The Valuation Differences Between Stock Option and Restricted Stock Grants for U.S. Firms

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**ABSTRACT:** In this study, we document a significant shift over the past several years from stock option-based compensation to restricted stock-based compensation. Additionally, we evaluate whether stock option grants and restricted stock grants result in similar valuation consequences for firms. We estimate cross-sectional valuation equations that include the value of stock option and restricted stock grants summed over the current and past two years, residual income, and book value of equity, after controlling for endogeneity. Consistent with prior research, our findings indicate that the market on average values stock option grants positively. However, in contrast to stock option grants, restricted stock grants are valued negatively. This result is consistent with restricted stock grants lacking the positive incentive effects of stock options and being viewed as a liability or expense to the firm.

**Keywords:** stock compensation; stock options; restricted stock; valuation

**Data Availability:** Data are available from public sources indicated in the text.
I. INTRODUCTION

The significant change in compensation for U.S. firms in the past decade from stock option grants to restricted stock grants prompts the question whether stock option and restricted stock grants have similar valuation consequences for firms. In this study, we address this question by estimating equity valuation models for a sample of U.S. firms that include values of stock option and restricted stock grants to employees. Stock option and restricted stock grants differ along at least two dimensions that affect their incentive effects on employee performance and therefore possibly how the market views each when valuing a firm’s equity. First, although payoffs to employees from stock options and restricted stock are both piecewise linear in share price, by design the latter, other things equal, are more valuable to employees because they will be in-the-money when vesting provisions are met as long as the firm’s stock price is positive. Second, whereas stock options generally are not dividend-protected, restricted stock is dividend-protected in that employees receive dividends on restricted stock and do not refund them even if they fail to vest or achieve other performance criteria.

There is a substantial literature examining the consequences of stock options for valuation and performance. Those that consider broad-based options, e.g., Bell et al. (2002), present findings consistent with the market valuing outstanding options as assets, suggesting that outstanding options enhance expected future cash flows. Regarding executive options, Hanlon et al. (2003) finds that higher levels of options tend to be associated with future profitability, suggesting that options have positive incentive

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1 The extent to which there exist cross-country institutional differences between stock option and restricted stock grant programs as well as differences in how each form of compensation are taxed can result in cross-country differences in the incentive effects of each. As a result, the inferences we draw from the findings in our study regarding differences in the valuation implications of stock option and restricted stock grants are limited to U.S. firms.
properties, although findings in Landsman et al. (2007) suggest that positive incentive effects for executive options exist only for those firms with relatively high levels of corporate governance. Consistent with prior research, our findings based on broad-based stock options indicate that the market on average values stock option grants positively. However, in contrast to stock options, we find that restricted stock grants are valued negatively, which is consistent with their lacking the positive incentive effects of stock options.

Following Hanlon et al. (2003) and Landsman et al. (2007), we estimate cross-sectional valuation equations that include the value of stock option and restricted stock grants summed over the current and past two years, residual income, and equity book value. We conduct our analysis using a sample of 1,125 firm-year observations drawn from the S&P 500 Index for fiscal years 2003, 2004, and 2005, but have stock option and restricted stock information for the prior two years needed to compute the sums. Because the values of stock option and restricted stock grants are endogenously determined by equity market value, we employ a two-stage regression to estimate instruments for the value of stock option and restricted stock grants, and use the fitted values from a first-stage regression in the second-stage equity valuation equation. Drawing in part upon the prior literature (Core and Guay, 2001; Landsman et al., 2007), the first stage regression expresses the ratio of the current year’s restricted stock grant value to the total value of stock grants as a function of variables that reflect a firm’s relative position in terms of financing constraints, capital requirements, and a measure of corporate governance. Findings from the first-stage regression indicate it is well specified.
Findings from the second stage equity valuation regression indicate that, consistent with prior research, stock option grants are valued by the market as if they are intangible assets. In contrast, the market appears to value restricted stock grants negatively, i.e., as a liability or a cost to current equityholders rather than an asset. This finding is consistent with the theoretical model of Lambert and Larcker (2004) and extended in Lambert (2007), which shows that restricted stock is generally not the optimal contract form, and that option-based contracts have both efficiency and incentive advantages.

For several reasons, we analyze the valuation properties of restricted stock and stock option grants for a sample that includes grants to executives and nonexecutives rather than to executives alone. First, although differences in incentives for the two types of grants might be more pronounced for executives, prior research on stock option grants indicates that 67 to 79 percent of the value of option grants are made to nonexecutives (Core and Guay, 2001; Landsman et al., 2007). Moreover, our data indicate that nonexecutives received in excess of 85 percent of the value of restricted stock grants. Limiting our analysis to executives would result in severely limiting the generalizability of our findings. Second, findings in Landsman et al. (2007) indicate that the granting of stock option value to executives and nonexecutives reflects an endogenous choice of the firm that must be modeled. By studying the valuation properties of stock options as well as restricted stock grants, we face the additional complicating factor of having to model the endogenous choice of granting stock options and restricted stock. Studying the valuation properties of stock option and restricted stock grants to executives would require us to simultaneously model how firms chose among the four types of grants.
(stock options to executives and nonexecutives, and restricted stock to executives and nonexecutives). By studying the valuation properties of grants made to the combined set of employees, we avoid having to model this simultaneous decision. The cost of doing so is that if the pricing differences between stock option and restricted stock grants are more pronounced for executives, conducting our analyses on the combined sample reduces our ability to find such differences.

The remainder of the study is organized as follows. Section 2 discusses related literature. Section 3 presents the research design. Section 4 describes the sample selection procedure and sample summary statistics. Section 5 presents the study’s findings. Section 6 concludes the study.

