

Enhancing the Financial Reporting of Performance Stock Grants : Fair Values and the Components of Value-Added Analysis

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Abstract

Over 70% of Australian, UK and US firms issue performance stocks to better align the executive's interest with shareholder value. At present, the financial reporting standards do not explicitly recognise the impact of changes in the grant value on reported profit. We suggest that a fair value accounting approach would be useful in accurately reporting the amount executives receive from these grants. We also introduce a components of value-added analysis to measure the executive's contribution to shareholder value creation. Using a combination of simulated and empirical cases, we show how fair value accounting better reflects the true costs borne by shareholders and the components of value-added analysis provide a guide to improve the alignment of interests.

Keywords:

Financial reporting standards, fair value accounting, performance stocks

JEL Classification :

1. Introduction

Performance stocks are issued by companies to motivate executives to exceed a specific shareholder value target, with the stocks vesting dependent on how much the target is exceeded. Performance stocks have become the predominant form of instruments issued. Currently, over 70% of companies in Australia, the UK and the US issue these to their executives (Shields, 2007; The Hay Group, 2009; Carter et al., 2009; Frederic W. Cook and Co, Incorporated, 2012). We find that the expenses associated with performance stocks can be a material proportion of a company's annual profit, thus the accounting of these grants is of importance.

Despite the popular use of performance stocks by companies, their recognition for the purposes of financial reporting is based on legacy standards dating back to the 1980's (Foster et al., 1991; Best et al., 2002; Marquardt, 2002; Carlin and Ford, 2002; Cvitanic et al., 2008). These standards treat them as both a financial instrument, subject to fair value accounting (International Accounting Standards Board, 2004a), and a

financial asset, subject to amortised cost accounting. The two accounting approaches differ significantly, and this can affect reported profit and shareholder equity. The difference may be significant enough to influence the user's decision-making process. This seems to suggest the financial reporting of performance stock grants is inconsistent with the Conceptual Framework for financial reporting such as that published by the International Accounting Standards Board (2004b).

We identify possible reasons for the legacy standards prevailing with respect to the accounting of performance stock grants. The first is that these instruments are similar to traditional stock options which were widely issued by companies, and have since declined in popularity (The Hay Group, 2009). Foster et al. (1991) and Marquardt (2002) conducted empirical analyses of these grants and found that the average difference of the grant expenses calculated using fair value accounting and amortised cost accounting was immaterial. However, we note that the differences for individual grants in these samples were substantial, which would not be consistent with the conclusions reached. The materiality of differences hence suggests that the amortised cost accounting approach is not only inconsistent with the Conceptual Framework, but the reported figures in the financial statements are potentially misleading. The second reason for the legacy standards is based on an argument that companies recognising equity grants (and indeed, performance stock grants) using fair value accounting would report more volatile profits and this could be detrimental to the economy in general as companies may be reluctant to hire more workers (see Best et al. (2002)). Best et al. (2002) stated that this argument held strong sway in the business community and thus allowed the legacy standards to prevail. We believe this reason of volatile profits has no relevance to the Conceptual Framework and thus it further highlights how the current approach needs to be reviewed.

In light of the shortcomings of the current treatment of performance stock grants, we refer to the Conceptual Framework in proposing a more suitable approach to account for these grants. The Conceptual Framework states that financial statements should contain faithfully representative and relevant figures in order to assist users in their decision-making process. In accounting for performance stock grants, its recognition should consider the instrument's substantive features, being an equity instrument with contingent vesting. Furthermore, these are instruments issued for the purpose of compensating executives for rendered services and hence is subject to the expense recognition principle. Thus, according to the Conceptual Framework, performance stock grants should be treated as a financial instrument under fair value accounting. We consider the issue and vesting of these grants as the company taking a short position on their own stock and a long position on an external stock, and account for them accordingly. Furthermore, we propose that the expenses associated with these grants be adjusted over each financial reporting period

to account for changes in the stock price and the expected or actual vesting proportion.

The nature of performance stocks being an equity instrument which changes value with the company stock price and contingent vesting also means that such information should be reported to better inform the company's stakeholders. At present, we find that the Remuneration Report in the Annual Report contains information which differs across companies, suggesting a lack of consistency in the disclosure requirements. We consider IFRS 7 on disclosure of market information and propose that a components of value-added analysis be included. This analysis will show how the expenses associated with the grants change over each reporting period and which factors contributed to this. Stakeholders will find this particularly useful as they can measure how much of the executive's payout is derived from external market movements and superior management. To better align the interests of executives and shareholders, the portion of the payout resulting from external market movements should be excluded as it is not within the executive's control.

We use simulated cases based on realistic outcomes to illustrate our results and show how the expenses are reported over each period. The results from these case studies show that the difference between the current approach and our proposed approach can be material under certain circumstances. We also use an empirical case with CSL Limited, an Australian listed company which has performed strongly with a five-fold stock price return, to reinforce our simulated cases. The reason for this is to show how our fair value accounting approach is applied to an actual company and to enhance the credibility of our simulated cases by showing that CSL Limited also yielded a similar observation.

The remainder of the paper is organised as follows, the next section discusses the current financial reporting standards and its treatment of performance stocks. Section 3 presents our fair value accounting approach to recognising and reporting the expense associated with granting performance stocks, as well as its impact on the company's shareholder equity accounts. We also discuss how we set our assumptions, parameter estimates and our results, comparing it against the current arrangements under AASB2. Section 4 concludes the paper.

2. The Financial Reporting of Performance Stock Grants

We present a brief discussion of the background of how equity grants are recognised. We then present an overview of the IFRS Conceptual Framework and the relevant standards. In particular, we highlight the aspects relevant to the recognition of performance stock grants, namely the amortised cost approach of expense recognition, the use of grant date fair value, the contingent vesting feature and profit recognition.

These are discussed in context of the conceptual framework.

2.1. Background

In the 1970s, the accounting standards required companies to disclose the costs associated with the issue of stock options using the intrinsic value. This was deemed inappropriate by Smith and Zimmerman (1976) who proposed the use of a minimum value method instead. In 1987, the Financial Accounting Standards Board (FASB) conducted a review of the standards and it was suggested that fair value accounting should be used, with the Black-Scholes option pricing model (Black and Scholes, 1973) being a potential candidate for estimating the fair value (refer to Foster et al. (1991)). The fair value accounting approach was not implemented, however, with the amortised cost approach remaining in place (refer to Best et al. (2002)). Foster et al. (1991) studied 214 stock option grants over the 1985-1986 period to evaluate the existing practice of amortising the minimum value over a service period relative to using fair value accounting to recognise the expense associated with issuing these grants. The study found the average differences to be immaterial and statistically insignificant. Marquardt (2002) also conducted an empirical study of 966 stock option grants to study the difference between recognising the company's expense using the grant date fair value or the actual value at the vesting date. The study found that the average grant date fair values when grouped by the grant year were not significantly different to the actual value. However, the differences between the grant date fair values and the actual values of the grant varied significantly across individual grants. The conclusions from these studies appeared to justify the International Accounting Standards Board (IASB) and FASB using the amortised cost approach and grant date fair value recognition.

2.2. Overview of the IFRS Conceptual Framework and the Reporting Standards

Companies prepare financial statements to convey information about their financial position and performance, which assists stakeholders in making decisions. These statements are prepared in accordance to the IFRS Conceptual Framework (or a similar framework) which defines qualitative characteristics of useful financial statements. In 2002, the Australian Financial Reporting Council (AFRC) chose to adopt the Conceptual Framework developed by IASB (Deegan, 2009). Our study hereon refers to the IFRS as they are effectively equivalent.

The Framework identifies a tradeoff between the relevance and faithful representation of the company's financial position and performance (refer to QC 17). The Framework defines relevance as the following : "financial information is capable of making a difference in decisions if it has predictive value, confirmatory value or both" (QC 7) and faithful representation as the following : "to be a perfectly faithful representation,

a depiction would have three characteristics – it would be complete, neutral and free from error” (QC 12). The framework also defines enhancing characteristics of financial reporting including comparability, verifiability, timeliness and understandability.

The framework also recognises that reported figures are based on “estimates, judgments and models rather than depictions”. Several IFRS documents, in particular IFRS 2 and IFRS 9, have an appendix outlining how to set assumptions used in the models for estimating the values included in the financial statements. Appendix B in IFRS 2 sets out in detail the guidelines for the suitable option pricing models to be used for estimating the fair value of stock option, including what factors need to be taken into account. Similarly, IFRS 9 also has a detailed guide on how to estimate relevant values of various financial instruments and to report them in the company’s statements. The parameters which are used for determining the estimates are observable and verifiable market variables including stock price, volatility and the risk-free rate.

With respect to performance stocks grants, IFRS 2 currently requires the associated expense be recognised using grant date fair value. The fair value is estimated using an option pricing model which incorporates key variables such as stock price, exercise price, risk-free rate, term to maturity and stock price volatility. The expense which is recognised in the statements do not change to reflect market movements and vesting, except in circumstances where there is a change in the grant conditions (e.g. stock price reset due to equity issue or buyback). The company amortises the expense using the straight-line method over the performance testing period, similar to property, plant and equipment under IAS 16. Paragraphs 19-21 of the IFRS 2 standards outline how performance conditions are recognised. The expense may be adjusted by way of the expected or actual number of instruments vested (but not the fair value of the grant) depending on the nature of the performance conditions, whether it is based on market (e.g. stock price or stock price returns) or non-market (e.g. accounting measures, milestones achieved, etc.) conditions. If the grant vests conditional on non-market performance conditions, the expected or actual number of instruments vested is adjusted. No adjustments are made if the grant is subject to market performance conditions, even if the executive forfeits the grant at the end of the performance testing period (the vesting date).

