INFLUENCE OF COMPENSATION PLANS AND JOB SECURITY ON TIME HORIZONS

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Abstract

A number of techniques are used in corporate governance in order to align managers' self-interests with that of shareholders.' This study reports the results of an experiment designed to determine whether varying degrees of job security or the existence of a long term compensation plan alter managerial decision time horizons. To enhance the significance of the results, the research design used empirically valid relationships among the variables. The results show that increased job security does result in selecting more investments with long term payoffs, while the long term compensation plan used did not extend the time horizons of our participants.

Keywords: Compensation, Experiment, Long-term Plans, Time Horizon

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Most U.S. firms have always issued what are essentially options or performance units to be vested in two or three years. This concept is not new and examples of firms in different industries using this approach can be found in Butler and Maher (1986). The intent is to change a manager's focus from the immediate to the intermediate (or long) term. Narayanan (1996) analytically showed that all-cash contracts induce managers to underinvest in the long term, while all-stock contracts lead to overinvestment. This bias toward the short term and less risk is a commonly held belief (*Science Daily*, 2008). Porter's (1992) provides evidence that Chief Executive Officers (CEO) in the U.S. believe a short time horizon negatively influences U.S. industry to compete. Stammerjohan (2004) showed that the existence of only annual bonuses was effective in providing short term incentives, but tended to adversely affect the firm's long run performance.

Only recently, however, has evidence been produced to show that compensation can induce decision makers to make less risk averse choices between risky projects when faced with gains and risk seeking when faced with similar losses (Butler, 2008). Still, the question remains whether long term compensation plans can cause a decision maker to adopt a change in time horizon. There are a number of factors that have an influence on a manager's time horizon. For instance, monetary incentives, both short and long term have been extensively studied. An earnings per share expectation by the stock market and the ramifications of not achieving that expectation is another possible factor. Job security is always a factor because of changes in the product market, "restructuring" the firm, or as a penalty for missing a stock market's expectation. In other words, will the decision maker invest in projects which have a delayed payoff or will another factor such as job tenure dominate the decision?

This supposition has not been directly tested. The use of archival data has the disadvantage of confounding effects. A study with human decision makers provides much more control of the environment. This controlled setting gives the predicted behavior its best chance of being revealed without as many alternative explanations. In this paper I report the results of an experiment concerning the influence of a long term compensation plan and of an empirically valid turnover rate on risky investments.

The widespread ownership of a single firm and the corresponding separation of ownership and management have created a divergence in decision preferences known as the agency problem (Jensen and Meckling, 1976). One aspect of the agency problem is the difference in the decision-making time horizons between shareholders and the managers (Smith and Watts, 1983). This difference is particularly prevalent in the preferences for long term investments, due to the firm's indefinite life and the manager's finite time horizon (Smith and Watts, 1983, p. 3). It may also be reflected in earnings management in the last years of a CEO's tenure with the firm (Butler and Newman, 1989; Davidson, Xie, Xu and Ning, 2007).

Shareholders may be assumed to be risk neutral with respect to nonsystematic firm risk since they can diversify away this risk by holding a portfolio of stocks. They are interested in maximizing the

expected return of this portfolio. On the other hand, managers may be assumed to be more risk averse than the shareholders. This is because their human capital (and resulting financial capital due to salary, bonuses, stock options, etc.) is tied to the firm and cannot be diversified away (Wright, Ferris, Saran, and Awash, 1996).

If managers' and shareholders' risk attitudes are different and the attitudes have potentially negative consequences to the goal of maximizing the value of the firm, then the factors that contribute to and/or alleviate this discrepancy are of interest. One factor that may influence a manager's investment decisions is the risk of turnover in the job. If a manager is compensated with a salary and a yearly bonus based on profit and does not (or cannot) expect to remain in the job beyond the next few years, there is little incentive to fund investments that will not pay any measurable return until later years. According to Wright et al. (1996), " . . . when corporate insiders lack appropriate incentives, they may reduce corporate risk taking in order to lower the personal costs of such decisions. Included among these costs would be the potential loss of employment . . . "(p. 443). Certainly one reason that managers may be adopting a short term time horizon is that the percentage of managers losing their jobs has remained high for a number of years (for example, (Meyer, 1979 ; Jennings, 1981)). The notion of corporate "downsizing" only exacerbates this risk to managers. It has also been contended that portfolio managers who are under pressure to show short-term results transfer this pressure to the firm manager by moving in and out as shareholders of the firm (Meadows, 1981, p. 176).

