



CROSS SHAREHOLDING AND INITIATIVE EFFECTS

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ABSTRACT

Cross shareholding can make takeovers more difficult but may be beneficial for shareholders if the manager's private benefits align with shareholders' benefits. Cross shareholding is more likely to take place as the congruence of interests between managers and shareholders increases, the manager's private benefits become greater, the manager's reservation utility is lower, and the shareholders' share of the takeover becomes smaller. Due to the lack of monitoring, corporate value tends to be smaller with cross shareholding.

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JEL Classification: G32, G34.

Contribution/ Originality

This paper's primary contribution is to clarify the conditions under which cross shareholding is likely to occur and it is beneficial for shareholders.

1. INTRODUCTION

It is known that cross shareholding is widely observed outside the U.S. and the U.K., for example, in Germany and France (Shleifer and Vishny, 1997; Adams, 1999; Allen and Gale, 2000), as well as in East Asian countries (La Porta *et al.*, 1999; Claessens *et al.*, 2000).¹ The cross shareholding structure can make hostile takeovers less likely. This insulates controlling managers with small stakes from discipline, and could generate large agency costs. What then explains the

¹ Clayton and Jorgenson (2005). provides examples of cross shareholdings in the U.S.

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pervasiveness of cross shareholding structures given their large agency costs? In this paper, we show the conditions under which cross shareholding is likely to occur and why not only managers but also other shareholders would approve of cross shareholding.

Our model relies upon initiative effects, such as those analyzed by [Burkart *et al.* \(1997\)](#). Initiative effects imply that if there were less intervention by other shareholders, controlling managers with very small stakes would work harder because they would be able to pursue private benefits. In this paper, we assume that managers obtain non-verifiable private benefits from projects, while shareholders (including raiders) receive monetary returns. We further assume their interests diverge, but not completely.

If a raider takes over a firm, they will monitor a (new) manager and, with some positive probability, will force the manager to choose a project beneficial for shareholders but less so for managers. Thus, the manager's incentive to work hard is lower in a takeover. In the case of cross shareholding, shareholders of firms do not intervene. This can lead to controlling managers working harder to seek private benefits. When the benefits of managers and shareholders are to some extent accordant, cross shareholding can also be beneficial to shareholders. In our model, cross shareholding is a kind of commitment by shareholders not to intervene or, more precisely, not to accept tender offers. Through this commitment, managers can seek private benefit, which may be good for shareholders. We show that cross shareholding is more likely to occur as the congruence of interests between controlling managers and shareholders rises, the manager's private benefits become larger, the manager's reservation utility gets lower, and the shareholders' pie in the case of takeover becomes smaller. Due to lack of monitoring, the shareholder value of a firm gets smaller in cross shareholding, while social welfare could be higher or lower depending on some conditions. The main argument of our model is that any ownership structure that effectively deters hostile takeover may induce initiative effects that may increase shareholder value. [Claessens *et al.* \(2000\)](#) show that in nine East Asian countries, a small number of shareholders, indeed often a single shareholder, enhance their control through cross shareholding and pyramid structures in a large number of companies, and in these cases voting rights exceed formal cash flow rights. We usually consider these ownership structures as undesirable.

However, our model indicates that if the benefits of minority shareholders are highly correlated with those of managers, minority shareholders might also benefit. For instance, when the economy is growing rapidly, as in emerging countries, minority shareholders could also obtain large capital gains if controlling managers with small stakes pursue private benefits through expanding firm size.² This may explain why, despite apparently exploitative ownership structures in East Asian countries, foreign minority investors are still willing to purchase the stock of local companies.

A substantial literature has analyzed cross shareholding and, as a closely related concept, partial shareholding. Some researchers examine partial and cross shareholding as a means of resolving the hold-up problem ([Riorden, 1990;1991](#); [Dasgupta and Tao, 2000](#)). Other researchers

² In the financial literature, it is considered that managers have the tendency to expand firm size regardless of shareholder value.

have investigated the relationship between cross shareholding and product market competition (Reynolds and Snapp, 1986; Farrel and Shapiro, 1990; Flath, 1991); (Malueg, 1992; Hansen and Lott, 1995; Gilo *et al.*, 2006; Mathews, 2006); (Clayton and Jorgenson, 2005). All of these studies focus on cash flow rights, while another line of research pays more attention to control rights (Berglof and Perotti, 1994; Osano, 1996). However, these previous studies do not fully explain why shareholders agree to cross shareholding at the beginning. Our model sheds light on the channel through which cross shareholding could provide higher returns to shareholders by inducing greater effort from managers seeking private benefits. The initiative effect, as analyzed by Burkart *et al.* (1997), is applied to the analysis of cross shareholding for the first time, and this viewpoint on cross shareholding differs from all previous work in this area.

