premium and at-the-money awards. Mean and median CEO award returns are positive and negative, respectively, by definition. Likewise, exercise rates are higher for discount awards than premium awards. Firm risk is measured by the volatility (standard deviation) of the issuer's monthly stock returns over a pre-award interval of at least 36 months. In-the-money options are awarded in situations of lower pre-award firm risk than out-of-the money options. Both mean and median differences are statistically significant at the 5% level (details not reported). This is not surprising because options written on low-risk investments may not generate sufficient incentive. By corollary, premium awards are expected associated with high-risk industries because the risk of exercise for non-incentive reasons (e.g., chance) is highest, so shareholders compensate by charging a premium. Risk levels for pre-existing ESOP conditions are not reported because these conditions are not a decision variable having been set (on average) many years prior to a given award.

In Table 5 we report OLS regressions of $[-1, 0]$ net-of-market returns on pre-effort conditions by award outcomes/types. One regression, that for exercised options, fails. Given the $[-1, 0]$ net-of-market return is not significantly different from zero

in the first place (refer Table 3). We interpret this as evidence that shareholders at the time of award have no expectation of exercise. The regression for subsequently lapsed options fares slightly better. The zero net-of-market return for subsequently lapsed options suggests that shareholders at award do not believe an award discount or a higher discount will yield sufficient return. In general, the CEO award return is the only consistent factor in determining net-of-market returns. Shareholder wealth is always increasing in award returns, implying successful incentive: higher award discounts (premiums) are associated with higher (lower) shareholder returns. Interestingly, apart from one exception exercise restrictions and inferior CEO dilution protection have no impact on shareholder wealth. The exception is that exercise restrictions are positively signed for irregular awards. This is consistent with the presence of an element of opportunism in irregular awards, so our interpretation is that shareholders are trying to lower this cost through the mechanism of exercise restrictions.

We now go on to consider the likely joint impact of pre-award conditions in tandem with an award discount or premium on CEO incentive and shareholder wealth. Award discounts offset the disincentive effect of an exercise restriction, while award premiums exacerbate the disincentive. Exercise restrictions are designed to limit CEO opportunism by reducing the payoff. Opportunism encompasses gains accruing to a CEO from a higher stock price resulting from non-effort causes. At the margin, shareholders apply such restrictions to the point where the gain from controlling opportunism just balances the disincentive effect. Shareholders stand to benefit most when a premium award coupled with an exercise restriction is exercised: both conditions weaken CEO incentive yet the option is exercised, implying that added value from new investment has more than covered these costs. Similarly, award discounts (premiums) offset (exacerbate) the disincentive effect of inferior CEO dilution protection. In the context of inferior dilution protection, award discounts counteract both the disincentive and underinvestment effects. A discount can be set to neutralize the expected CEO dilution cost resulting from any expected equity issues, such that a CEO is then indifferent between one financing source and another. Award premiums not only exacerbate the disincentive effect, but also increase the likelihood of underinvestment. To the extent that award premiums are associated with higher equity volatility than award discounts, the risk of underinvestment is higher. Underinvestment is not a risk when award premiums are coupled with exercise restrictions because the optimal structure of investment/financing choices is unaffected. The only scenario in which shareholders benefit from an award premium/inferior dilution protection pairing is when they (paradoxically) do not want the options

exercised. This is because exercise is likely for non-effort or fortuitous reasons, resulting in a wealth transfer from shareholders to the CEO. Shareholders' first preference would have been for no options to have been granted in the first place, but given an ESOP in place the second-best solution is non-exercise to avoid wealth transfer to the CEO.

To gain further insights on the determinants of award discount and premium choices, and exercise itself, in Table 6 we report the results of logit regressions of these choices on selected variables. These comprise pre-existing award conditions, a binary variable for irregular awards and firm risk as measured by the volatility (standard deviation) of the issuer's monthly stock returns over a pre-award interval of at least 36 months. The likelihood of an award discount (regression (1)) is found to be decreasing in both inferior CEO dilution protection and firm risk (the latter as expected), while for award premiums (regression (2)) the signs are reversed for similar coefficients. Equivalently, we observe that full dilution protection tends to be coupled with award discounts, while award premiums likely occur with low dilution protection. Exercise restrictions and award irregularity are not determinants in either case. Since discounts do not depend on award irregularity, we infer that irregular awards are not influenced by CEO opportunism.