A second factor that may affect a manager's time horizon is the structure of the compensation package. Surveys show that about 78 percent of middle managers receive some form of variable pay with 66 percent of companies using annual bonuses (Lissy and Morgenstern, 1995). If the manager is in fact using a *personal* risk-return trade off in making investment decisions, an increase in the expected return could mitigate the risk aversion caused by the possibility of involuntary turnover. One method of increasing this expected return would be to use a long term compensation plan that does not vest until the end of the performance period. For instance, if the shareholders wanted to extend a manager's time horizon to at least four years, the plan would not pay until that fourth year. Moreover, to provide an incentive to select the higher expected return investments, target earnings per share or net income could be set at a point above the current level. Finally, long term plans with overlapping starting and ending points could be used so that the manager was always operating under two plans, making end of game behavior less likely.

Plans similar to that described above have been used in the U.S. (Fox, 1983; Pavlik and Belkaoui, 1991). Most compensation plans require the firm to achieve a target return before the managers can share in the profit. These targets are usually a function of ". . . accounting income, or a rate of return on the book value of assets of the firm" (Holthausen and Leftwich, 1983, p. 84). Because of the linkage of compensation to net income, accountants have investigated the incentives of managers to "manage earnings." (See Elliot and Shaw, 1988; McNichols and Wilson, 1988; Trueman and Titman, 1988).

In this paper, I examine experimentally the effects of job security and long-term compensation on time horizons. Specifically, I address whether long term compensation contracts set at empirically documented levels will induce longer term, higher expected return projects to be selected than will short term compensation plans. I also examine whether empirically valid levels of job security result in apparent shifts in time horizon. This study should be viewed as an initial examination into the effects on time horizons of two factors. I do not intend to make direct recommendations concerning compensation plans.

In the remainder of the paper, I begin by describing the limited evidence on attempts to use long term compensation plans to align managers' time horizons with those of the shareholders. Also, I discuss the influence of job security on decision-making, followed by the hypothesis development. Next, I describe the method used to investigate the influence of both long term compensation and job security on time horizons, and present the results. Finally, the results are summarized and their implications are discussed.

Literature Review and Hypothesis Development

For many years reasons why managers adopt a short decision time horizon have been discussed in the popular press (see "What's Wrong with Management?" 1982; "Why Long-term Incentives Frequently Fail, 1983; Louis, 1984). Among these reasons is the manager's perception that short term results in the form of quarter-to-quarter performance are critical in establishing stock price, and the manager is concerned with maintaining the firm's share price (Jacobs, 1991; Porter, 1992). Another reason may be the emphasis on short term performance (Louis, 1984). Specifically, managers may focus on the short term because of the annual earnings-per-share targets for performance evaluation. Since there is little correlation between earnings-per-share and stock price appreciation ("Why Long-term Incentives Frequently Fail," 1983), a manager's decisions are possibly being motivated incorrectly (Finkelstein and Hambrick, 1988). Finally, it has been suggested that the compensation committee of the board of directors may have a shorter time horizon than the shareholders (Lambert and Larcker, 1985a).

Long Term Compensation

A manager's time horizon may be lengthened by using stock options, deferred stock purchase plans, phantom stock, or restricted stock (see Butler and Maher, 1986 or Larcker, 1983 for descriptions). The key features of deferred compensation's ability to lengthen time horizons are: (1) the cash or stock is received usually three to five years in the future, and (2) the rewards are based on achieving targeted returns that are beyond the current period. Often, it is also the case that these bonuses are forfeited if the manager leaves the firm before the conclusion of the long term contract. This feature is thought to extend the manager's horizon at least until the end of the contract period. With overlapping contracts the horizon may be extended beyond the three to five-year period.

There is little empirical evidence on the role of long term compensation contracts in extending a manager's time horizon. A possible reason for this is that ". . . this issue cannot be examined directly" (Lambert and Larcker, 1985a, p. 14). It has been examined indirectly using secondary data such as the level of research and development expenditure or advertising expenditure, both of which may lower current earnings but increase future prospects.