The remainder of the paper is organized as follows. In Section 2, we explain the model and solve the equilibria. In Section 3, we show that cross shareholding reduces corporate values. Section 4 concludes the paper.

2. MONITORING VS INITIATIVE EFFECTS

2.1. The Model

We extend Burkart *et al.* (1997) model as follows. There are two firms, firm 1 and firm 2. The manager of firm i is called manager i , where i is 1 or 2. Firm i faces $N_i + 1$ potential projects. Project j of firm i , where $j \in \{0, 1, 2, \dots, N_i\}$, may yield non-verifiable private benefit b^j to manager i and verifiable pecuniary benefits π^j , which are eventually attributed to shareholders. Project 0 is distinguishable, and it is known that $\pi^0 = b^0 = 0$. The other N_i projects are not differentiable unless further investigation is undertaken. For $N_i - 2$ projects, $\pi^j < 0$ and $b^j < 0$, and at least one yields $\pi^j = b^j = -\infty$. The remaining two projects, indexed $N_i - 1$ and N_i , yield stochastic payoffs as per the following table.

Probability	Project $N_i - 1$	Project N_i
λ_i	$\{\pi_i, b_i\}$	$\{\pi_i, b_i\}$
$1 - \lambda_i$	$\{\pi_i, 0\}$	$\{0, b_i\}$

If project N_i is undertaken, pecuniary benefits π_i accrue to firm i and private benefits b_i to manager i with probability λ_i , and no benefits to firm i and private benefits b_i to manager i with probability $1 - \lambda_i$. From the table, it is obvious that shareholders prefer project $N_i - 1$ but manager i prefers to choose project N_i . The parameter $\lambda_i \in [0, 1]$ represents the congruence of interests between the shareholders and manager of firm i . A higher λ_i implies that the benefits of manager i are more closely aligned with those of the shareholders.

In line with Burkart *et al.* (1997), we assume that if the manager makes effort e , they will obtain payoff from a project. In addition to the managers and shareholders of the firms, there are many identical potential raiders, who attempt to take over firm 1 or firm 2. Unlike Burkart *et al.* (1997), we assume that the raider makes a discrete decision between monitoring and not

monitoring once the raider takes over a firm. If the raider decides to monitor, the project payoffs will be found with probability E , where E is a fixed number between 0 and 1. This monitoring costs the raider $c > 0$. There is no time discount.

We begin with the situation where dispersed shareholders currently own the shares of the two firms. The sequence of events is as follows. In period 1, managers make a proposal to issue new shares and exchange them between the two firms. At the same time, manager i proposes to make a monetary transfer m_i to shareholders of firm i . In period 2, shareholders decide whether to accept the proposal of cross shareholding cum monetary transfer. In period 3, and based on the outcome in period 2, the raider decides whether to make a tender offer to shareholders. We assume numerous identical potential raiders who attempt to take over each of the two firms. In period 4, and if tender offers are made in period 3, shareholders decide whether to accept. In period 5, each manager, and the raiders in case of takeover, make effort and realize the profits and private benefits. We assume that if a takeover takes place, a new manager replaces an old manager. We assume the abilities of the new manager are identical to the old manager, though the assumption of a more competent manager can be easily included. Figure 1 depicts the time structure of the game. The payoffs to each player are explained when we solve for the subgame perfect equilibria.

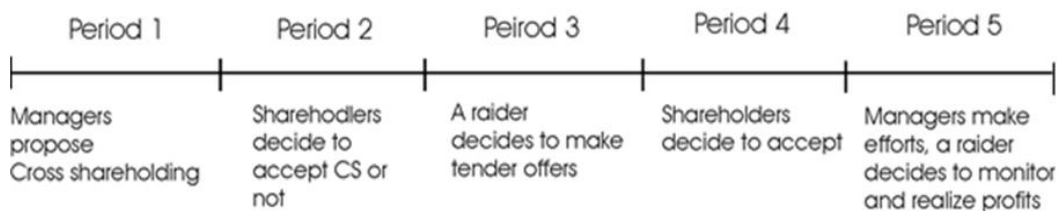


Fig-1. The time sequence of the game

Several notes on the structure of the game are in order. First, the time sequence indicates that the manager proposes cross shareholding in order to avoid a takeover. This is because raiders may attempt takeover later if there is no cross shareholding. If β portion of shares is necessary to dismiss existing management, then at least $1-\beta$ portion must be cross shared among the firms to protect themselves against takeover.

Second, the assumption that managers make a monetary transfer to shareholders may sound awkward. However, this setup is not crucial. As becomes clear, the condition for cross shareholding to occur amounts to the condition that the total value accruing to both shareholders and managers is higher with cross shareholding than in takeovers. In such a situation, there should arise some method of division that makes both better off.