The recognition of the expense associated with performance stock grants affects the company’s Profit and Loss Statement as well as the shareholder equity, namely share capital and retained profits and, where applicable, reserve accounts. The expense is not adjusted for the actual value of the grant at the vesting date so their reported profit and the retained profit account are understated. Where the company buys stocks and transfers it to a trust, this is recognised in a reserve account. The initial expense of purchasing the

stocks is recognised, but the subsequent changes in the value of the stocks are only recognised as changes to the reserve account and no further expense is recognised. This is an asymmetric treatment and we propose that the profit and loss statements should be adjusted in each financial period.

We now focus on four key aspects of accounting for performance stock grants – namely the measurement of the expense using grant date fair value, the recognition of the expense using amortised cost, the treatment of performance conditions and the profit recognition of these grants, discussing the potential rationale for its use and evaluating an alternative approach.

2.3. Grant Date Fair Value vs Actual or Vested Value

The current practice of using grant date fair value is long established. Possible explanations to support the use of the grant date fair value include cost effectiveness and for stability in reporting profits (see Best et al. (2002) for a discussion of the differing views presented). Market conditions such as stock price, risk-free interest rate and stock price volatility will change over time and estimating the fair values in subsequent financial reporting periods may prove to be uneconomical (Foster et al., 1991; Marquardt, 2002). Also, it is argued that using grant date fair value accounting reduces fluctuations in the reported expense which would negatively impact on the company's profit, thus inhibiting job growth. These arguments are not consistent with the Conceptual Framework.

We now assess whether the grant date fair value is faithfully representative (complete, neutral and free from error). The fair value of performance stocks at the grant date is computed based on parameters estimating the future market and company conditions. This value is an estimate and the parameters are often selected with reference to past performance, which may not necessarily be appropriate for predicting future performance. However, the parameters used in the valuation model are subjectively selected and hence are not neutral. The grant date fair value is also not free from error. The model selected may not be appropriate and the parameters selected or the processes driving market behaviour may be unsuitable. Yermack (1998) provided evidence of how the valuation models used to determine grant values are subject to discretionary adjustments or applied erroneously to give results which contradict financial economic theory. The resulting grant values would potentially mislead users of the financial statements.

At present, the accounting of performance stocks using the current grant date fair value approach is conceptually consistent to issuing stocks to increase equity capital. However, the primary purpose of issuing executives performance stock grants is to compensate them for rendered services. Hence, we believe the grant expense should be recognised consistent with the expense recognition principle, which is the actual amount received by the executives.

2.4. Amortised Cost Approach vs Fair Value Accounting Approach

Performance stocks and other equity grants are currently amortised using the straight line method over the service period, in the same manner as non-current assets in IAS 16. This method has been used for recognising equity grants, since the 1980s (Foster et al., 1991; Best et al., 2002). The financial reporting standards have deemed the service period to be the deferral period. The rationale for using straight line amortisation is that the executive provides their services and thus earns the grant over this period, and hence the company recognises the expense correspondingly.

We have identified issues with this rationale. Firstly, amortised cost approach accounting relates to financial assets, such as bonds. However, performance stocks and other equity grants are for compensating executives for their services. Thus, they should be recognised like other equity instruments under IFRS 9 using fair value accounting. We also identify that the conclusions from Foster et al. (1991), which had justified the use of the amortised cost approach using a quantitative analysis of past grants, may not be appropriate due to its sample design. The study considered traditional stock option grants which had an average life of seven years. However, in conducting their test of materiality on the differences between the grant date fair value and vesting date fair value, they calculated the amortised cost using the two most recent option grants for the 1986 financial year. This underestimated the actual amortisation cost, which brings the study's conclusion to doubt.

We offer an alternative perspective in viewing the issue of a performance stock grant as the company taking a short position on company equity and a long position on the stocks which replicate the performance hurdle. The current treatment of these positions is of the company investing in equity or option instruments, and is subject to fair value accounting under IFRS 9. The company hence reports the actual value of the grants over each financial period to reflect changes in their value and the expected or actual vesting proportion. We believe this approach is more consistent with the Conceptual Framework in terms of faithful representation and value relevance.

2.5. Contingent Vesting of Performance Stocks

We find that the current treatment of contingent vesting is not consistent with the Conceptual Framework. The IFRS 2 treatment of performance stocks with non-market performance hurdles is different to those with market performance hurdles. For the former, the profit and loss statement reflects the actual vesting proportion of the grant but this is not the case for the latter. The International Accounting Standards Board (2004c) does not require performance stock grants with market conditions to adjust for actual

vesting, which is different to such grants with non-market performance conditions. The reason they give is that the valuation model to determine performance stock grants with market conditions has already incorporated vesting outcomes. We note that contingent vesting is similar to that of contingent insurance claims under IFRS 4. For insurance claims, companies estimate their expected claims cost when the insurance policy is written and when a claim occurs, the company updates their expense to reflect the actual claims cost. Hence, the treatment of contingent vesting differs to that of contingent claims, suggesting another inconsistency of IFRS 2 with the Conceptual Framework.

We suggest that the contingent vesting of performance stocks is similar to the company taking a long position of stocks from another company. The executive is granted performance stocks which vests conditional on meeting certain performance targets. If these targets are met, the company needs to issue stocks to the executive, at the prevailing market price at the vesting date. To do this, the company effectively has to purchase stocks on-market if the targets exceed that of the expected amount at the grant date. The treatment of equity instruments in other companies is covered by IFRS 9, which uses fair value accounting. Hence, for consistency, we propose that the contingent vesting of performance stocks be subject to fair value accounting.

2.6. Treatment of Performance Stock Grants as Derivatives or Operating Expenses

We observe that some companies disclose the actual value of equity grants in their Remuneration Report. Under fair value accounting of equity grants and performance stock grants, the expenses will need to be reported accordingly in the profit and loss statement and the balance sheet. These expenses can either be recognised as an operating expense, which means they will contribute to NPAT, or as a change in mark-to-market value, which means they will contribute only to comprehensive income. Management discussion and analysis reports accompanying half year and full year financial reports cover the company's activities which affect their NPAT, and this will influence the stock price. We find that the comprehensive income receives less press coverage and hence we posit that likewise the stock price influence from this will also be much weaker.

Companies recognising their issue of performance stock grants in either NPAT or comprehensive income may impact on their stock price differently, and this difference may be material. The argument for recognising the expenses associated with performance stock grant issues in NPAT is that they are for compensating executives for their input. However, we also recognise that these instruments are similar in nature to financial instruments under IFRS 9, which are included in comprehensive income. Both approaches

are consistent with the Conceptual Framework and thus our paper will leave this issue open for future discussion.

2.7. Disclosure of Performance Stocks in the Remuneration Report

Companies currently publish remuneration reports which contain large volumes of information including the company's remuneration philosophy, rationale for the company's remuneration structure, the terms of employment of senior executives, details of past and present bonuses and long-term equity grants and remuneration tables for directors and senior executives. However, we find the information presented lacks consistency and contains voluntary disclosures. For example, companies are required to report the pay of its executives and directors by its fixed remuneration, short-term bonuses and long-term incentives components. Especially with equity grant details, some companies provide comprehensive detail on each grant including the grant date fair value, grant size, parameters used in valuation and the vesting progress, whilst others only provide the most basic information such as grant date fair value and the grant size. Other companies, including IAG and Lend Lease, voluntarily disclose the actual value of the grants which vest with the executives. Furthermore, much of the information requires sound financial or human resources management knowledge for interpretation, i.e. prepared for sophisticated users.

Stakeholders, in particular the company board and major shareholders, may benefit from additional disclosure of performance stock grants, especially for evaluating pay-for-performance. This can be assisted by better disclosure. IFRS 7 outlines how information is disclosed in relation to financial instruments, including those used for risk management purposes. The changes to the performance stock grant value over a given period can be analysed using a components of value-added analysis to allow us to measure the extent of each driver of change. The impact of market changes is presented as a components of value-added analysis detailing how the profit and loss is affected by each key factor. Similarly, this can be applied for the use of performance stocks, as their values change with the market and the effects of these changes on the company's profit and loss are important. Perhaps what is more important is to measure how much of the executive's payout comprises shareholder value creation which they have contributed.

3. Proposed Method and Results

We have discussed the shortcomings of how companies recognise and report performance stock grants under IFRS 2 by showing how this approach is not consistent with the Conceptual Framework, in terms of faithful representation, value-relevance and usefulness. In this section, we describe our fair value accounting approach as well as how we will value the performance stocks to account for contingent vesting and

the relative returns of the company as well as its peers. We also present and discuss our assumptions and parameter estimates which are used for the analysis.

