

**Sleeping with the Enemy: Should Competitors Share the Same Advertising Agency?**



J. Miguel Villas-Boas

*Marketing Science*, Vol. 13, No. 2 (Spring, 1994), 190-202.

Stable URL:

<http://links.jstor.org/sici?sici=0732-2399%28199421%2913%3A2%3C190%3ASWTESC%3E2.0.CO%3B2-C>

*Marketing Science* is currently published by INFORMS.

---

Your use of the JSTOR archive indicates your acceptance of JSTOR's Terms and Conditions of Use, available at <http://www.jstor.org/about/terms.html>. JSTOR's Terms and Conditions of Use provides, in part, that unless you have obtained prior permission, you may not download an entire issue of a journal or multiple copies of articles, and you may use content in the JSTOR archive only for your personal, non-commercial use.

Please contact the publisher regarding any further use of this work. Publisher contact information may be obtained at <http://www.jstor.org/journals/informs.html>.

Each copy of any part of a JSTOR transmission must contain the same copyright notice that appears on the screen or printed page of such transmission.

---

JSTOR is an independent not-for-profit organization dedicated to creating and preserving a digital archive of scholarly journals. For more information regarding JSTOR, please contact [support@jstor.org](mailto:support@jstor.org).

## SLEEPING WITH THE ENEMY: SHOULD COMPETITORS SHARE THE SAME ADVERTISING AGENCY?

J. MIGUEL VILLAS-BOAS  
*University of California, Berkeley*

The possibility of account conflicts is generally regarded as a very serious problem in the advertising industry. The problem is that once an advertising agency works for a firm it learns private information which it can use strategically, i.e., make available to the firm's competitors. But, in oligopolistic situations, knowing more about a competitor may not necessarily be beneficial, because the competitor may react to this knowledge. Similarly, allowing the competitor to have more information may not necessarily be detrimental. In fact, the decision of whether to share the same agency depends on three effects, which are identified here: (1) *the decision-making framework effect*, (2) *the strategic effect*, and (3) *the uncertainty effect*. The first effect always favors sharing the same agency. The direction of the latter two effects is ambiguous. This ambiguity is resolved against the sharing of agencies when (1) the competitor's reaction to the firm's situation is especially harmful in that particular situation (*strategic effect*) and (2) the competitor's actions are increasingly harmful (*uncertainty effect*).

(Competitive Strategy; Advertising Policy; Advertising Agency)

### 1. Introduction

The possibility of account conflicts is generally regarded as a very serious problem in the advertising industry. Conflicts can arise for two reasons: (1) the client desires confidentiality of plans, strategy and proprietary information (Aaker et al. 1992, p.452),<sup>1</sup> or (2) the client desires exclusivity of the agency services and talent (Wells et al. 1992, p.127). In this paper, we concentrate on examining the first type of reasons. Does a firm want to keep its own plans or strategies confidential? Does a firm want to learn about plans or strategies of the competitors?

Although the reasons presented above should produce the obvious result of clients in the same product category not wishing to use the same advertising agency, it is worthwhile to note that the structure of the Japanese advertising industry is very different from the American industry: It is much more concentrated (one firm, Dentsu, dominates the market almost completely). In this paper, results are presented that may help explain this difference. In the process of doing so, the relevant incentive issues are clarified.

<sup>1</sup> An example of this reasoning at work is the lawsuit described in the Rossin Greenberg Seronick & Hill Inc. case study (Smith 1989). This case presents a former client (Lotus) suing an advertising agency because it wanted to use "confidential information" on a project for a competitor (Microsoft Corporation).

The problem is that in competitive situations a change in the information structure causes a change in the environment in which the firm operates, i.e., the way in which the competitor behaves. When a firm has more information, the competitor realizes this and changes the way in which it competes such that the market outcome might end up being detrimental to the firm; when the competitor has more information, a firm realizes this and changes its behavior in such a way that the market outcome might end up being beneficial to the firm.

The basic contribution of this paper is to provide some understanding on the conflict of interests problems in corporate service relationships.<sup>2</sup> The existence of a common agency may provide a credible means of transmitting information to the rival. I identify three effects that determine the decision of whether or not to share the same agency. First, there is the *decision-making framework effect*, i.e., more information is better because actions are better adjusted to the current state of the world. This effect is the one which is typically considered in analyses of the implications of changes in the information structure when there is only one decision-maker, and favors always the sharing of the same agency.

However, the other two effects might reverse the direction of this one. *The strategic effect* results from the interaction between the competitor reaction and the private information of the firm. This effect can be positive or negative, and only shows up when we consider the case of the competitor having more information (Proposition 2). As it is made clear below, the "common beliefs" on information transfers that were cited above result from assuming that this *strategic effect* is the most important one, and that it is negative (against the sharing of the same agency). This is the case when the competitor's reaction to the firm's situation is especially harmful in that particular situation.

Finally, there is the *uncertainty effect* which is the result of increased variation on the competitor reactions when there is more information in the system. This effect can also be positive or negative. It is negative when the competitor's actions are increasingly harmful.

The use of a common agency or contact as a way for competitors to achieve some form of implicit collusion has also been analyzed by Vives (1984, 1990), Gal-Or (1985, 1986), Bernheim and Whinston (1985), and others. These authors consider, however, different mechanisms than the one considered here. Vives and Gal-Or study the establishment of a trade association as a market arrangement where information transfers can be widely observed. The difference in this work is that the advertising agency acts strategically while the trade association behaves passively. Furthermore, this literature assumes that the trade association reports all the information it receives to all rivals, while an advertising agency can potentially discriminate in disseminating information.<sup>3</sup> Their results vary substantially with small changes in the market characteristics (price versus quantity competition, common versus private values, private information about costs versus private information about demand). Here, a general model of private values is analyzed and the reasons behind the different results are clarified (§4). The results of the papers cited above are particular cases of the results presented here.