Some studies examine the stock market reaction to the introduction of long range managerial compensation plans (Brickley, Bhagat, and Lease, 1985). Using the announcement of a change in compensation plan, Brickley et al. (1985) found evidence of a positive stock market reaction. They also found that the market reacted differently to different kinds of compensation plans.

Lambert and Larcker (1985b) have studied whether the initial adoption of a stock option plan changes the incentives of the managers. They found that the variability of equity returns did increase. This is consistent with the idea that the stock options caused the managers to become less risk averse to improve the chances of the options finishing "in the money."

Larcker (1983) used this indirect approach to investigate whether managers act as if they have adopted a longer time horizon. He compared two similar groups of firms. One group had adopted long term compensation contracts with deferred compensation for achieving goals three to six years later (similar to stock options). The control group had only salary and short term bonuses. Larcker found that the relative amount of capital investment by the long term compensation group was higher than for the control group, implying that time horizons differed.

As Larcker (1983) noted, there are many problems with attempting to draw inferences about individual managerial behavior from the secondary information such as changes in investment expenditures or stock returns. Specifically, it is entirely possible that " . . . once a new investment is chosen, a compensation arrangement may be adopted which offers high rewards if the program is successful" (1983, p. 11). Therefore, the causation may in fact be reversed. This confounding of possible explanatory variables is also reflected in the self-selection problem. Firms adopting long term compensation plans may be fundamentally different from nonadopting firms.

While Larcker (1983) investigated the potential impact of performance plans on aggregate corporate investment changes, I am examining the impact of long term compensation on an individual's decision making. Rather than looking for an increase in capital investments, the experiment specifically investigates differences in the timing of benefits of investment decisions. I created this timing difference by comparing investments that pay returns in the early periods with investments that pay returns in later periods. In order not to confound investment risk with return, the variance of both types of investments is held constant. Then, the only risk difference was that associated with the time horizon itself. By avoiding obvious confounding effects through the use of an experimental manipulation, I can draw inferences concerning the following hypothesis:

H1: Participants with a fixed compensation amount per period plus a short term bonus will select projects with shorter payback periods than those participants who have an additional bonus based on achieving long term goals.

Factors other than compensation and short term performance evaluation may influence the investment decision. For example, differences in expected return, in risk, and in initial cost can have an impact on the decision. The relationship among these factors and investment is well understood as they relate to the discounted cash flows of the projects.

Job Security

A factor that may be becoming more important is the job security of the manager. It has been estimated that resignations for reasons other than retirement from the top two executive positions in U.S. firms have increased from approximately 4 percent in the period 1970-74 to 10 percent in 1980-83 ("Turnover at the Top, 1983), and with the current world-wide economic slowdown one may expect the turnover rate to be further increasing. At the division or subsidiary level, the turnover rate was about 25 percent per year (Jennings, 1981). Additional evidence on mergers, acquisitions and downsizing of firms, does not suggest that these rates are lessening ("World Wide Executive Mobility," 1988).

Although turnover at the level of the hourly worker has been extensively studied (see references in Miner and Brewer, 1976), managerial turnover has been less well understood. Coughlan and Schmidt (1985) found that stock price performance and the probability of a change in CEO were inversely related. Of particular importance to the relation between decision making and job security, they found evidence consistent with the notion that a CEO's final years of service may affect his or her decisions. In a discussion of the link between sales and

compensation, they argue that ". . . pay for a CEO in his last year may not be linked to sales because such a link would encourage excess advertising or marketing expenditure" (Coughlan and Schmidt, 1985, p. 57). Extending that reasoning to other situations where the probability of turnover is high (not necessarily because of approaching retirement), we suggest this is support for the hypothesis that decisions will be affected by such a variable.

Vancil (1987) has studied the topic of CEO succession in detail, by examining hundreds of succession events occurring over 25 years at 227 large companies. Factors such as the increasing number of mergers and acquisitions, personality clashes, and poor corporate financial performance have all contributed to a general decrease in job security. Of particular interest is the fact that turnover exists and may be increasing.

