EXECUTIVE STOCK OPTIONS: PRELIMINARY AUSTRALIAN EVIDENCE OF SHAREHOLDER WEALTH EFFECTS OF PRE-EFFORT CONTRACTING*

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Abstract

We document a structure of pre-effort conditions associated with ESOPs. Since we can observe shareholder returns at award we infer incentive effects in a setting where premium and discounted executive stock options are regularly awarded. Discounted (premium) awards are associated with the highest (lowest) exercise rates, implying a successful incentive (disincentive) effect. Exercise restrictions (comprising hurdles and vesting restrictions) necessarily lower exercise rates, but may be preferred in combination with a discounted or premium award. Typically, a discount choice is associated with hurdles but not vesting restrictions. Empirically, shareholders benefit most from regular awards which are discounted and do not have hurdle price restrictions. Shareholders also benefit from hurdle provisions in irregular awards which may expose shareholders to CEO opportunism.

Keywords: executive compensation, ESOPs, executive stock options, shareholders, CEO

1. Introduction

Previous empirical research on the shareholder valuation consequences of adoption of executive stock option plans (ESOPs) has documented a positive effect, but has not measured the contribution to shareholder wealth of individual conditions contracted pre-award, and hence pre-effort[40]. This has been due mainly to 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. Returns accruing to shareholders at award are therefore not regularly observed. A major consequence is that incentive effects of option awards cannot readily be

determined. 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 premium and discounted awards. This paper seeks to redress both deficiencies by employing a hand-collected data set from an Australian setting in which award returns may be observed and in which premium and discount awards are more common.

In Australia, as in the United States, ESOPs grant discretion to a company's executive compensation committee concerning the timing of an award and sometimes the exercise or strike price. In a majority of cases the strike price is determined by reference to a formula specified in the ESOP. Typically, the strike price is set at the average closing stock price over a period of three to five days immediately preceding the award date, generating small award premiums (a negative CEO return) or discounts (a positive CEO return) relative to the closing stock price on the award date. But when discretion is granted to compensation committees the

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[40] DeFusco, Johnson and Zorn (1990) and Morgan and Poulsen (2001).

award premium or discount can be much larger. Award discounts/premiums are the only pre-effort conditions that are not also pre-existing conditions in the sense that award premiums/discounts are not specified in ESOPs. The other most common pre-effort conditions observed during the sample period (later 1980s through 1990s) were exercise restrictions and inferior CEO dilution protection. Exercise restrictions comprise two identifiable sub-groups: hurdle price targets and vesting restrictions that ration the volume of options that may be exercised within a given period. Other refinements such as re-pricing or re-loading provisions were then rare in Australian ESOPs. This is not a problem because it allows clearer insight into the underlying structure of standard pre-effort contracting.

Option awards imply a pre-existing incentive alignment problem. Premium awards run the risk that CEOs will withdraw marginal effort if the strike price is too high, while discount awards augment the option incentive by increasing the payoff for given marginal effort. Hall and Murphy (2000, 2002) argue that at-the-money awards are optimal: the higher incentive of discounted awards is offset by the increased cost to shareholders, and *vice versa* for premium awards. Clearly, exercise restrictions potentially have a high disincentive effect. In Australia, CEO dilution protection typically applies to rights and bonus issues and also capital reconstructions. Since only rights issues raise capital, a successful incentive effect renders this protection valuable in the event that new investment is equity-financed[41]. If CEOs are able to influence the timing of awards (and perhaps other conditions as well), there is scope for awards to be made after (temporary) stock price run downs in order to lower the strike price. If so, we would expect irregular awards to exhibit more evidence of 'good' timing than regular (e.g., annual or bi-annual) awards[42].

