Journal of Contemporary Accounting & Economics 5 (2009) 95–107

Contents lists available at ScienceDirect

Journal of Contemporary Accounting & Economics

journal homepage: www.elsevier.com/locate/jcae

Alternative explanations for the association between market values and stock-based compensation expenditure

Zoltan Matolcsy, Suzanna Riddell, Anna Wright *

School Of Accounting, University of Technology, Sydney, Australia

ARTICLE INFO

Article history:
Received 25 March 2008
Revised 10 September 2009
Accepted 11 September 2009
Available online 27 September 2009

JEL classification:
J33
G34

Keywords:
Stock-based compensation
Market values

ABSTRACT

The relation between stock-based compensation and market values has been tested previously in the literature, but the empirical findings are inconsistent: both negative and positive relations have been documented. The objective of this study is to provide an explanation for why both negative and positive relations between stock-based compensation expenditure and market values can be consistent with rational markets.

We argue that stock-based compensation can be used either as a reward for past performance or as an incentive for future performance. We predict that there is a negative relation to market values when stock-based compensation is granted primarily as a reward to chief executives for past performance, while there is a positive relation when stock-based compensation is used to provide incentives for enhanced future performance. This prediction is tested on a sample of 259 firm-year observations for the period 1999–2004 using an instrumental variables approach, where the sample is classified into the 'reward' and 'incentive' groups on the basis of prior period performance and option characteristics. Our findings are that there is a positive association between stock-based compensation expenditure and market values for the 'incentive' group, but we find overall an insignificant relation for the 'reward' group. A number of sensitivity tests confirm the main findings.

1. Introduction

This study investigates the relation between stock-based compensation and market values. This relation has been tested in the literature, but the empirical findings are inconsistent, as both negative and positive associations have been found—negative in Aboody (1996) and Aboody et al. (2004b), positive in Rees and Stott (2001), Bell et al. (2002) and Brown and Yew (2002). The first objective of this study is to provide an explanation for why both the negative and positive relations between stock-based compensation and market values can be consistent with rational markets. We predict that a positive relation is expected when stock-based compensation is used to provide incentives for enhanced future performance. Alternatively, we predict a negative relation when stock-based compensation is granted primarily as a reward for prior years' good performance. The second objective is to provide empirical evidence on this explanation for alternative relations between market values and stock-based compensation.

* Corresponding author. Address: School of Accounting, University of Technology, Sydney, P.O. Box 123, Broadway, NSW 2007, Australia. Tel.: +61 612 9514 3592; fax: +61 612 9514 3669.

E-mail address: Anna.Wright@uts.edu.au (A. Wright).

1815-5669/$ - see front matter
doi:10.1016/j.jcae.2009.09.001

There are two motivations for this study. First, there has been much interest[1] in the accounting for stock-based compensation,[2] and the extant literature has primarily focused on the question of whether or not stock-based compensation should be expensed. This question has typically been addressed by testing the association between the value of stock-based compensation and market values. As previously noted, studies in this area have produced mixed results. The granting of stock-based compensation potentially affects share prices in two opposing ways. The stock-based compensation may dilute the value of the firm's outstanding stock, but may also provide incentives to employees to increase the firm's share price. Aboody (1996) and Aboody et al. (2004b) find a negative relation between estimated employee stock option expense and stock price. These two studies conclude that the market prices stock-based compensation as though it is an expense, and hence the negative association. In contrast, Rees and Stott (2001), Bell et al. (2002) and Brown and Yew (2002) document a positive relation, which implies that the market prices stock-based compensation as though it is an asset. These studies typically conclude that incentive effects are dominant in firm valuation. This is consistent with the view that aligning the interests of Chief Executive Officers (CEOs) with those of shareholders results in benefits that increase current and future earnings and offset the cost of dilution (Core and Guay, 1999; Guay et al., 2003). Plausible explanations for these conflicting results have not been addressed in the literature to date, but the question is important—are option grants an expense or an asset?[3]

The second motivation is that Australia offers a unique and powerful setting within which to study the association between market values and stock-based compensation. The extant academic literature has predominantly focused on stock-based compensation within the context of the United States (Aboody, 1996; Skinner, 1996; Rees and Stott, 2001; Bell et al., 2002; Espahbodi et al., 2002; Hanlon et al., 2003; Aboody et al., 2004a,b; Balsam et al., 2004). This research has limited generalisability to other settings because of the relatively homogenous use of stock options across firms in the US. Murphy (1999) reports that nearly all executive pay packages in the US contain stock options and that during the 1990s stock options became the single largest component of compensation in all industries except utilities. Murphy also reports that the overwhelming majority of those options have exercise price set at fair market value at grant date and they have 10-year terms and have no performance hurdles attached. In contrast, Australia offers a setting in which there is substantial variation in equity compensation. Matolcsy and Wright (2007) find that the option grant characteristics are extremely diverse with respect to the exercise price, option terms and presence of performance hurdles, especially in comparison to the US. This heterogeneity provides a unique opportunity to examine firms' different possible motivations, such as using reward or incentives, for using stock-based compensation.

This study provides empirical evidence on the association between market values and stock-based compensation expenditure for a sample of 259 firm-year observations for the period 1999–2004. The key results suggest that the market incorporates the value of stock-based compensation into price differently, depending on characteristics of the firm and the options granted. In particular, there is a significant positive association between stock-based compensation and market values for firms that grant options primarily to provide incentives to chief executives. The positive relation exists for firms that experienced negative abnormal market returns in the period prior to granting options and for firms that grant options at premium. This relation is predominantly insignificant for firms that grant options primarily as reward for past performance. A number of sensitivity tests confirm the main findings.

This study makes a significant contribution to the literature on stock-based compensation and its association with market values as it investigates the nature of the incentive effects and dilution effects of stock-based compensation. Some firms are likely to be granting options to CEOs as a means to reward them for past performance (the 'reward' group) and, in doing so, the options are more of a compensation expense and therefore a cost to the firm. Other firms use options as a mechanism for aligning CEOs' interests with those of existing shareholders in order to reduce agency costs in the future (the 'incentive' group). It is possible to classify firms into the 'reward' and 'incentive' groups based on various different measures, including firms' prior performance and option grant characteristics. This study therefore helps in the understanding of the different results found in the literature by providing empirical evidence on how investors value stock-based compensation differently in each situation.

The remainder of this paper is structured as follows. Section 2 provides some background and theory development. Section 3 provides the sample and research design, and Section 4 reports the main results. The discussion and conclusions of the paper are contained in Section 5.

2. Background and theory development

The results from the literature investigating the relation between market values and stock-based compensation expenditure are mixed. Some studies document a negative relation between the value of stock-based compensation expense and stock price. For example, Aboody (1996) finds a negative relation using a broad sample of US firms. Aboody adopts an instrumental variables approach and performs a two-stage least-squares regression of the estimated value of employee stock options on price. This approach is necessary because of the positive mechanical relation between the value of stock

[1] Johnston (2006) comments that in the United States, the debate over the accounting for stock-based compensation 'was one of the most heated in the history of accounting setting' (p. 399).

[2] For recent examples see Chalmers and Godfrey (2005), Frederickson et al. (2006), Hodder et al. (2006), Johnston (2006).

[3] The question of whether options are an asset or expense is also important to the popular press. For example, Warren Buffett is well known for his advocacy to treat options only as an expense, and his feelings on the matter have been described as 'not just as a technical accounting question, but a matter of fundamental morality' (http://money.cnn.com/2004/05/03/pf/buffett_qanda/page2). Academic evidence will also assist in this popular debate.