Double Moral Hazard in Teams

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submitted 2001; preliminary draft

JEL classification: D73, L22, D82, D83

Keywords: Double Moral Hazard, Team

[1] I thank Suseng Wang, Ian Jewitt, Michael Peters for helps and earlier discussions.

Abstract

This paper studies the optimal incentive schemes in a small team managed firm where the owner of the firm has the option to quit from production and be a pure residual claimant. The optimal incentive scheme suggests that: 1, the dependence between earnings and firm's output should be higher for the firm owners when their actions affect the firm's output, even if they are risk-averse; 2, the incentive parameter for the managers should be higher if the owners of the firm do not participate in decision making and management.

Do not impose others what yourself do not desire.

| | | Confucius

1 Introduction

The problem of double (or two-sided) moral hazard was not studied until lately. Cooper and Thomas (1985) is probably the ¯rst one who studied the double moral hazard problem through examining he optimal product warranty when the failure rate of a product is a®ected by both the ¯rm's and the consumer's privately observed actions taken on the product. Mann and Wissink (1988), Dybvig and Lutz (1993) also discussed the same issue. In this literature, the optimal warranty is based on the notion of Nash equilibrium of the noncooperative game. When arriving at a conclusion about the level of the warranty jointly, both parties anticipate their reciprocal pattern of unobserved behavior, they consequently maximize their joint surplus under the restriction of the Nash equilibrium. The conclusion of the double moral hazard warranty model is that, ¯rst, parties who feel unobserved when carrying out their product investments normally agree to a partial warranty; second, this voluntary agreement solves the double moral hazard problem in a suboptimal manner. Mann and Wissink (1988) discussed the case of a voluntary money-back warranty. In their model, the buyer is allowed to return the product within a period speci¯ed beforehand. The authors conclude that under extreme conditions the double moral hazard problem is solved by the first-best levels of care-taking.

For the form of the optimal compensation schemes, Romano (1994) and Bhattacharyya and Lafontaine (1995) show that a simple linear contract in which both principal and agent share the output with constant proportions after a certain amount of transfer is made between them when both the principal and the agent are risk neutral is optimal. When the principal is risk neutral and the agent is risk averse, Kim and Wang (1998) argue that the optimal contract is generally not linear if first order approach is valid. Agrawal (1999) models the double moral hazard scenario between a landlord and a tenant with different levels of farming efficiency. The optimal contract maximizes the output net of the risk-taking and agency costs with risk averse landlord and tenant mutually monitoring each other. The primary finding in Agrawal (1999) is that the farming efficiency difference is the principal determinant of the contract.

In an example of Bhattacharyya and Lafontaine (1995) on franchising, it is showed that with some specific assumptions[2], the optimal share proportion is independent of market size or competition, franchisees' disutility parameters and the size of the franchise chain. Lutz (1995) studies the dynamic double moral hazard problem in

[2] Cobb-Douglas production technology, constant marginal cost of private effort for the franchisor and CARA disutility functions for heterogeneous franchisees.

franchising in which she found that franchising may be the preferred organizational form when the local manager's e®ort has a relatively small e®ect on the unit's current pro¯t, but a large e®ect on the unit's future pro¯t.

Many have considered the remedies for double moral hazard. Feess and Nell (1998) consider a double moral hazard problem in a one-manager-one-auditor game. They show that an e± cient liability rule without punitive penalties can be solved through contingent auditing fees and fair insurance contracts where deductibles above the damages are not required. Demski and Sappington (1991) show that the double moral hazard problem can be completely and costlessly resolved if both parties have the option for the risk-averse agent to purchase the ¯rm at a prenegotiated price. Hence the agent will not be exploited under the buyout scheme, nor will her bear any unnecessary uncertainty. However, they noticed that in order to make the buyout scheme feasible, the agent will have to have su± cient wealth to buy out the ¯rm, thus, the model is restricted to the literature on the vertical relations between manufacturer and retailer. Tsoulouhas (1999) proposed that a piece rate tournament can eliminate double moral hazard with multiple agents. However this holds only if two conditions hold: 1. the principal su± ciently saves in transaction costs by employing a tournament; 2. the number of agents is su± ciently large.

Recently, Creightney (2000) tries to generalize some properties including optimal risk sharing in a comprehensive double moral hazard model in a repeated setting.

It is found that the optimal sensitivity is lower than that of a single moral hazard problem. Also, the marginal utility ratio is changing across periods, suggesting an history independent dynamic contract.