Note also that managers are willing to make a monetary transfer to shareholders because cross shareholding can effectively block takeovers, and there are no concerns about intervention in management under cross shareholding due to dispersed shareholding. Otherwise, shareholders may act in an opportunistic manner, i.e., they both receive the monetary transfer and accept a tender offer. Shareholders' approval of cross shareholding is a kind of commitment not to sell shares.

The incentive of shareholders to respond to tender offers is subtle. If a takeover takes place, the raider will buy a certain portion of shares. As discussed in the literature, unless the shareholders who accept tender offers obtain the same gains as shareholders who do not, none would accept the offer and takeovers would not succeed (Grossman and Hart, 1980). Therefore, the raider must offer the same premium to all shareholders. It then turns out that in terms of the payoffs that each player obtains, it does not matter how many shares the raider would capture. Rather, what matters is how much the raider and the shareholders obtain. In this paper, this ratio is assumed to be exogenously determined before the game begins. Shareholders will get $\phi \in [0,1]$ out of the realized profits, and the raider will obtain $1-\phi$. In this study, we refer to ϕ as the dilution rate. We also assume that the raider has many other potential takeover targets, and gives up a takeover attempt if this dilution rate ϕ is not acceptable.

Finally, in this article we assume symmetry, and will omit the index of a firm hereafter.

2.2. Equilibrium

Next, we solve for the subgame perfect equilibria through backward induction. First, we solve for the equilibrium in each subgame in period 5 in the takeover case and in the cross shareholdings case.

2.2.1. Takeover Case

We assume that if the takeover takes place in period 4, the raider will dismiss the current manager, and the ousted manager would obtain reservation utility of r . Denoting the payoff that the dismissed manager would get in the case of takeover as V^{mt} , then:

$$V^{mt} = r$$

The raider will hire a new manager. The new manager makes an effort e at a cost $se^2/2$. This effort reveals the payoffs of all projects to the manager with probability e , where $0 \leq e \leq 1$. A positive parameter s captures the difficulty of raising the probability of successfully finding the payoffs of the projects. As we assume that the new manager has the same competence as the old manager, s takes the same value for both the new manager and the dismissed manager. The raider then decides whether they will monitor the manager or leave free. If the raider chooses to monitor, they exert effort level E at cost c , which enables the raider to see the payoffs of all projects with probability E , but *only when the manager finds the payoffs of the projects*.

If the raider decides to monitor, the new manager (hereafter manager) chooses e to maximize their payoff, denoted V^{nmt} :

$$V^{nmt} = e[E\lambda b + (1 - E)b] - s \frac{e^2}{2}$$

Project $N-1$ is selected if the raider successfully monitors. Then, with probability λ , private benefit b accrues to the manager. If the raider fails to monitor, project N is chosen so that private

benefit b accrues to the manager with a probability of one.

The first-order condition yields the manager's optimal effort level:

$$e = \frac{b}{s} [1 - (1 - \lambda)E] \quad (1)$$

Lemma 1

With a takeover, the new manager's effort level increases as b and λ increase and as s and E decrease.

Proof. Omitted

As private benefit b increases, the manager's effort naturally rises. As λ increases, even if the raider successfully monitored, the manager would still obtain a higher benefit, and thus make a higher effort. Conversely, as s rises, the manager's effort is more costly, and less effort is expended. Finally, as E increases, the new manager will be monitored with higher probability, and thus exert less effort. Therefore, in a takeover the possibility of monitoring reduces the manager's efforts. Thus, a takeover adversely affects initiative effects.

Expecting a new manager to exert this effort level, the raider will choose whether to monitor. V^r denotes the raider's payoff in a takeover. If the raider does not monitor, $E = 0$ in (1), so the manager's effort will be $e = b/s$. The payoff will then be:

$$V^r = (1 - \phi)e\lambda\pi = \frac{(1 - \phi)\lambda b\pi}{s} \quad (2)$$

On the other hand, if the raider chooses to monitor, the payoff will be:

$$V^r = (1 - \phi)e[E\pi + (1 - E)\lambda\pi] - c$$

The term in square brackets is the expected return when the manager finds the payoffs of projects. In this case, if the raider successfully monitors, project $N-1$ is chosen, and π is realized with a probability of one. If the raider fails to monitor, π is realized with probability λ . As the raider must concede ϕ portion of returns to shareholders, the whole term is multiplied by $(1 - \phi)$. Finally, it costs c for the raider to monitor.