We cannot rank *a priori* shareholder preferences across award terms and conditions and define internal trade-offs because we do not know how shareholders value these conditions as substitutes and complements. Instead, we observe *ex post* shareholder wealth effects for different combinations of pre-effort conditions through adjusted shareholder returns on award announcement. CEO incentive would appear to be maximized when awards are discounted, there are no exercise restrictions, and CEOs are allowed to time awards and have full dilution protection. However, any one of these conditions (if favourably determined) may suffice to induce maximum CEO effort, or even all may be insufficient. Although a hurdle price condition reinforces the disincentive effect of a premium on award, it does not follow that shareholders are worse off when both are observed together because shareholders might gain by trading a minor exercise restriction for a much smaller award premium. Likewise, CEOs might trade loss of flexibility in timing awards (i.e., accept regular awards) for discounted awards. Similarly, positive CEO timing and/or award returns may compensate CEOs for bearing dilution protection inferior to regular option holders'. We document a structure of pre-effort conditions associated with ESOPs. Since we can observe shareholder returns at award we infer incentive effects in a setting where premium and discounted executive stock options are regularly awarded. Discounted (premium) awards are associated with the highest (lowest) exercise rates, implying a successful incentive (disincentive) effect. Exercise restrictions (comprising hurdles and vesting restrictions) necessarily lower exercise rates, but may be preferred in combination with a discounted or premium award. Typically, a discount choice is associated with hurdles but not vesting restrictions. Empirically, shareholders benefit most from regular awards which are discounted and do not have hurdle price restrictions. Shareholders also benefit from hurdle provisions in irregular awards which may expose shareholders to CEO opportunism.

The remainder 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 summary and conclusions in Section 4.

2. Data and sample

The present study utilises Australian data on CEO stock option awards because there are two advantages compared with US data. First, many awarding companies voluntarily announce awards, enabling computation of shareholder returns around this date. Announcements typically occur through notice of a shareholder meeting (to ratify an award) or through notice to the Australian Stock Exchange (ASX) of a change in outstanding securities on issue. Second, premium and discount awards are much more common than in the US[43], so the impact of this pre-effort decision can be evaluated more accurately. The distribution of award discounts/premiums is shown in Figure 1. The median award discount is

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[41] 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).

[42] 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.

[43] See Hall and Murphy (2002, p. 4).

.0747 or 7.47 of the stock price at award, and the median award premium is -.1036 or –10.36%.

In Australia, as in the United States, shareholders must approve ESOPs put to them by company compensation committees, usually in Annual General Meeting. During the sample period covering the late 1980s and the 1990s, ASX *Listing Rule* 10.14 prescribed shareholder approval by special resolution for issues of securities to related parties (which include CEOs) by way of employee incentive 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 securities (the American equivalent is common stock) 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. The Corporations Act (s.205G) sets 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. Once shareholder approval is given, the compensation committee usually has discretion as to the frequency, size and timing of awards, as well as determination of the strike price. CEOs are invariably not members of their compensation committees, but this does not preclude CEO influence over their deliberations[44].

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 board[45]. 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.

We use data on executive stock options which exercise dates for individual tranches of options are

(i) directly available, or (ii) are confined to a period of no more than three calendar months in conjunction with minimal stock price variation. Cases not satisfying these targets were discarded. This represents a marked improvement on US data used in previous research[46], and is on a par with Conyon and Sadler (2001) who use UK data that has more complete disclosure on the disposition of options that are no longer held[47]. Conyon 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, Conyon 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.

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 favoured by top 200 companies and resource companies. Irregular awards ($n = 151$) dominate the sample, and $129/207$ 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 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. Discounted awards are slightly more numerous than premium awards (109 *vs.* 87). Interestingly, discounted options outnumber premium options by about 2:1 for exercised options, lending support to the positive incentive effect

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[44] 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.
[45] Where portions of an awarded tranche of ESOs are exercised on different dates or lapse, each portion is counted as an award for the purposes of this study,

[46] See Hall and Liebman (1998), Core and Guay (1999) and Murphy (1999).
[47] 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.