Mannix and Loewenstein (1993, 1994) examined the influence of interfirm mobility (turnover) on managerial time horizons. Their participants in the 1993 study negotiated how much to withdraw from a limited fund. With individual turnover rates of 4 percent or 12 percent, they found that high interfirm mobility led to almost twice as much being withdrawn from the fund. This implied a short time horizon since funds not withdrawn earned positive returns. The 1994 study replicated this finding on mobility using rates of 5 percent and 15 percent.

The turnover rate may be viewed as implying a type of discounting when it comes to personal payoffs from the specific investments. From an experimental design perspective, this discounting allows us to simulate several periods in a one-half hour experiment. While job security is certainly influenced by job performance, we have treated job security as an independent variable for purposes of this initial study, thus capturing only that portion of job security over which the manager has no control. We test the effect of possible turnover on a manager's decision making time horizon based on the following hypothesis:

H2: Participants with a high probability of continued employment in their current positions will have longer time horizons than participants with a lower probability of continued employment.

The next section describes the method used to test the two hypotheses.

Method

Participants

The participants were 55 paid volunteers from undergraduate business classes at a major state university. They were paid between $7 and $15 for the approximately one-half hour experiment, depending on their performances, as described below.

Task

The participants were asked to play the role of Chief Executive Officer of a medium sized firm. Three times in each of six periods, they chose between two risky investments, each of which contained three possible outcomes. Investments generated returns for three periods ("years"). However, given the probabilistic nature of the returns, they were not necessarily the same each period. In all of the choice situations, one investment paid returns at the end of the current year and in each of the next two years. These were the short time horizon choices: the three payoffs were short term. In all three years, the three possible outcomes were 120, 100, and 80 with probabilities of occurrence of .2, .6, and .2, respectively.

For each decision, the alternative investment had the same probabilities and range of outcomes, but the expected value ranged from 110 to 190 in increments of five. Furthermore, the alternative investments did not start paying returns for two years. These investments were the long time horizon choices[1]. So, for example, the participant may have had a choice between an investment that had returns in years 1, 2, and 3 with an expected value of 100 or one that had returns in years 3, 4, and 5 with expected values of 120.

Participants made three investment decisions in each year (each participant made 18 choices-- 6 years x 3 choices per year), and they were paid a fixed salary of $.75 for each year. In addition, they received a short term bonus at the end of each year that was equal to the lower of (1) one-half of the fixed salary, or (2) 1 percent of the total income from the investment returns for the year. The short term compensation was modeled after typical plans of this sort in use in U.S. corporations. The order of the 18 investment choices was randomized.

Design

A 2 X 2 between-subject design was employed. The first independent variable was job security, i.e., the probability of being on the job in the following year. One group had a 98% chance of being on the job in the following year, while the probability for the second group was 85%. As noted above, the empirical turnover rates for managers range from 10 to 25% per year (this is also consistent with Mannix and Loewenstein, 1993, 1994). Thus for one level of that treatment variable, we selected a secure level (without certainty) of 98%. For the other, we selected a more uncertain, yet still realistic, level of 85%. Participants were told that if they still had the job at the beginning of the period, the probability of being in the job remained the same (i.e., each year's probability was an independent event) for that year. Therefore, the probability of continuing employment as the CEO at each later year was decreasing. To reinforce this manipulation, a time line that extended to the ninth year was included in the instructions. See Appendix A for the instructions.

The second independent variable was whether a long term compensation plan existed. Long term targets of total returns for the investment choices were set for three overlapping periods. For years 1, 2, 3,

and 4, the participant's total returns had to equal at least \$4490 to qualify for the long term compensation. For years 3, 4, 5, and 6, the total returns had to equal at least \$4200. Finally, for years 5, 6, 7, and 8, the total returns had to equal at least \$4400. The targets were set arbitrarily with the provision that in order to reach the targets the choices had to be dominated by long time horizon investments.

The payment to a participant for reaching the long term target was set at \$3.00. This is 100% of the total yearly compensation for the four years covered by the target. Survey data (Fox, 1983, p. 7) suggests that this level of compensation relative to the yearly fixed salary has some external validity. This is also true for the yearly short term bonus of 50% of the fixed salary used in the experiment.