However the current literature on double moral hazard is problematic in the sense that double moral hazard is implicitly assumed as the cause of some ine±ciencies. If, the conjecture is false or misunderstood, then the remedies o®ered will be naturally rejected whatsoever. Second, most models are static, therefore any interactions between the two sides of the relationship due to the repeated nature of the relationship is ignored, making the model less vigorous and convincing. Third, output of an agent in the real world does not only depend on the agent's e®ort but also his ability, especially entrepreneurial for a manager. Therefore the tournament propose in Tsoulouhas (1999) is not acceptable to us in this sense. Fourth, most models use very general functional forms on production technology, players' utility, and information structure etc. This makes the model somewhat convincing but less manipulable and therefore less capable to capture some insights of a problem.

With the above points in mind, our model di®ers in at least four aspects: 1, the ine±ciency of double moral hazard, if it ever exists, is not presumed before hand; 2, the timing in our model allows learning to nest; 3, the decision to participate the production or not by the principal is endogenous depending on his own ability, the information he has and risk bearing; 4, we seek the close form solutions with aggregate production technology, CARA utility functions and commonly adopted monitoring technologies. Our major findings are: the optimal incentive sensitivity is higher for the principal if her effort affects the output positively and stochastically, implying that it is optimal for the principal to have more residual claims; optimal incentive sensitivity is lower for the agents in a double moral hazard scenario.

The structure of the rest of this paper follows: section 2 introduces the model, section 3 analyzes the optimal scheme for the second period, section 4 derives the optimal incentive scheme in the first period, section5 concludes the model.

2 The Model

The firm is constituted by two agents and one principal. The production is a function of both agents' and the principal's labour inputs plus a random shock,

$$
\begin{aligned}
y &= f(a; b; e) + \varepsilon \qquad (2.1)\\
&= a + b + e + \eta_a + \eta_b + \& + \varepsilon;
\end{aligned}
$$

where $a; b; e$ are the effort exerted by agent 1, 2 and principal, respectively, $\eta_a; \eta_b; \&$ are the abilities to agent 1, 2 and the principal, respectively, and all distributed as $N(m_0; \sigma^2)$ a prior with zero correlation and ε is a random transient shock, distributed as $N(0; \sigma_\varepsilon^2)$. There are two periods in the model, therefore learning about team mates' ability is involved. Only aggregate output in each period is observable and verifiable to all parties. We use backwards induction to analyze the two-sided moral hazard.

Consider first in the second period, output is

$$y_2 = a_2 + b_2 + e_2 + \eta_a + \eta_b + \varsigma + \varepsilon_2;$$

where the subscripts denote the period[3]. Following Holmstrom and Milgrom (1987), we assume a linear incentive contract in the following form,

$$S_2 = \alpha_2 + \beta_2 y_2. \tag{2.2}$$

Therefore agent 1's[4] and principal's utility maximization problems are

$$\max_{a_2} E[U(\alpha_2 + \beta_2 y_2) - h(a_2)]; \tag{2.3}$$

and

$$\max_{e_2} E[V((1 - 2\beta_2) y_2 - 2\alpha_2) - g(e_2)]; \tag{2.4}$$

where $U(\cdot)$; $V(\cdot)$ are the utility functions of the agents and principal respectively. $h(\cdot)$; $g(\cdot)$ are disutilities of effort.

Formally, the principal's utility maximization problem is

$$\max_{e_2} E[V((1 - 2\beta_2)(a_2 + b_2 + e_2 + \eta_a + \eta_b + \varsigma + \varepsilon_2) - 2\alpha_2) - g(e_2)] \tag{2.5}$$

subject to

$$\max_{a_2} E[U(\alpha_2 + \beta_2 y_2) - h(a_2)]; \tag{2.6}$$

[3] The intrinsic abilities do not change over time.

[4] Because of information symmetry, we take agent 1 as representative agent.

$$\max_{b_2} E[U(\alpha_2 + \beta_2 y_2) - h(b_2)]; \quad (2.7)$$

$$E[U(\alpha_2 + \beta_2 y_2) - h(a_2)] \geq \underline{U}; \quad (2.8)$$

$$E[U(\alpha_2 + \beta_2 y_2) - h(b_2)] \geq \underline{U}; \quad (2.9)$$

where $\underline{U}$ is the agent's reservation utility, (2.6); (2.7) are agents 1 and 2's incentive compatibility constraints, and (2.8); (2.9) are the agent's participation constraints.