predicted by Hall and Murphy (2000, 2002). Discounted options are even more prevalent for irregular awards, suggesting a need for stronger incentive. In aggregate, $^{69}/_{207}$ or 33.3% of all awards carry at least one exercise restriction, with the highest incidence occurring for irregular awards $\left(^{53}/_{69}\right)$. Lapsed options also show a high incidence of exercise restrictions $\left(^{40}/_{69}\right)$, suggesting that a link between non-exercise and these 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. In aggregate, bonus issues are protected in $^{166}/_{207}$ awards, rights issues in $^{148}/_{207}$ and capital reconstructions in $^{154}/_{207}$. Inferior dilution protection is present in $^{90}/_{207}$ cases, with regular awards having the least protection for CEOs.

Three return measures are employed: a CEO award return, a CEO timing return, and a net-of-market shareholder return at award also adjusted for any stock capitalisation changes. The net-of-market return at award is the test metric. The measures are:

$$\text{CEO award return} = \frac{P_0 - X}{P_0},$$

$$\text{CEO timing return} = \prod_{t=-1}^{-30} \ln\left(\frac{P_t}{P_{t-1}}\right), \text{ and}$$

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

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 for t < 0 are adjusted for capitalisation 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 $\left(X < P_0\right)$, and negative when made at a premium $\left(X > P_0\right)$. Equivalently, discounted options are awarded in-the-money while premium options are awarded out-of-the-money. A timing return is positive (negative) when an award is made after a stock price rundown (runup). Both award and timing returns are contingent on exercise of a stock option. P_{-30} is the company's stock price at the close of trading 30 calendar days beforehand, and is adjusted for all capitalization changes between this date and award. 30 days was selected after careful scrutiny of the pre-award stock prices. On average, there are no (adjusted) stock price trends before award so it appears that awards are not

anticipated (refer Table 2). However, in the event awards are timed to coincide with other recent events or trends, a CEO timing return [-30, -1] is used in analysis, which is not materially affected if 90-day or 180-day benchmarks are substituted[48].

Timing gains are costly to shareholders when the strike price is set at market after a stock price rundown when a CEO has private information that the trend will reverse, assuming that CEOs are able to influence the timing of their awards. Although Australian CEOs do not sit on their own compensation committees, they are not prohibited from doing so and nor is there any restriction on influencing award conditions. Award gains (losses) similarly occur at award 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" explanation[49]. 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

While discounted awards increase incentive, they also increase the opportunity for CEOs to exercise their options without investing marginal effort, i.e., the probability of exercise increases as the discount is increased. In contrast, a premium award reduces incentive but also decreases the probability of exercise. Shareholders may be expected to use discounted awards or in-the-money options when the incentive afforded by an at-the-money award is insufficient to elicit the requisite effort. We expect this to occur when the awarding firm is low-risk, because the CEO then has little chance of fortuitous exercise. By corollary, premium awards or out-of-the-money options are predicated when shareholders face an appreciable risk that CEOs might be able to

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[48] Although not reported here, and contrary to Yermack (1997), we find no evidence of award timing to coincide with either earnings increases or decreases either side of the award date. Award timing is most likely to show up in irregular awards, but the pre- to post-award earnings changes for this and all other groups do not differ significantly from zero, either for raw earnings or for earnings standardized by total assets.

[49] 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.

exercise without expending marginal effort. In the absence of information asymmetry we therefore expect discounted (premium) awards to be associated with low (high) volatility stocks. We find evidence supporting this view: discounted awards have statistically significant lower pre-award standard deviations of stock returns than premium awards[50]. Shareholders rationally will increase a costly (but contingent) discount until it is balanced by the marginal value added from incremental effort. For a premium award, a premium is increased until the up-front (but contingent) gain is offset by lost value from lower incentive. When shareholders select an optimum combination of discount/premium and induced CEO effort, the expected net-of-market return (in both cases) is zero, else a negative net-of-market return obtains.