Bernheim and Whinston (1985) show that the existence of a single agency serving

<sup>2</sup> The issue of two rivals using the same advertising agency is also similar in many aspects to the issue of using the same accounting firm, the same strategic consulting firm, or the same general supplier. The real world is rich in stories where two rival companies do (or do not) want to use the same firm. For example, Bain & Co. makes a case of never working for two firms in the same industry, while other consulting companies advertise the fact of working for several firms in the same product category. Another example is the case of large marketing research companies which often have to weigh the advantages and disadvantages of working for several competitors (see the IRI-Nielsen controversy in Schlossberg (1992)).

<sup>3</sup> Another issue is the credibility of the information being transmitted. In this respect, an advertising agency may provide a more credible way to transmit truthful information than trade associations or the general media.

several competitors may enhance the possibility of collusion if the firms are able to credibly delegate the decision of a marketing-mix variable to the agency (which is not assumed in this paper). Furthermore, they do not consider the existence of asymmetric information and the issue of information transfers (which is here an essential component of the analysis).

After framing the problem in §2, §3 presents the basic model. Section 4 characterizes the relationship between payoff functions and the effects of information transfers, §5 examines the strategic behavior of the advertising agency, and §6 presents concluding remarks and discusses directions for further research.

## 2. The Problem

The conflict of interests is presented here (for the simplest framework) as two rival firms being served by the same advertising agency. Each client requires the services (either in creating the advertising copy or in placing the advertisements) of an agency in order to execute its business. Each firm has private information of some sort on its product (positioning in the consumers perceptual map of its product, costs of repositioning, etc.).<sup>4</sup> Once the advertising agency works for a firm it learns its private information.

Consider the case in which the market outcome for a firm is better if it knows the private information of its competitor. Then, once the advertising agency is in possession of the private information of both rivals, it has an incentive (and is unable to commit not to) to use it to improve its situation. This is done through adjustments to the original prices for the projects and communication (to one or both firms) of the private information the agency obtained. The adjustments in prices can be preagreed, justified with cost overruns, or involve an implicit promise of future contracts. Finally, the firms choose their market actions.

This framework seems to be consistent with the practice in the advertising industry. As pointed out by McNamara (1990), "an honest appraisal of the agency's capabilities, resources, and experiences should factor into prioritizing prospects" (p.114). Agencies pursue clients whose business is well understood by the agency. The prices of the projects are adjusted accordingly, and as noted by people in the industry, it is impossible for an agency to refrain from using all the information it has available (forgetting is not a voluntary process).<sup>5</sup>

If the expected market outcome for each firm in the case they are served by two different agencies is greater than the expected market outcome when they are served by the same agency (and one gets the private information of the other), firms will prefer to hire two different agencies. However, if the common beliefs presented above were the only factors influencing the structure of the advertising industry we would expect to see it very fragmented, with one agency per firm (or an in-house agency). In fact, this is not the case. The industry is highly concentrated with the four largest firms in the U.S. accounting for 23% of the market (*The Economist* 1990, *Advertising Age*, 1985).

The explanation for this concentration is that there are some advantages to an adver-

<sup>4</sup> In Stole (1990) the perspective is exactly the opposite one: the agency has private information and the two clients (principals) contract simultaneously with it.

<sup>5</sup> Another issue to have present is that the agencies might engage in creating a reputation for not giving information away to other clients. From an empirical standpoint this reputation creation does not seem to be a factor: as illustrated by the recommendation of the Committee on Client Service of the A.A.A.A., competitors do not seem to like being served by the same agency; the effects on account shifting of the mergers wave of the mid 1980s, as presented in Siman (1989), seem to confirm this point. From a theoretical standpoint, the long lags in detection of defection and the large amount of uncertainty in the marketplace may not allow agencies to create a long-lived reputation for not using information strategically.

tising agency being large.<sup>6</sup> This paper shows that these advantages may have to do with information transfers (contrary to what could be inferred from the common beliefs cited above). Other advantages of large agencies are in terms of costs structure (i.e., economies of scale (Schmalensee et al. 1983), though the evidence seems contradictory; economies of scope (Silk and Berndt 1993)), or in terms of better services to the clients (i.e., “creative talent available to the client” (Siman 1989, p.8), need for a “comprehensive service” (*The Economist*, 1990, Survey, p.8), bargaining power with the media, expertise in how to advertise in that particular industry, etc.).

Another piece of information relevant to the study of account conflicts in advertising agencies is the wave of mergers in the advertising industry that occurred in the mid 1980s. Combining two agencies often caused the merged company to handle products that were rivals in the product market. In some cases the merged agency dropped one of the rival products (as the common beliefs would predict) and, surprisingly, in other cases the merged agency kept both rival products (see Siman 1989 for a full account of the account conflicts and resolutions resulting from the merger between Doyle Dane Bernbach, BBDO, and Needham Harper, and the merger between Saatchi & Saatchi and Ted Bates). The results presented here may clarify why in some cases the merged agency dropped accounts and in other cases kept both rivals.