We assume that both the principal and the agents have CARA utility functions as we do not impose ad hoc assumption on the asymmetry on the two parties risk aversion. In our point of view, the major difference between a principal and an agent is the authority within the firm. Firms are different sorts of agencies, although the relationship between the owner and the managers of a firm can be depicted by principal-agent models, it is different from between a patient and a doctor, or a defendant and her attorney. The firm owner can supervise or monitor her staff to get a less vague picture on her fellow employees' abilities and effort on work while the reverse is much harder. This is not because the firm owner's activities are less relevant to the firm's output, but because of three reasons: first, the boss is a worker who works under the shadow, so it is harder to measure his talent or work that has been done; second, it is too costly to the agents to measure the owner's effort while the owner could be using information generated from each department of the firm to measure and evaluate employees, these could be seen as some by-products from the production process and hence costless; finally, the owner has the authority, or voting rights to implement his action, using resources within the firm, this implies that even if monitoring is costly, she can still do it. Therefore, we impose a costless monitoring technology to the principal where by the end of the first period she can find out the true level of effort exerted by the agents with probability π; and with $1 - \pi$ she does not retrieve any information. The principal's conditional variance of estimated sum of the agents' abilities, σ_P^2, is

$$\begin{aligned}\sigma_P^2 &\equiv Var(\eta_a + \eta_b | y_1) = \pi\left(\frac{2\sigma_\varepsilon^2\sigma_\eta^2}{2\sigma_\eta^2 + \sigma_\varepsilon^2} + \sigma_\varepsilon^2\right) + (1 - \pi)\left[2\sigma_\eta^2 + \sigma_\varepsilon^2\right] \\ &= \frac{2\pi\sigma_\varepsilon^2\sigma_\eta^2}{2\sigma_\eta^2 + \sigma_\varepsilon^2} + 2(1 - \pi)\sigma_\eta^2 + \sigma_\varepsilon^2.\end{aligned}$$

3 Second Period Double Moral Hazard

We can now rewrite the principal's utility maximization problem in period 2 into

$$\max_{e_2;\beta_2} - \exp\left\{-R\left[(1 - 2\beta_2)E_P[y_2] - 2\alpha_2^* - g(e_2) - \frac{1}{2}R(1 - 2\beta_2)^2\sigma_P^2\right]\right\}; \qquad (3.1)$$

where R is the principal's coefficient of absolute risk aversion, and α_2^* can be derived from agent's participation constraint (2:8),

$$\alpha_2^* = \underline{u} - \beta_2^* E_A[y_2] + h(\hat{e}_2) + \frac{1}{2}r\beta_2^{*2}\sigma_A^2; \qquad (3.2)$$

where $\underline{U} = -\exp(-r\underline{u})$; superscript * denotes equilibrium level, $\hat{e}_2$ is agent 1's second period equilibrium effort level, which is expected by the principal, and the agent's posterior belief on randomness, $\varepsilon_2 + \eta_b + \zeta$; is

$$\sigma_A^2 = 2\sigma_\eta^2 + \sigma_\varepsilon^2;$$

which is equal to the agent's a prior belief since neither of them has monitoring technology. Therefore (3:1) can be rewritten as

$$\max_{e_2;\beta_2} -\exp\left\{-R\left[E_P[y_2] - 2\underline{u} - (m_1 - 2m_0) - 2h(\tilde{a}_2) - g(e_2) - r\beta_2^2\sigma_A^2 - \frac{1}{2}R(1-2\beta_2)^2\sigma_P^2\right]\right\}; \tag{3.3}$$

where the principal's posterior belief on $\eta_a + \eta_b$; m_1; is

$$m_1 = 2\pi\frac{\sigma_\varepsilon^2 + 2\sigma_\eta^2(y_1 - \tilde{a}_1 - \tilde{b}_1 - \tilde{e}_1 - \varsigma)}{2\sigma_\eta^2 + \sigma_\varepsilon^2} + 2(1-\pi)m_0; \tag{3.4}$$

where decoration ~ denotes the associated variable is the actual value that the principal perceives.