Procedure

Participants signed up for one-half hour periods during a three day period. They were randomly assigned to one of the four treatment groups[2]. Each participant participated on an individual basis with an experimenter who recorded each choice and the outcomes of the chosen investments. The choices were presented sequentially with the future alternatives being covered by a sheet of paper. All three choices for a particular year were made before the outcomes were determined. There were no time constraints. Examples of the gambles are shown in Appendix B. To improve readability, the original recording sheets were 8.5 by 14 inches.

At the end of each year, the participant chose cards from a container to determine the particular outcome of the investment selected (if the investment paid returns in this year) and of all previously selected investments that paid off in that particular year. Ten cards were needed since all investments had the same probability distribution: two marked as "highest outcome," two marked as "lowest outcome," and six marked as "average outcome." The total returns were determined to calculate the annual bonus and the running total for those who had a long term target.

Next, the participant chose a card out of a container to determine if he or she would remain in the experiment. Participants were told that if they drew a card that had one of the numbers above 85 (98) on it, they would stop and collect any money earned to that point. Their participation would be over. (Participants were told that they must still be employed in order to receive the bonus when a long term target was reached.) In fact, the cards only went from 1 to 85 (98), so it was impossible for the participant to be asked to stop. To avoid any strategic behavior, participants had no knowledge that the experiment would be stopped after the sixth year. At the end of the experiment, the participants were paid any money due them for investments that had returns in later years.

Results

The number of long time horizon choices made by each participant was used as the dependent variable. Each participant made a total of 18 choices (6 periods x 3 choices per year). The total number of long time horizon choices selected by each participant is shown in Table 1. The overall average number of long time horizon choices by the two groups with a long term compensation plan is 9.65. The average for the short term compensation groups is 9.72.[4] the averages for the groups with job security of 98 percent and 85 percent are 10.44 and 8.96, respectively[5]. This suggests that the compensation plan did not have an effect, while job security did.

(Insert Table 1 here)

Given the small sample sizes per group, I conducted a nonparametric two-way analysis (Bradley, 1968, pp. 138-41) using the number of long time horizon choices as the dependent variable. The first hypothesis predicts a main effect for type of compensation, and the second hypothesis predicts a main effect for job security. We have no reason *ex ante* to expect an interaction. The results are presented in Table 2.

(Insert Table 2 here)

We are unable to reject the null hypothesis of no difference between participants who received a long term compensation bonus and those who did not ($U = 93$, $p = .409$). We are, however, able to reject the null hypothesis of no difference with respect to the job security variable ($U = 154$, $p = .016$). Since there was no interaction, this implies that under conditions of a short term bonus only and a high level of job security, the highest expected value investment is chosen whatever the time necessary to realize the outcome. It is possible that the results reported in Table 2 are driven by a few observations. Based on the data in Table 1, I classified each participant as adopting either a long time horizon or a short time horizon. If the participant chose at least 10 out of the possible 18 long time horizon investments, I classified the participant as having a "long" time horizon. Otherwise, it was a "short" time horizon. The resulting compensation plan x job security x time horizon contingency table is shown in Table 3.

(Insert Table 3 here)

This 2 x 2 x 2 contingency table was analyzed using log-linear models. The process of fitting the log-linear models will result in a likelihood ratio statistic (G^2) which is distributed as a chi-square with the same degrees of freedom. An important advantage of G^2 is that there can be a conditional breakdown of G^2 (Bishop, Fienberg and Holland, 1976, p. 125). This fact allows me to test for interaction terms to decide whether there is a statistically significant relation between the time

horizon and compensation plans or between time horizon and job security.

In Table 3, I compare three models. The first does not have interaction terms. Models 2 and 3 contain terms to test for an association between job security and time horizon; and compensation plan and time horizon, respectively. Because of the conditional breakdown of G^2, I can test the job security/time horizon association by analyzing the difference in G^2 statistics (4.13) which is distributed as a chi-square with 1 degree of freedom ($p<.05$). A similar test of the compensation plan/time horizon association suggests no statistically significant difference. These results confirm the earlier results that, given the levels of variables in our experiment, long term compensation does not affect time horizons, while job security does.