### 3. The Basic Model

Two firms (the general oligopoly model is available upon request) are competing in a certain market. In order to produce and sell in this market both firms have to use an outside advertising agency. The services of the advertising agency are only available in a fixed amount (either a firm uses the services and has positive profits or does not use it and has zero profits). The payoff (profit) for Firm  $i$  ( $i = 1, 2$ ) is  $\pi^i(a_i, a_j; \theta_i) - P_i - R_i$ .  $\pi^i$  is a function  $\mathbb{R}^3 \rightarrow \mathbb{R}$ ,  $A_i$  is the space of available actions for Firm  $i$ ,  $a_i \in A_i$  is the action taken by Firm  $i$ ,  $j = 3 - i$ ,  $A_j$  is the space of available actions for firm  $j$ ,  $a_j \in A_j$  is the action taken by Firm  $j$ .  $a_i$  can, for example, represent the final positioning selected by Firm  $i$ .  $\Theta_i$  is the space of possible types of Firm  $i$ .  $\theta_i$  is the type of Firm  $i$  in each realization.  $\theta_i$  can be, for example, the difficulty with which firm  $i$  repositions. Both firms have some prior cumulative distribution  $F_i(\theta_i)$  over the space  $\Theta_i$ .  $\theta_i$  and  $\theta_j$  are independent. Firm  $i$  has private information on the realization of  $\theta_i$ , and so does Firm  $j$  over  $\theta_j$ . Finally,  $P_i$  is the price paid to the advertising agency for its services, and,  $R_i$  are the adjustments to the original price the advertising agency is able to extract from Firm  $i$  based on the private information it has on Firm  $i$  and the other firms it works for.

The profit of an advertising agency is

$$\pi_A = \sum_{i \in \Psi} P_i - K + \sum_{i \in \Psi} R_i,$$

where  $\Psi$  is the set of firms the advertising agency  $A$  is serving (in this case it can only be  $\{1\}$ ,  $\{2\}$  or  $\{1, 2\}$ ), and  $K$  is the fixed cost of operating the advertising agency (see §2

<sup>6</sup> One must also consider the existence of intermediate situations between one advertising agency for two rivals or two advertising agencies. In fact, some advertising agencies try to guarantee “some” confidentiality to their clients by dividing the agency in several subsidiaries (the “umbrella concept”), by using separate offices or by employing different teams. These methods are in fact a continuum between the two extreme situations (one agency versus two agencies) and trade-off some confidentiality to the benefits of having a large agency: an agency divided into subsidiaries might better protect the confidentiality of clients than an agency not divided, though less than the two agencies solution; however, an agency divided into subsidiaries might collect the benefits of being large to a lesser extent than an agency which is not divided, though to a greater extent than two agencies would.

for a brief discussion on the existence of this fixed cost and its possible role in the analysis). The marginal cost of servicing a new client is assumed to be zero without loss of generality.

The timing of events proceeds as follows: (1) the clients simultaneously decide which agencies to use (it is assumed they are able to coordinate being served by the same agency or by different ones);<sup>7</sup> (2) the clients make take-it-or-leave-it offers  $P_i$  and  $P_j$ ; (3) the agency accepts or refuses to serve the firm (or firms); (4)  $\theta_i$  and  $\theta_j$  are revealed to the agency or agencies; (5) the agency or agencies exploit the private information they acquired in the previous stage; (6)  $\theta_i$  and  $\theta_j$  are revealed respectively to Firm  $i$  and Firm  $j$ ;<sup>8</sup> and, finally, (7) the clients decide on  $a_i$  and  $a_j$ .

The clients are assumed to have the bargaining power when dealing with the agency or agencies (as there is a pool of agencies available to them).<sup>9</sup> If the clients are served by different agencies,  $P_i + R_i = P_j + R_j = K$ . If the clients are served by the same agency, it is assumed that  $P_i = P_j = \frac{1}{2} [K - R_i - R_j]$ , which is the Nash bargaining solution.<sup>10</sup>  $P_i$  and  $P_j$  cannot be contingent on the market outcome (i.e., the values of  $R_i$ ,  $R_j$ ,  $\pi^i$ , or,  $\pi^j$ ). This assumption rules out incentives contracts in stage 2: the realistic assumption behind this restriction is that at the time the contract is signed between the agency and the client, there is so much uncertainty about  $\pi^i$  and  $\pi^j$  (being the agency risk averse), that incentives contracts are never optimal<sup>11</sup> (an alternative assumption is simply that  $\pi^i$  and  $\pi^j$  cannot be contracted upon, i.e., are not verifiable).

We are looking for outcomes which are subgame perfect. In stage 7 the information of firm  $i$  is composed of two elements: one element affects its payoff directly ( $\theta_i$ , which will be referred to as the intrinsic type, and is, in the example above, the difficulty with which Firm  $i$  repositions itself) and the other element is an imperfect signal of the intrinsic type of the competitor ( $s_j$ , which will be referred to as the signal).<sup>12</sup>  $s_j$  is an imperfect signal of  $\theta_j$  (so that,  $s_j \in \Theta_j$ ).  $s_j$  is not observed by Firm  $j$ , such that the action taken by Firm  $i$  is (and can only be) a function of both  $\theta_i$  and  $s_j - a_i(\theta_i, s_j)$ .  $s_j$  is correct with probability  $q_i$ , and is completely uninformative with probability  $1 - q_i$  ( $q_i$  can be changed in stage 5). Notice that  $q_i$  is the degree with which Firm  $i$  is well informed about Firm  $j$ . If  $q_i = 0$ , Firm  $i$  is completely uninformed about Firm  $j$ ; if  $q_i = 1$ , Firm  $i$  is completely informed about Firm  $j$ . Furthermore, we can now define the equilibrium outcome for Firm  $i$  when the degrees of information of the signal for Firms  $i$  and  $j$  are respectively  $q_i$  and  $q_j$  as  $V^i(q_i, q_j)$ .

<sup>7</sup> The assumption is that the contract between the client and the agency may have a clause allowing it to work for other clients in the same industry. If this clause exists the agency will take advantage because of the gains that can be made through price adjustments.

<sup>8</sup> One could alternatively consider that the private informations are simultaneously revealed to the firms and agency (or agencies). The advantage of the chosen timing is that one does not have to worry about the different values information about the competitor might have, i.e., values depending on the specific situation the firm is in. These effects might have important strategic implications, but the analysis would become considerably more complicated without changing the main direction of the results. If incentive contracts are never possible (a case that is available upon request), the results, in fact, do not change at all.