3.1. A Fair Value Accounting Approach to Recognise Performance Stock Grants

We base our accounting approach on the premise that issuing performance stock grants is equivalent to a long position on the stocks to replicate the hurdle and a short position on the company stocks. We also establish that performance stocks are issued to compensate executives for their services rendered. At each financial reporting period, the fair value of the grant is determined and will account for the progressive vesting proportion and the prevailing market price, which is consistent with fair value accounting. The company would incur a cumulative expense on these grants equal to the current grant fair value, so the reported expense is the difference between the prior period cumulative expense and the current cumulative expense.

We use a complete market valuation approach to reflect the expense incurred by shareholders, who face a complete market with no constraints. The progressive recognition of the grant expense over the period between the grant date and the vesting date will be discussed in more detail later in this section.

3.2. Complete Market Valuation of Performance Stocks

The introduction of FAS 123 in 1995 led to companies being required to estimate the fair values of equity grants issued to executives and employees (refer to Cvitanic et al. (2008)). The valuation methods were suggested as being valid for financial reporting purposes as they meet the need to account for the instrument's substantive features and the stock price dynamics. The executive's behavioural parameters such as risk aversion and their trading restrictions, however, are not included. These may be factored into option valuation to reflect early exercise (refer to Carpenter (1998), Cvitanic et al. (2008) and Brown and Szimayer (2008)).

We model the company stock price as a one factor model which separates the market and residual volatility, as used by Ingersoll (2006), Brown and Szimayer (2008) and Armstrong and Vashistha (2012). We split the volatility into these two components as contingent vesting is dependent on the company's market and residual volatilities relative to its peers. We determine the vesting proportion of the grant by modelling the total shareholder return of the company and its peers and then determining its ranking, from which we can determine how much should vest with the executive given a vesting scale.¹ The

¹We welcome any reader interested in the full derivation to contact us.

valuation model setup assumes the executive's wealth portfolio comprises a combination of the risk-free asset, B , and a combination of stocks, S_i , where $i = 0, 1, \dots, n$ and S_0 denotes the company to which the executive belongs. To determine the shareholder's value of equity instruments issued by the company, we can assume a complete market framework with diversification of the stock portfolio to replicate the market index, S_I . The stock price process comprises the market component of volatility, $\beta\sigma_I$, and the residual volatility, ν_i such that :

$$\sigma_i^2 = \beta_i^2 \sigma_I^2 + \nu_i^2 \quad (1)$$

The expressions for the bond price process, the stock price process and the market index price process are also given below :

$$dB = rBdt \quad (2)$$

$$dS_i(t) = (\mu_i - q_i)S_i(t)dt + \beta_i\sigma_I S_i(t)dF(t) + \nu_i S_i(t)dZ_i(t) \quad (3)$$

$$dS_I(t) = (\mu_I - q_I)S_I(t)dt + \sigma_I S_I(t)dF(t) \quad (4)$$

Note that $F(t)$ and $Z_i(t)$ are mutually independent processes. Under arbitrage pricing theory, the stock return, μ_i , the risk-premium, α and the risk-free return, r , relate to each other such that $\mu_i = r + \beta_i\alpha$.

To model the vesting proportion of the grant at the end of the performance testing date, T , we define $\Pi(T)$ as the proportion of peer companies which the company outperforms based on the total shareholder return performance over the performance testing period $[0, T]$. For each company in the peer group used for testing performance, we model their total shareholder returns and then we rank them in decreasing order. The total shareholder return, $TSR_i(t)$, is the sum of the company's stock price return plus any dividends reinvested immediately on the dividend payment date and it can be written in the form below :

$$\ln TSR_i(t) = \left[\mu_i - \frac{1}{2}(\beta_i^2 \sigma_I^2 + \nu_i^2) \right] t + \beta_i \sigma_I F(t) + \nu_i Z_i(t) \quad (5)$$

Knowing the company's ranking by total shareholder return, $\Pi(T)$, allows us to determine the vesting proportion, $f[\Pi(T)]$. The vesting proportion is determined by a vesting scale, which is part of the grant

conditions. For the purpose of fair value accounting, the expected future vesting proportion, $f[\Pi(T)|\Pi(t)]$, can be calculated at any point in time t where $t \in [0, T]$. This quantity represents the grant's expected future vesting proportion given the company's current ranking, $\Pi(t)$. This expected future vesting proportion, in conjunction with the prevailing stock price, determines the prevailing fair value of the performance stock at some point in time t . Hence, we now define the fair value accounting value, $C_{FV}(t)$, which takes into account the expected future vesting proportion, $f[\Pi(T)|\Pi(t)]$ for $t < T$ and the actual value at time T when the grant vests with a known proportion. $\mathcal{F}(t)$ represents the filtration process of the company's stock price and vesting history. We can write the expression as follows :

$$C_{FV}(t) = \begin{cases} e^{-r(T-t)} \mathbb{E}_{\mathbb{Q}}[S_0(t) f[\Pi(T)|\Pi(t)] | \mathcal{F}(t)] & t = 0, 1, \dots, T-1 \\ f[\Pi(T)] S_0(T) & t = T \end{cases} \quad (6)$$

3.3. The Fair Value Accounting of Performance Stocks

We now define $Exp(t)$ as the fair value accounting share-based payment expense recognised over the t -th financial year. The company recognises the expense as follows :

$$Exp(t) = C_{FV}(t) - C_{FV}(t-1) \quad t = 0, 1, \dots, T-1, T \quad (7)$$

We note that the changes in the discount rate of the performance stock, expected future vesting proportion and the stock price are taken into account in $Exp(t)$ as $C_{FV}(t-1)$ and $C_{FV}(t)$ are computed using prevailing parameters.

3.4. The Components of Value-Added Analysis

We identify three components which explain the changes in the performance stock grant values, being (1) the level of the market or peer group index, (2) the outperformance of the company stock relative to the market/peer index and (3) the vesting proportion of the grant based on the ranking by TSR of the company relative to its peers. We introduce a benchmark stock price, $\dot{S}_0(t)$, defined as the stock price resulting from the impact of the general market and incorporates the company beta, being the sensitivity of the stock price with respect to the market. We set the benchmark stock price ex-post retrospectively by deducing to what extent the company stock price moved because of the general market. We can then compute the value of

the performance stock with respect to the benchmark stock price to reflect how much the grant is worth when we exclude the impact of the executive's contribution to the company.

Now, we define the benchmark performance stock value as the value of the performance stock incorporating the benchmark stock price, but with the expected vesting proportion based on the previous financial reporting period. The benchmark performance stock value, $C_{Benchmark}(t)$, can be written as :

$$C_{Benchmark}(t) = e^{-r(T-t)} \mathbb{E}_{\mathbb{Q}}[\dot{S}_0(t) f[\Pi(T)|\Pi(t-1)] | \mathcal{F}(t)] \quad (8)$$

We define also the alpha performance stock value, which is the value of the performance stock based on the prevailing stock price. This considers the executive's outperformance or underperformance against the benchmark. Again, the expected vesting proportion is based on the previous reporting period. The alpha performance stock value, $C_{Alpha}(t)$, can be written as :

$$C_{Alpha}(t) = e^{-r(T-t)} \mathbb{E}_{\mathbb{Q}}[S_0(t) f[\Pi(T)|\Pi(t-1)] | \mathcal{F}(t)] \quad (9)$$

The fair value accounting value of the grant extends from the alpha performance stock value to account for the nominal vesting proportion, as mentioned earlier in Section 3.2 and the mathematical expression is given in Equation (6).

At the vesting date, T , we can write $C_{Benchmark}(T)$ and $C_{Alpha}(T)$ as follows (note that $C_{FV}(T)$ has been given in (6)) :

$$C_{Benchmark}(T) = \mathbb{E}[f[\Pi(T)] | \Pi(T-1)] \dot{S}_0(T) \quad (10)$$

$$C_{Alpha}(T) = \mathbb{E}[f[\Pi(T)] | \Pi(T-1)] S_0(T) \quad (11)$$

Having defined these three performance stock values, we are able to decompose the differences between the grant fair values over two consecutive financial reporting periods. We introduce $Market(t)$, $Alpha(t)$ and $Vest(t)$ as the impact of the market movement, the executive's contribution to the benchmark outperformance (alpha) and the executive's contribution to the peer group outperformance on the grant value over a given financial period (vesting effect). We assume that the performance stock grant size is N .

Now, these effects can be written as :

$$Market(t) = [C_{Bench}(t + 1) - C_{FV}(t)] \times N \quad (12)$$

$$Alpha(t) = [C_{Alpha}(t + 1) - C_{Bench}(t + 1)] \times N \quad (13)$$

$$Vest(t) = [C_{FV}(t + 1) - C_{Alpha}(t + 1)] \times N \quad (14)$$

$$C_{FV}(t + 1) = C_{FV}(t) + Market(t) + Alpha(t) + Vest(t) \quad (15)$$

The aggregate of $Market(t)$, $Alpha(t)$ and $Vest(t)$ gives the aggregate difference between the realised performance stock grant and the fair value at the grant date, as well as reflecting the additional profit or loss recognised by the company in issuing the performance stock grant. We use this aggregate value to quantify the materiality of difference between the expense as determined by the fair value accounting approach and the IFRS2 expense. In addition to this, we can estimate to what extent the executive's payout results from their contribution to shareholder value creation.