The probability of subsequent exercise is found increasing in CEOs' award return but decreasing in exercise restrictions (regression (3)). We interpret the former result as evidence of a strong relation between the award discount/premium choice and ultimate exercise. To the extent that exercise results from incentive, then we expect to see the observed result: higher discounts create higher incentive while higher premiums create higher disincentive. The negative impact of exercise restrictions requires no further comment. On the other hand, inferior CEO dilution protection, irregular awards and firm risk have no impact on the likelihood of exercise. Of these results, the insignificance of firm risk is the most surprising because more volatile stocks should have higher exercise rates as options written on those stocks are more valuable. At this point, we surmise that shareholders are setting discounts/premiums in tandem with pre-existing ESOP conditions in a way that lowers the probability of exercise in situations where there is an appreciable risk of exercise for non-incentive reasons. In other words, it appears the sets of conditions applied at the award stage are collectively designed to ensure that exercise is independent of both firm risk and CEO opportunism to the extent the latter is present in irregular awards. We tentatively conclude that award discounts/premiums are a tool for modifying ESOP conditions so as to maximize the likelihood of exercise without the cost exceeding the incentive value of the options. The cost is the risk of offering 'too much' discount or setting a premium that is 'too low' to achieve a

target exercise probability, proxied in aggregate by ex post exercise rates.

Table 7 looks at award net-of-market returns for discount and premium awards with and without pre-existing ESOP conditions. *Ceteris paribus*, successful incentives imply high rates of exercise. Thus, shareholders have an incentive to choose an award discount/premium that maximizes the prior probability of exercise given the set of pre-award conditions 'inherited' from the ESOP. They do so in the following context: (i) premium (out-of-the-money) awards depress exercise rates relative to discounted (in-the-money) awards, and (ii) imposition of any condition reduces the payoff from exercise. Two regularities are evident across the Table. The first is that higher discounts are associated with higher exercise rates, while higher premiums have lower exercise rates. The second is the dominance of zero net-of-market returns at award; positive net-of-market returns at award are

observed for just $\frac{14}{207}$ cases (premium awards in tandem with pre-existing exercise restrictions) and negative returns are reported for $\frac{30}{207}$ cases (premium awards in tandem with pre-existing inferior CEO dilution protection).

We first consider 'condition-free' awards (group 1 in Table 7). Recall that these awards have no exercise restrictions and have full CEO dilution protection, so CEO incentive is at a maximum for this group. As expected, 'condition-free' premium awards have a lower exercise rate (51.9%) than for discount awards (81.3%). The 29.4% difference in exercise rates in favor of discount vis à vis premium awards for 'condition-free' awards is associated with a spread in the median values of award premiums and discounts of $(-.1036 \text{ less } .0747 =) -.1783$ or 17.83% (refer Figure 1 discussion). Thus, *ceteris paribus*, on average a sacrifice of 1% premium on

average appears to drive a $\frac{29.4}{17.83}$ or 1.65% increase in the exercise rate. The corresponding CEO award returns are positively and negatively signed by construction; we have no priors on the magnitude of this return. Importantly, the $[-1, 0]$ net-of-market return at award does not differ significantly from zero for either sub-group. We conclude that up-front discounts create equivalent value from higher CEO incentive. On the other hand, award premiums are a means of securing up-front (though still contingent) compensation against subsequent CEO exercise for non-incentive reasons, and likewise zero net-of-market returns suggest the compensation is offset by a lower increment to firm value caused by lower CEO incentive. We note 'condition-free' awards are associated with fewer irregular awards than the

sample average ($\frac{151}{207} = 72.9\%$) whether awarded at a discount or premium. To the extent irregular awards present the most scope for CEO opportunism, it

appears this problem is not addressed through 'condition-free' awards.

Awards subject to exercise restrictions make up the second group. As expected, discounted awards exhibit lower exercise rates. Paradoxically, premium rewards have higher exercise rates. This outcome can be traced to the lower premiums observed when exercise restrictions are present (median -.2076 award return vs. median -.0465 return). For our sample, a $-.2076 - (-.0465) = .1611$ reduction in premiums is associated with a 51.9% to 71.4% = 19.5% increase in the exercise rate, i.e., at a given point a 1% reduction in award premium increases the exercise rate by 1.21%. Net-of-market returns are zero for discount awards (as expected), but are positive for premium awards. Relative to 'condition-free' awards, the approximate halving of the award premium for this sub-group evidently creates enough incentive for shareholders apparently to benefit. But we note this group constitutes entirely irregular awards, which bear the highest risk of CEO opportunism. We conjecture the positive returns are an artefact of an insufficient risk adjustment, such that the risk of expropriation by opportunistic CEOs is greater than market risk.