<sup>9</sup> This assumption is incorporated in stage 2 above. This assumption is not critical. All the results follow with more balanced bargaining solutions.

<sup>10</sup> The clients are served by the same agency and they have to fund the agency's possible losses ( $K - R_i - R_j$ ). (Notice that  $R_i$  and  $R_j$  can be random variables at this stage, but as it will be shown,  $R_i + R_j$  is not). If the clients bargain on the funding of this project through alternating offers with some discount factor that tends to one at the same rate, one gets the Nash bargaining solution as the bargaining outcome.

<sup>11</sup> The introduction of incentives contracts in stage 2 would complicate considerably the analysis. It is my conjecture that the flavor of the results does not change very much once one allows for incentives contracts (especially if one restricts the incentives contracts to be only contingent on the performance of the client and not the performance of the competitor).

<sup>12</sup> The signal about the competitor is all the information the firm has about the competitor. This could be obtained through internal competition analysis, through the advertising agency, through a marketing research company, etc.

The common beliefs that (1) having more information about a competitor is better for a firm and that (2) a competitor having more information is worse for a firm imply (1)  $V_1^1(q_i, q_j) > 0$ , and (2)  $V_2^2(q_i, q_j) < 0, \forall q_i, q_j$ .<sup>13,14</sup>

When there is one agency per client, there is no way for the private information of Client  $i$  to be transmitted to Client  $j$  ( $i \neq j$ ).<sup>15</sup> So, in case the clients choose different agencies, these are not able to make money on the private information of their clients ( $R_1 = R_2 = 0; P_1 = P_2 = K$ ).

When both clients choose the same agency, the agency can decide either (1) to transmit no information to any of the clients (maintain the original  $q_i$  and  $q_j$ ), (2) to transmit the information it has to only one of the clients (improve the  $q_i$  of only one of the firms), or (3) to transmit the information it has to both clients (improve the  $q_i$  for both firms).

If conditions (1) and (2) hold, the advertising agency can extract some rents from its clients. The nature of the transfers may not be exclusively monetary, as discussed in the introduction.

#### 4. The Nature of Competition

In this section we characterize the relationship between the payoff functions and the sign of the partial derivatives of the function  $V^i(q_i, q_j)$ . In particular, we uncover the conditions on the payoff functions such that more information about the competitor is better, and such that the more information the competitor has, the worse off the firm is (conditions (1) and (2) above). The analysis is done under the assumption that  $\pi^1(\cdot)$  and  $\pi^2(\cdot)$  are quadratic. This assumption can be generalized for the cases in which the payoff functions are reasonably approximated by Taylor expansions of the second order, i.e., the results consider only the second order effects.

If Player  $i$  has the intrinsic type  $\theta_i$  and receives the signal  $s_j$ , his expected payoff depends on the values these variables take, on  $q_i$  and  $q_j$ , and on the function  $a_j(\theta_j, s_i)$ , the action Player  $j$  takes if she has intrinsic type  $\theta_j$  and receives the signal  $s_i$ . We are trying to characterize the equilibrium strategies of both players, i.e., the equilibrium functions  $a_1(\theta_1, s_2)$  and  $a_2(\theta_2, s_1)$ . If we restrict our attention to affine strategies<sup>16</sup> of the form

$$a_i(\theta_i, s_j) = \alpha_0^i + \alpha_1^i \theta_i + \alpha_2^i s_j, \quad i = 1, 2, \quad j = 3 - i,$$

it can be easily shown that in equilibrium

$$\alpha_1^i = \frac{-\pi_{13}^i / \pi_{11}^i}{1 - (\pi_{12}^j / \pi_{11}^j)(\pi_{12}^i / \pi_{11}^i)q_j^2}, \quad \alpha_2^i = \frac{(\pi_{12}^i \pi_{13}^j) / (\pi_{11}^i \pi_{11}^j)}{1 - (\pi_{12}^j / \pi_{11}^j)(\pi_{12}^i / \pi_{11}^i)q_i^2} q_i \quad (3)$$

Now that we have established the behavior of the equilibrium actions as a function of the information structures (we assume  $|\pi_{11}^i| > |\pi_{12}^i|, \forall i$ , which is the stability condition in the complete information case), we can proceed to characterize the effects on the equilibrium payoffs, one of the most important results of this work (Propositions 1 and 2).

<sup>13</sup> I use the following notation to represent derivatives of a generic function  $G(\cdot)$  with several arguments in the case no other interpretations are possible.  $G_i(\cdot)$  represents the first derivative with respect to the  $i$ th argument.  $G_{ij}(\cdot)$  represents the second derivative with respect to the  $i$ th and  $j$ th arguments.

<sup>14</sup> In the next section we characterize the conditions on the functions  $\pi^i(\cdot)$  and  $\pi^j(\cdot)$ , such that (1) and (2) are satisfied.

<sup>15</sup> The results presented here can also be derived for the case in which transmission across agencies is possible but costly.

<sup>16</sup> The advantage of using affine strategies is their simplicity which is useful both for the computation of the equilibrium and its practical appeal. Furthermore, affine strategies have an easy interpretation. I here show that there actually is an equilibrium in affine strategies and characterize it.