3.5. Data and Parameter Estimates

We use a combination of case studies using a simulated company and an empirical example involving CSL Limited to evaluate the effectiveness of the fair value accounting approach in recognising and reporting the expense associated with issuing performance stock grants. The simulated company case studies comprises different possible company scenarios and show how fair value accounting gives materially different reported profits compared to that using the current accounting approach. We also use the CSL Limited case to illustrate our method with a real-life company and improve the credibility of our results. We outline how we estimate the parameters and set our assumptions. We test the materiality of the impact of the annual performance stock grants using a threshold of 5% of the company's NPAT, which is consistent with the Australian Auditing Standards No. 47.

In setting our assumptions and parameters used in determining the grant sizes and the fair value of the performance stocks granted, we consider the market performance data for the 2005 to 2012 period as this period comprised a bull market, a major market correction resulting from the global financial crisis and a subsequent rangebound recovery. The general stock market return is proxied by the ASX 200 Composite Accumulation Index as this is used widely to reflect the performance of the Australian markets. However, in deriving the simulated company's performance profile, we require data on companies which have traded

over this corresponding period for the sake of consistency. To obtain sufficient company data, we have decided to use the companies currently listed on the ASX 300 Index instead. With the ASX 300 Index, we find several companies (85 out of 301) did not exist or ceased to exist over this period. Hence, our company parameter estimates are based on data from 216 companies. For the grants, we have referred to the data of companies in the ASX 200 Composite Index collected by Guerdon Associates over the 2006-2008 period. We have retained grants which contained information allowing us to calculate the fair value of all the instruments granted over the financial year. This resulted in a sample of 256 grants from 83 companies.

The market performance data is presented in Figure 1 and Table 1. The annual returns in the eight year period was only 4.51% p.a. This level of returns is weak as a result of the global financial crisis which dampened equity returns during this period. We note the market performance is not consistent with the substantial increase in the level of executive reward during this period (Egan Associates, 2009; Australian Government Productivity Commission, 2009).

****Insert Figure 1 and Table 1 here****

The performance of the companies we have considered in this study is summarised in Table 2. The average returns for each year is significantly higher than the annualised index return, with the average eight year return being 8.77% p.a. This is largely explainable by the survivorship bias of the companies which are in the sample. Furthermore, we attribute the significant difference between the average annual returns for each year and the average annual return over the eight year period to the mean reversion behaviour of individual company stock returns. From the market performance data and the individual company performance data, we further highlight how equity grants to executives are subject to significant volatility.

****Insert Table 2****

We profile the equity grants based on the data from Guerdon Associates over the 2006 to 2008 period. We retain grants to the Chief Executive Officer or Managing Director (excluding Executive Chairman) of ASX 200 Index companies for which the number of instruments granted and the fair values of each instrument are given. The summary of the grants is provided in Table 3. Of the 256 grants issued by 83 companies which meet our requirements, we find 229 (89.5%) are performance stock or option grants, 23 (9.0%) are traditional stock options and 4 (1.6%) are equity grants based on service period. This sample has a higher proportion of performance stock grants than that reported by Egan Associates (2009) and BlackRock (2012) but we believe our results are not affected by the over-representation of performance stock grants in our sample.

****Insert Table 3 here****

The fair values of equity grants each year over 2006 to 2008 have also been determined by calculating the aggregate fair value of all equity grants awarded to the CEO for a given year, and this is provided in Table 4. This is different to the statutory figures in the company's remuneration report, which are based on the amortised cost of past and current equity grants. Equity grants issued to the CEO have generally increased on average from \$1.51 million in 2006 to \$1.97 million in 2008, and averaged \$1.67 million over this period. This trend is more striking when we observe the median size of equity grants, which increased from \$1.11 million in 2006 to \$1.54 million in 2008. It is worth noting equity grants vary significantly in size, from as little as \$20,600 to up to \$8.73 million. The dilution effect is measured using the number of instruments in a grant as a percentage of the total shares on issue. We observe that on average a company would issue an equity grant to a CEO which is approximately 0.35% of the total shares on issue. However, this distribution is extremely skewed, as 75% of companies issued grants which were less than 0.24% of the total shares on issue. The median size of the grants were 0.08% of the total shares on issue. In other words, equity grants issued to the CEO each year are not insignificant in size and potentially dilutive. The grant date fair values may understate the grant value at vesting if the stock price increases significantly in the ensuing, however, and this is how executives may be receiving excessive payouts.

****Insert Table 4****

From the empirical data above, we have determined our estimates for the expected annual index return to be 6%, the dividend yield to be 4% (implying a 10% p.a. return). These seem to be compatible with generally accepted estimates used in studies by Hall and Murphy (2002), Kahl et al. (2003), Ingersoll (2006) and Brown and Szimayer (2008). This estimate is higher than the observed returns over the past 8 years, but this is due to a significant market downturn resulting from the global financial crisis. We also estimated the volatility of the returns of the ASX 200 Composite Index to be 19.88% and we believe this to be a reasonable estimate for the future given the uncertainty of the current market.

We have assumed that our sample company has a market capitalisation of \$8 billion, with 1.6 billion shares on issue, so each share is worth \$5.00 at the grant date. According to data from Thomson Financial Datastream, we also assume that this company has a beta of 1.1 and total volatility of 37.1%, implying a residual volatility of 30%. Our analysis on the cost of issuing equity grants will be based on the grant to the CEO and all the executives. From our data, we see that the total grant size is approximately 0.18% of the company's total stocks on issue. Hence, the company issues 2.88 million performance stocks each year. Using our valuation model, we determine each instrument to be worth \$2.77. The fair value of the grant

is hence estimated to be \$7.98 million. The grant has a performance testing period of three years, with no re-testing. We use the vesting schedule which states that no vesting occurs if the company total returns is below the median of its peer group, 50% when the company is placed at the median and increases linearly to 100% vesting when the company is placed at the top quartile. According to Shields (2007), The Hay Group (2009) and ?, this is the most common vesting schedule for ASX-listed companies issuing performance stocks with relative total shareholder return hurdles. The grant is assumed to have performance vesting remain “on foot” such that the grant is subject to performance testing even if the executive has departed. This practice has been more commonly adopted by ASX-listed companies since the recommendation made by the Australian Productivity Commission in 2009 in their review of executive remuneration practices since the GFC (Australian Government Productivity Commission, 2009). In addition, we have reviewed the historical PE ratio of ASX 200 companies over the 1970 to 2012 period and found that the average PE ratio is 13.8. Given the company’s market capitalisation, this implies the NPAT for each financial year is \$579.71 million.

3.6. Simulated Results

We now present our simulated cases, which are summarised in Table 5. These cases have been chosen as they are empirically plausible. For our base case, we have included the possibility of the executives delivering outperforming returns relative to the index such that the company stock price is expected to increase by 13.8% p.a., which implies their contribution to outperformance is just under 3% p.a. We also assume the company is placed at the 55th percentile of its company peer group by TSR at the end of each year, meaning 60% of the grant will vest.

Case 1 assumes the executives forfeit their grants upon early departure. These grants are declining in popularity in Australia since 2009 but it is still worth investigating given that a number of legacy plans are still in force. Case 2 considers the case where a company has been performing solidly above the market, but then the stock price tumbles significantly due to financial distress or operational failure. This failure is independent of the market (i.e. endogenous to the firm). In such a case, the grant does not vest with the executive due to significant underperformance relative to the market and its peer group. Examples of this case include Norton Goldfields in 2008, Perilya Limited in 2008, Hastie Group (which went into administration in mid 2012), Becton Property Group (which also went into administration during 2012) and various mining companies facing cash flow problems as a result of the end of the mining investment boom. Case 3 relates to the case where the stock price performs strongly over the period such that the executive receives the grant in full as it far exceeds the grant date fair value. We cite examples including

Mr Tony Polis, CEO of Aquila Resources, who was issued option grants reported to have a fair value of \$572,000 in 2006, but vested at \$169.9 million in 2012 (Australian Council of Superannuation Investors, 2012). Finally, Case 4 is a variation to Case 2, but the market has experienced a significant correction and the company has outperformed the market and a majority of the peer companies. This case was commonly seen during the GFC, where even the more resilient companies were not spared the sell-off. Executives in these companies would tend to receive a much lower payout if their grants vested. Examples include Westfield Group and Stockland Group when the real-estate investment trust industry experienced a broad based collapse due to massive writedowns of property holdings, high gearing levels and an inability to roll over maturing debt.

****Insert Table 5 here****

3.7. Empirical Case Results

We also include an empirical case involving real-life company to increase the credibility of our simulated results. The case we have selected is CSL Limited which granted performance stocks with relative total shareholder return hurdles in the 2003-2004 financial year. Three grants were made to executives – 16th October 2003, 27th October 2003 and 31st March 2004, with the first two vesting on 30th September 2006 and the remaining grant vesting on 31st March 2007. The fair value of these grants, estimated using a binomial lattice model, was \$5.25 million based on the grant date stock price ranging from \$16.25 to \$22.91. All three grants vested fully at the end of the performance testing period and the aggregate value of these grants was \$23.65 million, resulting from the stock price at the vesting date ranging from \$54.21 to \$81.35. The second and fourth grants have partial forfeitures resulting from early departures. Given the strong performance of CSL Limited relative to its peers over the performance testing period, we assume that at each financial reporting date, being the 30th June 2004, 30th June 2005 and 30th June 2006, the expected vesting proportion is 100%. The grant details are given in Table 6. We test the materiality of the grant and its expenses relative to the 2004 financial year results, when the NPAT was \$219.63 million and the diluted EPS was \$1.228.