Also as expected, negative net-of-market returns are attracted to premium awards bearing pre-existing inferior dilution protection, which comprise the third group. Recall that premium awards in tandem with (pre-existing) inferior dilution protection imply not only risk of underinvestment but also the risk that awarded options will be exercised for non-effort reasons. Thus, paradoxically, shareholders lose to the extent that stock options in this group are expected to be exercised. This situation obtains as long as shareholders cannot rewrite the ESOP to substitute exercise restrictions for the (present) anti-dilution clause or are unable to cancel the plan. The accompanying percentage of irregular awards is also high (83.3%), suggesting risk of opportunism may again be a factor. If so, shareholders seem to do better with an exercise restriction than inferior CEO dilution protection because we have shown the latter to have a potential disinvestment effect. Restoring CEO dilution protection to a full level or offering a discount in lieu of a premium only exacerbate the problem.

To sum up Table 7, we find discount awards in any context always are characterized by zero net-of-market returns at award. An up-front discount (though contingent) increases CEO incentive, but on average shareholders expect the added value to match the cost of the discount. Shareholders gain in only one intersection: premium awards coupled with (pre-existing) exercise restrictions. We attribute this to shareholders over-compensating for the risk of CEO opportunism associated with irregular awards. Shareholders lose when premium awards are coupled with inferior CEO dilution protection, which we attribute to inferior dilution protection limiting CEOs' appetite for risky projects that have the

highest chance of increasing shareholder wealth. We find 'condition-free' award discounts/ premiums are offset by shareholder wealth increments/decrements, respectively. Thus, we offer limited support for the analytical predictions of Hall and Murphy (2000, 2002) that award discounts/premiums are sub-optimal. However, we go on to show that award discounts/premiums have a role in modifying 'inherited' ESOPs the conditions of which presumably are no longer optimal in addressing contemporary incentive problems. We have documented pervasive evidence of pre-award bargaining between shareholders and their CEOs, with discounts/premiums at award being traded for pre-existing ESOP conditions, viz., exercise restrictions and inferior CEO dilution protection. We conjecture shareholders seek to maximize the probability of exercise by optimizing incentive.

4. Conclusions

This study has examined interactions between pre-award ESOP conditions and award discounts /premiums that characterized executive stock option awards in Australia from the mid-1980s to 2000. The literature suggests that award discounts (premiums) increase (reduce) shareholder wealth by operating on CEO payoffs, which creates a straightforward incentive effect. However, we do not find this. Shareholder wealth effects at award suggest that shareholders generally do not gain from offering discounts because associated value increments do not exceed the cost of the discount. Thus, in-the-money options do not add to shareholder wealth. 'Condition-free' discounts /premiums are found to have zero net-of-market shareholder returns, suggesting that CEOs adjust their effort in an offsetting way: for instance, an award discount provides an incentive for marginal CEO effort just equal to the cost of the discount. Otherwise, we find that award discounts/premiums are used to modify the conditions of pre-existing ESOPs that presumably are dated and no longer optimal for addressing current incentive problems.

Other major findings are:

(i) Award discounts (premiums) are associated with low (high) volatility in stock returns. This suggests shareholders 'top up' incentive for low-volatility stocks, and reduce it for high-volatility stocks where the prior probability of exercise is higher. However, zero net-of-market return outcomes in the 'condition-free' case suggest CEOs adjust their marginal effort *quid pro quo*.

(ii) Discounted awards and high CEO dilution protection are complementary, as are premium awards and low dilution protection.

(iii) Award premiums coupled with exercise restrictions show positive net-of-market returns, but these could be an artefact of insufficient risk adjustment. On the other hand, premiums coupled with inferior CEO dilution protection result in

negative shareholder returns. We attribute this outcome to an investment disincentive of inferior dilution protection: opportunistic or self-interested CEOs forego new investment to the degree the value of their stock options falls if equity financing is employed. In short, we suspect that exercise restrictions limit CEO opportunism, while inferior dilution protection does not.