The first order condition to (3:3) with respect to β_2 implies

$$e_2' \equiv \frac{\partial e_2}{\partial \beta_2} = -\frac{2}{\frac{\partial g'(e_2)}{\partial \beta_2}} = -\frac{2}{g''(e_2)}; \tag{3.5}$$

and first order condition for the agent's second period utility maximization yields,

$$a_2' = \frac{1}{h''(a_2)}: \tag{3.6}$$

Therefore the first order condition to (3:3) with respect to β_2 yields

$$\beta_2^* = \frac{\frac{1}{g''(e_2)} + R\sigma_P^2}{\frac{1}{h''(a_2)} + \frac{2}{g''(e_2)} + (r\sigma_A^2 + 2R\sigma_P^2)}: \tag{3.7}$$

where r is the agents' coefficient of absolute risk aversion. One can easily verify that if there is no uncertainly or risk aversion, the optimal incentive parameter, β_2^*, for this one principal two agent team, is $\frac{1}{3}$, because of the symmetry of the relationship between the principal and the agents.

Proposition 1 In a double moral hazard scenario, the optimal incentive for the principal is (weakly) higher than that of an agent.

Proof. Suppose the agents and the principal have the same disutility function, and at least one of them is risk averse, then refer to (3.7), $1 - 2\beta_2^* > \frac{1}{3}$. ■

Corollary 2 The optimal incentive for the principal is (weakly) higher if the principal's information on agents' abilities is more precise or she is less risk reverse.

Proof. This is to say

$$\frac{\partial \beta_2^*}{\partial \sigma_P^2} \geq 0$$

and

$$\frac{\partial \beta_2^*}{\partial R} \geq 0$$

It can be easily checked by taking partial derivatives on (3.7) with respect to σ_P^2 and R. ■

Consider now the principal has an option to quit from everyday production but just turn to be a residual claimant. Therefore the work is left to the two agents in second period. The principal will quit if and only if the utility from being a residual claimant is greater than that from directly participating in production. That is,

$$
\begin{aligned}
&(1 - \beta_2^B)(a_2 + b_2 + m_1) - 2\alpha_2^B - \frac{1}{2}R(1 - 2\beta_2^B)^2\sigma_P^2 \\
\geq\; &(1 - \beta_2^*)(a_2 + b_2 + e_2 + m_1 + \delta) - 2\alpha_2^* - g(e_2) - \frac{1}{2}R(1 - 2\beta_2^*)^2\sigma_P^2;
\end{aligned}
\tag{3.8}
$$

where superscript B represents the case of no principal participates in production.

To obtain conditions for inequality (3:8) to hold, we solve β_2^B and α_2^B: First order conditions of the maximization over the principal's certainty equivalent when she quits from production operation in period two yield,

$$
\beta_2^B = \frac{1 + \frac{R\sigma_P^2}{h''(a_2)}}{2 + \frac{r\sigma_A^2 + 2R\sigma_P^2}{h''(a_2)}};
\tag{3.9}
$$

where if no uncertainty or risk aversion, $\beta_2^B = \frac{1}{2}$; implying a rental lease.

Lemma 3 Optimal incentive sensitivity for the agent in a double moral hazard scenario is lower than that of a one-sided moral hazard case in teams.

Proof. Just a few algebra to establish

$$
\beta_2^* < \beta_2^B:
\tag{3.10}
$$

■

Assuming for the moment that $h(x) = g(x) = \frac{x^2}{2}$; then (3:8) can be rewritten as

$$
\begin{aligned}
&2\beta_2^B - \left[\beta_2^B\right]^2 - r(\beta_2^B)^2\left[\sigma_A^B\right]^2 - \frac{1}{2}R(1 - 2\beta_2^B)^2\sigma_P^2 \\
\geq\; &\frac{1}{2} + \delta - 3\beta_2^{*2} + \beta_2^* - r\beta_2^{*2}\sigma_A^2 - \frac{1}{2}R(1 - 2\beta_2^*)^2\sigma_P^2;
\end{aligned}
\tag{3.11}
$$

where $\left(\sigma_A^B\right)^2 = \sigma_\epsilon^2 + \sigma_\eta^2 < \sigma_A^2.$

Lemma 4 If the principal's entrepreneurial ability is sufficiently low, i.e., (3.11) holds, she will quit from the production operation.