****Insert Table 6 here****

The results for the base case are given in Table 7. The grant date fair value is \$7.99 million. Under IFRS 2, the company recognises the expense equally over the three years, so the company reports incurring \$2.66 million each financial year. This expense is constant notwithstanding market movements which affected the actual value of the grant. However, under our proposed approach, we recognise \$7.99 million in expenses for the first year. At the end of the first year, the grant value increases to \$9.26 million given

the stock price has increased and the nominal vesting proportion is 0.6. The company hence has incurred a total expense of \$9.26 million relating to this grant, and this needs to be recognised. This grant further increases to \$11.10 million at the start of the third year. At the end of the performance testing period, the realised grant value is \$12.74 million, meaning the company has understated its share-based payment expenses by \$4.75 million, or approximately 0.82% of NPAT. The company has overstated the EPS by 0.82% in relation to the grants made for that particular year.

****Insert Table 7 here****

Using the fair value accounting approach, the company needs to adjust their earnings each financial period to reflect changes in grant value. At the end of the first year, the expense associated with the grant has increased so the company needs to recognise an additional \$1.27 million in expenses for the subsequent financial year. In the subsequent year, another \$1.84 million is recognised. At the end of the third year, the company will need to recognise a further increase of \$1.64 million in expenses. So, on aggregate, the company has recognised \$4.75 million in additional losses since the grant date. In this base case, the additional loss is 0.82% of the reported NPAT, which is not considered material. However, this adjustment may be material under some of the cases we will mention shortly.

We now look at the “Components Analysis” part, which details the impact of each driver of the changes in the grant value over time. The company issued \$7.99 million worth of performance stocks, reflecting the amount rewarded to the executives for delivering benchmark performance. However, at the end of the first year, we see that the company stock price is \$5.69 and this exceeds the benchmark stock price of \$5.50. Furthermore, the company is placed in the 55th percentile of its peer group so nominally the vesting proportion is 0.6, exceeding the model’s expected vesting proportion of 0.412. Hence, the grant value increased by \$1.27 million, with \$0.67 million attributed to the company stock price moving with the market, \$0.3 million attributed to the executives’ contribution to market outperformance and \$0.3 million attributed to the company being able to outperform over half its peer companies thus far. This process can be repeated for the subsequent financial years.

Of greater interest, however, is not the progressive adjustments but the aggregate adjustments. Looking at the base case, the aggregate difference between the IFRS 2 grant value and the fair value accounting grant value is \$4.75 million. This is because the executives have received \$4.75 million more than what the company has initially expected. However, the components of value-added analysis yields some interesting results and insights. The grant value has reduced by \$1.09 million due to the market’s influence on the stock price, whilst the grant value has increased by \$1.94 million and \$3.89 million respectively for the

company's outperformance against the market and its peer companies. Hence, the executives have actually contributed more to their company's increase in value than the payout implied. This information is not evident without this analysis. Furthermore, this information may assist the Board in deciding how to adjust the executives' pay to reflect the contribution they made in generating shareholder value net of effects from the market and other external factors. However, this matter is beyond the scope of this paper.

Case 1 results can be found in Table 8. We have assumed that at the end of the first year, 100 000 stocks are forfeited and in the subsequent two years, 200,000 stocks and 500,000 stocks are forfeited respectively. Hence, at the end of the first year, 4,467,299 performance stocks are still on issue and are subject to performance testing. The grant value has increased to \$10.57 million at the end of the first year due to the stock price increasing and the nominal vesting proportion being 0.6. The grant value increases again to \$14.13 million in the subsequent year. At the end of the performance testing period, the realised grant value is \$16.66 million, which is \$8.67 million greater than the amount as recognised under the IFRS 2 approach. This implies the company will have understated the share-based expenses by 1.50% of NPAT under IFRS 2.

In terms of the components of value-added analysis results, we have added an additional component of "Early departure adjustment" to account for the change in the grant value arising from performance stocks forfeited due to early departure. As expected, early departures lead to reduced expenses incurred by the company and hence an increase in NPAT and EPS, so the adjustments are positive in Table 8. The components of value-added analysis results attribute the greatest to the decline in the grant value in the final year to the 500,000 performance stocks being forfeited due to early departure. However, when we consider the aggregate adjustments, we find the early departure component has reduced the grant value by \$2.3 million, the increase due to market influence on the company stock price is \$3.51 million, the increase in grant value due to company outperformance against the market is \$2.47 million and the increase in grant value due to company outperformance against its peers is \$5.00 million.

****Insert Table 8 here****

The results for Case 2 are presented in Table 9. The performance stock grants expire worthless, so the realised share-based expenses incurred by the company should be zero. However, the company will report incurring the grant date fair value under IFRS 2 as these performance stocks have market-based performance hurdles so there are no adjustments to the recognised expenses. This discrepancy results in the company overstating their recognised expenses and hence understating their reported NPAT and EPS by 1.38%.

****Insert Table 9 here****

The components of value-added analysis results are noteworthy. The company's stock price changes sharply over the second and third year of the grant, and this also influences the grant values. The fair value accounting share-based payment expenses change significantly in these financial reporting periods. As the results show, at the end of the second year, the company will need to adjust the recognised expenses corresponding to the performance stock grants upwards by \$22.80 million (3.93% of NPAT), and then the expenses are reversed by approximately \$33 million (5.69% of NPAT) at the end of the performance testing period given the grant has expired worthless. The aggregate adjustments for this case are not meaningful as the executives receive no payout for having significantly underperformed against the market and their peers.

Table 10 presents results for Case 3. We find the realised grant value in this case is \$129.6 million. The aggregate difference between the IFRS2 and fair value accounting figures equates to 20.98% of NPAT. Looking at the components of value-added analysis, we see that \$117.97 million is attributed to the executives delivering a massive outperformance against the market and \$18.13 million is attributed to the company outperforming its peers. The difference between the expense reported under the fair value accounting approach and the IFRS 2 approach is material at the end of year 3. The overall difference is also material, being 20.98% of NPAT.

****Insert Table 10 here****

Our final case is presented in Table 11. In this case, the realised grant values total \$1.81 million, which is \$6.17 million less than what is recognised using the IFRS 2 approach. The company will actually report a 1.07% increase in their profit under the fair value accounting approach for this case. We note again how, like Cases 2 and 3, the accounting adjustments for each financial period at the end of year 3 is material.

****Insert Table 11 here****

More importantly, when we consider the aggregate adjustments, we notice that the grant values reduced by \$31.38 million resulting from the market slump, though the company has actually outperformed against the market and its peers. The executive's contribution to the grants increasing in value is \$9.87 million from market outperformance and \$15.33 million from peer outperformance. One can argue from this that the executives are being punished harshly for the market slump which has destroyed shareholder value but much of the destruction is due to factors beyond their control. Rather, they have performed well in their capacity in spite of the unfavourable market situation by outperforming the market and its peers. The components of value-added analysis may provide guidance on whether the executives' pay should be

adjusted to account for this outperformance.

The above simulated cases have provided us with insights as to how the fair value accounting approach leads to material differences in the reported NPAT associated with issuing performance stock grants. We now provide results from the 2004 performance stock grants from CSL Limited to support our results (see Table 12). The grant date fair value was \$5.25 million. At the end of the performance testing period, the total value of the grants issued in the 2004 financial year was \$23.6 million. Under the IFRS2 reporting approach, the company would recognise an expense of \$5.25 million, amortised over the three years. However, under the proposed fair value accounting approach, we see that CSL Limited would ultimately recognise \$23.65 million, with an upward adjustment over the 2004 to 2007 financial years to reflect the increase in the stock price. The difference between the two reported expenses was \$18.40 million, which is 8.38% of the NPAT of CSL Limited for the 2004 financial year, a material result.

****Insert Table 12 here****

We now discuss the results from the components of value-added analysis. The adjustments made each year under the fair value accounting approach for each year up to the end of the performance testing period are not material. However, the aggregate amount is material. More importantly, we see that at the end of the 2004 and 2005 financial years, the market movement component contributed positively to the increase in the grant value. In other words, during this period, the executives were rewarded for the positive movements of the market even though this was out of their control. However, this trend reversed for the 2006 and 2007 financial years as the stock price of CSL increased at a faster rate than the market, which can be seen in the benchmark stock price. The market movement component for these two years actually reduced the value of the grant. On aggregate, the early departure of executives and the market movement components negatively affected the actual value of the grant received by the executives, with the outperformance of the company relative to the market overwhelmingly offsetting the combined effects.