We have provided a glimpse of a complex structure of pre-award bargaining that demonstrably influences exercise rates and shareholder wealth. To advance our understanding of the factors that impinge on incentive optimality, further work needs to be undertaken on:

(i) Developing an analytical model to internalize pre-existing ESOP conditions in a two-stage decision setting.

(ii) Identification of scenarios in which standard ESOP conditions of exercise restrictions and inferior CEO dilution protection have comparative advantages.

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Appendices

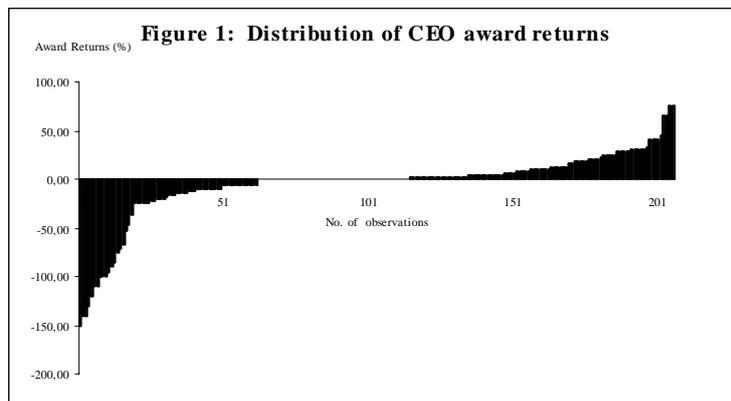


Table 1. Sample characteristics

Relative award size is the ratio of the number of options awarded to the number of outstanding ordinary shares (i.e., common stock). Exercise restrictions include target or hurdle price targets and rationing restrictions. Premium (discount) awards are those with the strike price exceeding (less than) the stock price on the award date, while at-the-money awards are those with the strike price equal to the stock price on the award date. Full CEO dilution protection is protection of the exercise price against a stock price fall caused by a bonus or rights issue or a capital restructuring; inferior dilution protection occurs when one or more of these capital transactions is not protected in the ESOP. Irregular stock option awards are all awards not made annually or bi-annually.

	Whole sample	Subsequently exercised options	Subsequently lapsed options	Regular awards	Irregular awards
Number of awards	207	129	78	56	151
Number of awarding companies	57	40	40	22	53
Percentage of awarding companies in Top 200	50.2	51.2	48.7	28.6	58.3
Percentage of resource companies	23.7	11.1	12.6	5.3	18.4
Percentage of awards subsequently exercised	56.3	100.0	0.0	55.0	56.7
Relative award size (%)					
mean	0.411	0.389	0.447	0.199	0.489
median	0.148	0.155	0.132	0.135	0.167
Standard deviation of pre-award returns					
mean	.3723	.3389	.4276	.3514	.3801
median	.2863	.2853	.3078	.3141	.2775
Number of awards subject to exercise restrictions:					
hurdle price target	39	17	22	10	29
rationing restriction	30	14	16	4	26
either	69	31	38	14	55
Interval (calendar days) from award to termination					
mean	1193	1148	1269	1088	1233
median	1216	1202	1257	1019	1311
Number of awards with CEO protection against					
bonus issues	166	113	53	39	127
rights issues	148	97	51	38	110
capital reconstructions	154	96	58	54	101
all three (full protection)	117	77	40	38	79
inferior (including zero) dilution protection	90	52	38	18	72
Number of awards made:					
at a discount (in-the-money)	109	73	36	32	77
at-the-money	11	7	4	4	7
at a premium (out-of-the-money)	87	49	38	20	67

Table 2. Half-yearly, quarterly, monthly and ten-day pre-award runups for whole sample

Runup = $\prod_{t=-1}^T \ln \left[\left(\frac{P_t}{P_{t-1}} \right) - \left(\frac{M_t}{M_{t-1}} \right) \right]$, where T is day -180, -90, -30 and -10 before the award date, respectively, and P_t is the company's closing stock price at time t , adjusted for capitalization changes and dividends.