Remark 1 Note that $\left(\sigma_A^B\right)^2 < \sigma_A^2$ and $\beta_2^* < \beta_2^B$; the sufficient condition (3.11) can be simplified to a further sufficient condition,

$$\varsigma \le \beta_2^B - \left(\beta_2^B\right)^2 + 3\beta_2^{*2} - r(\beta_2^B)^2\left(\sigma_A^B\right)^2 + r\beta_2^{*2}\sigma_A^2.$$

Lemma 5 If the principal and the agents have the same disutility function, then the sufficient and necessary condition for the principal from not shirking is

$$r \le \left(\sigma_A^2\right)^{-1}.$$

Proof. Straightforwardly from (3.7). ■

Because uncertainty is reduced, i.e., $\left(\sigma_A^B\right)^2 < \sigma_A^2$; the trade-off between insurance effect and incentive to the agents is improved and hence the optimal incentive sensitivity is higher. Recently, Mario Lemieux, the Pittsburgh Penguins' owner who ended a 3 1/2-year retirement in December 2000, helped to take his team to the conference finals for the first time since 1996. On the other hand, Lemieux's fellow superstar, Jaromir Jagr, who is one of the best players in the history of the National Hockey League, scored only twice during the entire playoffs in 2001. Jagr will also end his 11 years draft with the Pittsburgh Penguins this summer. Our theory may explain the above story.

4 First Period Incentive Problem

With the second period optimal incentive problem solved, we advance to the first period. In the first period, the utility maximization problem to agent 1 is,

$$\max_{a_1} -\{\exp -r[\alpha_1 + \beta_1^* E_A[y_1] - h(a_1) + \delta\alpha_2^* + \delta\beta_2^* E_A[y_2] - h(\hat{a}_2) + \frac{1}{2} r\Sigma_A^2]\}; \quad (4.1)$$

where variance Σ_A^2 captures all the uncertainties to agent 1 at the first period perspective. The principal's problem is then

$$\begin{aligned} \max_{e_1;\beta_1} -\{\exp -R[&(1-2\beta_1)E_P[y_1] - 2\alpha_1^* - g(e_1) \\ &+\delta(1-2\beta_2^*)E_P[y_2] - 2\delta\alpha_2^* - \delta g(\hat{e}_2) + \frac{1}{2}R\Sigma_P^2]\}; \end{aligned} \quad (4.2)$$

where variance Σ_P^2 captures all the uncertainties to the principal at the first period perspective and

$$\begin{aligned} \Sigma_P^2 = &\left(1 - 2\beta_1 - \frac{\delta\pi\sigma_\epsilon^2}{2\sigma_\epsilon^2+\sigma_\eta^2} + \delta(1-2\beta_2)\right)^2 \left(2\sigma_\epsilon^2\right) \\ &+ \left[\left(1 - 2\beta_1 - \frac{\delta\pi\sigma_\epsilon^2}{2\sigma_\epsilon^2+\sigma_\eta^2}\right)^2 + \delta^2(1-2\beta_2)^2\right]\sigma_\eta^2. \end{aligned} \quad (4.3)$$

The first order condition for (4.1) yields

$$h'(a_1) = \beta_1 + \delta\pi\frac{\sigma_\epsilon^2}{2\sigma_\epsilon^2+\sigma_\eta^2}.$$

To obtain β_1^*, maximize (4.2) with respect to β_1; i.e.,

$$\begin{aligned} 0 = &\left(-2\beta_1^* + \frac{\delta\pi\sigma_\epsilon^2}{2\sigma_\epsilon^2+\sigma_\eta^2}\right)a_1' - \left(1 - 2\beta_1^* - \frac{2\delta\pi\sigma_\epsilon^2}{2\sigma_\epsilon^2+\sigma_\eta^2}\right)e_1' \\ &- 2r\beta_1^*\sigma_A^2 + \frac{1}{2}R\frac{\partial\Sigma_P^2}{\partial\beta_1}; \end{aligned} \quad (4.4)$$

where

$$\frac{\partial \Sigma_P^2}{\partial \beta_1} = 8\beta_1(2\sigma_\epsilon^2 + \sigma_\eta^2) + 4\left(\frac{\delta\pi\sigma_\epsilon^2}{2\sigma_\epsilon^2 + \sigma_\eta^2} - 1\right)(2\sigma_\epsilon^2 + \sigma_\eta^2) - 8\sigma_\epsilon^2\delta(1 - 2\beta_2). \tag{4.5}$$

Therefore some algebra manipulations from (4.4) imply that

$$\beta_1^* = \frac{\frac{1}{g''(e_1)} + 2R\delta\sigma_\epsilon^2(1 - 2\beta_2^*) - \left(\frac{1}{h''(a_1)} + \frac{2}{g''(e_1)}\right)\frac{\delta\pi\sigma_\epsilon^2}{2\sigma_\epsilon^2+\sigma_\eta^2} + R((2 - \delta\pi)\sigma_\epsilon^2 + \sigma_\eta^2)}{\frac{1}{h''(a_1)} + \frac{2}{g''(e_1)} + (r + 2R)(2\sigma_\epsilon^2 + \sigma_\eta^2)}. \tag{4.6}$$