In summary, our results show that the expenses reported under the IFRS 2 approach and the fair value accounting approach materially differ. This, in turn, would lead to the net profit being potentially understated if the company stock price increases significantly over the performance testing period when the executives receive a larger payout than what the grant date fair value implies. The features of performance stock grants, especially its dependence on the prevailing stock price at the end of the performance testing period and contingent vesting, necessitate a fair value accounting approach to better reflect the company's financial performance and position. We have also provided a components of value-added analysis which shows the effect each factor has on the changes in the grant value over each financial reporting period.

This information should be beneficial to different types of users in that it provides insights which are currently not available. Furthermore, the results are easy to understand, which is consistent with the desirable characteristics of financial reports. Hence, we show how fair value accounting and the improvement in the quality of reported information may outweigh the potentially negative signals associated with more volatile reported earnings.

4. Conclusion

Our paper has evaluated the current IFRS 2 approach to accounting for performance stock grants against the Conceptual Framework and the quality of information for users. We consider the IFRS 2 approach of using amortised cost accounting and the use of grant date fair value without adjustment to be suitable where the grants are issued to raise equity capital and stock prices do not change significantly over the performance testing period. However, for performance stock grants, we find this approach may not be appropriate because these grants are primarily for the compensation of executives for their services and also the contingent vesting feature means the actual value on the vesting date can vary widely. Thus, IFRS2 does not seem to comply with the Conceptual Framework.

We have presented our fair value accounting approach which treats the contingent vesting feature of the performance stock grants as the company taking a long position on stocks reflecting the performance hurdle and a short position on their own stocks. Also, since these stocks are issued to compensate executives for their services, they should be accounted for with respect to the expense recognition principle. The actual value of the grant at the end of the performance testing period and the changes in the grant value for each financial reporting period are also recognised. This approach is conceptually sound and is also more consistent with the quality of relevance and faithful representation. Furthermore, it is consistent with the fair value accounting of similar financial instruments under IFRS 9.

To enhance the information quality disclosed to users of the financial statements, we have also presented the components of value-added analysis which details the drivers to the change in the grant value and the company's reported earnings. This analysis aims to address the concerns that using fair value accounting may lead to more volatile earnings figures by allowing investors to identify to what extent the executive has added shareholder value independent of the general market. This information will be highly beneficial to boards in considering whether the executives' pay needs to be adjusted to remove the effects of the market movements which are beyond the control of the executives.

Our results show that the difference between the expense recognised under the IFRS 2 approach and

our fair value accounting approach is material under circumstances where the company's stock price increases sharply over the performance testing period. The grant value varies over the period because of the stock price changes and also due to contingent vesting. Our simulated case studies have shown that it is possible for companies to incur material expenses equating to as much as 20% of the NPAT under plausible circumstances. We have also used the 2004 CSL Limited performance stock grant to illustrate how the fair value accounting approach may be applied in practice, as well as highlighting the materiality of the recognised expense.

Finally, we believe our results can be used to explain why certain companies prefer to issue performance grants under the current approach. One can see that the current reporting approach allows the company to limit the amount they recognise as share-based payment expenses in their accounts, which can potentially boost their reported earnings. Whilst we recognise there is resistance in adopting the fair value accounting approach as companies may have to report a more volatile and less favourable profit results, the components of value-added analysis will serve to offset this issue and better inform users of the financial statements.

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Figure 1: ASX 200 Composite Index – 2002-2012



The ASX 200 Index during this period experienced a moderate decline from 2002 to early 2003, before embarking on a bull run which lasted till late 2007. The global financial crisis commenced at the end of 2007 and the index fell over 50% in the ensuing period, when it bottomed in early March 2009. From here, the market rallied approximately 60% till May 2010. Since then, the market has been range-bound between 3,900 to 5,000. (Source : Thomson Financial Datastream)

Table 1: Average One-Year and Annualised Total Shareholder Return of ASX 200 Composite Index over 2005-2012

	2005	2006	2007	2008	2009	2010	2011	2012	8 Year
Average	22.83%	24.22%	16.87%	-38.44%	37.03%	-1.57%	-10.54%	20.26%	4.51%

The total shareholder return is determined by taking the annual return of the ASX 200 Composite Accumulation Index over each calendar year from 2005 to 2013. The 8 year return is determined by the return over September 2005 to September 2013. (Source : Thomson Financial Datastream)

Table 2: Average Annualised Total Shareholder Return of Selected ASX 300 Companies over 2005-2012

	2005	2006	2007	2008	2009	2010	2011	2012	8 Year
No. of Companies	216	216	216	216	216	216	216	216	216
Average	55.49%	44.27%	51.44%	-26.25%	43.58%	19.00%	-4.75%	41.83%	8.77%
Std Dev	109.44%	163.12%	94.18%	32.63%	212.55%	68.24%	37.25%	266.78%	14.00%
Median	27.65%	19.74%	29.39%	-27.24%	6.70%	3.51%	-9.22%	21.19%	8.32%
Minimum	-51.32%	-75.77%	-61.74%	-99.61%	-71.34%	-64.95%	-78.40%	-61.97%	-36.27%
25th Percentile	8.38%	-0.80%	7.63%	-45.17%	-16.43%	-8.41%	-26.53%	-0.238%	0.73%
75th Percentile	59.06%	49.20%	62.20%	-12.90%	37.35%	29.30%	10.44%	36.55%	15.40%
Maximum	691.67%	2,181.09%	956.86%	165.19%	2,210.19%	620.44%	184.52%	3,864.71%	58.52%

The number of companies included in this sample is based on those which have been listed and continues to be listed on the ASX and included in the ASX 300 Index as at September 2013. 216 companies fit this criteria. The total shareholder return is the sum of the stock price returns plus dividend yield assuming reinvestment. The annualised total return is determined for each calendar year from 2005 to 2012. The 8 year returns is based on the annualised total returns over the period from September 2005 to September 2013. (Source : Thomson Financial Datastream)

Table 3: CEO Equity Grant Summary – Selection from ASX 200 Companies over 2006-2008

	2006-2008 Grants	2006 Grants	2007 Grants	2008 Grants
No. of Grants	256	78	69	109
No. of Unique Companies	83	52	47	59
Performance-vested	229	67	62	100
% of Grants	89.45%	85.90%	89.86%	91.74%
Traditional Stock Options	23	10	5	8
% of Grants	8.98%	12.82%	7.25%	7.34%
Other	4	1	2	1
% of Grants	1.56%	1.28%	2.90%	0.92%

The grants are based on those issued by companies on the ASX 200 Composite Index, but excluding those which do not provide information on the number of instruments issued or the fair value of each instrument. The grants may comprise traditional stock options, performance stocks or options, service-based stocks or options (classified as other) or a combination of these. The number of unique companies is obtained by aggregating different grants from a single company for each year and over the 2006 to 2008 period. (Source : Guerdon Associates)

Table 4: CEO Equity Grant Values Summary – Selected ASX 200 Companies over 2006-2008

2006-2008 Grants				
	Grant Value	Instruments Issued	Total Shares on Issue	Grant as % Shares on Issue
No. of Companies	158	158	158	158
No. of Unique Companies	83	83	83	83
Average	\$1,674,185	905,223	652,923,816	0.3523%
Std Dev	\$1,558,821	1,368,787	651,785,618	1.0554%
Median	\$1,188,324	397,500	457,229,500	0.0783%
Minimum	\$20,600	19,976	40,656,000	0.0029%
25th Percentile	\$566,250	145,546	208,341,125	0.0324%
75th Percentile	\$2,264,933	861,500	846,304,750	0.2373%
Maximum	\$8,730,055	7,813,735	3,426,589,500	8.9897%
2006 Grants				
No. of Unique Companies	52	52	52	52
Average	\$1,514,770	905,549	646,174,168	0.3424%
Std Dev	\$1,336,037	1,306,316	639,807,998	0.8780%
Median	\$1,113,858	334,667	467,005,500	0.0833%
Minimum	\$20,600	32,597	40,968,000	0.0029%
25th Percentile	\$509,113	119,142	213,171,125	0.0319%
75th Percentile	\$2,252,951	1,190,127	823,740,250	0.2598%
Maximum	\$5,123,513	6,500,000	3,426,589,500	5.7020%
2007 Grants				
No. of Unique Companies	47	47	47	47
Average	\$1,482,715	762,061	627,093,691	0.2089%
Std Dev	\$1,565,287	1,175,533	668,594,961	0.3191%
Median	\$1,043,194	400,000	369,975,500	0.0720%
Minimum	\$82,501	19,976	41,573,000	0.0029%
25th Percentile	\$458,596	150,906	182,561,000	0.0345%
75th Percentile	\$1,722,500	580,000	798,071,250	0.2240%
Maximum	\$7,905,000	5,232,220	3,357,816,000	1.3253%
2008 Grants				
No. of Unique Companies	59	59	59	59
Average	\$1,967,214	1,018,980	679,449,199	0.4753%
Std Dev	\$1,710,247	1,563,753	658,920,927	1.4941%
Median	\$1,540,500	400,000	468,355,500	0.0621%
Minimum	\$160,000	26,600	40,656,000	0.0091%
25th Percentile	\$726,113	163,341	243,103,000	0.0293%
75th Percentile	\$2,719,420	782,300	822,586,000	0.2274%
Maximum	\$8,730,055	7,813,735	3,358,286,000	8.9897%

