

Employees' Subjective Valuations of Their Stock Options: Evidence on the Use of Heuristics

Summary of Preliminary Findings

An ongoing research project conducted by the authors examines how employee stock option recipients perceive the value of their option holdings and explores implications of a stock option education program as a mechanism for changing recipients' perceived value of their options. The data used in the study was obtained under a confidentiality agreement with Net Worth Strategies, Inc. (NWSI), a national leader in equity compensation planning services, from their employee stock option education programs held at five client sites from September 2004 through March 2006, and was supplemented with an experiment that replicates components of the education program.

The study analyzes the value that employees would forfeit from their current employee stock option holdings if they terminated their employment (Forfeit Value). The study uses two measures: the difference between an employee's perception of the Forfeit Value and the corresponding value as calculated using the Black-Scholes formula (Cost); and the extent to which employees use simple heuristics (e.g., zero value, intrinsic value) to value their options. Both measures are analyzed before and after completion of a stock option education program.

Based on our analysis to date, we have identified the following preliminary findings from the NWSI data:

- Before training, the majority of employee stock option recipients in the sample (162 of 214, 76%) perceive the Forfeit Value of their stock option holdings to be less than the Cost. The median ratio of perceived Forfeit Value to Cost is 0.38, representing a statistically significant discount as well as an economically significant one. While these results vary across participating firms, the majority of the recipients in each firm initially discount their perceived Forfeit Value relative to Cost (with a statistically significant discount for the majority of the five firms).
- Completing the stock option education program (which explains stock option fundamentals and clearly articulates the value of the recipients' option holdings) significantly changes recipients' perceived Forfeit Values. The median change in the ratio of perceived Forfeit Value to Cost is +0.67, a statistically significant change. These results are based on the subsample of recipients who completed an optional post-training survey, and also vary across participating firms (with the greatest difference in perceived value observed for the firms for which the before-training discount was largest).
- Before training, there is evidence that employees rely on simple heuristics to value their options. Training shifts individuals away from using these simple valuation tools and toward attempting to apply more sophisticated valuation techniques (e.g., Black-Scholes).
- There is evidence that education also improves recipients' motivation, firm loyalty, and confidence in their financial decision-making concerning their option holdings.

The before and after training results from the NWSI data are replicated with the graduate business students who participated in the experiment. For further information contact the authors or access the full working paper at <http://ssrn.com/abstract=906020>.

THIS SUMMARY OF PRELIMINARY FINDINGS IS DATED JULY 14, 2008 AND SUPERSEDES PREVIOUS SUMMARIES. IT IS BASED ON ACADEMIC RESEARCH THAT IS UNDERGOING PEER REVIEW; THUS, REPORTED FINDINGS MAY BE SUBJECT TO CHANGE AS ANALYSES PROCEED. PLEASE DO NOT QUOTE WITHOUT PRIOR PERMISSION.

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