We commence the analysis by examining CEO timing and award returns and net-of-market shareholder returns by exercise outcome and award frequency. The results are reported in Table 3. The most striking feature is that CEO timing and award returns and shareholder net-of-market returns mostly do not differ significantly from zero: sporadic significance achieved on mean values is largely driven by outliers, which we are reluctant to winsorise. The strongest single result is that lapsed options are preceded by stock price rundowns, generating a potential timing gain for CEOs that is never realised. In contrast, exercised options display zero timing and award returns at the median, so there is virtually no evidence of opportunistic timing of awards. Median award returns are zero, or close enough, for all groups. Thus, at the median, executive stock options are awarded at-the-money and with no timing gains to CEOs, with the sole exception of subsequently lapsed options. In all cases, median shareholder net-of-market returns are zero. Thus, for the whole sample we observe effectively zero CEO award returns in tandem with zero net-of-market returns. The latter outcome suggests that shareholders are adept at equating marginal cost with marginal benefit: costly incentives are offered until the benefit just covers the cost. To explain the regularities documented in Table 3 we first isolate and then measure the valuation consequences of individual pre-effort conditions. Pre-effort conditions comprise pre-existing conditions (i.e., those specified in the ESOP) and the award discount/premium established at award. Table 4 details the associations between individual pre-

effort contracting conditions and CEO award returns together with net-of-market returns at award. Interpretation of the results in this Table assumes shareholders seek to maximise the exercise rate of executive stock options by setting (combinations of) pre-effort conditions to elicit requisite CEO effort. An optimum is suggested when the net-of-market return is zero. Award discounts/premiums are set in conjunction with the pre-existing conditions that originate from the ESOP. In other words, we posit that award discounts/premiums are used to 'fine tune' pre-existing conditions that often prescribed some years before a given award in a different scenario setting. In general, all discount (premium) awards have significantly positive (negative) CEO award returns irrespective of the associated condition, as expected. We find that 'plain vanilla' awards (i.e., those without exercise restrictions and having full CEO dilution protection) are characterised by zero net-of-market returns for both discounted and premium awards. We interpret this result as evidence of shareholders 'getting it right', for otherwise negative returns would have been observed. In our sample at least, there is no evidence that discount options are sub-optimal as Hall and Murphy (2000, 2002) suggest. Assuming random post-award events, observed exercise rates may be taken as an indication of the exercise rates expected by shareholders when setting the discounts/ premiums. If so, for discounted options 81.3% are expected to be exercised, while for premium awards the expectation is a more modest 51.9%[51]. It is important to remember that the majority of discounted options are exercised in a low-volatility setting, i.e., the prior probability of exercise was high by virtue of the requisite discount. Conversely, premium options are expected to have a lower exercise rate given they are awarded in a high-volatility setting. As a rough approximation and in the absence of other pre-effort conditions, the increase of 29.4% in exercise rates is associated with a spread in the median values of award premiums and discounts of (-.1036 *less* .0747 =) -.1783 or 17.83%. Thus, on average a sacrifice of 1% premium on average drives a $29.4/17.83$ or 1.65% increase in the exercise rate, *cet. par.* Exercise restrictions lower the probability of exercise or the payoff. Hurdle price conditions are an example of the former[52]; vesting restrictions are an example of the latter. Either way, we posit that exercise restrictions are designed to increase shareholder returns. For example, if exercise restrictions were removed the opportunity for 'lucky' exercise increases. Awards subject to any exercise restriction (but having full CEO dilution protection)

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[50] The mean pre-award standard deviation of issuing firms' stock returns for discounted awards is .3287 and for premium awards is .4313, which is significantly different at the 5% level using a paired-sample *t* test. The corresponding median values are .2815 and .3041, respectively, which is similarly significant using a Mann-Whitney U statistic. In contrast, we find no evidence of risk differences between hurdle/no hurdle requirements, vesting/no vesting restrictions, and full/inferior CEO dilution protection.