The summary comprises all performance stock or option grants for which the number of instruments and the fair value of each instrument are reported and recorded in the database. The fair value is the product of the number of instruments issued and the individual instrument's fair value as reported in the company's financial statements. The instruments issued is the number of equivalent ordinary stocks issued, but does not include bonus stocks exercised (e.g. 1 option = multiple stocks upon exercise). The total number of issued shares is based on the reported figure on Thomson Financial Datastream as at the end of each calendar year. The number of issued shares does not include those held in escrow or unvested grants. The grant as % of shares issued is determined by dividing the number of shares issued in a grant by the number of shares on issue. (Source : Guerdon Associates)

Table 5: Summary of Assumptions for Case Studies

Simulated Company				
Base Case ("On Foot")				
	$t = 0$	$t = 1$	$t = 2$	$t = T = 3$
Grant Size	2,880,000			
$S_0(t)$	\$5.00	\$5.69	\$6.47	\$7.37
$\dot{S}_0(t)$	\$5.00	\$5.50	\$6.05	\$6.66
Actual $\Pi(t)$		0.6	0.6	0.6
Case 1 (Forfeiture on Early Departure)				
Grant Size	4,567,299			
Stocks Forfeited From Departure	100,000	200,000	500,000	
$S_0(t)$	\$5.00	\$5.69	\$6.47	\$7.37
$\dot{S}_0(t)$	\$5.00	\$5.50	\$6.05	\$6.66
Actual $\Pi(t)$		0.6	0.6	0.6
Case 2 ("On Foot")				
Grant Size	2,880,000			
$S_0(t)$	\$5.00	\$5.80	\$12.00	\$0.40
$\dot{S}_0(t)$	\$5.00	\$5.50	\$6.05	\$6.66
$\Pi(t)$		0.8	1	0
Case 3 ("On Foot")				
Grant Size	2,880,000			
$S_0(t)$	\$5.00	\$5.80	\$12.00	\$45.00
$\dot{S}_0(t)$	\$5.00	\$5.50	\$6.05	\$6.66
Actual $\Pi(t)$		0.8	1	1
Case 4 ("On Foot")				
Grant Size	2,880,000			
$S_0(t)$	\$5.00	\$5.80	\$12.00	\$0.90
$\dot{S}_0(t)$	\$5.00	\$5.50	\$6.05	\$0.70
Actual $\Pi(t)$		0.8	1	0.7

The assumptions given relate to the three year performance stock grants issued by a company which has a prevailing stock price of \$5.00 at the time of the grant. The company's future stock prices are given, as are the benchmark stock prices, which are determined by assuming the company's beta is 1.1. The number of stocks which are forfeited due to early departure for each year in Case 1 is also provided. The actual vesting proportions over the life of the grant are also given. These are used to determine the prevailing fair value of the grants under the fair value accounting approach.

Table 6: Fair Value Accounting of the CSL Performance Stock Grant in 2004

Grant 1 (Issued 16th October 2003)					
	16th Oct 2003	30th June 2004	30th June 2005	30th June 2006	30th Sept 2006 (Vest)
Grant Size	50,000				
Stocks Forfeited From Departure					
Grant Remaining		50,000	50,000	50,000	50,000
$S_0(t)$	\$16.25	\$22.30	\$33.72	\$53.75	\$54.21
$\dot{S}_0(t)$	\$16.25	\$17.42	\$21.09	\$25.02	\$25.54
Actual $\Pi(t)$		1	1	1	1
Grant 2 (Issued 15th December 2003)					
	15th Dec 2003	30th June 2004	30th June 2005	30th June 2006	30th Sept 2006 (Vest)
Grant Size	169,200				
Stocks Forfeited From Departure		16,200	24,400		
Grant Remaining		153,000	128,600	128,600	128,600
$S_0(t)$	\$17.51	\$22.30	\$33.72	\$53.75	\$54.21
$\dot{S}_0(t)$	\$17.51	\$19.05	\$23.06	\$27.36	\$27.92
Actual $\Pi(t)$		1	1	1	1
Grant 3 (Issued 28th April 2004)					
	28th Apr 2004	30th June 2004	30th June 2005	30th June 2006	2nd Apr 2007 (Vest)
Grant Size	60,000				
Stocks Forfeited From Departure					
Grant Remaining		60,000	60,000	60,000	60,000
$S_0(t)$	\$22.91	\$22.30	\$33.72	\$53.75	\$81.35
$\dot{S}_0(t)$	\$22.91	\$23.50	\$28.45	\$33.74	\$39.34
Actual $\Pi(t)$		1	1	1	1
Grant 4 (Issued 21st June 2004)					
	21st Jun 2004	30th June 2004	30th June 2005	30th June 2006	2nd Apr 2007 (Vest)
Grant Size	132,300				
Stocks Forfeited From Departure				15,700	5,800
Grant Remaining		132,300	132,300	116,600	110,800
$S_0(t)$	\$21.72	\$22.30	\$33.72	\$53.75	\$81.35
$\dot{S}_0(t)$	\$21.72	\$21.59	\$26.14	\$31.00	\$36.15
Actual $\Pi(t)$		1	1	1	1

Four grants were issued to executives at CSL Limited for the 2003-2004 financial year. We have obtained the stock price as at the financial reporting dates 30th June 2004, 30th June 2005 and 30th June 2006 and the dates when the grants vest. We calculated the benchmark stock price by assuming that CSL Limited has a beta of 0.58, based on 2005-2010 data.

Table 7: Components of Value-Added Analysis – Fair Value Accounting Approach : Base Case

	Base Case (“On Foot”)			
	$t = 0$	$t = 1$	$t = 2$	$t = T = 3$
$E[\Pi(T) \Pi(t)]$	0.5085	0.5296	0.5506	
$C_{Bench}(t)$		\$3.016	\$3.392	\$3.670
$C_{Alpha}(t)$		\$3.120	\$3.595	\$4.058
$C_{FV}(t)$	\$2.774	\$3.304	\$3.915	\$4.422
Grant Vested				1 728 000
Expense Recognition	Year 1	Year 2	Year 3	Total
Grant Fair Value	\$7,989,120	\$9,259,200	\$11,099,540	\$12,735,360
AASB2 Expense	\$2,663,040	\$2,663,040	\$2,663,040	\$7,989,120
$Exp(t)$ (Start of year)	\$7,989,120	\$9,259,200	\$11,099,540	\$12,735,360
$Exp(t + 1)$ (End of year)	\$9,515,200	\$10,394,784	\$12,735,360	
Components Analysis	Year 1	Year 2	Year 3	Total
$Market(t)$	-\$696,960	-\$253,440	\$166,164	-\$1,116,564
$Alpha(t)$	-\$299,808	-\$585,216	-\$1,125,867	-\$2,010,891
$Vest(t)$	-\$529,632	-\$40,608	-\$1,048,545	-\$1,618,785
Sum of Adjustments	-\$1,526,400	-\$879,264	-\$2,340,576	-\$4,746,240
% of Grant Date NPAT	-0.26%	-0.15%	-0.40%	-0.82%
Material?	No	No	No	No

The Components of Value-Added analysis here provides an analysis of the changes in the company’s reported expenses associated with issuing a three year performance stock grant over the life of the grant. The fair value of the performance stock is based on the assumption that $S_0(0) = \$5.00$, $q_0 = 4\%$, $\sigma_0 = 37.2\%$, $\beta_0 = 1.1$, $T = 3$, $\sigma_T = 19.9\%$, $r = 5.25\%$ and $\nu_0 = 30\%$. The performance stocks have vesting remaining “on foot” on early departure. The fair value accounting expenses at the start and end of each year are compared against the expenses recognised under the current IFRS2 reporting approach. The stock returns, benchmark returns and the realised vesting proportion vary according to the case described. The various performance stock values and the expected vesting proportions at any given reporting period are computed using a stochastic valuation model which considers performance vesting. At the end of year 3, the stock price and vesting proportion are known, so the Grant fair value is the actual value, and the FV expense at that time ($Exp(t + 1)$ at year 3) is the realised expense. The Components Analysis figures are given for years 1, 2 and 3. We also provide the aggregate $Market(t)$, $Alpha(t)$ and $Vest(t)$ values, which are the sum of the adjustments in the previous years. The aggregate adjustments equal the difference between the Grant FV value at the grant date and the Grant FV value at the end of the three years, when the grant vests. The % of Grant Date NPAT refers to the relative size of the periodic accounting expense adjustments relative to the company’s reported NPAT in the period prior to the grant date, which is assumed to be \$579.71 million. Materiality is tested using a threshold of 5% of reported NPAT.