II. RELATED LITERATURE

There is a well-developed literature examining the costs and benefits of stock option and restricted stock grants as a component of employee compensation. Much of the literature focuses on executives because of the incentive effects of stock-based compensation on managerial decision-making. Studies using somewhat different agency-based models, including Feltham and Wu (2001), Meulbroek (2001), Hall and Murphy (2002), Kahl et al. (2003), Williams and Rao (2006), and Kadan and Swinkels (2008), conclude that the optimal form of compensation depends on a variety of factors, including the degree to which managers are exposed to firm-specific risks, their ability to diversify their portfolio holdings, the effect of managerial effort on a firm’s operating risk, and the degree of bankruptcy risk the firm faces. In contrast, Dittmann and Maug (2007) concludes that the standard principal–agent model typically used in the literature cannot rationalize observed stock-based compensation contracts.
Studies specifically focusing on the role of restricted stock in compensating managers generally conclude that rewarding managers with restricted stock is suboptimal. For example, using agency theory to model the optimal mix of stock options and restricted stock in the compensation contract, Lambert and Larcker (2004) shows that restricted stock is generally not the optimal contract form because restricted stock grants generally lack the same incentive effects as typical stock option grants. Building on the Lambert and Larcker model, Lambert (2007) shows that the cost to the firm of a restricted stock contract (relative to an option-based contract) can be offset by lowering the agent’s salary. However, in practice, managerial salaries are bounded at zero (or higher) and it is not possible to force the agent to pay the firm if the outcome is bad. Lambert (2007) also points out that the linear payoff structure of restricted stock will induce risk-averse managers to be too conservative in their decision-making. Consistent with this reasoning, Bryan et al. (2000) finds empirical evidence that restricted stock, because of its linear payoffs, is inefficient relative to stock options in inducing risk-averse CEOs to accept risky, value-increasing investment projects.²

Given that firms use stock options and restricted stock to compensate their managers, the question naturally arises how investors assess the impact on equity market value of firms that sponsor stock-based compensation plans. Several studies address the valuation effects of employee stock options. Studies that address this question for all employees include Aboody (1996), Bell et al. (2002), and Aboody et al. (2004). Empirical findings from these studies are somewhat mixed as to whether the market values the stock options as an expense or an asset of the firm. Using a comprehensive

² See also Core and Guay (1999), which models and tests predictions regarding executive equity compensation to manage the optimal level of equity incentives.
residual valuation framework, Landsman et al. (2006) presents theoretical and empirical support for the notion that the market values employee stock options as giving rise to an asset and a liability at grant date, and the ultimate cost of the firm is determined based on whether the options fall in or out of the money during the vesting period.3

Other studies, including Hanlon et al. (2003) and Landsman et al. (2007), examine whether stock option grants to executives forecast higher future profitability, and whether the market values such grants positively. Hanlon et al. (2003) finds that higher levels of options tend to be associated with future profitability, suggesting that options have positive incentive properties, although findings in Landsman et al. (2007) suggest that positive incentive effects for executive options exist only for those firms with relatively high levels of corporate governance.

Brown and Lee (2007) and Carter et al. (2007) suggest that firms may have had financial reporting incentives to use stock options rather than restricted stock before stock-based compensation was mandated to be recognized as an expense under SFAS No. 123R (FASB, 2004). Thus, the observed growth in restricted stock grants in recent years could, in part, be attributable to the relatively larger increase in financial reporting costs for stock options post-SFAS No. 123R. Descriptive evidence in Figure 1 shows the relative increase in the proportion of restricted stock compensation began well before SFAS No. 123R was passed by the FASB, which suggests other factors could have contributed to the move to restricted stock by firms.

In addition to financial reporting incentives, Aboody and Kasznik (2008) finds evidence consistent with individual income tax consequences playing a pivotal role in the

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3 Harter and Harikumar (2002) propose that the grant value be adjusted to its market value throughout the vesting period and that any stock that is issued be recorded at fair market value on the exercise date.
increased use of restricted stock grants in executive compensation relative to stock option grants. Specifically, coincident with the 2003 reduction in dividend tax rates, Aboody and Kasznik (2008) finds that because restricted stock grants are dividend-protected, managers were incentivized to increase dividend payouts to shareholders. Consistent with Aboody and Kasznik (2008), as noted above, Figure 1 documents an increase in restricted stock grant value beginning in 2003.4

Whether financial reporting or income tax costs are a main or partial contributor to the increase in restricted stock-based compensation in the past decade, given the analytical work suggesting the sub-optimality of linear contracts, it is surprising that the empirical literature has not yet examined whether restricted stock grants have the same or different implications for valuation as employee stock options. Our study fills this void by explicitly addressing this question. As noted in the introduction, we use broad-based stock option and restricted stock grants, not just those granted to the top executives of the firm. Thus, our findings will reflect the average effects of such grants on shareholder value. If the incentive effect differences on shareholder wealth of stock option and restricted stock grants are more pronounced for executives, conducting our analyses on the combined sample reduces our ability to find such differences.

III. RESEARCH DESIGN

Our basic estimating equation is based on that employed by Bell et al. (2002) and Landsman et al. (2007). It expresses equity market value as a function of equity book

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4 Relatedly, Blouin and Carter (2010) examines restricted stock grants and evaluates how firms make tradeoffs between minimizing corporate taxes or incentivizing employees.
value, residual income, and the sum of the value of stock option and restricted stock grants in the current and prior two years.\(^5\)

\[
MVE_{it} = \alpha_0 + \alpha_1BVE_{it} + \alpha_2RI_{it} + \alpha_3\sum_{s=t-2}^t SO_{it} + \alpha_4\sum_{s=t-2}^t RS_{it} + \epsilon_{it},
\]

where \(MVE\) and \(BVE\) are equity market and book value at year end, \(RI\) is residual income, and \(SO\) and \(RS\) are the values of stock option and restricted stock grants by firm \(i\) in year \(t\). We cannot estimate equation (1) directly because, as noted by Bell et al. (2002) and Landsman et al. (2006), the values of stock option and restricted stock grants are functions of the dependent variable, equity market value. Therefore, we employ two-stage least squares to develop instruments for \(SO\) and \(RS\) that are exogenously determined relative to \(MVE\).

Our first stage equation expresses the ratio of restricted stock to total stock value granted, \(RS\_RATIO = RS/(SO+RS)\), as a linear function of variables that the prior literature indicates as being useful for explaining firms’ decisions to use stock-based compensation, and a measure of the level of corporate governance.\(^6\) In particular, drawing upon Core and Guay (2001) and Landsman et al. (2007), our first-stage regression, given by equation (2), expresses \(RS\_RATIO\) as a function of variables that reflect firms’ relative positions in terms of financing constraints and capital requirements:

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\(^5\) Following prior research (e.g., Hanlon et al., 2003; Landsman et al., 2007), we scale our dependent and independent variables by sales to mitigate potential bias in regression coefficients and/or \(t\)-statistics arising from skewness and heteroscedasticity.