[51] At-the-money awards (*n*=11) have an exercise rate between these figures.
[52] Hurdle restrictions comprise CEOs selling a put to shareholders which is exercised if the stock price at exercise is less than the hurdle price, while vesting restrictions simply ration the volume of options exercised.

are found also to have largely zero net-of-market returns, so the interpretation above remains essentially unchanged. Weak significance on a positive net-of-market return for premium awards with exercise restrictions suggests that shareholders may be benefiting from value added by CEO effort than they have 'paid' for, so the median option premium is rather higher than necessary to induce optimum CEO effort. Given the low-volatility setting for discounted options, any exercise restriction (either hurdle or vesting) must reduce the exercise rate, as does a premium, so exercise restrictions and premiums are mutually reinforcing. Further, there is evidence that shareholders have also lowered the median discount, from 7.23% of the stock price at award to 4.41%. For discounted awards subject to an exercise restriction, we are therefore not surprised to observe a lower exercise rate 45.5% compared with a 'plain vanilla' 81.3%. Since the corresponding net-of-market return is zero, we conclude that this configuration of conditions and its outcome is optimal. In contrast, the marginal impact of exercise restrictions applied to premium awards is small because the premium has already reduced the probability of exercise. Alternatively, when an exercise restriction is present, the award premium may be reduced without materially altering the expected rate of exercise. Given that shareholders benefit from higher exercise rates induced by extra CEO effort, the premium can be reduced still further. We observe this outcome for premium awards subject to an exercise condition: the award premium when an exercise restriction is present is much lower than the premium for a 'plain vanilla' award (4.65% *versus* 20.76%, which is statistically significant at 1% confidence level). The substitution benefits shareholders because the exercise rate has been increased (from a 'plain vanilla' 51.9% to 71.4%)[53]. Overall, this evidence suggests that an exercise restriction is more effective in increasing effort-driven exercise than a higher premium.

Discounted awards subject to inferior CEO dilution protection (but with no exercise restrictions) are characterised by higher median discounts than 'plain vanilla' awards (17.01% *versus* 7.23%, respectively, but significant only at 10%). Although the exercise rate is lower (73.1% *versus* 81.3%, respectively), it is higher than that for exercise restrictions. Empirically, CEO acceptance of lower dilution protection in exchange for a higher discount (which increases the probability of exercise) results in a 10% lower exercise rate relative to the 'plain vanilla' case, which we interpret as an optimum outcome. As with exercise restrictions, we observe an apparent trade-off between a (costly) condition and the award premium: CEOs accept a lower

premium (which helps restore incentive) in exchange for also accepting lower dilution protection. Again, a higher exercise rate than for 'plain vanilla' awards is achieved (66.7% *versus* 51.9%). However, premium awards subject to inferior CEO dilution protection have a negative net-of-market return, which is anomalous with respect to the results for other combinations. On inspection of the data it turns out that $\frac{5}{30}$ awards for this sub-group made by one company had the largest negative net-of-market returns; the negative sign disappears if these five awards are excluded. To summarise Table 4, when exercise restrictions or inferior CEO dilution protection are introduced, the first-round effect is to lower the optimal award discount or premium that would obtain in a pure discount or premium contract. The second-round effect follows the first: lower award discounts induce lower exercise rates, while lower award premiums induce higher exercise rates. Any of these outcomes is potentially optimal for shareholders. Table 5 presents logit regressions of individual pre-effort conditions on other conditions plus variables for irregular awards (=1) and pre-award firm risk. The latter is included to indicate whether any contracted conditions load on firm risk. We expect this for discounted awards in particular because discounts are appropriate when firm risk is lower: without a discount, low volatility might otherwise cause options not to be exercised. Firm risk is measured by the standard deviation of the issuer's monthly stock returns over at least 36 months prior to award. The first logit regression shows that award discounts are more likely associated with hurdles and less likely associated with vesting restrictions, implying that award discounts substitute for vesting restrictions but complement hurdles. By implication, hurdles substitute for award premiums. The coefficient on firm risk is correctly signed but the variable just fails to achieve significance. There is evidence from the third logit regression that vesting restrictions are likely associated with inferior CEO dilution protection. This is confirmed in the fourth logit regression, which also shows that inferior CEO dilution protection is more likely in irregular awards. In other words, ESOPs with inferior CEO dilution protection are less likely to spawn subsequent irregular awards. This is evidence against Yermack (1997), who argues that irregular awards reflect CEO opportunism, because irregular awards in our sample carry less dilution protection than regular awards. The alternative explanation is that irregular awards are made when shareholders stand to benefit from higher CEO incentive. To summarise this Table, the evidence on pre-effort risk transfers is that (i) award discounts are likely to follow hurdle price restrictions but not vesting restrictions, and (ii) vesting restrictions are allied with inferior CEO dilution protection. The second result reflects a typical pairing observed in ESOPs, but the first result