Notice that to evaluate the implications of changes in the information structure on the equilibrium payoffs, we have to consider three effects. First, there is *the decision-making framework effect*, i.e., more information is better because actions are better adjusted to the current state of the world. This effect is present in both Propositions 1 and 2 and is the one which is considered in analyses of the implications of changes in the information structure when there is only one decision-maker. However, the other two effects might reverse the direction of this one. There is *the uncertainty effect*, which is the result of increased variation on the competitor reactions when there is more information in the system. This effect can be positive or negative and is also present in both Propositions 1 and 2. Finally, *the strategic effect* results from the interaction between the competitor reaction and the private information of the firm. This effect, which is discussed more carefully below, can also be positive or negative, and only shows up when we consider the case of the competitor having more information (Proposition 2). As it is made clear below, the "common beliefs" on information transfers that were cited above result from assuming that this *strategic effect* is the most important one, and that it is negative.

Proposition 1 gives the result for the effect in the equilibrium payoff for a firm of changes in information quality of the signal it receives about the competitor.

**PROPOSITION 1.** (*Own degree of information*) Given  $|\pi_{12}^i| < |\pi_{11}^i|$ , more information about a competitor makes the equilibrium payoff of a firm increase if and only if  $\pi_{22}^i > -x$ , where  $x$  is some positive real number.<sup>17</sup>

**PROOF.** It follows directly from the differentiation of  $V^i(q_i, q_j)$  with respect to  $q_i$ .  $\square$

The most interesting feature of Proposition 1 is that one needs the payoff function to be not very concave in the opponent's action for a firm to do better when it has more information. The explanation for this result has to do with *the uncertainty effect*: given that the firm has more information, the competitor reacts more to its intrinsic type, i.e., there is more uncertainty in the actions of the competitor, and more uncertainty is not too damaging if the payoff function is not too concave in the argument subject to the increase in uncertainty.

The managerial interpretation for *the uncertainty effect* has to do with whether the marginal harm caused by the competitor actions is increasing or decreasing. If the marginal harm is decreasing (increasing) then firms would like to have more (less) information about the competitors. Consider the case in which firms are competing in final positioning in a market and the competitor being closer to the ideal point is less and less (more and more) harmful to the firm. In this case the firm would like to have more (less) information about the competitor's cost of repositioning because then the competitor's action would vary more (less) with its cost of repositioning (see Villas-Boas 1991). This is appreciated by the firm because the expected profit with more variability in the competitor's action is greater (smaller) than with less variability (see Figure 1). The role of the advertising agency is that the firm might be able to learn about the competitor's cost of repositioning through the common agency.

And what about the effect of an increase in the information quality of the competitor on the firm's equilibrium payoff?

Proposition 2 gives the result.

**PROPOSITION 2.** (*Competitor degree of information*). Given  $|\pi_{12}^i| < |\pi_{11}^i|$ , the competitor having more information makes the equilibrium payoff of a firm decrease if and only if  $\pi_{22}^i + y\pi_{23}^i\pi_{12}^i\pi_{13}^i < -z$ , where  $y$  and  $z$  are some positive real numbers.

<sup>17</sup> The values of  $x$ ,  $y$ ,  $z$ ,  $k$ , and  $w$  in Propositions 1, 2, and 3 can be seen in Villas-Boas (1991).



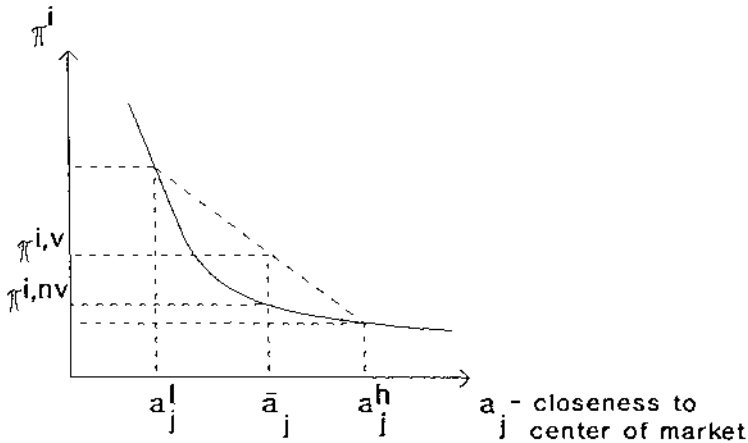


FIGURE 1. Illustration of *Uncertainty Effect*

PROOF. It follows directly from the differentiation of  $V^i(q_i, q_j)$  with respect to  $q_j$ .  $\square$

The interesting feature of Proposition 2 is that it states that the sign of  $\pi_{23}$  is a necessary condition for the equilibrium payoff of a firm to decrease when the competitor's degree of information is raised.  $\pi_{23}$  represents the degree with which the firm would like the competitor to change its behavior when the firm's intrinsic type varies. If  $\pi_{23}$  is positive (negative), it means that the firm would prefer more (less) the competitor to raise its action when the intrinsic type is higher.

The basic intuition for the result has to do with *the strategic effect*. Consider the  $\pi_{12} > 0$  and  $\pi_{13} > 0$  case (the other cases are very similar). When a firm has a high (low) intrinsic type, it will want to play a higher (lower) action (given  $\pi_{13} > 0$ ), which in turn will result in a higher (lower) action by the competitor (given  $\pi_{12} > 0$  and its better information). Given a high (low) intrinsic type, the firm might prefer that the competitor lowered (raised) its action (if  $\pi_{23} < 0$ ) contrarily to what happens in equilibrium. This effect might be large enough to make the firm worse off.

The managerial interpretation for *the strategic effect* has to do with the relative harm made to the firm by the interaction between the competitor reaction to the firm's private information and the private information itself. If the competitor reaction is much more damaging in the current state of the world than it would be in other states, the firm would like the competitor to have less information. An example might be a case in which a firm is thinking of launching a new product. If the competitor knows about this, it could retaliate with a price promotion (or a specific advertising campaign) which may be much more harmful when launching a new product than otherwise. The competitor price promotion or advertising campaign efforts might cause the development of the new product to be much more costly. The problem is that the trial effort is substantially undermined: price promotions and increased "advertising expenditures . . . can cause havoc in the launch plan" (Urban and Hauser 1980, p.471). If the firm was not launching a new product, the competitor price promotion or advertising campaign efforts might only cause a disruption in demand in the current period.<sup>18</sup>

On the other hand, if the competitor reaction is as damaging in the current state of the world as in other states, the firm would like the competitor to have more information.