\(^6\) In principle, the first-stage regression should consider the value of other forms of stock-based compensation beyond stock options and restricted stock. Unfortunately, data limitations preclude our ability to do so. Failure to include other forms of stock-based compensation could result in the first-stage regression being misspecified. However, mitigating this concern is that for our sample firms, untabulated statistics based on data provided in Execucomp reveal that the value of stock option plus restricted stock grants as a proportion of total stock compensation for executives for 2001-2005 comprises between 80 and 90 percent of total stock compensation. In addition, it is unlikely that other forms of stock compensation extend to non-executive employees.
\[ RS_{-}RATIO_{it} = \gamma_0 + \gamma_1 CFSHORTFALL_{it-1} + \gamma_2 LEV_{it-1} \\
+ \gamma_3 BM_{it-1} + \gamma_4 RD_{it-1} + \gamma_5 GOVERN_{it} + \gamma_6 RETURN_{it-1} + \\
+ \gamma_7 OI_{it-1} + \gamma_8 LOGSALES_{it-1} + \epsilon_{it} \quad (2) \]

\( CFSHORTFALL \) is cash flow shortfall, measured as the three-year average of common dividends plus preferred dividends plus cash flow from investing minus cash flow from operations, deflated by total assets. \( LEV \) is leverage, measured as total liabilities divided by total assets. \( CFSHORTFALL \) and \( LEV \) are measures of firms’ relative financing constraints. \( BM \) is the book-to-market ratio, measured as the ratio of total assets to the sum of total liabilities and equity market value. \( RD \) is measured as the three-year average of research and development expense, deflated by total assets. \( BM \) and \( RD \) are included as proxies for growth opportunities and capital needs.

We include \( GOVERN \), the Governance Index score from Gompers et al. (2003). Higher \( GOVERN \) scores reflect lower levels of corporate governance. We expect a positive relation between \( RS_{-}RATIO \) and \( GOVERN \) if firms with lower levels of governance have a higher propensity to grant stock rewards with lower incentive effects.

We also include lagged stock returns, \( RETURN_{it-1} \), in equation (2) because prior research shows cash and non-cash compensation are higher when firm performance is higher (Baber et al., 1996; Core and Guay, 1999). Similarly, we include \( OI \), operating income, because prior studies indicate that more profitable firms have higher stock option grants (e.g., Landsman et al., 2007). Finally, we include the natural logarithm of sales, \( LOGSALES \), as a control for industry mean differences in compensation as a fraction of sales. Equation (2) also includes year and industry fixed effects. Because the dependent
variable in equation (2), $RS\_RATIO$, is truncated with a mass point at zero, we employ Tobit regression.

There is an important difference between our first-stage regression and the estimating equations in Core and Guay (2001) and Landsman et al. (2007). Whereas the latter two studies focus on determinants of stock option grants, our focus is on the determinants of the relative proportion of restricted stock grants as a fraction of total restricted stock and stock option grants. As noted above, we employ two-stage least squares to address the fact that the value of restricted stock and stock option grants, $RS$ and $SO$, are endogenously determined by the value of the firm’s equity. This would suggest estimating separate first-stage regressions for $RS$ and $SO$. However, there are two problems with this approach. First, the fitted values of $RS$ and $SO$ used in the second stage equity valuation model can take on negative values, i.e., are not restricted to be positive. Second, this approach ignores the possibility that firms select the relative proportion of stock grant value given in the form of restricted stock and stock options. As a result, we estimate a single first-stage regression for the ratio of the value of restricted stock to the value of total stock grants.

The benefit of estimating a single first-stage regression is that it permits us to construct fitted values for $RS$ and $SO$ that are non-negative (see equations (3a) and (3b) below) and allows us to address the concern that the split between $RS$ and $SO$ potentially reflects a decision of the firm’s compensation board. A cost of this approach is that it is no longer possible to predict coefficient signs for most of the explanatory variables in equation (2). For example, Core and Guay (2001) and Landsman et al. (2007) include in their estimating equations proxy variables for firms’ financing constraints and capital
requirements that affect optimal decisions regarding non-cash compensation. Our
decision to include the some of the same variables used in prior research is motivated by
our need to find useful instrumental variables, i.e., exogenous variables that have
relatively high explanatory power for the dependent variable in the first-stage regression,
to construct fitted values for \( RS \) and \( SO \) that are exogenous.\(^7\)

For the second stage regression, we estimate equation (1) replacing \( RS \) and \( SO \)
with the predicted values obtained from equation (2). In particular, the predicted value of
restricted stock, \( RS \_P \), is the product of the fitted value of \( RS\_RATIO \), \( RS\_RATIO \),
and the sum of \( SO \) and \( RS \), deflated by total sales, \( SALES \). The predicted value of stock
option grants, \( SO \_P \), is the product of \( 1 - RS\_RATIO \) and the sum of \( SO \) and \( RS \),
deflated by total sales, \( SALES \):

\[
RS \_P_{it} = RS\_RATIO_{it} \times [(RS + SO) / SALES]_{it} \tag{3a}
\]

\[
SO \_P_{it} = (1 - RS\_RATIO_{it}) \times [(RS + SO) / SALES]_{it} \tag{3b}
\]

We estimate the second stage regression, equation (1), clustering by industry and year
(Gow et al., 2010).

Equation (1) expresses equity market value as a function of recognized net assets,
\( BVE \), the capitalized value of future residual income, \( RI \), and the value of intangible
assets associated with stock-based compensation. Following prior research (Barth et al.,
1999; Dechow et al., 1999; Bell et al., 2002), we expect the coefficients on \( BVE \) and \( RI \),

\(^7\) It is also important to note that when estimating equation (2), we make the implicit assumption that the firm has
already determined the relative mix of cash and non-cash compensation. That is, the firm first selects the total
amount of \( RS \) and \( SO \) and then decides how to apportion the amounts. Modeling simultaneously both the choice
of split between cash and non-cash compensation and the split between restricted stock and stock option grants is
beyond the scope of our study, although in principle permitting the relative mix of cash and non-cash
compensation to be simultaneously determined could affect the inferences we draw from the study.
and $\alpha_2$, to be positive. Based on the findings in Landsman et al. (2007), we also expect the coefficient on the sum of stock option grant values, $\Sigma SO_P$, $\alpha_3$, to be positive.

The variable of interest for this study is the sum of restricted stock grant values, $\Sigma RS_P$. If the market views it similarly to $\Sigma SO_P$, then its coefficient, $\alpha_4$, should be positive and of similar magnitude to $\alpha_3$. However, it is also possible that the market can view restricted stock negatively, i.e., as a liability or a cost to the firm’s current equityholders. The reasoning behind this prediction is that because restricted stock grants are well in-the-money options, they lack the same incentive effects as typical stock option grants, which are typically issued at-the-money. Consistent with this reasoning, Lambert and Larcker (2004) and Lambert (2007) use agency theory to model the optimal mix of stock options and restricted stock in the compensation contract and shows that restricted stock is generally not the optimal contract form, and that option-based contracts have both efficiency and incentive advantages. Consequently, we predict that $\alpha_4$ will be negative, consistent with restricted stock grants lacking the incentive effects to offset the cost to current equityholders.