Table 8: Components of Value-Added Analysis – Fair Value Accounting Approach : Case 1

	Case 1 (Forfeiture on Early Departure)			
	$t = 0$	$t = 1$	$t = 2$	$t = T = 3$
$\mathbb{E}[\Pi(T) \Pi(t)]$	0.5085	0.5296	0.5506	
$C_{Bench}(t)$		\$2.212	\$2.735	\$3.667
$C_{Alpha}(t)$		\$2.288	\$3.090	\$4.058
$C_{FV}(t)$	\$1.749	\$2.365	\$3.102	\$4.422
Stocks Forfeited From Departure	100,000	200,000	500,000	
Grant Vested				2,260,379
Expense Recognition	Year 1	Year 2	Year 3	Total
Grant Fair Value	\$7,989,120	\$10,565,163	\$13,236,522	\$16,658,998
AASB2 Expense	\$2,663,040	\$2,663,040	\$2,663,040	\$7,989,120
Exp(t) (Start of year)	\$7,989,120	\$10,565,163	\$13,236,522	\$16,658,998
Exp(t + 1) (End of year)	\$10,565,163	\$13,236,522	\$16,658,998	
Components Analysis	Year 1	Year 2	Year 3	Total
Early Departure	\$174,920	\$473,000	\$1,550,925	\$2,198,845
Market(t)	-\$2,067,019	-\$1,577,194	-\$2,129,074	-\$5,773,288
Alpha(t)	-\$313,158	-\$1,515,456	-\$1,472,735	-\$3,301,349
Vest(t)	-\$370,786	-\$51,709	-\$1,371,591	-\$1,794,086
Sum of Components	-\$2,576,043	-\$2,671,359	-\$3,422,475	-\$8,669,878
% of Grant Date NPAT	-0.44%	-0.46%	-0.59%	-1.50%
Material?	No	No	No	No

Case 1 is characterised by the company issuing three year performance stock grants where early departure leads to full forfeiture. The stock and market parameters are the same as for the base case, except we also assume that on average the executive remains with the company for 6.6 years. We also assume that at the end of the first year, 100,000 stocks are forfeited, with 200,000 stocks being forfeited over the second year and 500,000 stocks being forfeited over the third year.

Table 9: Components of Value-Added Analysis – Fair Value Accounting Approach : Case 2

	Case 2 ("On Foot")			
	$t = 0$	$t = 1$	$t = 2$	$t = T = 3$
$\mathbb{E}[\Pi(T) \Pi(t)]$	0.5085	0.5531	0.9906	
$C_{Bench}(t)$		\$3.016	\$3.559	\$6.597
$C_{Alpha}(t)$		\$3.236	\$7.059	\$0.396
$C_{FV}(t)$	\$2.774	\$3.413	\$11.469	\$0.000
Grant Vested				0
Expense Recognition	Year 1	Year 2	Year 3	Total
Grant Fair Value	\$7,989,120	\$9,828,000	\$33,030,432	\$0
AASB2 Expense	\$2,663,040	\$2,663,040	\$2,663,040	\$7,989,120
Exp(t) (Start of year)	\$7,989,120	\$9,828,000	\$33,030,432	\$0
Exp(t + 1) (End of year)	\$9,828,000	\$33,030,432	\$0	
Components Analysis	Year 1	Year 2	Year 3	Total
Market(t)	-\$696,672	-\$421,056	\$14,029,932	\$12,912,204
Alpha(t)	-\$633,888	-\$10,079,424	\$17,859,329	\$7,146,017
Vest(t)	-\$508,320	-\$12,701,952	\$1,141,171	-\$12,069,101
Sum of Components	-\$1,838,880	-\$23,202,432	\$33,030,432	\$7,989,120
% of Grant Date NPAT	-0.32%	-4.00%	5.70%	1.38%
Material?	No	No	Yes	No

Case 2 is characterised by the company issuing three year performance stock grants where vesting remains "on foot" upon early departure. The stock and market parameters are the same as for the base case, except we have assumed the company and market rises sharply in the first two years, but the company stock price collapses relative to the stock market in the third year. The performance stock grants are hence forfeited at the end of the performance testing period.

Table 10: Components of Value-Added Analysis – Fair Value Accounting Approach : Case 3

	Case 3 ("On Foot")			
	$t = 0$	$t = 1$	$t = 2$	$t = T = 3$
$\mathbb{E}[\Pi(T) \Pi(t)]$	0.5085	0.5531	0.9906	
$C_{Bench}(t)$		\$3.016	\$3.559	\$6,597
$C_{Alpha}(t)$		\$3.236	\$7.059	\$44,577
$C_{FV}(t)$	\$2.774	\$3.413	\$11.469	\$45,000
Grant Vested				2,880,000
Expense Recognition	Year 1	Year 2	Year 3	Total
Grant Fair Value	\$7,989,120	\$9,828,000	\$33,030,432	\$129,600,000
AASB2 Expense	\$2,663,040	\$2,663,040	\$2,663,040	\$7,989,120
Exp(t) (Start of year)	\$7,989,120	\$9,828,000	\$33,030,432	\$129,600,000
Exp(t + 1) (End of year)	\$9,828,000	\$33,030,432	\$129,600,000	
Components Analysis	Year 1	Year 2	Year 3	Total
$Market(t)$	-\$696,672	-\$421,056	\$14,029,932	\$12,912,204
$Alpha(t)$	-\$633,888	-\$10,079,424	-\$109,381,260	-\$120,094,572
$Vest(t)$	-\$508,320	-\$12,701,952	-\$1,218,240	-\$14,428,512
Sum of Components	-\$1,838,880	-\$23,202,432	-\$96,569,568	-\$121,610,880
% of Grant Date NPAT	-0.32%	-4.00%	-16.66%	-20.98%
Material?	No	No	Yes	Yes

Case 3 is characterised by the company issuing three year performance stock grants where vesting remains "on foot" upon early departure. The stock and market parameters are the same as for the base case, except we have assumed the company and market rises sharply for the three years, with the company stock price increasing ninefold over this period. The performance stock grants are hence fully vested at the end of the performance testing period.

Table 11: Components of Value-Added Analysis – Fair Value Accounting Approach : Case 4

	Case 4 ("On Foot")			
	$t = 0$	$t = 1$	$t = 2$	$t = T = 3$
$\mathbb{E}[\Pi(T) \Pi(t)]$	0.5085	0.5531	0.9906	
$C_{Bench}(t)$		\$3.016	\$3.559	\$0.693
$C_{Alpha}(t)$		\$3.236	\$7.059	\$0.892
$C_{FV}(t)$	\$2.774	\$3.413	\$11.469	\$0.630
Grant Vested				2,016,000
Expense Recognition	Year 1	Year 2	Year 3	Total
Grant Fair Value	\$7,989,120	\$9,828,000	\$33,030,432	\$1,814,400
AASB2 Expense	\$2,663,040	\$2,663,040	\$2,663,040	\$7,989,120
Exp(t) (Start of year)	\$7,989,120	\$9,828,000	\$33,030,432	\$1,814,400
Exp(t + 1) (End of year)	\$9,828,000	\$33,030,432	\$1,814,400	
Components Analysis	Year 1	Year 2	Year 3	Total
$Market(t)$	-\$696,672	-\$421,056	\$31,033,382	\$29,915,654
$Alpha(t)$	-\$633,888	-\$10,079,424	-\$570,586	-\$11,283,898
$Vest(t)$	-\$508,320	-\$12,701,952	\$753,253	-\$12,457,037
Sum of Components	-\$1,838,880	-\$23,202,432	-\$31,216,032	\$6,174,720
% of Grant Date NPAT	-0.32%	-4.00%	5.38%	1.07%
Material?	No	No	Yes	No

Case 4 is characterised by the company issuing three year performance stock grants where vesting remains "on foot" upon early departure. The stock and market parameters are the same as for the base case, except we have assumed the company and market rises sharply for the first two years, but then the market and the company prices fall sharply in the third year as a result of a general economic downturn. The company is assumed to perform better than the market and its peers in this downturn. The performance stock grants hence partially vest at the end of the performance testing period.

Table 12: Components of Value-Added Analysis – CSL Performance Stock Grant in 2004

Expense Recognition	Grant Date	30 June 2004	30 June 2005	30 June 2006	30 June 2007
Grant Fair Value	\$5,248,618	\$7,832,200	\$11,711,081	\$18,841,258	\$ 23,649,712
AASB2 Expense		\$1,749,539	\$1,749,539	\$1,749,539	
Components Analysis	30 June 2004	30 June 2005	30 June 2006	30 June 2007	Total
Early Departure	\$183,546	\$483,445	\$495,724	\$307,652	\$1,470,366
<i>Market(t)</i>	-\$2,089,170	-\$1,252,443	\$943,576	\$7,300,294	\$4,902,257
<i>Alpha(t)</i>	-\$677,959	-\$3,109,882	-\$8,569,477	-\$12,416,401	-\$24,773,718
Sum of Components	-\$2,583,582	-\$3,878,880	-\$7,130,177	-\$4,808,454	-\$18,401,094
% of Grant Date NPAT	-1.18%	-1.77%	-3.25%	-2.19%	-8.38%
Material?	No	No	No	No	Yes

The components of value-added analysis for the CSL performance stock grants in 2004 is based on all four grants aggregated. The fair values of the performance stocks for each grant have been calculated separately to account for the prevailing stock price and the benchmark stock price. The expected vesting proportion at each of the financial years before 30th June 2007 is assumed to be 100%, for simplicity reasons given CSL delivered high total returns during the performance testing period. We have also ignored early departure in determining the fair value of the instruments. The materiality threshold is 5% of the NPAT of CSL for the 2004 financial year, which is \$219.63 million. We assumed that the grant fair value of \$5.25 million is recognised on 21st June 2004, when the last of the four grants were issued. We also assume the actual expense associated with issuing these performance stocks is known at the end of the 2007 financial year at 30th June 2007.