Discussion

In this paper, I have examined experimentally the effects of long term compensation and job security on decision making time horizons. An experimental method was used since this approach gives the supposition that compensation plans align managers' and equity holders' interests the best possibility to show itself. Studies in laboratory settings together with studies using archival data allow for a stronger test of the behavior than using only one approach (archival data studies). I regard this as an initial laboratory study into the effects on time horizons of these two factors. The long term compensation contract was set at empirically documented levels relative to short term compensation. It was found that long term compensation did not significantly lengthen time horizons. On the other hand, when the two levels of job security bounded the best estimates of the turnover rate of senior managers, we did find that job security had a significant impact on the number of long term investments selected. This result supports Kaplan's (1984) contention that managers with low expectations about remaining on the job are likely to curtail beneficial investments whose payoffs are long term.

I selected only two variables for this study. However, there are several other factors that are important for future research. This includes varying the specific type of long term compensation. Clearly, I could have altered the compensation mix so that long term compensation would induce the participants to make long term investments. The compensation committee of the board of directors of a firm uses survey information so often I believe a first step is to use that same information to construct our compensation mix. Further research may look at the impact of the compensation contracts in specific industries or specific firms. Experimentally manipulating a change in the compensation plan to measure its impact on subsequent decisions may also be interesting. The experimental research in corporate control and its impact on decision making is a rapidly expanding area. Accountants, for instance, are concerned with managerial decision making and are often involved in the design and implementation of incentive compensation packages. This line of research may lead to an increase in the contribution that managerial accountants can make toward improving the process.

Footnotes

1. The range of expected returns was set after a pilot study. In this study, participants were asked if they had to make an investment, which would they choose? Job security was not explicitly considered. For all participants there was a point where they no longer favored the expected return of 100 in the first three years, and they preferred the higher, delayed return in years three through five. As a manipulation check, we included the case where the expected return was 100 for both the short and long term gambles. It seems that the short term payoff would be preferred. Our participants confirmed that they were paying attention to the manipulation.
2. This randomization attempts to control for other variables that may affect choice behavior, such as risk preference. Generally, people have been found to be risk averse for positive outcomes (Kahneman and Tversky, 1979), which is consistent with the motivation for long term compensation contracts--that is, to motivate decision makers to be less risk averse.
3. Participants were not aware that this was not a real manipulation. We did this simply to assure a full data set from each participant, to save time and money.
4. In the 85% job security - short term compensation group, one participant chose 17 out of 18 long time horizon investments. This was completely counter to either hypothesis, and indicates that the choices were made only based on expected value. Excluding this observation lowers the average value to 9.46.
5. Again, excluding the outlier (see note 4), the average for the 85% groups was 8.67.
6. The fact that I had both investments with equal variances biased the results toward rejecting the null hypothesis and in favor of finding that the long term compensation extended the time horizon.

References

1. Bishop, Y. M. M., Fienberg, S. E., & Holland, P. W. (1976). Discrete multivariate analysis: Theory and practice. Cambridge, MA.: MIT Press.
2. Bradley, J. V. Distribution-free statistical tests. (1968). Englewood Cliffs, NJ: Prentice-Hall.
3. Brickley, J. A., Bhagat, S., & Lease, R. C. (1985). "The impact of long-range Managerial compensation plans on shareholder wealth," Journal of Accounting and Economics,7, 115-129.
4. Butler, S.A. (2008). "The effects of a long-term compensation plan on risky choices," International

