Modeling Board Decisions

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1 Introduction

In contrast to companies that are run by their owners, business decisions in companies run by management boards are made by groups of individuals with different qualifications and heterogeneous objectives that may differ from those of the owners. The members of the board will assess alternative action differently, depending on individual assessments of the situation and personal goals. From an economic point of view, it is particularly interesting to see how the shareholders assess the quality of the decision made by the board. If, as will be assumed in the following, the shareholders are only interested in the economic position of the company, then it follows that each of them will only be interested in the long-term financial success of the decision that he has delegated to the managers.

The shareholders are faced with either making a decision themselves or delegating it to a group of managers. By delegating to the board the shareholders can hope to reach better decisions, i.e. improving the company's profitability, because of managements' superior knowledge or qualification. On the other hand, each manager pursues his own goals which may differ from those of the shareholders ('personal interests'). The goals of the managers can, however, be at least partly compensated for by an incentive system that offers them a share in the profit made when the owners' goal is achieved. Compensation by means of an appropriate incentive system of course generates reward costs for the owners and so reduces their total gain. The trade-off between the managers' personal interests, their incentives, their qualification, and the board size is central for the model. The following meta decision problem results for the share-holders: They have to find an optimum way of matching incentives, group composition, and rules of group decision with their own goals while taking qualification, conflicting goals and reward costs into consideration.

2 Reference to the Relevant Literature

This problem calls to mind the multiagent approaches of agency theory (Holmström, 1982; Nalebuff and Stiglitz, 1983; Mookherjee 1984) that deal mainly with the derivation of optimum incentive systems. These approaches generally stem from the assumption that a random, functional dependence exists between a level of activity related to the disutility of the agent's work and a profit-related output. The output depends on the joint level of

activity of the agents and on stochastic factors. These random influences cannot be observed by the principal, or at least not without cost, and can result in the type of misbehavior known as moral hazard. These models are based on the idea that the individual agent's activities influence the total output or profit, while the agents are indifferent of the solution itself. In making management decisions, however, it would seem that the level of activity of the managers is less of a critical factor than their qualification and the personal interest they attribute to the alternative courses of action. A manager's decision in favor of an action may be associated with a gain in prestige or other well-founded personal interests such as the broadening of his own field of activity or sphere of influence.

Issues of information pooling by interaction and voting under conflict of interest and strategic behavior have recently gained some interest again. It is often believed that strategic voting behavior has a negative influence on decision quality. For example, Che and Yoo (2001) analyze "negative effects of agent's collusion" in a multiple period model and a different setting. Interestingly enough, we find that in our model strategic voting behavior in the board actually improves decision quality on average. In the presence of heterogeneous information dealing for example with mutual expectations, the difficulties for a dynamic modeling of interaction are enormous. Binder and Pesaran (1998) and Li, Rosen, and Suen (2001) provide good and more detailed discussions of this issue. The latter have, however, restricted themselves to the choice between two actions.

The paper presents a model for management decisions that, unlike the agency theory, takes the managers' personal interests in the possible courses of action into account. After the board of managers has been assembled and the go-ahead from the shareholders has been received, an autonomous decision is made without any further intervention. The managers evaluate the actions firstly on the basis of their own information and then on the basis of shared information. In so doing they behave in a rational, utility-maximizing manner. Due to personal interests in the actions, a conflict of aims between shareholders and managers exists, resulting in moral hazard as a consequence of uncertainty as to whether a manager picks an action on the basis of high profit expectation or because of his personal interests. Unlike the disutility of work in the agency theory however, the managers associate personal interests with the actions themselves and not with the disutility of work that would be associated with working and processing information. A level of activity as in the agency theory is thus not necessary. Instead, distribution assumptions about personal interests among the actions are required. To compensate for the conflict of aims due to personal interests, the managers are given an across-the-board share in the actual profit that is realized at a later date from the action chosen by the board. This incentive generates reward costs and, along with personal interests, has an influence on the managers' utilities. Each shareholder's capital is presumably well enough diversified to justify the assumption that he is risk neutral. Therefore, all shareholders can be assumed to have the same linear utility function with respect to the decision's profit.

Most or all of the factors have already been analyzed with more sophistication and analytical depth than possible in a single paper. Our main contribution is the integration of these factors into a single framework, thereby enabling us to look at dependencies, interrelations and trade-offs between the contingency factors.

3 Results

From a shareholder's point of view the quality of the decision made by a group of managers is dependent on numerous factors, the most important of which this paper investigated in detail with regard to their importance and type of influence. The primary influence of these factors on decision quality is determined mainly by three categories: predictive power, conflicting goals and reward costs. Higher predictive power results in better decision quality, while a growing conflict of aims and increasing reward costs taken for themselves have a negative effect. Via one or two of these main determinants, the factors have varying effects on expected decision quality. In the paper, we demonstrate the impact of these trade-offs on decision quality using a simulation tool.

All in all, higher qualification of the managers has a positive effect on mean decision quality due to an increase in predictive power. A greater importance of personal interests leads to a deterioration of decision quality due to a greater conflict of aims. An increase in the size of the board has a positive effect on decision quality due to its greater predictive power, while at the same time increasing the conflict of aims within the group due to the payment of bonus rates being more expensive. Just as for an increase in bonus rate, the resultant effect in this case depends on the concrete problem. A higher bonus rate reduces the net quality of the decision due to the reward costs being more expensive. At the same time it has a positive effect on decision quality due to its primary effect of lessening the conflict of aims within the board and thus increase mean decision quality if a common reward is paid, and if there is no common goal in the board that negatively correlates with the decision's expected pay-off. We are among other things able to calculate optimal group sizes for different scenarios.

In view of the growing influence of management groups investors would be wise not to just take the qualification and risk aversion of individual managers into account but also, when putting together a board of managers, to take into consideration their personal interests and the group-based factors like strategic behavior that would result from combining the individual characters.

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