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[53] Awards subject to exercise restrictions are not separated according to type owing to small cell sizes for hurdle and vesting conditions. Indications are the preceding interpretations would not have been altered.

has more relevance to this paper because it involves the award discount which is set at award and not earlier when the ESOP was adopted. An award discount offsets the disincentive effect of a hurdle. Since vesting restrictions are aligned with award premiums, premiums reinforce the disincentive effect of a vesting restriction. The final step of the analysis is to regress [-1, 0] net-of-market returns on pre-effort conditions by the award types/outcomes used in Table 3. Shareholder wealth effects are reported in Table 6. One regression, that for lapsed options, fails. Firm risk is excluded from the explanatory variables because we are trying to isolate the impact of pre-effort conditions on shareholder returns (at award). CEO award returns are a significant determinant of net-of-market returns at award in all cases. All coefficients are positively signed, so award discounts are always wealth-increasing. Hurdles are inversely related to shareholder returns for regular awards, but switch to a positive relation for irregular awards. When associated with regular awards, award discounts are assigned about twice the coefficient value as for irregular awards, indicating they have a valuable role in offsetting the disincentive effect of a hurdle requirement. For irregular awards, the result is consistent with the intended purpose of a hurdle: to ameliorate the cost of CEO opportunism that may be present. In contrast, regular awards cannot be opportunistic, so hurdles allied with regular awards can only reduce CEO incentive. Vesting restrictions add value only for stock options that are subsequently exercised, but this is *ex post* rationalisation.

4. Conclusion

This study has examined the structure of pre-effort conditions that characterised ESO awards in Australia from the mid-1980s to 2000 together with attendant shareholder wealth effects. In principle, award discounts (premiums) commonly increase (reduce) shareholder wealth. We find that (i) award discounts (premiums) are made in low (high) stock volatility settings, and (ii) hurdle price conditions are in shareholders' interest for irregular awards which are at risk of CEO opportunism, but not for regular awards where hurdles serve to lower incentive. Award discounts are a more valuable incentive-aligning device for regular than irregular awards. Our evidence also suggests that shareholders are adept at optimising the combination of award discount/premium and the pre-effort condition choice. Pure discount awards have the highest exercise rates and pure premium awards have the lowest. When exercise restrictions or inferior CEO dilution protection are introduced, the first-round effect is to lower the optimal award discount or premium that would obtain in a pure discount or premium contract. The second-round effect follows the first: lower award discounts induce lower

exercise rates, while lower award premiums induce higher exercise rates. At the margin, shareholders are indifferent between these outcomes. However, there must exist preferences according to different scenarios, but elucidation of these preferences is beyond the scope of this paper. We do not prescribe scenarios when shareholders might prefer one combination of pre-effort conditions to another. Further research to address this question would be valuable in adding to our understanding of the factors that drive the design of individual company awards.