IV. SAMPLE AND DESCRIPTIVE STATISTICS

The final sample comprises 1,125 firm-year observations drawn from the S&P 500 Index. The sample period includes fiscal years 2001 through 2005, but the final sample observations attributable to our second stage valuation model are from 2003 through 2005 because we require three years of stock compensation data to compute the stock option and restricted stock grant variables. Thus, the potential sample for use in our cross-sectional second stage valuation model regression is 1,500 observations. We begin with 2001 because that is the first year the fair value of restricted stock grants are
available from a proprietary database provided to us by Jack Ciesielski of R.G. Associates, Inc. The fair values in the database are extracted from SFAS 123 footnote disclosures in firms’ 10-K filings. Note that this database freezes the S&P 500 Index at the end of 2005 and captures data for each S&P firm in 2005 and the previous four years. We require firms to have earnings, equity market value, equity book value, estimates of fair value of employee stock option and restricted stock grants disclosed under SFAS No. 123R, and the Compustat variables needed to construct the first stage instrumental variables in the stock grant ratio model. We obtain earnings, equity market value, and equity book value from the Compustat database. Following prior studies (Barth et al., 1999 and 2005; Dechow et al., 1999; Bell et al., 2002; Landsman et al., 2007), we set \( r \), the cost-of-equity capital, equal to 12 percent in computing residual income in the second stage valuation model, equation (1).

Table 1 summarizes how we obtain the final sample of firm-year observations for our first stage stock grant ratio model. It also details how we obtain the final sample of our second stage valuation model after imposing our various sample selection criteria. The largest loss of observations results from summing option fair values over three years to compute the explanatory variables \( \Sigma SO_P \) and \( \Sigma RS_P \).

Table 2, Panel A, reveals a decrease in the number of S&P 500 firms using stock option grants as variable incentive compensation over the sample period. In contrast, the number of S&P 500 firms using restricted stock grants as variable incentive compensation increased dramatically from 202 firms in 2001 to 357 firms in 2005. As with the number of firms using stock option and restricted stock grants over the sample period, Figure 1 documents a similar downward shift in average annual stock option
value granted over the sample period and a corresponding increase in average annual restricted stock value granted over the same time period for the S&P 500 firms. In 2005, average restricted stock value granted surpassed average stock option value granted, resulting in a dramatic shift during the sample period of the variable compensation used by S&P 500 firms. In Panel B, we examine the industry concentration of S&P 500 firms issuing stock options and restricted stock. In percentage terms, the data are roughly uniform. However, it does appear that the computer, pharmaceutical, and retail industries favor stock options and the financial and utility industries prefer restricted stock.

Tables 3 and 5 present the descriptive statistics for the first stage stock grant ratio model and the second stage valuation model, respectively. Table 3 reveals that the mean annual ratio of the value of restricted stock option value to total stock value granted is 0.169, indicating that the value of stock options granted is 6 times higher on average than the value of restricted stock granted. Untabulated findings reveal the mean value of stock option and restricted stock grants are 2.77 and 0.20 percent of sales, respectively. The relatively smaller value of restricted stock grants is a function of firms choosing not to grant restricted stock (and to a lesser extent, stock options) in one or more of the sample years.⁸

Table 5 reveals that mean (median) market value of equity exceeds mean (median) book value of equity and residual income is, on average positive. Mean equity market value, 2.334, exceeds the median, 1.556, indicating $MVE$ is skewed. In addition, over the sample period, Table 5 also reveals the mean (median) of the summed predicted value of stock option grants, $\Sigma SO_P$, in the second stage valuation model, 0.058 (0.016),

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⁸ Furthermore, Figure 1 illustrates that the gap between the average stock option value granted and the average restricted stock value granted is less pronounced among the subsample of firm-year observations with nonzero grants (and this gap narrows as the sample moves forward in time).
exceeds the mean of the summed predicted value of restricted stock grants, $\Sigma RS\_P$, 0.008 (0.0003). Finding that the medians of the key regressors, $\Sigma SO\_P$ and $\Sigma RS\_P$, and the dependent variable, $MVE$, are smaller than their respective mean values, indicates that despite being deflated by sales, each remains highly skewed. Therefore, in addition to reporting t-statistics based on clustering by industry and year, we also report p-values derived from the empirical distribution of coefficients obtained from 1,000 bootstrap estimations.

V. EMPIRICAL RESULTS

5.1 Stock Grant Ratio Regression

Table 4 presents summary statistics from estimating equation (2), which expresses the value of stock option and restricted stock grants as a function of the variables described in section 3. Predicted values of the dependent variables, $SO\_P$ and $RS\_P$, are calculated based on equations (3a) and (3b), then summed and used as explanatory variables in the second stage cross-sectional valuation model, equation (1). The second and third columns present coefficients and t-statistics from estimating equation (2).

Table 4 indicates total explanatory power of the stock grant ratio model is robust, with an Adjusted $R^2$ of 23 percent, which is a desirable property of a first-stage regression. Consistent with the high explanatory power, several of the explanatory variable coefficients are significant at conventional levels. The coefficient on $CFSHORTFALL$, 0.217, is significantly positive (t-statistic = 2.12), indicating that firms are more inclined to issue a greater value of restricted stock grants as a fraction of total sales.

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9 Untabulated statistics reveal that mean and median values of actual three year sums of $SO$ and $RS$, $\Sigma SO$ and $\Sigma RS$, are smaller than those of their respective predicted counterparts, $\Sigma SO\_P$ and $\Sigma RS\_P$. The pairwise Pearson (Spearman) correlations between $\Sigma SO$ and $\Sigma SO\_P$, and $\Sigma RS$ and $\Sigma RS\_P$, are 0.49 (0.90) and 0.55 (0.78).
stock grant value if they face a financing constraint. The coefficient on the $LEV$, 0.199, is also significantly positive (t-statistic = 3.66), indicating that firms with greater debt-to-assets ratios are more inclined to issue restricted stock. The coefficients for the two proxies for capital needs and cost of accessing capital markets, $BM$ and $RD$, 0.231 and −0.704, are both significant (t-statistics = 5.07 and −2.44, respectively). Consistent with predictions, the coefficient on $GOVERN$, 0.011, is significantly positive (t-statistic = 2.92), indicating that firms with weaker corporate governance also have a greater propensity to issue a greater value of restricted stock grants as a fraction of total stock grant value. The coefficient on $OI$, 0.361, is significantly positive (t-statistic = 6.07), indicating that more profitable firms have a greater propensity to issue a greater value of restricted stock grants as a fraction of total stock grant value.