Journal of Behavioural Accounting and Finance, 1, 51-66.
5. Butler, S. A., & Maher, M. W. (1986). Management incentive compensation plans. Montvale, NJ: National Association of Accountants.
6. --------., & Newman, H.A. (1989). "Agency control mechanism effectiveness and decision making in an executive's final year with a firm," Journal of Institutional and Theoretical Economics, 145, 451-464.
7. Coughlan, A. T., & Schmidt, R. M. (1985). "Executive compensation, management turnover, and firm performance: An empirical investigation," Journal of Accounting and Economics,7, 43-66.
8. Davidson, III, W. N., Xie, B., Xu, W., &Ning,Y. (2007). "The influence of executive age, career horizon and incentives on pre-turnover earnings management." Journal of Management Governance, 11, 45-60.
9. Elliott, J. A., & Shaw, W. H. (1988). "Write-offs as accounting procedures to manage perceptions," Journal of Accounting Research, (Supplement), 26, 91-119.
10. Finkelstein, S., & Hambrick, D. C. (1988). "Chief executive compensation: A synthesis and reconciliation," Strategic Management Journal, 9, 543-558.
11. Fox, H. (1983). Executive incentives: Long-term performance share/unit plans. New York: The Conference Board.
12. Holthausen R. W., & Leftwich, R. W. (1983). "The economic consequences of accounting choice," Journal of Accounting and Economics, 5, 77-117.
13. Jacobs, M. T. (1991). Short-term America: The causes and cures of our business myopia. Boston: Harvard Business School Press.
14. Jennings, E. E. (1981). "How to develop your management talent internally," Personnel Administrator, (July), 20-23.
15. Jensen, M. C., & Meckling, W. H. (1976). ATheory of the firm: Managerial behavior, agency costs and ownership structure,@ Journal of Financial Economics, 3, 305-360.
16. Kahneman, D., & Tversky, A. (1979). "Prospect theory: An analysis of decisions under risk," Econometrica, 47, 263-291.
17. Kaplan, R. S. (1984). "The evolution of management accounting," The Accounting Review, 59, 390-418.
18. Larcker, D. F. (1983). "The association between performance plan adoption and corporate capital investment," Journal of Accounting and Economics, 5, 3-30.
19. Lambert, R. A., & Larcker, D. F. (1985a). "Executive compensation, corporate decision-making and shareholder wealth: A review of the evidence," Midland Corporate Finance Journal, (Winter), 6-22.
20. Lambert, R. A., & Larcker, D. F. (1985b). "Stock options and managerial incentives," manuscript, The Wharton School, University of Pennsylvania, June.
21. Lissy, W. E., & Morgenstern, M. L. (1995). ACurrents in compensation and benefits,@ Compensation & Benefits Review, 27(6), (November-December), 15-25
22. Louis, A. M. (1984). "Business is bungling long-term compensation," Fortune, (July 23), 64-69.
23. Mannix, E. A., & Loewenstein, G. F. (1993). AManagerial time horizons and interfirm mobility: An experimental investigation,@ Organizational Behavior and Human Decision Processes, 56, 266-284.
24. Mannix, E. A., & Loewenstein, G. F. (1994). AThe effects of interfirm mobility and individual versus group decision making on managerial time horizons,@ Organizational Behavior and Human Decision Processes, 59, 371-390.
25. McNichols, M., & Wilson, G. P. (1988). "Evidence of earnings management from the provision for bad debts," Journal of Accounting Research, (Supplement), 26, 1-31.
26. Meadows, D. (1981). "New targeting for executive pay," Fortune, (May 4), 176-184.
27. Meyer, P. (1979). "Why executives change jobs," Personnel Administrator, (October), 59-64, 72.
28. Miner, J. B., & Brewer, J. F. (1976). "The management of ineffective performance," in M. D. Dunnette (ed.), Handbook of Industrial and Organizational Psychology. Chicago: Rand McNally.
29. Pavlik, E. L., & Belkaoui, A. (1991). Determinants of executive compensation: Corporate ownership, performance, size, and diversification. Westport, CT: Quorum Books.
30. Porter, M.E. (1992). "Capital disadvantage: America's failing capital investment system", Harvard Business Review (September): 65-72.
31. Science Daily. (2008). "Reducing CEOs' option-based compensation decreases risky investments." hhtp://www.sciencedaily.com/ releases/2008/10/081022164722.htm.
32. Smith, C. W., Jr., & Watts, R. L. (1983). "The structure of executive compensation contracts and the control of management," manuscript, Graduate School of Business, University of Rochester.
33. Stammerjohan, W. (2004). "CEO compensation and subsequent firm performance: An empirical investigation," Corporate Ownership & Control, 2(1): 86-103.
34. Trueman, B., & Titman, S. (1988). "An explanation for accounting income smoothing," Journal of Accounting Research, (Supplement), 26, 127-139.
35. Turnover at the top. (1983). Business Week, (December, 19), 104-106.
36. Vancil, R. E. (1987). "A look at CEO succession," Harvard Business Review, 65, (March/April), 107-117.
37. What's wrong with management? (1982). Dun's Business Month, (April), 48-52.
38. Why long-term incentives frequently fail. (1983). Management Review, 72 (December), 49.
39. World wide executive mobility. (1988). Harvard Business Review, (July-August), 105-123.
40. Wright, P., Ferris, S. P., Sarin, A., & Awasthi, V. (1996). AImpact of corporate insider, blockholder, and institutional equity ownership on firm risk taking.@ Academy of Management Journal, 39, 441-463.