Given the manager's optimal effort level, the raider's payoff is:

$$V^r = \frac{(1 - \phi)b\pi}{s} [E\lambda + (1 - E)][E + (1 - E)\lambda] - c \quad (3)$$

From (2) and (3) the raider will monitor the manager if the following condition holds:

$$\text{Condition 1} \quad \frac{(1 - \phi)b\pi}{s} E(1 - E)(1 - \lambda)^2 - c > 0$$

Note that the raider makes no monitoring effort with violation of this condition. This is because, under the assumption of the identical abilities of managers, there is no incentive for shareholders to accept tender offers. As a result, the new manager's effort level and the realized corporate value are the same as for the cross shareholding case. The raider will simply take away some portion of the realized corporate value without any monitoring. If so, shareholders will not

accept tender offers, and by expecting this managers do not propose cross shareholding. Thus, the status quo continues.

From (3) we can see that V^{st} increases as b and π increase, while it decreases as s , ϕ and c increase. Incidentally, the new manager's payoff V^{nmt} is:

$$V^{nmt} = e[E\lambda b + (1-E)b] - s \frac{e^2}{2} = \frac{b^2[E\lambda + (1-E)]^2}{2s}$$

The payoff of the shareholders V^{st} is expressed as follows:

$$V^{st} = \phi e[(1-\lambda)E\pi + \lambda\pi]$$

Plugging e into V^{st} , we obtain the following:

$$V^{st} = \frac{\phi b \pi \{E\lambda + (1-E)\} \{E + (1-E)\lambda\}}{s} \quad (4)$$

Lemma 2

V^{st} increases as ϕ , b and π increase or as s decreases. With respect to E , V^{st} increases up to $1/2$ and then decreases.

Proof. Omitted

The intuition is as follows. The change in ϕ does not affect managers' effort, only the portion of corporate value given to shareholders. Consequently, the increase in ϕ raises V^{st} . Further, the increase in b enhances the effort level of the manager, the increase in π raises expected corporate value, and both make V^{st} larger. As efforts become less costly (i.e., the decrease in s), the manager exerts more effort and increases V^{st} .

2.2.2. Cross Shareholding Case

Assuming symmetry between firms 1 and 2, they issue the same amount of shares and simply exchange these without payment. We assume that each manager does not monitor the other under cross shareholding. Furthermore, because of the dispersion of the ownership structure, shareholders would not monitor the manager. The manager's payoff V^m is:

$$V^m = eb - s \frac{e^2}{2} \quad (5)$$

If the manager successfully finds the payoffs of projects, they will choose project N . Then, b is realized with a probability of one. The manager must pay $se^2/2$ to expend effort level e . From the first-order condition for maximization with respect to e , the manager's effort is:

$$e = \frac{b}{s} \quad (6)$$

Lemma 3

The manager's effort level increases with b or as s decreases.

Proof. Omitted

Intuitively, as the private benefit gets larger or effort gets less costly, the manager makes more effort.

Proposition 1

The manager exerts a higher level of effort with cross shareholding than in a takeover.

Proof. In the takeover case, the manager's effort is $b\{E\lambda + (1 - E)\}/s$ while in the cross shareholding case it is b/s . It is easy to see:

$$\frac{b\{E\lambda + (1 - E)\}}{s} < \frac{b}{s} \quad \text{Q.E.D.}$$

This is the source of the initiative effect: when managers are unmonitored, they are willing to work harder.

Substituting e in (6) back into V^m yields:

$$V^m = eb - s \frac{e^2}{2} = \frac{b^2}{2s}$$

From this, we can see that V^m increases as b increases, or as s decreases.

If α_1 portion of the shares of firm 1 is owned by firm 2, the return to shareholders is only $(1 - \alpha_1)$ of the total share price of firm 1. Suppose firm 1 holds α_2 portion of the shares of firm 2 and firm 2 holds α_1 portion of the shares of firm 1. If firm 1 realizes profit ϖ_1 and firm 2 realizes ϖ_2 , the share price of firm 1 under cross shareholding, Ω_1 , is:

$$\Omega_1 = \frac{\varpi_1 + \alpha_2 \varpi_2}{1 - \alpha_1 \alpha_2}$$

For this derivation see [Flath \(1996\)](#). Under cross shareholding, $\varpi_1 = e_1 \lambda_1 \pi_1$ and $\varpi_2 = e_2 \lambda_2 \pi_2$. Let V_i^s be the payoff to shareholders of firm i with cross shareholding. Then:

$$V_1^s = (1 - \alpha_1) \frac{e_1 \lambda_1 \pi_1 + \alpha_2 e_2 \lambda_2 \pi_2}{1 - \alpha_1 \alpha_2}$$

Substituting $e_1 = b_1/s_1$ and $e_2 = b_2/s_2$ yields:

$$V_1^s = (1 - \alpha_1) \frac{\frac{b_1}{s_1} \lambda_1 \pi_1 + \alpha_2 \frac{b_2}{s_2} \lambda_2 \pi_2}{1 - \alpha_1 \alpha_2}$$

Under the symmetry assumptions, $\alpha = \alpha_1 = \alpha_2$, $\pi = \pi_1 = \pi_2$, $\lambda = \lambda_1 = \lambda_2$, $b = b_1 = b_2$, $s = s_1 = s_2$ and

$V^s = V_1^s = V_2^s$, we have:

$$V^s = \frac{\lambda\pi b}{s}$$

Note that V^s does not depend on α in the symmetric case. It is then just the expected value of pecuniary benefit accruing to firm i .