5.2 Equity Valuation Regression

Table 6 presents regression summary statistics corresponding to estimation of equation (1) using the predicted values of the stock option and restricted stock grant variables, $\Sigma SO_P$ and $\Sigma RS_P$. Findings reveal that, consistent with predictions and prior research (Bell et al., 2002; Landsman et al., 2006; Landsman et al., 2007), the coefficients on equity book value, $BVE$, and residual income, $RI$, 2.154 and 7.169, are significantly positive (t-statistics = 7.25 and 6.92; bootstrap p-values <0.001). Also consistent with predictions and prior research (Hanlon et al., 2003; Landsman et al., 2007), the coefficient on the stock option grant variable, $\Sigma SO_P$, 0.111, is significantly positive (t-statistic = 7.31; bootstrap p-value < 0.001). In other words, the market appears to value stock option grants as an intangible asset that brings value to equityholders. In comparison to the comparable coefficient values in Landsman et al.
our coefficient estimate is several orders of magnitude smaller. One explanation for this difference is that because we estimate our models over a later time period, it is possible that our smaller coefficient value reflects the market’s assessment that the value of stock option grants have diminished over time.

Turning to the key variable, $\Sigma RS_P$, Table 6 reveals that it has a significantly negative coefficient, $-0.617$ (t-statistic = $-3.29$; bootstrap p-value < $0.001$). Thus, the market appears to value restricted stock negatively, i.e., as a liability or a cost to the firm’s current equityholders. This finding is consistent with the prediction of Lambert and Larcker (2004) and Lambert (2007) that restricted stock grants lack the same incentive effects as typical stock option grants. Thus, inferences regarding the pricing effects of stock option and restricted stock are consistent with our predictions. That is, whereas the market values stock option grants positively, i.e., as assets, it values restricted stock grants negatively, i.e., as liabilities.

Untabulated findings from direct least squares estimation of equation (1) illustrate the importance of using two-stage least squares to address endogeneity bias. For direct least squares, we use the actual values of the most recent three years of stock option and stock grants, $\Sigma SO$ and $\Sigma RS$, rather than the predicted values from the first-stage regression. Untabulated findings, based on the full sample, indicate the coefficient on $\Sigma SO$ is positive and significant (t-statistic = $6.84$), but is larger than that for $\Sigma SO_P$ reported in Table 6. In contrast, the coefficient on $\Sigma RS$ is negative but insignificant (t-statistic = $-0.94$). Thus, endogeneity bias appears to increase the magnitude of the stock option coefficient, and, more importantly, change the inference regarding the impact of restricted stock grants on equity market value.
5.3 Robustness Tests

To determine whether our valuation equation findings are sensitive to a variety of assumptions and constraints associated with our empirical methods, we estimated a series of alternative versions of equation (1). We begin by estimating equation (1) annually for 2003, 2004, and 2005. There are at least two motivations for year-by-year estimation. First, year-by-year estimation permits the relation between the values of stock option and restricted stock grants and equity market value to differ. Second, the steep decline in stock option grants coupled with the modest upward trend in restricted stock grants documented in Figure 1 raise the possibility that these forms of variable compensation are not strictly intertemporal substitutes. Separate year estimation, in part, addresses this issue. Untabulated findings from separate year estimations result in no changes in inferences from those based on the pooled estimation results in Table 6. Specifically, the coefficients on $\Sigma SO_P$ are significantly positive in each of the three years and range between 0.098 and 0.109. Additionally, the coefficients on $\Sigma RS_P$ are significantly negative in each of the three years and range between –0.480 and –0.823.

We next estimate a version of equation (1) that relaxes the constraint that the coefficient on residual income, $RI$, is a cross-sectional constant. Restricting the $RI$ coefficient to be cross-sectional constant could bias the $SO$ and $RS$ coefficients. To address this concern, following Barth et al. (1998), we permit the $RI$ coefficient to vary based on industry membership. Specifically, we estimate equation (1) including indicator variables for technology firms, manufacturing firms, and service firms, and interactions of $RI$ with each of the industry indicator variables. Untabulated findings indicate that although there are cross-industry differences in $RI$ coefficients, the coefficients for
\( \Sigma SO_P \) and \( \Sigma RS_P \), 0.090 and –0.670, remain reliably positive and negative, respectively (t-statistics = 12.16 and –3.39).

We consider the possibility that misspecification of the first-stage model, equation (2), could result in biased coefficients in the second-stage model, equation (1). In particular, if equation (2) excludes variables that affect a firm’s selection of relative proportions of stock option and restricted stock grants, then predicted values of SO and RS could be biased, causing their valuation coefficients to be biased. Of particular concern is stock return volatility, which potentially plays a greater role in affecting the incentive effects of stock options relative to restricted stock. After including a return volatility proxy as an additional regressor in the first-stage model, untabulated findings from the second-stage model reveal no change in inferences regarding the valuation effects of stock option and restricted stock grants, with \( \Sigma SO_P \) and \( \Sigma RS_P \) coefficients of 0.120 and –0.539 (t-statistics = 6.73 and –3.23).\(^\text{10}\)

Correlated omitted variables in the second-stage model, equation (1), could also account for differences in the coefficients of SO and RS we attribute to differences in their valuation by investors. One prime candidate is “other information” about equity market value that is not yet reflected by the accounting system (Ohlson, 1995). To address this possibility, we re-estimate equation (1) including a proxy for other information following Barth et al. (2005), which is measured as the difference between equity market value and predicted equity market value in the prior year. Untabulated findings reveal the coefficients for \( \Sigma SO_P \) and \( \Sigma RS_P \) are 0.096 and –0.622 (t-statistics = 13.35 and –3.24). Thus, inclusion of an other information proxy has no effect on

\(^{10}\) We exclude stock return volatility from our main set of tests because including it in equation (2) reduces the potential sample by approximately one-third.
inferences regarding the valuation effects of stock option and restricted stock grants.

However, the possibility remains that other omitted variables we do not consider could affect our inferences.