The first term in the numerator of (4.6) is similar to that of (3.7); the second term is the effect of principal's estimation error on agents' first period effort; the third term is to balance out the career concerns of the agents and the last term in the numerator is similar to that of (3.7); an appropriate risk aversion adjuster. Once again, if there is no uncertainty or the players are risk neutral, $\beta_1^* = \frac{1}{3}$.

Lemma 6 The principal will not shirk relative to the agents if and only if

$$\pi \geq \frac{2r(1 - 2\beta_2^*)\sigma_A^2}{r\sigma_A^2 + 2},$$

where $\sigma_A^2 = 2\sigma_\epsilon^2 + \sigma_\eta^2$.

Proof. First order conditions to (4.2) and (4.1) show that

$$h'(a_1^*) = \beta_1^* + \frac{\delta\pi\sigma_\epsilon^2}{2\sigma_\epsilon^2 + \sigma_\eta^2},$$

and

$$g'(e_1^*) = 1 - 2\beta_1^* - \frac{2\delta\pi\sigma_\epsilon^2}{2\sigma_\epsilon^2 + \sigma_\eta^2}.$$

Suppose $g(\cdot) = h(\cdot)$; then $h'(a_1^*) \geq g'(e_1^*) \Leftrightarrow a_1^* \geq e_1^*$; which is equivalent to

$$\beta_1^* \geq \frac{1}{3} - \frac{\delta\pi\sigma_\eta^2}{2\sigma_\eta^2 + \sigma_\varepsilon^2}$$

which in turn is equivalent to

$$\pi \geq \frac{2r(1 - 2\beta_2^*)\sigma_A^2}{r\sigma_A^2 + 2}.$$

■

Lemma 6 says that a risk averse principal should have an advanced monitoring technology to convince her subordinates that she will not shirk if she ever participates in production operation.

Lemma 7 The optimal explicit incentive for the subordinates increases in a firm with double moral hazard, i.e., $\beta_2^* \geq \beta_1^*$.

Proof. Some algebras in (4:6) and (3:7) yield the result. ■

The above lemma implies that a risk averse owner of the firm will work harder in later career if he ever decides to stay in production operation. This result is against the common sense as it seems an owner quits from business as time goes. Note the analysis here assumes ability does not change over time and there is no interaction between effort and ability. Many of the facts attribute to the ability, for instance, a chair of a department, commonly a productive senior faculty, usually does not always painstakingly stay in office or lab overtime to produce good research, instead, much of her late work is due to her superior academic ability that she gained from previous years. Same thing happens in a business world[5].

5 Conclusion

In this paper, we study the double moral hazard problem in a ¯rm's optimal incentive scheme design. We suppose the relationship between the ¯rm owner and the salaried managers are repeated; and the owner's decision to stay in board or quit for retirement is endogenous; managerial team size is small. We do not adopt lump sum transfer or buyout as options to improve the risk sharing as the relationship considered in our model is between a ¯rm owner and professional managers where the managers' wealth is constrained.

Our model ¯nds that there is no ine± ciency in the sense of double moral hazard in a team managed ¯rm because any ine± ciencies in an organization caused by double moral hazard will be adjusted by the optimal incentive scheme and the principal's

[5] Recently, Lee Iacocca, the legendary former chairman of Chrysler, is now on the board of San Diego-based Online Asset Exchange, a commodities-like exchange for used corporate assets. Though selling used machine tools might not sound as glamorous as launching the original Mustang or bringing the ¯rst minivan into market or saving one of America's Big Three automakers from bankruptcy, Iacocca is pretty successful especially given that fact that about 20 dot com companies go bankruptcy every day in the Sillicon Valley alone. Je®rey Bezos claims in a TV show that he works extremely hard to keep Amazon.com alive while Lee Iacocca is taking time in his part.

strategic decision on participation and hence any remedy to it is not necessary. Some properties that the optimal incentive scheme exhibits are consistent with commonly observed facts. These properties include: a ¯rm owner's salary is more powered than a manager's in the contract; the sensitivity of the incentive is higher for a publicly held ¯rm than a privately held ones with block shareholders.

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