<sup>18</sup> A more stereotyped example is price competition with private information about marginal costs. When the firm's costs are low and the competitor knows this, prices will be lower. The competitor retaliation is more harmful at low costs because demand is larger at lower prices.

An example might be the case in which a firm is thinking of launching a new product and the competitor might retaliate with accelerating the development of its own new product. This competitor action might be as harmful as in the case the firm were not to launch a new product. In either case, the firm is likely to lose some demand in the medium term.<sup>19</sup> The role of the advertising agency is that the firm might be able to credibly inform the competitor about the launching of a new product through the common agency.

Another important question that can be answered by this type of analysis is whether more information for both competitors (at the same time) increases or decreases the equilibrium payoff of each one. The result is a composition of the previous two propositions.

**PROPOSITION 3.** (*Degree of information of both firms*). *Given  $|\pi_{12}| < |\pi_{11}|$ , both competitors having more information makes the equilibrium payoff of a firm decrease if and only if  $\pi_{22}^i + k \cdot \pi_{23}^i \cdot \pi_{12}^i \cdot \pi_{13}^i < -w$ , where  $k$  and  $w$  are some positive real numbers. Furthermore, if this condition holds, the more information a competitor has, the worse off the firm is.*

**PROOF.** It follows directly from the differentiation of  $V^i(q_i, q_j)$  with respect to  $q_i$ , maintaining  $q_i = q_j$ , and comparing the result with the differentiation of  $V^i(q_i, q_j)$  with respect to  $q_j$ .  $\square$

Notice that, from Proposition 3, both players having more information can have a negative impact on the equilibrium payoffs only if the more information the competitor has, the worse off the firm is. But there may be situations (i.e., values of the parameters) such that the more information the competitor has, the worse off the firm is (under the conditions of Proposition 2), but both competitors having more information has a positive impact on the equilibrium payoff.

#### *The Japan-United States Dichotomy and Other Examples*

These results might also help explain the differences in the advertising industry structure between Japan and the United States. According to Fields (1989, p.75), Porter (1990, p.413), and Takeuchi (1992), in Japan, firms are less likely to retaliate to news of competitor product launches (or major repositionings) with price promotions and advertising campaigns than in the United States. In Japan, competitive responses seem to take particularly the form of development of competitive products (Dentsu 1989, p.204; Takeuchi 1992, Table 1). The differences in these competitive responses might come from differences in some deep parameters of the consumer markets of the United States and Japan: differences in the sensitivity to price, advertising, and novelty, differences in the cost of introduction and development of new products and cost of advertising, differences in the antitrust regulation and enforcement.

As discussed above, retaliatory price promotions and advertising campaigns may be especially harmful to a firm launching a new product (or performing a major repositioning) because the trial effort is greatly undermined. For this reason, in the United States, firms prefer information about their products to remain secret, and therefore tend to hire different advertising agencies from their competitors. As it was also discussed above, retaliatory acceleration of the development of new products may not be more harmful to a firm launching a new product (or performing a major repositioning) than to a firm in any other situation. For this reason, in Japan, firms may prefer information about their products to be available to competitors (at a certain stage of the development process), and therefore may hire the same advertising agency. In summary, the differences

<sup>19</sup> A more stereotyped example is quantity competition with private information about marginal costs. When the firm's costs are high, the competitor will produce a higher quantity which is as harmful at high as at low costs.

TABLE 1  
*Measures to Defend Market Share Against Competitors*

	Japan	U.S.
Discounting Price, etc.	29%	41%
Nonprice Sales Promotion	37%	41%
New Products	69%	47%
No Special Measures	5%	7%

Source: MITI, 1989, presented in Tanaka (1991).

in the deep market parameters (sensitivities, costs, regulation) cause differences in the competitive responses which end up having an effect on the advertising industry structure.<sup>20</sup>

Another source of evidence where these results might have explanatory power is the resolution of account conflicts resulting from the mergers between advertising agencies in the mid-'80s (see Siman 1989). One might claim that the product categories in which there was account shifting are more subject to especially harmful retaliations to news in the market than the product categories where there was not account shifting. This might be particularly true in the cereals, beers, and automobiles product categories where agencies dropped rival accounts.<sup>21</sup>

In light of the propositions stated above, it is also relatively straightforward to understand the results of some of the literature on trade associations. One simply needs to write down the payoff function for the market characteristics under consideration, compute the second order derivatives, and apply the above results. Furthermore, the results here do not depend on the normality of the random variables (as it is the case for most of the papers on that literature).<sup>22</sup>

### 5. The Advertising Agency as a Strategic Agent

In this section, I examine the equilibrium of the advertising industry, assuming that it is under the conventional wisdom in terms of information structure: (a) more information is better for a firm, and (b) the competitor having more information is worse for the firm. The conditions for these results were derived in the previous section. We restrict our attention to the case in which  $q_1$  and  $q_2$  take only the values 0 or 1. The results for the case in which the conventional wisdom does not hold are relatively obvious and are also presented in Figures 2 and 3.