Finally, the original specification in equation (1) deflates the dependent variable and independent variables by sales, which follows an approach employed by prior studies (e.g., Hanlon et al., 2003; Landsman et al., 2007). However, as Barth and Kallapur (1996) show, deflation can induce scale bias. To address this possibility, following the suggestion of Barth and Kallapur (1996) and the findings in Barth and Clinch (2009), we also estimate a specification of equation (1) in which the variables are undeflated.

Untabulated findings reveal the coefficient for undeflated versions of $\Sigma SO_P$ and $\Sigma RS_P$ are 0.186 and $-0.665$ (t-statistics = 6.34 and $-2.10$). Thus, inferences regarding the valuation effects of stock option and restricted stock grants are unchanged based on this undeflated specification.\textsuperscript{11,12}

VI. CONCLUDING REMARKS

This study addresses whether the market valuation implications of stock option and restricted stock grants made by U.S. firms differ by estimating an equity valuation model that includes the values of stock option and restricted stock grants to employees.

\textsuperscript{11} We also estimate a specification of equation (1) in which we deflate all variables by total assets rather than sales. Untabulated findings from this regression indicate that the $\Sigma SO_P$ coefficient remains reliably positive but the $\Sigma RS_P$ is insignificantly different from zero. The difference in results based on total asset vs. sales deflation suggests that one or the other form of deflation may worsen scale bias. However, the corroboration of evidence from the undeflated specification with the sales deflation specification is consistent with total asset deflation worsening scale bias.

\textsuperscript{12} We conduct a variety of additional supplemental analyses with no change in inferences regarding the valuation effects of stock option and restricted stock grants. These include estimating equation (1) replacing $\Sigma SO_P$ and $\Sigma RS_P$ with unsummed predicted values, $SO_P$ and $RS_P$; replacing $\Sigma SO_P$ and $\Sigma RS_P$ with separate independent variables for each of the three years, i.e., $SO_{P,t}, SO_{P,t-1}, SO_{P,t-2}, RS_{P,t}, RS_{P,t-1}, RS_{P,t-2}$ and estimating equations (1) and (2) for the subsample of firms that remain in the S&P 500 Index during the entire sample period.
Because the values of stock option and restricted stock grants are endogenously determined with equity market value, we employ a two-stage regression procedure to estimate predicted values for the value of stock option and restricted stock grants, and use the predicted values from a first-stage regression in the second-stage equity market valuation equation. Findings from the second stage regression indicate that whereas the market values stock option grants positively, i.e., as assets, it values restricted stock grants negatively, i.e., as liabilities.

Findings from additional tests reveal that the inferences we draw regarding the valuation implications of stock option and restricted stock grants are robust to a variety of assumptions and constraints associated with our empirical research design. These include estimating year-by-year valuation equations, permitting residual income valuation coefficients to vary by industry, including additional explanatory variables in the first and second stage regressions, and estimating the valuation model in undeflated form. However, the reader should interpret our findings with caution in light of the fact that stock option and restricted stock granting behavior changes substantially during our sample period.

Our study has potential implications for U.S. standard setters and firms’ compensation committees. Under current U.S. GAAP, the fair value of both stock option and restricted stock grants are expensed over the vesting period. In contrast to the similar accounting treatment for stock option and restricted stock grants, our findings are consistent with stock option grants embodying positive incentive properties while restricted stock grants reflect a giveaway of firm value. The finding for restricted stock, if taken at face value, suggests a more appropriate accounting treatment would be
immediate expensing at grant date of that portion of grant value that is a pure cost to the firm. Because we do not address whether investors value stock option and restricted stock grants made by firms in other countries similarly to those granted by U.S. firms, the potential policy implications we posit for U.S. firms may not be applicable in an international setting.
REFERENCES


Financial Accounting Standards Board (2004), ‘Share-Based Payment’, Norwalk, CT.


FIGURE 1
Average annual value granted, S&P 500 firms, 2001-2005

This graph plots the average annual value granted in restricted stock and stock options by the S&P 500 Index for the sample period 2001-2005.
**TABLE 1**
Sample selection

**PANEL A: First stage stock grant ratio model**

<table>
<thead>
<tr>
<th>Description</th>
<th>Number of firm years</th>
</tr>
</thead>
<tbody>
<tr>
<td>Observations for the S&amp;P 500 Index for years 2001-2005 *</td>
<td>2,500</td>
</tr>
<tr>
<td>Less:</td>
<td></td>
</tr>
<tr>
<td>Firm years missing SFAS 123R disclosure data from R.G. Associates, Inc. database</td>
<td>(195)</td>
</tr>
<tr>
<td>Firm years with incomplete Compustat data</td>
<td>(349)</td>
</tr>
<tr>
<td>Total sample of firm-year observations</td>
<td>1,956</td>
</tr>
</tbody>
</table>

**PANEL B: Second stage valuation model**

<table>
<thead>
<tr>
<th>Description</th>
<th>Number of firm years</th>
</tr>
</thead>
<tbody>
<tr>
<td>Observations for the S&amp;P 500 Index for years 2001-2005 *</td>
<td>2,500</td>
</tr>
<tr>
<td>Less:</td>
<td></td>
</tr>
<tr>
<td>All firm years in 2001 and 2002 by summing stock option and restricted stock values over a three year period</td>
<td>(1,000)</td>
</tr>
<tr>
<td>Firm years with incomplete data</td>
<td>(375)</td>
</tr>
<tr>
<td>Total sample of firm-year observations</td>
<td>1,125</td>
</tr>
</tbody>
</table>

* The initial sample is S&P 500 members as of December 31, 2005.
### TABLE 2
Year and industry descriptive statistics

**PANEL A:** Nonzero grant values by year

<table>
<thead>
<tr>
<th>Year</th>
<th>Stock Options</th>
<th></th>
<th>Restricted Stock</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td># of Obs</td>
<td>Percentage</td>
<td># of Obs</td>
<td>Percentage</td>
</tr>
<tr>
<td>2001</td>
<td>474</td>
<td>94.8%</td>
<td>202</td>
<td>40.4%</td>
</tr>
<tr>
<td>2002</td>
<td>472</td>
<td>94.4%</td>
<td>240</td>
<td>48.0%</td>
</tr>
<tr>
<td>2003</td>
<td>469</td>
<td>93.8%</td>
<td>287</td>
<td>57.4%</td>
</tr>
<tr>
<td>2004</td>
<td>453</td>
<td>90.6%</td>
<td>331</td>
<td>66.2%</td>
</tr>
<tr>
<td>2005</td>
<td>435</td>
<td>87.0%</td>
<td>357</td>
<td>71.4%</td>
</tr>
</tbody>
</table>

