

Moral Hazard: A Hidden-Information Agency Perspective

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Abstract: Moral hazard is a common situation that highlights the value of information in the contracts between agents and principles. This writing has demonstrated that for the hidden information to be effective, only one of the parties involved in a contract should own the private information. The current essay describes that the concept of moral hazard is useful for companies such as insurance companies that enter in trading negotiations with each other and also this writing has demonstrated that for the hidden information to be effective, only one of the parties involved in a contract should own the private information.

Keywords: Moral hazard; hidden information; trading negotiations; insurance companies.

1. INTRODUCTION

In the literal sense, moral hazard relates to the adverse effects, from the perspective of an insurance company, which an insurer could have on the behavior of an insured. This situation arises from a common economic scenario in which an agent and a principle are in a situation of their choice in which the agent's actions have an externality on the principle. It is notable that the principle will always want to influence the actions of the agent. Such an influence will always occur in the forms of a contract, which allows the principle to compensate their agent contingent on their direct activities or the effects of such actions. For example, one of the extreme examples is that of an individual who is insured under a fire cover who may wish to set their property ablaze for them to obtain the insurance money. In this case, the insurer needs to have an ability to cover such actions in the insurance contract, which is the idea of the moral hazard. The purpose of this work is to consider the hidden information problem, which turns out to be a game between two actors in the economic field, one whom holds information that is mutually important that the other lacks. The essay describes that the concept of moral hazard is useful for companies that enter in trading negotiations with each other since it helps them to design contracts that would take advantage of the risk that they hold in trading with such partners.

2. THE CONCEPT OF MORAL HAZARD

Moral hazard is a common situation that highlights the value of information in the contracts between agents and principles. A classic example of such a case is considering the relationship between a consumer and a monopolist in which the monopolist knows only so much about their consumers' willingness to purchase its products and the consumer who knows such information. Within the contract theory realm, the relevant scenarios entail a seller that has better information than a buyer does concerning the production costs of a specific product and an employee whom alone understands the complexity of a task involved in the completion of an assignment for their employer. Other situations include a manager that has the ability to hide information concerning the investment opportunities of his department from the company headquarters as well as a leader that has better info than do their followers concerning the importance of the pursuance of a specific action among others.

It is notable that each of the scenarios indicates that the possession of private information offers the players with such information a probable strategic edge in their dealings with the other party. For instance, one might consider a seller who owns better information concerning the costs of production than the consumer does. In this case, thru acting as though he

incurred high production costs, a seller may seek induce the consumer to pay an excess amount over what they would have done had they had higher production costs (Bertola & Koeniger, 2015). This case suggests that the seller has an incentive of using their superior information in the capturing of an information rent. Indeed, the consumer knows about such a possibility, which means that if they have the freedom to propose a contract between the two parties, he would always suggest one that lowers the amount of information rent (Bertola & Koeniger, 2015). Therefore, the manner in which the proposer of the contract, the principle, designs their contract in the mitigation of the informational disadvantage they face is a major concern in economics.

3. THE FUNDAMENTALS OF CONTRACTUAL SCREENING

It is useful to give a broader description of the economic situation that the moral hazard concept attempts to explain. For instance, two players could be engaged in a strategic relationship, which implies that the wellbeing of each one of them relies on the levels of play of their partner. In this case, one of the players could be better informed or has the capacity to do so in the course of time than their partner. This scenario could arise because such a player could be having private info concerning a state of nature required for the relationship. Therefore, as the case of typical information economics, the player possessing the private information is referred to as an informed player while the one that lacks such information is considered an uninformed player (Bisin, & Guaitoli, 2004). Fundamental to an analysis of such situations is the game of bargaining, which is essential in the determination of the contract. In this case, the proposer of the contract is termed as the principle while the one that receives the proposal is the agent. Additionally, an assumption is made that the proposed contracts occur on a take-it-or-leave-it basis in which the agent can only take or leave the contract that the principle proposes (Bisin & Gottardi, 2009). A rejection of the proposal by the agent typically ends the association between the two players. Such models in which an informed player acts as a proposer of a contract constitute the screening models. Contrarily, in the event that an informed player is the one that acts as the proposer of the contractor, a signaling model suffices (Bisin, & Guaitoli, 2004). Therefore, a contract can be perceived as laying the rules of secondary games between the agent and the principle.

An assumption is conceived that the asymmetry of information extant within the game between the principle and the agent results for the fact that expertise, prior experience, or location offers the agent a free information accessibility concerning the state of nature while the absence of such factors excludes the principle from it. The scenario also implies that the absence of such factors make the acquisition of information by the principle prohibitively expensive. For instance, previous jobs might tell a retailer of their levels of efficiency, which will further point at his cost levels. In a similar way, the ignorance of such past jobs implies that a buyer could have a less precise cost estimation for their products (Bisin & Gottardi, 2009). Particularly, the informed player is presumed to be 'blessed' with info for the objective of the situation, which the moral hazard framework seeks to model. Therefore, the primary assumption is that only one of the players has better information, which is a situation in which each player has sufficient information are not ideal for the model.

Considering such structure of information, the principle and the agent interact according to specified instructions, which make up the game's extensive form. In such a two-individual game, it is necessary that the players contract with each other for the attainment of a form of desired outcome. Specifically, the situation rules out the ability to depend on some exogenous anonymous and fixed market mechanism (Bontems & Thomas, 2003). The focus, therefore, shifts to the game's instances in which the informed player might potentially be a beneficiary of the information that they hold. Such an advantage could be inducing the other party, the buyer, to pay more than necessary for a specific good since they would fear the high costs of production that the seller encountered. However, since the informed player fails to make the first move in the contract, the uninformed one proposes the contract, which suggests that the information advantage that the informed player was having is not absolute. Therefore, the uninformed player seeks through their contract design to offset the inherent advantage of the informed player.