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Appendices

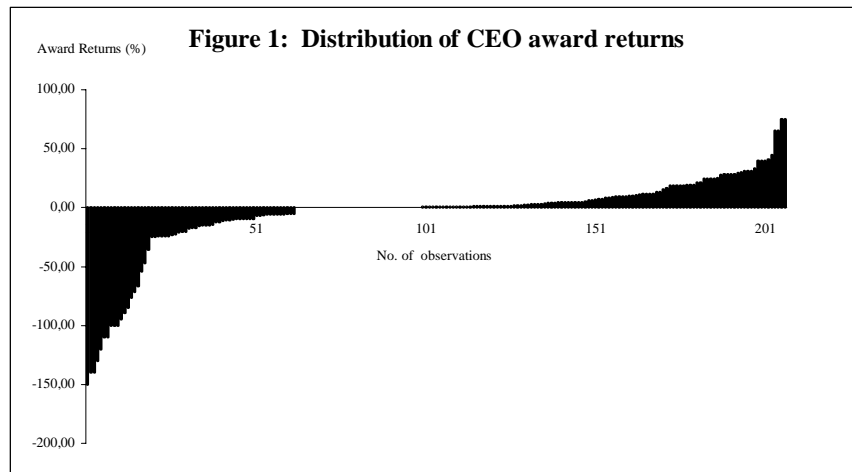Figure 1: Distribution of CEO award returns

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 hurdle price targets and vesting restrictions. 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. Irregular stock option awards are all awards not made annually or bi-annually.

	Whole sample	Exercised options	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
Interval (calendar days) from award to termination					
mean	1193	1148	1269	1088	1233
median	1216	1202	1257	1019	1311
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
Number of awards made:					
at a discount (in-the-money)	109	73	36	32	77
at-the-money (at-the-money)	11	7	4	4	7
at a premium (out-of-the-money)	87	49	38	20	67
Number of awards subject to exercise restrictions					
hurdle price condition	39	17	22	10	29
vesting restricting	30	14	16	4	26
both	69	31	38	14	55
Number of awards with:					
full dilution protection	117	77	40	38	79
inferior (including zero) dilution protection	90	52	38	18	72

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

CEO timing return = $\prod_{t=-1}^{T} \ln\left(\dfrac{P_t}{P_{t-1}}\right)$, 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 capitalisation 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 timing and 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 timing return = $\prod_{t=-1}^{-30} \ln\left(\dfrac{P_t}{P_{t-1}}\right)$, where P_t is the company's closing stock price at time t, adjusted for all capitalization changes. CEO award return = $\dfrac{P_0 - X}{P_0}$, 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 shareholder return = $\ln(P_0/P_{-1}) - \ln(M_0/M_{-1})$, where P_{-1} is adjusted for capitalisation 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 timing return	CEO award return	[-1, 0] net-of-market return at award
All awards (*n=207*)			
mean	.0052	-.0476**	.0008
median	.0000	.0064	.0005
standard deviation	.1291	.3458	.0400
Subsequently exercised options (*n=129*)			
mean	-.0170*	.0311	.0043
median	.0000	.0081	.0026
standard deviation	.1127	.2355	.0419
Subsequently lapsed options (*n=78*)			
mean	.0418***	-.1778***	-.0051
median	.0071**	.0000*	-.0014
standard deviation	.1459	.4475	.0361
Regular awards (*n=56*)			
mean	.0143	.0253	.0115*
median	.0000	.0117	.0020
standard deviation	.1244	.2871	.0450
Irregular awards (*n=151*)			
mean	.0018	-.0746***	-.0032
median	.0000	.0050	-.0001
standard deviation	.1310	.3624	.0373

***   denotes two-tailed significance for $\alpha \le .01$, **   denotes two-tailed significance for $.01 < \alpha \le .05$,
*   denotes two-tailed significance for $.05 < \alpha \le .10$

