

Moral Hazard Class Problem

Finance 4335, February 26, 2019

Currently the CEO receives a fixed salary of \$500,000. This salary represents her “reservation” salary; if the utility value of \$500,000 for certain is breached, then she will take a job elsewhere. The Board of Directors is concerned that she may be just “going through the motions” and would work harder if she were paid a bonus based upon the firm’s profits.

The CEO’s utility function is $U = W^{0.5}$, where state-contingent wealth W_s comprises initial wealth ($W_0 = \$1,000,000$), salary (S), bonus (B), and cost of effort ($C = \$50,000$, which represents the opportunity cost of hard work for the CEO); thus, $W_s = W_0 + S + B - C$. C is only incurred by the CEO if she works hard. The firm’s owners are risk neutral, so they are interested in maximizing the expected value of profit after taking the CEO’s compensation into account.

The table below provides estimates of the firm’s profit (before CEO compensation is deducted) under three states of the world. The proposed new compensation plan would cut the CEO’s salary (S) from \$500,000 to \$300,000 but give her a \$500,000 bonus if the firm’s profit (before CEO compensation is deducted) is greater than or equal to \$10,000,000.

	Good Economy	Average Economy	Weak Economy
	$p_s = 0.3$	$p_s = 0.3$	$p_s = 0.4$
CEO Goes Through Motions	\$10,000,000	\$8,000,000	\$6,000,000
CEO Works Hard	\$15,000,000	\$12,000,000	\$9,000,000

1. Under the current compensation scheme, is the Board correct in its assessment of the effort of the CEO? Why or why not?
2. Will the Board’s new compensation scheme have its intended effect, i.e., will the CEO work hard?
3. What is the minimum level of bonus for the CEO in order for the Board’s new compensation scheme to have its intended effect?
4. Suppose it turns out that the CEO values her cost of effort at \$200,000 instead of \$50,000. If this were the case, would the Board’s new compensation scheme have its intended effect? If not, what is the minimum level of bonus required in order to incentivize the CEO to work hard?
5. Suppose the CEO values her cost of effort at \$500,000. What is the minimum level of bonus in this case? Should you pay this bonus?