4. THE MODEL OF TWO-TYPE SCREENING

Within the two-type model, the state of nature could assume one out of the two possible values. As a commonality within the literature of moral hazard, the realized state of nature is considered the agent's type (Ábrahám, Koehne, & Pavoni, 2011). The agents have only one option between them when there are two possible states. However, before a deeper explanation of this scenario, it is worthwhile noting that the simplicity within this modeling does not exclude the costs

(Caillaud & Benjamin, 2000; 2001; 2003). For this case, insofar as it might indicate conclusions that appear general, the two-type model should be understood to be treacherous since the conclusions that it makes are not general. For instance, the conclusion drawn using this approach that the maximum contract means distinct results for the distinct states of nature, which is termed ‘separation,’ is not a generalization much as it might appear to be (Ábrahám, Koehne, & Pavoni, 2011). Furthermore, the presumption of the existence of two forms of conceals, essentially, a collection of presumptions, should be clarified. It additionally hides the richness of the problem of screening in relationships that are more realistic and complex.

5. AN ELEMENTARY SITUATION OF TWO-TYPE SCREENING

In the description of this type of screening scenario, consider a large retailer, who is also the principle, that desires to buy units of some products for resale. Another assumption should be that the size of the retailer offers it a great advantage in bargaining power terms with its bargaining with the agent, another company with the ability to supply the required product. In this case, let $x \in R_+$ represent the quantity of the desired product and $r(x)$ that of the revenues of the retailer from an x number of units (3). Another assumption to consider is that $r(\cdot)$ is differentiated everywhere and strictly concave. Another assumption to consumer is that $r'(0) > 0$ since $r(0) = 0$ because $r(\cdot)$ is a function of the revenues of the company. In this case, the retailer is unsure of the supplier’s efficiency. Specifically, the retailer understands that the production cost of an inefficient supplier is $C_I(x)$ and that of an efficient one is $C_E(x)$. Let the prior understanding of the retailer remain that the supplier would be inefficient with a likelihood of f , in which f is a reflection of the uniformed status of the retailer, giving $0 < f < 1$. Contrarily, the supplier understands its type, which is if it is efficient or not.

Another assumption to consider in this derivation is that the value of $C_t(\cdot)$ is growing, that everywhere is convex and differentiable for each type, t since $C_t(\cdot)$ is a function of the cost that gives $C_t(0) = 0$ (Gjesdal, 2007). In consistency with the ideologies that each type corresponds with a variant efficiency level, an assumption is made that for each $x > 0$, $C'_I(x) > C'_E(x)$, which suggests that the marginal cost of the inefficient supplier is located above that of the efficient type. A necessary observation should be made that for all values of $x > 0$, $C_I(x) > C_E(x)$. The supplier and the retailer need to make an agreement on the volume, x , of the product that should be delivered as well as the payment, s , that should be paid for the entire volume of supplies. It is useful understanding that s does not represent the price per unit of the products supplied, but rather the payment for an x number of units supplied. Therefore, the profits for the supplier and the retailer are $s - C_t(x)$ and $r(x) - s$ respectively (Guesnerie, 1989). In this case, the retailer will make a take-it-or-leave-it offer to the supplier, which presents only one option to the supplier to take or reject. In the event that the supplier rejects the offer, then there would be no trade between the two companies and the payoff for each of them from the transaction would be zero. The no agreement outcome such as the one hypothesized in the example would be an equivalent to trade zero units of the desired product at a zero payment rate. Therefore, to presume that each of the parties should reach a level of agreement in equilibrium would be without any loss of generality (Macho-Stadler & Pérez-Castrillo, 2001).

It is also plausible to begin an analysis using the symmetric benchmark or full information case. This idea is to suggest that shortly, there is a need to presume that the retailer understands the type of the supplier, which is $f = 0$ or $f = 1$. Then, an immediate characterization of the Pareto maximum allocation to indicate that an estimated x^F_t unites where exchanged through the trade in which;

$$x^F_t = \arg \max_{x \geq 0} \{r(x) - C_t(x)\}.$$

The fact that the issue is otherwise not interesting should the trade not occur means that assuming $r'(0) > C'_E(0)$ is plausible such that at least with an efficient supplier, some trade would be desirable between the two companies. In this case, the ex post efficiency, the Pareto optimality will then fall to the derivation below that considers the bigger non-negative root from the second equation.

$$r'(x^F_E) = C'_E(x^F_E) \text{ and } [r'(x^F_I) - C'_I(x^F_I)] x^F_I = 0$$

Considering that the production incentives are optimal when the marginal costs of production are lower, the assumption reached in this case is concerning the value of $C_t(\cdot)$ suggests that $0 \leq x^F_I < x^F_E$. In such a case, the retailer will set $x = x^F_t$ while designing its offer for the contract to the supplier, which offers an s^F_t payment, which could be longer than required for the inducement of an agreement from the supplier, which also suggest that the value of s^F_t will satisfy

$$s^F_t - C_t(x^F_t) = 0$$

6. CONCLUSION

The concept of moral hazard and the perspective of hidden information present a percept example of the application of information economics. Specifically, the hidden information element describes the manner in which principles would always wish to influence the agents in contractual agreements because of the possession of private information concerning the issue for which the contract should be entered. This writing has demonstrated that for the hidden information to be effective, only one of the parties involved in a contract should own the private information because it is such information that create the scenarios described in the essay. It is also evident that private information could always be desirable for organizations and individuals since it provides a mechanism with which they can gain an advantage in contractual terms with their business partners. On the other side, the essay has demonstrated that individuals and organizations should always anticipate moral hazard that might be adverse on the nature of their businesses.

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