Lemma 4

V^s increases as λ , π , and b increase, or as s decreases.

Proof. Omitted.

2.2.3. Status Quo

If neither cross shareholding nor takeover occurs, shareholders' payoffs equal V^s , the manager's payoff equals V^m , but no monetary transfer takes place. Thus, managers prefer the status quo.

2.3. Takeover vs Cross Shareholding

To see whether shareholders accept tender offers in period 4, we compare V^s and V^{st} . If $\phi = 0$, $V^s > 0 = V^{st}$. On the other hand, if $\phi = 1$:

$$V^s - V^{st} = -\frac{b\pi}{s} E(1-E)(1-\lambda)^2 < 0$$

This means V^s is smaller than V^{st} . Because V^{st} monotonically increases in ϕ , a ϕ^* exists such that if $\phi < \phi^*$, $V^s > V^{st}$, while if $\phi > \phi^*$, $V^s < V^{st}$. We thus get, from $V^s = V^{st}$:

$$\phi^* = \frac{\lambda}{\{E\lambda + (1-E)\}\{E + (1-E)\lambda\}}$$

In period 4, shareholders would accept tender offers if $\phi > \phi^*$ and not otherwise. We refer to this as condition 2:

$$\text{Condition 2} \quad \phi > \phi^*$$

In period 3, the raider decides whether to make a tender offer. Knowing that shareholders will accept tender offers in period 4 if $\phi > \phi^*$, the raider will compare the payoffs in each case. If the raider makes a tender offer, it will get V^{rt} . If not, the raider will get an outside payoff. Let this outside payoff be V^o . Then, the raider makes a tender offer to firm 1 or firm 2 if $V^{rt} > V^o$. We assume that this inequality holds.

In period 2, shareholders are willing to accept cross shareholdings if the following condition is met:

$$V^s + m > V^{st} \tag{7}$$

The left-hand side of the inequality is the payoff to shareholders if they accept the proposal of cross shareholding with monetary transfer, while the right-hand side is the payoff when they reject this but accept tender offers in period 4.

Further back in period 1, the manager decides to propose cross shareholding with monetary transfer m . If the following inequality holds, the manager is willing to make this proposal:

$$V^m - m > r \quad (8)$$

This inequality says that even if the manager made monetary transfer m to shareholders, the utility would still be higher than the reservation utility r .

Combining (7) and (8), cross shareholding is proposed in equilibrium if condition 3 is satisfied:

$$\text{Condition 3 } V^m + V^s > V^{st} + r$$

Condition 3 implies that the total values accruing to managers and shareholders in cross shareholding are higher than in a takeover. We suppose that as long as the total values to shareholders and managers are higher in cross shareholding, they will manage to figure out a way to share them so that both are better off. For example, on average, managers of Japanese companies receive low salaries relative to their U.S. counterparts. We can consider this as a kind of transfer mechanism from managers to shareholders. As mentioned earlier, the following analysis would not involve the transfer of m .

Now, we fully describe a subgame perfect equilibrium.

Proposition 2

The following constitutes a subgame perfect equilibrium in this model.

(A) If conditions 1, 2 and 3 are satisfied, then cross shareholding is proposed in period 1. Shareholders then accept it in period 2 and the raider does not make a tender offer in period 3.

(B) If conditions 1 and 2 are satisfied but condition 3 is violated, then the manager does not make a cross shareholding proposal in period 1. The raider makes a tender offer in period 3 and shareholders accept it in period 4. The raider monitors a new manager in period 5.

(C) If either condition 1 or 2 is violated, then the manager does not make a cross shareholding proposal in period 1, the raider does not make a tender offer in period 3, and the manager makes effort in period 5 without any intervention.

Proof (A) From condition 1, if the raider succeeded in a takeover, it would monitor the manager in period 5. Expecting this, and from condition 2, shareholders would accept a tender offer in period 4 if offered. By assumption, the raider would make a tender offer in period 3 if there was no cross shareholding. As the threat of a takeover is real from condition 3, the manager finds it more desirable to make a cross shareholding in period 1, and shareholders will accept it in period 2.³

(B) From conditions 1 and 2, the events from period 3 are the same as in case (A). However, because condition 3 is violated, the manager does not make a cross shareholding proposal in period 1. The takeover will then succeed.

³ The diagrams of game trees corresponding to each case are available from authors upon request.