It was also assumed in §3 that incentive contracts were not allowed when the advertising agency was hired (due to too much uncertainty, for example). But, after the uncertainty is resolved and the private information is learned, incentive contracts might be possible

<sup>20</sup> Other reasons for the observed difference between the structures of the advertising industry in the United States and Japan may be the lower competitiveness in the Japanese market (Porter 1990) and the different role played by Japanese advertising agencies. In Japan advertising agencies provide more media placement services than ad copy creation services (Fields 1989). One might claim that advertising agencies learn more information about their clients when they create ad copies than when they provide media placement services. The transfer of proprietary information to competitors through an advertising agency would then be a less serious problem. Notice also that given the type of competition in Japan (as discussed above) the relative impact of large market advantages may be more important than for small market advantages. Given the effect of Proposition 1, this will strengthen the incentives for a common agency among competitors.

<sup>21</sup> The results presented in this section are not obviously the only explanation for the evidence on the Japanese-United States advertising industry differences and on the resolutions of account conflicts resulting from the merger of agencies. The discussion presented above is fairly loose and only exploratory.

<sup>22</sup> The results of this literature have typically corner solutions: give all information or no information at all to the competitor. In fact, this is not general, and intermediate solutions do exist for a set of the parameters (of the payoff function) of measure different than zero.

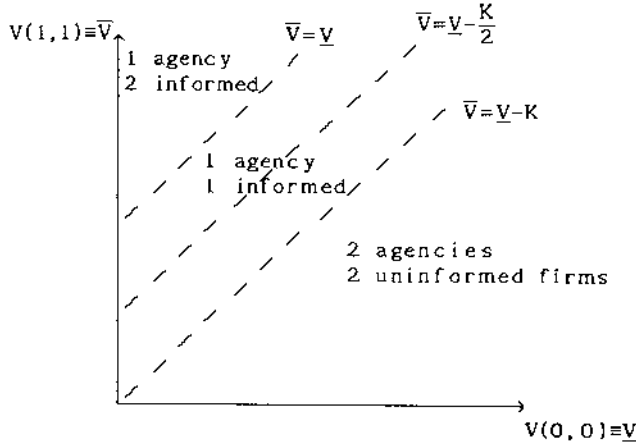
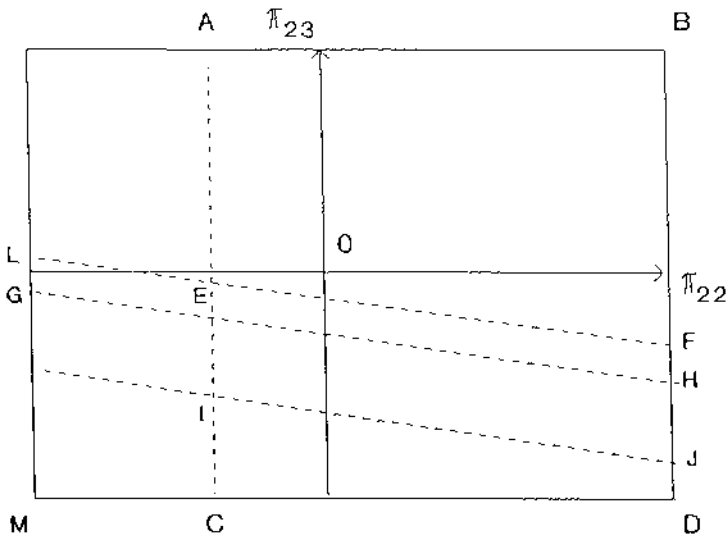


FIGURE 2. Agency Equilibrium in  $[V(1, 1), V(0, 0)]$  Space

(it is our assumption that this is the case; the situation in which incentive contracts are never possible is available upon request). The problem that remains to be solved from §3 is what happens when both competitors select the same agency (or it is not specified in the contracts that the agency cannot deal with the competitor).



Assumptions:  $\pi_{13}, \pi_{12} > 0$

[ABDC] : More information is better (Proposition 1)

[LFDM] : Competitor having more information is worse  
(Proposition 2)

[EFDC] : Conventional wisdom

[GHDM] : Firm and competitor having more information at the same  
time is worse (Propositions 3 and 4)

[UDCI] : Industry equilibrium with two agencies (Proposition 5)

FIGURE 3. Agency Equilibrium in  $(\pi_{22}, \pi_{23})$  Space

If incentive contracts are allowed when the private informations are revealed, the agency can select to give the information to just one firm or to both firms, as the outcomes are completely deterministic for a firm that has all the information. If the agency decides to give the information to both firms, it gets  $2[V(1, 1) - V(0, 1)]$ .<sup>23</sup> If the agency decides to give the information to just one firm, it is able to get  $V(1, 0) - V(0, 1)$  from the firm it gives the information to and zero from the other one.

Can we say anything about the relative size of the agency's two alternatives? It is easily seen that

$$V(1,0) - V(0,1) - 2[V(1,1) - V(0,1)] = V(0,0) - V(1,1),$$

such that the agency gives the information to only one firm if the private information outcome is superior to the complete information outcome. Proposition 4 presents the result.

**PROPOSITION 4.** *The agency gives the information to one firm only, if and only if the private information outcome is superior to the complete information outcome (i.e.,  $V(0, 0) > V(1, 1)$ ).*

The revenue from giving the information is then equal to

$$\text{Max} \{V(1,0) - V(0,1), 2[V(1,0) - V(0,0)]\}.$$

Foreseeing these revenues, the firms in stage 2 offer

$$P_1 = P_2 = \frac{K}{2} - \frac{1}{2} \text{Max} \{V(1,0) - V(0,1), 2[V(1,0) - V(0,0)]\},$$

such that the profits of the agency remain at zero.<sup>24</sup> If the agency elects to give the information to both firms the expected profit for each firm is  $V(1,1) - K/2$ ; if the agency gives the information to only one firm, the expected profit for each firm is

$$\frac{V(1,0) + V(0,1)}{2} - \frac{K}{2}.$$

Foreseeing these events the firms compare the separate agencies outcome with the common agency outcome. The direction of the comparison is stated in Proposition 5.