**PANEL B:** Nonzero grant values by industry

<table>
<thead>
<tr>
<th>Industry</th>
<th>SIC Codes</th>
<th>Stock Options</th>
<th></th>
<th>Restricted Stock</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td># of Obs</td>
<td>Percentage</td>
<td># of Obs</td>
<td>Percentage</td>
</tr>
<tr>
<td>Chemicals</td>
<td>2800-2824, 2840-2899</td>
<td>82</td>
<td>3.6%</td>
<td>50</td>
<td>3.5%</td>
</tr>
<tr>
<td>Computers</td>
<td>3570-3579, 3670-3679, 7370-7379</td>
<td>302</td>
<td>13.1%</td>
<td>112</td>
<td>7.9%</td>
</tr>
<tr>
<td>Extractive</td>
<td>1300-1399, 2900-2999</td>
<td>113</td>
<td>4.9%</td>
<td>86</td>
<td>6.1%</td>
</tr>
<tr>
<td>Financial/Insurance</td>
<td>6000-6411</td>
<td>355</td>
<td>15.4%</td>
<td>282</td>
<td>19.9%</td>
</tr>
<tr>
<td>Food</td>
<td>2000-2111</td>
<td>102</td>
<td>4.4%</td>
<td>76</td>
<td>5.4%</td>
</tr>
<tr>
<td>Manufacturing</td>
<td>3000-3569, 3580-3669, 3680-3999</td>
<td>433</td>
<td>18.8%</td>
<td>247</td>
<td>17.4%</td>
</tr>
<tr>
<td>Mining/Construction</td>
<td>1000-1299, 1400-1999</td>
<td>42</td>
<td>1.8%</td>
<td>30</td>
<td>2.1%</td>
</tr>
<tr>
<td>Pharmaceuticals</td>
<td>2830-2836</td>
<td>106</td>
<td>4.6%</td>
<td>37</td>
<td>2.6%</td>
</tr>
<tr>
<td>Real Estate</td>
<td>6500-6999</td>
<td>34</td>
<td>1.5%</td>
<td>35</td>
<td>2.5%</td>
</tr>
<tr>
<td>Retail</td>
<td>5000-5999</td>
<td>245</td>
<td>10.6%</td>
<td>110</td>
<td>7.8%</td>
</tr>
<tr>
<td>Services</td>
<td>7000-7369, 7380-8999</td>
<td>99</td>
<td>4.3%</td>
<td>84</td>
<td>5.9%</td>
</tr>
<tr>
<td>Textiles/Print/Publish</td>
<td>2200-2780</td>
<td>122</td>
<td>5.3%</td>
<td>77</td>
<td>5.4%</td>
</tr>
<tr>
<td>Transportation</td>
<td>4000-4899</td>
<td>113</td>
<td>4.9%</td>
<td>72</td>
<td>5.1%</td>
</tr>
<tr>
<td>Utilities</td>
<td>4900-4999</td>
<td>145</td>
<td>6.3%</td>
<td>117</td>
<td>8.3%</td>
</tr>
<tr>
<td>Other</td>
<td>9000+</td>
<td>10</td>
<td>0.4%</td>
<td>2</td>
<td>0.1%</td>
</tr>
</tbody>
</table>


<table>
<thead>
<tr>
<th>Variable</th>
<th>Mean</th>
<th>Std Dev</th>
<th>25th Percentile</th>
<th>Median</th>
<th>75th Percentile</th>
</tr>
</thead>
<tbody>
<tr>
<td>RS_RATIO</td>
<td>0.169</td>
<td>0.255</td>
<td>0.000</td>
<td>0.019</td>
<td>0.269</td>
</tr>
<tr>
<td>CFSHORTFALL</td>
<td>-0.179</td>
<td>0.108</td>
<td>-0.238</td>
<td>-0.172</td>
<td>-0.103</td>
</tr>
<tr>
<td>LEV</td>
<td>0.595</td>
<td>0.210</td>
<td>0.448</td>
<td>0.611</td>
<td>0.743</td>
</tr>
<tr>
<td>BM</td>
<td>0.582</td>
<td>0.259</td>
<td>0.374</td>
<td>0.580</td>
<td>0.803</td>
</tr>
<tr>
<td>RD</td>
<td>0.030</td>
<td>0.047</td>
<td>0.000</td>
<td>0.002</td>
<td>0.043</td>
</tr>
<tr>
<td>GOVERN</td>
<td>9.656</td>
<td>2.427</td>
<td>8.000</td>
<td>10.000</td>
<td>11.000</td>
</tr>
<tr>
<td>RETURN</td>
<td>0.063</td>
<td>0.425</td>
<td>-0.206</td>
<td>0.036</td>
<td>0.273</td>
</tr>
<tr>
<td>OI</td>
<td>0.253</td>
<td>0.167</td>
<td>0.133</td>
<td>0.214</td>
<td>0.328</td>
</tr>
<tr>
<td>LOGSALES</td>
<td>8.675</td>
<td>1.198</td>
<td>7.770</td>
<td>8.653</td>
<td>9.480</td>
</tr>
</tbody>
</table>

N 1,956

This table reports descriptive statistics for the dependent and independent variables included in the first stage regression (stock grant determinant model) in Table 4. All independent variables are winsorized at 1 percent and 99 percent. With the exception of GOVERN, all independent variables are lagged one period.

**Variable definitions:**

**RS_RATIO**
The ratio of restricted stock value granted to total stock value granted. Total stock value granted is the sum of restricted stock value granted and stock option value granted.

**CFSHORTFALL**
Cash flow shortfall, measured as the three-year average of common dividends plus preferred dividends plus cash flow from investing minus cash flow from operations, deflated by total assets ([\(\text{Compustat data19 + data21 + data311 - data308} / \text{data6}\)]).

**LEV**
Leverage, measured as total liabilities divided by total assets ([\(\text{Compustat data181 / data6}\)]).

**BM**
Book-to-market, measured as the ratio of total assets to total liabilities plus equity market value ([\(\text{Compustat data6 / [data181 + \{data25 * data199\}]}\)]).

**RD**
The three-year average of research and development expense, deflated by total assets ([\(\text{Compustat data46 / data6}\)]).

