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Stock option plans for non-executive employees ☆

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Abstract

We examine determinants of non-executive employee stock option holdings, grants, and exercises for 756 firms during 1994–1997. We find that firms use greater stock option compensation when facing capital requirements and financing constraints. Our results are also consistent with firms using options to attract and retain certain types of employees as well as to create incentives to increase firm value. After controlling for economic determinants and stock returns, option exercises are greater (less) when the firm's stock price hits 52-week highs (lows), which confirms in a broad sample the psychological bias documented by Heath et al. (Quarterly Journal of Economics 114 (1999) 601–628).

Introduction

The corporate use of stock option plans for non-executive employees is widespread and growing. A 1999 survey by William M. Mercer reported in *USA Today* (October 6, 1999, p. 1B) finds that the percentage of large firms granting stock options to at least half of their employees increased steadily from 17% in 1993 to 39% in 1999. In some companies, stock options are used so extensively that institutional shareholders have begun to refuse approving increases in the number of shares available for options. While option grants to top executives have received considerable attention in the literature (e.g, Yermack, 1995; Hall and Liebman, 1998; Core and Guay, 1999), there has been no large-sample research on option plans for non-executive employees.[1] We contribute to the literature on corporate option plans by describing a large sample of non-executive option plans, and examining the determinants of non-executive option holdings, option grants, and option exercises.

In a broad sample of 756 firms with option plans during the years 1994–1997, we find that options are granted extensively to non-executive employees. We define non-executive employees as all employees other than the five most highly compensated executives identified in the proxy statement. On average, the number of options outstanding to all employees exceeds 6.9% of shares outstanding. Non-executive employees hold 67% of these options, although this percentage varies substantially across our sample firms.

On a per-employee basis, the mean (median) firm's non-executive employees hold option portfolios valued at over $17,000 ($3,000).

Following previous literature on CEO option plans (e.g., Yermack, 1995; Core and Guay, 1999), we investigate the hypothesis that options are used to provide both incentives and compensation. To understand the dynamics underlying these plans, we explore both the level of options held by employees and the flow of options into and out of the plan via grants of new options and option exercises. If firms use options to attract and retain employees, or to provide employees with incentives to increase firm value, we expect the level of options held by employees to vary predictably with firm characteristics. To test this hypothesis, we develop a cross-sectional model for the level of option incentives held by non-executive employees based on theory and empirical work on the distribution of equity incentives within and across organizations (e.g., Demsetz and Lehn, 1985; Jensen and Meckling, 1992; Smith and Watts, 1992; Bushman et al., 1995). We model new grants of options and option exercises as a system of simultaneous equations to reflect their expected interdependencies.

Our empirical results strongly support the hypothesis that options are granted to non-executives more intensively when firms have greater financing needs and face financing constraints. Further, we find support for our hypothesis that the level of options outstanding is related to economic determinants of firms' use of equity incentives. However, we find mixed evidence that firms actively manage the level of non-executive option incentives through annual grants. Finally, we find that option exercises are influenced by economic factors related to employee risk aversion as well as by the psychological reference point bias documented by Heath et al. (1999), who use longitudinal exercise data from seven firms.

The remainder of this paper is organized as follows. In Section 2, we describe our hypotheses with respect to the level of option holdings, grants of options, and option exercises. We describe the data in Section 3, present the results of our empirical tests in Section 4, and conclude in Section 5.

Section snippets

Hypothesis development

Our primary hypothesis is that firms grant options to non-executive employees to provide equity incentives, to attract and retain certain types of employees, and as a substitute for cash compensation. To test the hypothesis that firms use non-executive option plans to provide equity incentives and employee-retention incentives, we first develop a cross-sectional model of the economic determinants of option incentives. We define equity incentives from options as the change in the option holder's …

Sample and variable measurement

In this section, we describe our sample selection process and the data we use to test our hypotheses. We use data from four sources. From the firms' 1997 10-Ks, we obtain data on firmwide option grants and exercises for 1995, 1996, and 1997, and data on options outstanding for 1994, 1995, 1996, and 1997.[5]…

The level of equity incentives

Table 3, Table 4 present descriptive statistics for the incentive measures and their hypothesized determinants, respectively. In Panel A of Table 3, the median change in the value of options held by non-executive employees for a 1% change in stock price is $264,723. This variable is substantially skewed (mean=$1,294,686) and, as discussed above, we use the logarithmic transformation of this measure in our tests. The log of option incentives is much less skewed, with a mean of 12.57 and median…

Conclusion

In a broad cross-section of corporations, we find evidence that firms grant non-executive options for both incentive purposes and as a means of internal finance. The level of option incentives varies in a manner consistent with economic theory. As predicted, we find that the level of non-executives' option incentives is increasing in firms' growth opportunities, the relative importance of human capital as a factor of production, and firm size. Firms use non-executive option grants as a…

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