$n=207$	Base day for pre-award timing return			
	day -180	day -90	day -30	day -10
mean	.0027	.0148	.0133	.0164
t	.143	1.023	1.125	1.627
median	-.0318	.0000	.0000	.0034
Wilcoxon Z	-1.283	-.693	-.075	.669

Table 3. CEO award returns and net-of-market shareholder returns by exercise outcome and award frequency
 Irregular stock option awards are all awards not made annually or biannually. CEO award return = $\frac{P_{-1} - X}{P_{-1}}$, where P_{-1} is the stock price at the close of trading one day before the award date, and X is the strike price; a positive (negative) return indicates an award discount (premium). [-1, 0] net-of-market shareholder return = $\ln(P_0/P_{-1}) - \ln(M_0/M_{-1})$, where P_{-1} is adjusted for capitalization changes and dividends. Significance of mean net-of-market returns is given by the paired-sample t statistic, and for median values by the Wilcoxon Z statistic (statistics not reported).

	CEO award return	[-1, 0] net-of-market return at award
All awards ($n=207$)		
<i>mean</i>	-.0476**	.0008
median	.0064	.0005
standard deviation	.3458	.0400
Subsequently exercised options ($n=129$)		
<i>mean</i>	.0311	.0043
median	.0081	.0026
standard deviation	.2355	.0419
Subsequently lapsed options ($n=78$)		
<i>mean</i>	-.1778***	-.0051
median	.0000*	-.0014
standard deviation	.4475	.0361
Regular awards ($n=56$)		
<i>mean</i>	.0253	.0115*
median	.0117	.0020
standard deviation	.2871	.0450
Irregular awards ($n=151$)		
<i>mean</i>	-.0746***	-.0032
median	.0050	-.0001
standard deviation	.3624	.0373

*** denotes two-tailed significance for $\alpha \leq .01$.

** denotes two-tailed significance for $.01 < \alpha \leq .05$

* denotes two-tailed significance for $.05 < \alpha \leq .10$

Table 4. Descriptive statistics of discount, premium and at-the-money awards

Premium (discount) awards are those with the strike price exceeding (less than) the stock price on the award date; at-the-money awards are those with the strike price equal to the stock price on the award date. CEO award return = $\frac{P_0 - X}{P_0}$,

where P_0 is the stock price at award, and X is the strike price; a positive (negative) return indicates an award discount (premium). Firm risk is measured by the volatility (standard deviation) of the issuer's monthly stock returns over a pre-award interval of at least 36 months. [-1, 0] net-of-market returns equal the [-1, 0] shareholder return adjusted for capitalization changes and dividends less the corresponding market return. Significance of mean net-of-market returns is indicated by the paired-sample t statistic, and for median values by the Wilcoxon Z statistic (statistics not reported).

	Number of awards	Mean/median CEO award return	Exercise rate (percentage)	Mean/median firm risk
All discount awards	109	.1358***	67.0	.3287
		.0747***		.2815
At-the-money awards	11	zero by construction	63.6	.3384
				.2653
All premium awards	87	-.2834***	56.3	.4313
		-.1036***		.3041

*** denotes two-tailed significance for $\alpha \leq .01$. ** denotes two-tailed significance for $.01 < \alpha \leq .05$

* denotes two-tailed significance for $.05 < \alpha \leq .10$

Table 5. OLS regressions of [-1, 0] net-of-market shareholder returns on pre-effort conditions

CEO award return = $\frac{P_0 - X}{P_0}$, where P_0 is the stock price at award, and X is the strike price; a positive return indicates an

award discount. Exercise restrictions include both hurdle price targets and rationing restrictions. Full CEO dilution protection is protection of the exercise price against a stock price fall caused by a bonus or rights issue or a capital restructuring; inferior dilution protection occurs when one or more of these capital transactions is not protected in the ESOP. Irregular stock option awards are all awards not made annually or biannually. t statistics are reported for the OLS regressions.

	Whole sample	Subsequently exercised options	Subsequently lapsed options	Regular awards	Irregular awards
n	207	129	78	56	151
R^2	.054	.047	.081	.119	.066
F Significance	3.868 (.010)	2.055 (.110)	2.187 (.097)	2.334 (.085)	3.458 (.018)
Constant	.000 (.000)	-.002 (-.315)	-.001 (-.120)	.008 (1.048)	-.005 (-1.100)
CEO award return	.026*** (3.345)	.034** (2.191)	.019** (2.140)	.042** (2.049)	.022** (2.582)
Exercise restrictions (=1)	.005 (.812)	.008 (.935)	.006 (.779)	-.015 (1.146)	.012** (1.988)
Inferior CEO dilution protection (=1)	.001 (.185)	.007 (.983)	-.008 (-.989)	.019 (1.497)	-.002 (-.347)