TABLE 1. Number of long time horizon choices per participant[a]

Participant	Group 1	Group 2	Group 3	Group 4
1	14	10	13	17
2	6	6	9	9
3	13	10	9	8
4	9	11	10	9
5	10	4	10	10
6	6	8	12	7
7	13	8	12	10
8	7	10	13	5
9	7	8	3	10
10	11	16	7	11
11	10	9	14	6
12	17	8	8	9
13	11	9	15	8
14			12	6
15				9
Median	10.0	8.5	10.5	9
Mean	10.31	9.0	10.57	8.93

Note:
Group 1: Job security = 98%; long term compensation
Group 2: Job security = 85%; long term compensation
Group 3: Job security = 98%; short term compensation
Group 4: Job security = 85%; short term compensation

[a] The maximum number possible is 18.

TABLE 2. Non-parametric ANOVA with the number of long time horizon choices as the dependent variable

Source	Mann-Whitney U	p[a]
Type of compensation (long term or no long term)	93	.409
Job security (98% or 85% chance)	154	.016
Type of compensation X Job security	85	.282

[a] One-tailed test (Bradley, 1968, pp. 138-41).

TABLE 3. Classification of participants by compensation plan and job security into those adopting a long time horizon of a short time horizon

	Type of Compensation Plan			
	Long term		Short term	
	Long Time Horizon	Short Time Horizon	Long Time Horizon	Short Time Horizon
.98	8	5	9	5
Job security				
.85	5	8	5	10

Log-linear models:

	df	G^2
1. Compensation Plan + Job Security + Long or Short Horizon (LOS)	4	4.25
2. Model 1 + Job Security X LOS	3	0.12
3. Model 1 +Compensation X LOS	3	4.24

Model 1 - Model 2 = 4.25 - 0.12 = 4.13, df = 1, $p < .05$.

APPENDIX A

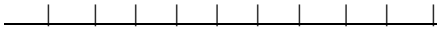
Instructions

This study analyzes the decision-making behavior of managers. You are to play the role of a CEO of a medium-sized firm. Your task is to choose between two investments that have uncertain outcomes due to some uncertainty about the particular "state of nature" that will occur. Each investment will consist of three possible states of nature with a probability of occurrence associated with each state and outcome dollars for a given year and state combination.

You will be given a series of independent investment choice situations. In each case, one investment pays returns in years one, two, and three, while the other investment pays returns in years three, four, and five. Please consider the two investments mutually exclusive. That is, you may only invest in one.

As with any managerial position, there is no guarantee that you will remain in the job at the end of the year. There is a 98% chance that you will continue on the job into the next year. If we consider each year's probability to be an independent event, before we start, the probability of remaining on the job until the n^{th} year is:

1.0 .98 .96 .94 .92 .90 .89 .97 .85 .83



0 1 2 3 4 5 6 7 8 9

You may think of this probability as saying that whichever investment you choose in the third year, there are 94 chances out of 100 that you will still be the CEO of the firm.

If you have any questions, please ask them now.

APPENDIX B

Example of an Instrument for Recording Choices

			Years of Payoff						
Year	Case	Choice	1	2	3	4	5	6	7
1	1		(.2) 120	(.2) 120	(.2) 120				
		1	(.6) 100	(.6) 100	(.6) 100				
			(.2) 80	(.2) 80	(.2) 80				
					(.2) 200	(.2) 200	(.2) 200		
		2			(.6) 180	(.6) 180	(.6) 180		
					(.2) 160	(.2) 160	(.2) 160		
					•				
					•				
					•				
2	4			(.2) 120	(.2) 120	(.2) 120			
		1		(.6) 100	(.6) 100	(.6) 100			
				(.2) 80	(.2) 80	(.2) 80			
						(.2) 210	(.2) 210	(.2) 210	
		2				(.6) 190	(.6) 190	(.6) 190	
						(.2) 170	(.2) 170	(.2) 170	