(C) If condition 1 is not satisfied, it is never beneficial for shareholders to accept tender offers, and they would not do so in period 4. Expecting this, the manager does not make a cross shareholding proposal in period 1. If condition 2 does not hold, shareholders would not accept tender offers in period 4. Expecting this, the manager does not make a cross shareholding proposal in period 1. In both cases the status quo remains. Q.E.D.

We can easily show that conditions 1 and 2 can hold simultaneously. Temporarily, we focus on the set of parameter values that satisfy conditions 1 and 2. This implies that either possibilities (A) or (B) would occur. Then, we inquire into the conditions that make cross shareholding more likely relative to takeover, i.e., those that make condition 3 more likely to be satisfied.

From condition 3, cross shareholding occurs if:

$$\frac{b^2}{2s} + \frac{\lambda\pi b}{s} - \frac{\phi b \pi \{E\lambda + (1-E)\} \{E + (1-E)\lambda\}}{s} > r$$

Define a new function:

$$F(b, \pi, \lambda, E, \phi, s, r) = \frac{b^2}{2s} + \frac{\lambda\pi b}{s} - \frac{\phi b \pi \{E\lambda + (1-E)\} \{E + (1-E)\lambda\}}{s} - r$$

The increase in F loosely indicates the higher possibility of cross shareholding.

Proposition 3

$F(b, \pi, \lambda, E, \phi, s, r)$ increases as r and ϕ decrease, and as λ and b increase.

Proof. It is obvious that F increases as r and ϕ decrease and as b increases. Rewriting F yields:

$$F(\cdot) = \frac{b^2 + 2\lambda\pi b - 2\phi b \pi \{E\lambda + (1-E)\} \{E + (1-E)\lambda\}}{2s} - r$$

Denote the numerator of the first term on the right-hand side as $G(\cdot)$. Then, differentiate G with respect to λ :

$$\frac{\partial G}{\partial \lambda} = -4\phi b \pi E(1-E)\lambda + 2b\pi - 2\phi b \pi \{E^2 + (1-E)^2\}, \quad \frac{\partial^2 G}{\partial \lambda^2} = -4\phi b \pi E(1-E) < 0$$

So G is concave in λ and greatest at:

$$\lambda = \frac{1 - \phi \{E^2 + (1-E)^2\}}{2\phi E(1-E)} = 1 + \frac{1 - \phi}{2\phi E(1-E)} > 1$$

Thus, for $\lambda \in [0,1]$ F increases as λ increases. Q.E.D.

Note that since condition 3 includes r , which is independent of conditions 1 and 2, there always exists a low λ that satisfies condition 3. Theoretically, there is no restriction on r . Thus, if the existing manager falls into a terribly miserable situation once dismissed (i.e., a very small r), then they are willing to make large monetary transfers to shareholders. Hence cross shareholding would occur.

Thus the question is not whether condition 3 can occur, but what parameter values makes condition 3 more likely to be met. Given any value of ϕ , λ and b , there is a value of r that makes specific values of ϕ , λ and b threshold values for condition 3. Then those changes described in proposition 3 may become critical.

Intuitively, other things being equal, the decrease in ϕ makes takeover less attractive for shareholders. On the other hand, as private benefits b rise, the manager is likely to make a greater effort. Then, the shareholders' benefits (which are correlated with the manager's benefits) become greater, meaning that shareholders will not have to depend on the raider's intervention. In addition, lemma 2 implies that up to $\frac{1}{2}$, the increase in E makes cross shareholding less likely; beyond $\frac{1}{2}$, it is more likely. This can be seen by rearranging F :

$$F = 2\phi b\pi(1-\lambda)^2 \left(E - \frac{1}{2}\right)^2 + \left[b^2 + 2\lambda b\pi(1-\phi) - \frac{1}{2}\phi b\pi(1-\lambda)^2\right]$$

Therefore, F reaches its minimum at $E = \frac{1}{2}$.

Now, we pay special attention to the effect of the change in λ . Proposition 3 implies that as λ increases, cross shareholding is more likely to occur. Intuitively, as λ increases, the congruence of interests between managers and shareholders rises. In this case, the benefit from relying on the raider's monitoring is small for shareholders. Conversely, if λ is low, shareholders find cross shareholding less attractive than a takeover. Although we do not make a rigorous analysis of how shareholders would behave when λ becomes low and cross shareholding is already in place, we could loosely state that for a small λ shareholders have less reason to agree to cross shareholding.