*** denotes two-tailed significance for $\alpha \leq .01$

** denotes two-tailed significance for $.01 < \alpha \leq .05$

* denotes two-tailed significance for $.05 < \alpha \leq .10$

Table 6. Logit regressions of award discounts/premiums on selected variables

CEO award return = $\frac{P_0 - X}{P_0}$, where P_0 is the stock price at award, and X is the strike price; a positive return indicates an

award discount. Exercise restrictions include both hurdle price targets and vesting restrictions. Firm risk is measured by the standard deviation of the issuer's monthly stock returns over 36 months prior to award. Full CEO dilution protection is protection of the exercise price against a stock price fall caused by a bonus or rights issue or a capital restructuring; inferior dilution protection occurs when one or more of these capital transactions is not protected in the ESOP. Irregular stock option awards are all awards not made annually or biannually. Wald statistics are reported in parentheses.

Dependent variable:	(1) CEO award discount (=1)	(2) CEO award premium (=1)	(3) Subsequent exercise (=1)
<i>n</i>	207	207	207
<i>n</i> (=1)	109	87	117
Chi-square	10.158	10.957	32.758
Significance	.038	.027	.000
Cox & Snell R^2	.048	.052	.146
Overall correct classification	55.1%	57.5%	68.6%
Constant	.971** (5.975)	-1.290*** (10.009)	1.230*** (8.500)
CEO award return			1.948*** (11.205)
Exercise restriction (=1)	-.145 (.219)	.103 (.108)	-1.202*** (12.873)
Inferior CEO dilution protection (=1)	-.623** (4.620)	.604** (4.265)	-.272 (.732)
Irregular award (=1)	-.129 (.156)	.252 (.571)	.163 (.205)
Firm risk	-1.251* (3.266)	1.318* (3.652)	-.562 (.529)

*** denotes two-tailed significance for $\alpha \leq .01$

** denotes two-tailed significance for $.01 < \alpha \leq .05$

* denotes two-tailed significance for $.05 < \alpha \leq .10$

Table 7. Individual pre-effort contracting conditions and associated returns

Premium (discount) awards are those with the strike price exceeding (less than) the stock price on the award date. Full CEO dilution protection is protection of the exercise price against a stock price fall caused by a bonus or rights issue or a capital restructuring; inferior dilution protection occurs when one or more of these capital transactions is not protected in the ESOP.

CEO award return = $\frac{P_0 - X}{P_0}$, where P_0 is the stock price at award, and X is the strike price; a positive (negative) return

indicates an award discount (premium). [-1, 0] net-of-market returns equal the [-1, 0] shareholder return adjusted for capitalization changes and dividends less the corresponding market return. Irregular stock option awards are all awards not made annually or bi-annually. Significance of mean net-of-market returns is indicated by the paired-sample t statistic, and for median values by the Wilcoxon Z statistic (statistics not reported).

		Number of awards	Mean/median CEO award return	Exercise rate (percentage)	Percentage irregular awards	Mean/median [-1, 0] net-of-market return	Mean/median raw shareholder return
1.	'Condition-free' awards without exercise restrictions and with full CEO dilution protection, issued at a:						
	discount	48	.1310*** .0723***	81.3	66.7	.0073 .0034	.0079 .0000
	premium	27	-.3203*** -.2076***	51.9	55.6	-.0108 -.0017	-.0046 .0000
2.	Awards subject to exercise restrictions but with full CEO dilution protection, issued at a:						
	discount	22	.1051** .0441***	45.5	59.1	-.0010 .0038	-.0014 .0000
	premium	14	-.1616* -.0465***	71.4	100.0	.0032** .0073**	.0024 .0141
3.	Awards subject to inferior CEO dilution protection but with no exercise restrictions, issued at a:						
	discount	26	.1871*** .1701***	73.1	76.9	.0122 -.0020	.0161 .0000
	premium	30	-.2106*** -.0816***	66.7	83.3	-.0051* -.0044***	-.0109 -.0078

*** denotes two-tailed significance for $\alpha \leq .01$.

** denotes two-tailed significance for $.01 < \alpha \leq .05$

* denotes two-tailed significance for $.05 < \alpha \leq .10$