Table 4. 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 = $\dfrac{P_0 - X}{P_0}$, 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 capitalisation 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	Percentage exercised	Mean/median [-1, 0] net-of-market return at award
'Plain vanilla' awards without exercise restrictions and with full CEO dilution protection, issued at a:				
discount	48	.1310*** .0723***	81.3	.0073 .0034
premium	27	-.3203*** -.2076***	51.9	-.0108 -.0017
Awards subject to exercise restrictions but with full CEO dilution protection, issued at a:				
discount	22	.1051** .0441***	45.5	-.0010 .0038
premium	14	-.1616* -.0465***	71.4	.0019 .0073*
Awards subject to inferior CEO dilution protection but with no exercise restrictions, issued at a:				
discount	26	.1871*** .1701***	73.1	.0122 -.0020
premium	30	-.2106*** -.0816***	66.7	-.0051* -.0044***

*** denotes two-tailed significance for $\alpha \le .01$, ** denotes two-tailed significance for $.01 < \alpha \le .05$
* denotes two-tailed significance for $.05 < \alpha \le .10$

Table 5. Logit regressions of individual pre-effort conditions on selected variables

CEO award return = $\dfrac{P_0 - X}{P_0}$, 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. Pre-award 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 for the logit regression; t statistics are reported for the OLS regressions.

Dependent variable (=1): n=207	(1) CEO award discount	(2) Hurdle restrictions	(3) Vesting restrictions	(4) Inferior CEO dilution protection
Exercise rate	81.3	43.6	46.7	73.1
Chi-square	22.780	16.548	25.670	13.539
Significance	.000	.006	.000	.019
Cox & Snell R^2	.104	.077	.117	.063
Overall correct classification	59.9%	81.2%	85.0%	57.1%
Constant	.725**	-1.802***	-1.745***	.901***
	(3.585)	(11.430)	(6.615)	(6.727)
CEO award return		.383	-.921	-.032
		(.358)	(2.691)	(.005)
Hurdle price condition (=1)	.714*		-7.519	.516
	(2.980)		(.237)	(1.707)
Vesting restriction (=1)	-1.236***	-7.821		.930**
	(6.780)	(.189)		(4.633)
Inferior CEO dilution protection (=1)	-.445	-.534	.965**	
	(2.170)	(1.842)	(4.968)	
Irregular award (=1)	-.062	.379	.889	.578*
	(.034)	(.804)	(2.349)	(2.907)
Pre-award firm risk	-.923	-.191	-.354	-.454
	(2.237)	(.078)	(.116)	(.921)

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

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

Table 6. OLS regressions of [-1, 0] net-of-market shareholder returns on pre-effort conditions

CEO award return $= \dfrac{P_0 - X}{P_0}$, 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. 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.

n	All awards	Subsequently exercised options	Subsequently lapsed options	Regular awards	Irregular awards
	207	129	78	56	151
[-1, 0] net-of-market return mean median	.0008 .0005	.0043 .0026	-.0051 -.0014	.0115* .0020	-.0032 -.0001
Adjusted R^2	.054	.065	.021	.076	.041
F Significance	3.345 (.006)	2.789 (.020)	1.322 (.264)	2.134 (.090)	2.585 (.039)
Constant	.009* (1.571)	.022** (2.473)	-.006 (-.559)	.022* (1.814)	-.007 (-1.441)
CEO award return	.025*** (3.143)	.032** (2.077)	.019** (2.010)	.055** (2.383)	.022** (2.558)
Hurdle price condition (=1)	.004 (.498)	.003 (.269)	.007 (.737)	-.026* (-1.622)	.013* (1.687)
Vesting restrictions (=1)	.009 (1.136)	.020* (1.705)	.006 (.534)	.021 (.478)	.011 (1.388)
Inferior CEO dilution protection (=1)	.019 (.341)	.010 (1.373)	-.008 (-.902)	.012 (.866)	-.002 (-.317)
Irregular awards (=1)	-.014** (-2.170)	-.021** (-2.566)	-.004 (-.446)		

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

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