

# RELATIONAL EXECUTIVE CONTRACTS WITH CAPITAL INVESTMENT

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## Abstract

Executive compensation has been recently analyzed by voluminous literature in principal-agent theory, corporate finance and labor economics. Executive manager's wage contracts consist of 3 components - base salaries, stock options, and bonuses. While the stock option structure is addressed by a lot of theoretical and empirical researches, the bonus scheme has not been studied much even though it amounts to the 2nd largest component in the contract. The main objective of this paper is to study the characteristics of CEO bonus compensation and to prove its optimality.

According to Murphy(1999), the most common bonus scheme for top-level managers is the so-called "80/120" plan. Under the plan, no bonus is paid until a threshold performance(usually amounts to 80% of the performance standard) is achieved, and a minimum bonus is paid at the threshold. Target bonuses are paid for achieving the performance standard, and there is typically a "cap" on bonuses paid.(amounts to 120 % of the performance standard) The range between the threshold and the cap is labeled the "incentive zone" in which incremental improvement in performance leads to incremental improvements in bonuses. Also the bonus plan has the feature that it has a discrete jump at the threshold, which is pretty prevalent across firms with a slight difference in the percentages.

The aim of this paper is to develop a theoretical model that can explain the optimality of such plan. Previous relational executive contract literature such as Levin(2003) can generate the one-step bonus, but cannot explain the incentive zone that is observed in 80/120 plans. Our model generates this pay-performance structure by incorporating capital investment(k) into the model. Assuming that given an agent's performance, higher levels of capital corresponds to higher levels of outputs, with decreasing return to scale, we derive the optimal investment plan and compensation scheme under "quasi-stationary contract" with the agent's expected utility being constant over time. We find that in this case, the optimal bonus scheme has the 80/120 structure with a discrete jump as long as firms are in the steady state regarding their capital level.

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