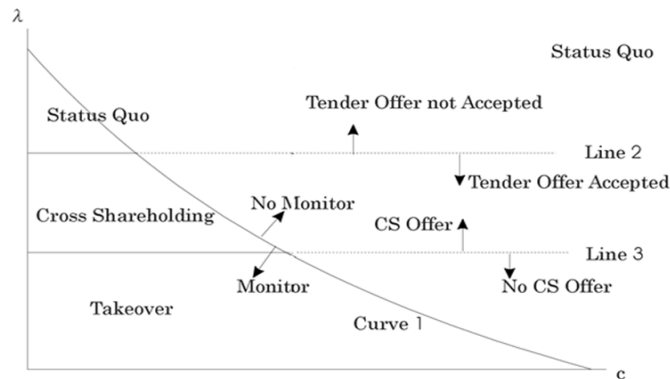


Fig-2. Players' action in response to the values of λ and c

Next, we focus on the relationship between the parameters λ and c . A higher c means that the raider faces greater difficulty in monitoring the manager. In Figure 2, λ is measured on the vertical axis and c on the horizontal axis. Condition 1 includes both c and λ . As c increases, λ must decrease in $[0,1]$ to make the following smaller.

$$\frac{(1-\phi)b\pi}{s} E(1-E)(1-\lambda)^2$$

Therefore, the relationship between λ and c is expressed by a downward-sloping curve in Figure 2, which we call curve 1. If monitoring cost c is so high that it is in the top right-hand area

of curve 1, the raider will not monitor. Unless the raider monitors the manager, its existence simply means the robbery of rents from shareholders. Thus, shareholders would not accept tender offers. Expecting this, the manager does not make a cross shareholding proposal. Then, regardless of the value of λ , neither a takeover nor cross shareholding would take place. Hence, we argue that for those firms where a raider would have great difficulty in monitoring the manager, cross shareholding and takeover would not take place.⁴

As conditions 2 and 3 do not include c , the curves derived from condition 2 ($V^s = V^{st}$) and condition 3 ($V^s + V^m = V^{st} + r$) are two horizontal lines. We refer to the former as line 2 and the latter as line 3. With regard to the relative locations of the two lines, from $V^s + V^m = V^{st} + r$, we get:

$$\frac{b^2}{2s} - r + \frac{\lambda\pi b}{s} - \frac{\phi b \pi \{E\lambda + (1-E)\} \{E + (1-E)\lambda\}}{s} = 0.$$

The left-hand side is F in proposition 3. As we have seen, F increases as λ increases in the domain $[0,1]$ and $(b^2/2s - r) > 0$. Therefore, compared with λ that satisfies condition 2, λ that satisfies condition 3 must be smaller. In the area above line 2, shareholders would not accept tender offers in period 4. Therefore, a similar argument to the above implies that the status quo continues. In the area below line 2, shareholders would accept tender offers in period 4. Thus, the threat of a takeover is real to managers. In the area below line 2 and to the bottom left-hand area of curve 1, two cases can occur. If it is above line 3, cross shareholding occurs, but if it were below line 3, then a takeover would occur. From Figure 2, we see that takeover would occur if λ goes down from the cross shareholding area to the takeover area. Intuitively, as the correlation between the manager's benefits and the shareholders' benefits decreases, shareholders would rather rely on the raider's monitoring than the manager's initiative effects. In contrast, if λ is very high, shareholders would not accept tender offers because higher efforts by managers seeking private benefits would sufficiently increase shareholders' benefits. Nevertheless, by expecting this, the manager does not propose cross shareholding. From this argument, we would claim that the manager of a good performing firm does not require cross shareholding as a defensive device.

3. A COMPARISON OF PERFORMANCE

In this section, we compare performance in the cross shareholding and takeover cases. Note that the status quo is equivalent to cross shareholding in terms of corporate values and social welfare. Here, we consider the monetary values each firm realizes as our criteria. In a takeover case, the value of a firm, CV^t , can be shown to be:

$$CV^t = \frac{1}{s} \{E\lambda b + (1-E)b\} \{E\pi + (1-E)\lambda\pi\}$$

When the raider succeeds in monitoring, the monetary value π is realized with a probability of

⁴ If a potential raider consists only of foreign capital, these firms could be those that only manufacture very traditional goods, such as kimonos or hanafuda (a Japanese card game) because foreign raiders find it difficult to locate an appropriate strategy in these industries.

one. When the raider fails, this only happens with a probability of λ .

Similarly, in the cross shareholding case:

$$CV^{cs} = (1 - \alpha)e \frac{\lambda\pi + \alpha\lambda\pi}{1 - \alpha^2} = \lambda\pi e = \frac{\lambda\pi b}{s}$$

Proposition 4

Cross shareholding always yields a lower monetary value than a takeover.