**PROPOSITION 5.** *The firms choose different agencies in the first stage if and only if  $K < V(0, 0) - V(1, 1)$ .*

Figure 2 presents graphically the result in the space  $[V(0, 0), V(1, 1)]$ . Figure 3 does the same for the results of Propositions 1 through 5 in the space  $(\pi_{22}, \pi_{23})$ . The discussion presented in the previous section could then explain why  $V(0, 0) - V(1, 1)$  might be smaller in Japan and in the products categories stated in Siman (1989) where the merged agency kept two competitor products. These results could then help explain the much greater concentration in the Japanese advertising industry and the data in Siman (1989).

## 6. Concluding Remarks

This work is a first step towards understanding why firms prefer not to leak (or to leak) information to competitors through a common advertising agency. General conditions on the payoff functions are derived such that more information makes a firm better off, and the firm is worse off when the competitor has more information. In particular, it is noticed that (1) the way in which the competitor's reaction to the firm's

<sup>23</sup> Notice that if one firm is not interested in getting the information, the agency finds in its best interest to give this piece of information to the other firm (this can be done through a contract contingent on outcomes because the other firm has all the information).

<sup>24</sup> It is assumed that the probability of Firm  $i$  getting the information from the agency is equal to the one for Firm  $j$ .

situation is harmful in that particular situation (*strategic effect*) and (2) the degree to which the competitor's actions can (or cannot) be increasingly costly to the firm (*uncertainty effect*), play a crucial role in the analysis. These important results are reported in Propositions 1 and 2. Advertising agencies, when deciding their policies on account conflicts, must be aware of the nature of competition between their potential clients.

The evidence presented is merely exploratory and motivates further empirical work on the type of competition firms engage in across countries and product categories: Is the interaction between the competitor's reactions and the news to which they react especially harmful? Are the competitor's actions increasingly costly? Further work is also needed to understand the behavior on information transfers under common values, as well as some relaxation of the quadratic assumption. The results presented here can also be interpreted in the broader perspective of when does a firm want to communicate its private information to competitors. The common advertising agency framework guarantees credibility to what is being communicated.<sup>25</sup>

**Acknowledgements.** I am grateful for comments on an earlier version of this paper by Drew Fudenberg, John Hauser, Al Silk, Jean Tirole, Russell Winer, the Area Editor, two anonymous referees, and especially Birger Wernerfelt. All remaining errors are my responsibility alone.

<sup>25</sup> This paper was received December 19, 1991, and has been with the author 9 months for 2 revisions. Processed by Marcel Corstjens, former Area Editor.

### References

- Aaker, D., R. Batra, and J. Myers (1992), "Advertising Management," Englewood Cliffs, NJ: Prentice-Hall.
- Advertising Age* (1985), "The Mighty Urge to Merge," October 26.
- Bernheim, D. and M. Whinston (1985), "Common Marketing Agency as a Device for Facilitating Collusion," *Rand Journal of Economics*, 16, 269-281.
- Dentsu (1989), "Dentsu Japan Marketing/Advertising," Tokyo, Japan: Dentsu Inc.
- Fields, G. (1989), "Gucci on the Ginza: Japan's New Consumer Generation," Tokyo, Japan and New York: Kodansha International.
- Gal-Or, Esther, (1985), "Information Sharing in Oligopoly," *Econometrica*, 53, 2 (March), 329-343.
- (1986), "Information Transmission—Cournot and Bertrand Equilibria," *Review of Economic Studies*, LIII, 85-92.
- McNamara, Jay (1990), "Advertising Agency Management," Richard D. Irwin, Inc.
- Porter, Michael E. (1990), "The Competitive Advantage of Nations," New York: The Free Press.
- Schlossberg, Howard (1992), "IRI, Nielsen Embark on Information Relationships," *Marketing News*, April 27, 13.
- Schmalensee, R., A. Silk, and R. Bojanek (1983), "The Impact of Scale and Media Mix on Advertising Agency Costs," *Journal of Business*, 56, 4, 453-475.
- Silk, A., and E. Berndt (1993), "Scale and Scope Effects on Advertising Agency Costs," *Marketing Science*, 12, 53-72.
- Siman, Salvador J. (1989), "Agency-Client Relationships before and after Mergers in the Advertising Industry," May, Masters Thesis, Boston, MA: M.I.T.
- Smith, N. (1989), "Rossin Greenberg Seronick & Hill (A), (B) & (C)," Boston, MA: Harvard Business School.
- Stole, L. (1990), "Mechanism Design under Common Agency," Mimeo, Boston, MA: M.I.T.
- Takeuchi, Hirotaka (1992), "7th Annual Japan/Berkeley Symposium," Tokyo, Japan.
- Tanaka, H. (1991), "Brand-Building in Japan: Analyses from Consumer and Corporate Behavior Perspectives," Proceedings of the Tenth Annual Advertising and Consumer Psychology Conference, San Francisco, CA.
- The Economist* (1990), "A Survey of the Advertising Industry" (June 9), 1-18.
- Urban, Glen L. and John R. Hauser (1980), "Design and Marketing of New Products," Englewood Cliffs, NJ: Prentice-Hall.
- Villas-Boas, J. M. (1991), "On Promotions and Advertising Policies: A Strategic Approach," Unpublished Ph.D. Dissertation, Boston, MA: M.I.T.
- Vives, Xavier (1984), "Duopoly Information Equilibrium: Cournot and Bertrand," *Journal of Economic Theory*, 34, 71-94.
- (1990), "Trade Associations Disclosure Rules, Incentives to Share Information, and Welfare," *The Rand Journal of Economics*, 21, 3 (Autumn), 409-430.
- Wells, W., J. Burnett, and S. Moriarty (1992), *Advertising: Principles and Practice*, Englewood Cliffs, NJ: Prentice-Hall.