**GOVERN**
Governance Index score from Gompers, Ishii, and Metrick (2003).
### TABLE 3 (continued)
Descriptive statistics for variables in the first stage stock grant ratio model

<table>
<thead>
<tr>
<th>Variable</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>RETURN</td>
<td>Annual stock return, constructed by subtracting one from the current year end closing price divided by the prior year end closing price ([Compustat data199_t / data199_{t-1}] – 1).</td>
</tr>
<tr>
<td>OI</td>
<td>Operating income, measured as operating income before depreciation plus research and development expense, deflated by sales ([Compustat data13 + data46] / data12).</td>
</tr>
<tr>
<td>LOGSALES</td>
<td>Natural logarithm of sales ([Compustat data12].)</td>
</tr>
</tbody>
</table>
TABLE 4
Regression summary statistics for the first stage stock grant ratio model

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Coefficient</th>
<th>t-statistic</th>
</tr>
</thead>
<tbody>
<tr>
<td>Intercept</td>
<td>-0.718</td>
<td>-7.09**</td>
</tr>
<tr>
<td>CFSHORTFALL</td>
<td>0.217</td>
<td>2.12*</td>
</tr>
<tr>
<td>LEV</td>
<td>0.199</td>
<td>3.66**</td>
</tr>
<tr>
<td>BM</td>
<td>0.231</td>
<td>5.07**</td>
</tr>
<tr>
<td>RD</td>
<td>-0.704</td>
<td>-2.44*</td>
</tr>
<tr>
<td>GOVERN</td>
<td>0.011</td>
<td>2.92**</td>
</tr>
<tr>
<td>RETURN</td>
<td>0.028</td>
<td>1.23</td>
</tr>
<tr>
<td>OI</td>
<td>0.361</td>
<td>6.07**</td>
</tr>
<tr>
<td>LOGSALES</td>
<td>0.006</td>
<td>0.66</td>
</tr>
</tbody>
</table>

Adjusted $R^2$          0.23
N                         1,956

This table reports summary statistics from a cross-sectional Tobit model that regresses the stock grant ratio, $RS\_RATIO$, on a set of variables expected to predict granting behavior.

The regression takes the form:

$$RS\_RATIO_{it} = \gamma_0 + \gamma_1 CFSHORTFALL_{it-1} + \gamma_2 LEV_{it-1} + \gamma_3 BM_{it-1} + \gamma_4 RD_{it-1} + \gamma_5 GOVERN_{it} + \gamma_6 RETURN_{it-1} + \gamma_7 OI_{it-1} + \gamma_8 LOGSALES_{it-1} + \epsilon_{it}$$

Variables are defined in Table 3. Indicator variables included in the model to control for year and industry effects are not tabulated above. *, ** denotes statistical significance at a probability of <0.05 and <0.01, respectively (two-tailed test).
TABLE 5
Descriptive statistics for variables in the second stage valuation model

<table>
<thead>
<tr>
<th>Variable</th>
<th>Mean</th>
<th>Std Dev</th>
<th>25th Percentile</th>
<th>Median</th>
<th>75th Percentile</th>
</tr>
</thead>
<tbody>
<tr>
<td>MVE</td>
<td>2.334</td>
<td>2.324</td>
<td>0.896</td>
<td>1.556</td>
<td>2.833</td>
</tr>
<tr>
<td>BVE</td>
<td>0.702</td>
<td>0.609</td>
<td>0.304</td>
<td>0.531</td>
<td>0.880</td>
</tr>
<tr>
<td>RI</td>
<td>0.005</td>
<td>0.130</td>
<td>-0.012</td>
<td>0.020</td>
<td>0.050</td>
</tr>
<tr>
<td>Σ SO_P</td>
<td>0.058</td>
<td>0.121</td>
<td>0.006</td>
<td>0.016</td>
<td>0.044</td>
</tr>
<tr>
<td>Σ RS_P</td>
<td>0.008</td>
<td>0.025</td>
<td>0.000</td>
<td>0.0003</td>
<td>0.005</td>
</tr>
</tbody>
</table>

N 1,125

This table reports descriptive statistics for the dependent and independent variables included in the second stage regression (valuation model) in Table 6. All variables are winsorized at 1 percent and 99 percent.

Variable definitions:
- **MVE**: Market value of common equity, measured as the fiscal year end closing price multiplied by the common shares outstanding, deflated by sales ([Compustat data25 * data199] / data12).
- **BVE**: Book value of common equity, measured as common shareholders’ equity deflated by sales (Compustat data60 / data12).
- **RI**: Residual income, measured as net income before extraordinary items minus the product of 0.12 and lagged equity book value, deflated by sales ([Compustat data18 – {0.12 * data60_{t-1}}] / data12).
- **Σ SO_P**: Predicted value of stock option value granted as estimated from the first stage regression, summed across the current year and two prior years, and deflated by sales.
- **Σ RS_P**: Predicted value of restricted stock value granted as estimated from the first stage regression, summed across the current year and two prior years, and deflated by sales.
### TABLE 6
Regression summary statistics for the second stage valuation model

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Expected Sign</th>
<th>Coefficient</th>
<th>t-statistic</th>
<th>Bootstrap p-value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Intercept</td>
<td>+ / –</td>
<td>0.237</td>
<td>3.01**</td>
<td>&lt;0.001**</td>
</tr>
<tr>
<td>BVE</td>
<td>+</td>
<td>2.154</td>
<td>7.25**</td>
<td>&lt;0.001**</td>
</tr>
<tr>
<td>RI</td>
<td>+</td>
<td>7.169</td>
<td>6.92**</td>
<td>&lt;0.001**</td>
</tr>
<tr>
<td>(\sum SO_P)</td>
<td>+</td>
<td>0.103</td>
<td>7.31**</td>
<td>&lt;0.001**</td>
</tr>
<tr>
<td>(\sum RS_P)</td>
<td>–</td>
<td>–0.617</td>
<td>–3.29**</td>
<td>&lt;0.001**</td>
</tr>
<tr>
<td>Adjusted R(^2)</td>
<td></td>
<td>0.71</td>
<td></td>
<td></td>
</tr>
<tr>
<td>N</td>
<td></td>
<td>1,125</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

This table reports summary statistics from a cross-sectional model that regresses equity market value on equity book value, residual income, predicted values for stock option value granted and restricted stock value granted.

The regression takes the form:

\[
MVE_{it} = \alpha_0 + \alpha_1 BVE_{it} + \alpha_2 RI_{it} + \alpha_3 \sum_{j=1-2} SO_{i} P_{it} + \alpha_4 \sum_{j=1-2} RS_{i} P_{it} + \epsilon_{it}
\]

Variables are defined in Table 5. The t-statistics reported are based on standard errors that cluster by both industry and time. *, ** denotes statistical significance at a probability of <0.05 and <0.01, respectively (one-tailed test where a relation is predicted and a two-tailed test otherwise).