Proof.

$$\begin{aligned} CV^{cs} - CV^t &= \frac{\lambda\pi b}{s} - \frac{b\pi\{E\lambda + (1 - E)\}\{E + (1 - E)\lambda\}}{s} \\ &= -\frac{b\pi}{s} E(1 - E)(1 - \lambda)^2 < 0. \text{ Q.E.D.} \end{aligned}$$

Intuitively, when there is no monitoring, the manager would choose project N , which leads to a lower expected value of monetary payoffs, even if the effort levels are the same. This effect dominates, even though the manager exerts higher efforts under cross shareholding.⁵

As we have seen, cross shareholding may occur under certain conditions. Hence, even if the corporate value of a firm is lower in cross shareholding case, cross shareholding still occurs.

4. CONCLUSION

This paper shows that in contrast with the traditional view, cross shareholding may be beneficial for shareholders. This result depends on initiative effects that imply that the manager makes greater efforts if they face no intervention by shareholders in seeking private benefits. As long as shareholders' benefits correlate with the manager's private benefits, shareholders may also benefit from no intervention due to cross shareholding. We show that the corporate value of a firm tends to be smaller in cross shareholding due to the lack of monitoring. However, if we include managers' private benefits in the social welfare function, it is possible that social welfare is higher with cross shareholding.

REFERENCES

- Adams, M., 1999. Cross holdings in Germany. *Journal of Institutional and Theoretical Economies*, 155(1): 80–109.
- Allen, F. and D. Gale, 2000. *Corporate governance and competition*, in X., Vives, (Eds.): *Corporate governance*. Cambridge, U.K.: Cambridge University Press.
- Arikawa, Y. and A. Kato, 2004. Cross shareholding and initiative effects. *RIETI Discussion Paper Series*, No. 04-E-017.
- Berglof, E. and E. Perotti, 1994. The governance structure of the Japanese financial keiretsu. *Journal of Financial Economics*, 36(2): 259–284.

⁵ If we take social welfare as our criterion, which is the corporate value of a firm plus private benefits to managers less the cost of efforts, we can show that the social welfare in cross shareholding case is more likely to be larger than that in takeover case, as s decreases, c increases and b/π increases. Please refer to the earlier version of this paper [Arikawa and Kato \(2004\)](#).

- Burkart, M., D. Gromb and F. Panunzi, 1997. Large shareholders, monitoring, and the value of the firm. *Quarterly Journal of Economics*, 112(3): 693–728.
- Claessens, S., S. Djankov and L. Lang, 2000. The separation of ownership and control in East Asian corporations. *Journal of Financial Economics*, 58(1-2): 81–112.
- Clayton, J.C. and B.N. Jorgenson, 2005. Optimal cross holding with externalities and strategic interactions. *Journal of Business*, 78(4): 1505–1522.
- Dasgupta, S. and Z. Tao, 2000. Bargaining, bonding, and partial ownership. *International Economic Review*, 41(3): 609–635.
- Farrel, J. and C. Shapiro, 1990. Asset ownership and market structure in oligopoly. *Rand Journal of Economics*, 21(2): 275–292.
- Flath, D., 1991. When is it rational for firms to acquire silent interest in rivals. *International Journal of Industrial Organization*, 9(4): 573–583.
- Flath, D., 1996. The keiretsu puzzle. *Journal of the Japanese and International Economics*, 10(2): 101–121.
- Gilo, D., Y. Moshe and Y. Spiegel, 2006. Partial cross ownership and tacit collusion. *Rand Journal of Economics*, 37(1): 81–99.
- Grossman, S. and O. Hart, 1980. Takeover bids, the free-rider problem, and the theory of the corporation. *Bell Journal of Economics*, 11(1): 42–64.
- Hansen, R.G. and J.J.R. Lott, 1995. Profiting from induced changes in competitors' market values: The case of entry and entry deterrence. *Journal of Industrial Economics*, 43(3): 261–276.
- La Porta, R., F. Lopez-de Silanes and A. Shleifer, 1999. Corporate ownership around the world. *Journal of Finance*, 54(2): 471–517.
- Malueg, D.A., 1992. Collusive behavior and partial ownership of rivals. *International Journal of Industrial Organization*, 10(1): 27–34.
- Mathews, R., 2006. Strategic alliances, equity stakes, and entry deterrence. *Journal of Financial Economics*, 80(1): 35–79.
- Osano, H., 1996. Intercorporate shareholdings and corporate control in the Japanese firm. *Journal of Banking & Finance*, 20(6): 1047–1068.
- Reynolds, R.J. and B.R. Snapp, 1986. The competitive effects of partial equity interests and joint ventures. *International Journal of Industrial Organization*, 4(2): 141–153.
- Riorden, H.M., 1990. Asset specificity and backward integration. *Journal of Institutional and Theoretical Economics*, 146(1): 133–146.
- Riorden, H.M., 1991. Ownership without control: Toward a theory of backward integration. *Journal of the Japanese and International Economics*, 5(2): 101–119.
- Shleifer, A. and R. Vishny, 1997. A survey of corporate governance. *Journal of Finance*, 52(2): 737–783.

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