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Mergers, Strategic Investments and Antitrust Policy

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Established firms can diversify into new markets in two distinct modes: through internal development or through conglomerate merger. Building on a dynamic three-stage bargaining model with variable threats, this paper shows that a lenient antitrust position toward horizontal mergers can induce established firms that would otherwise not have entered to enter via conglomerate merger. The vigor of antitrust enforcement toward horizontal mergers also affects the conglomerate acquisition price but it does not influence the choice of entry mode. Finally, the paper brings to light a heretofore neglected avenue through which conglomerate mergers can increase welfare.

Established firms can diversify into a new market in two distinct modes: through internal development or through acquisition. Because of the prevalence of the diversification phenomenon in the US economy, both the business policy field (see Ramanujam and Varadarajan, 1989, for a comprehensive review) and the public policy field (especially antitrust circles) have devoted considerable attention to the choice of the mode of entry.

The business policy field discusses factors that may affect the cost and thus the relative profitability of both modes of diversification entry. Acquisition involves transaction costs that are avoided when entering via internal development. Internal development requires costly investments. These investments can, for instance, take the form of modifying or extending existing production facilities. They allow firms to reduce their future marginal cost of production in the potentially entered market (Biggadike, 1979; Porter, 1985, 1987; Deneffe, 1993). The business policy field has, however, not analyzed how the option of making pre-diversification investments may constitute a credible entry threat that could persuade an incumbent to be acquired in a conglomerate (or 'non-horizontal') acquisition instead of allowing diversification via internal development.

The antitrust debate focuses on the anti-competitive effects of those conglomerate acquisitions that involve acquiring firms that could possibly also enter via internal development (see the 1984 Merger Guidelines, pp. 24–33). Antitrust policy, especially toward horizontal mergers, has undergone significant changes over time.[1] In the first three decades following passage of the Celler–Kefauver Act's (1950) amendment to section 7 of the Clayton Act (1914), enforcement remained consistently vigorous against horizontal mergers. Antitrust enforcement has turned much more permissive as a wave of megamergers that would have been inconceivable in previous decades has received very muted reaction from the Department of Justice and the FTC during

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the 1980s (Bauer, 1983; Krattenmaker and Pitofsky, 1988; Scherer, 1988; Rhoades and Burke, 1990).

An extensive literature discusses firms' incentives to merge horizontally under a lenient antitrust environment and the social desirability of these mergers (see Scherer, 1988, for a review). Possible effects of antitrust policy toward horizontal mergers on key aspects of firms' corporate strategic decisions, such as their diversification strategy have, however, not been studied. This paper analyzes whether antitrust policy toward *horizontal* mergers affects the diversification decision, the choice of the mode of entry, or the *conglomerate* merger transaction. We use a three-stage bargaining model with variable threats which allows us to gain insight into how legal factors affect the complex corporate diversification problem.

The first result of the paper is that a more lenient position toward horizontal mergers can induce firms that would otherwise not have entered, to enter via *conglomerate* acquisition. This finding is consistent with the phenomenal increase in volume of both horizontal and conglomerate merger activity during the 1980s (Bauer, 1983; Scherer, 1988).

Our model also implies that the vigor of enforcement toward horizontal mergers, which affects whether a firm that enters via internal development can anticipate to merge horizontally with an incumbent after entry, does not affect the diversifier's choice of the mode of entry. The finding has two implications. First, it questions the plausibility of suggestions (e.g., Steiner, 1975) that certain conglomerate acquisitions take place *because* the law is vigorously enforced against horizontal mergers. Second, it explains the absence of the phenomenon of (horizontal) buyout following entry. It has been argued that the tough antitrust position toward horizontal mergers prevents us from observing blatant examples of this phenomenon (Rasmusen, 1988). Our analysis suggests that, even if horizontal mergers would be permitted, it is unlikely that entry for buyout would be observed frequently.

While potential synergies have been postulated as a major source of gains from acquisition and thus a major determinant of the acquisition price (Jensen and Ruback, 1983; Jarrell *et al.*, 1988), our analysis reveals that, independently of synergies, antitrust policy toward horizontal merger also influences the conglomerate acquisition price in directions that are *a priori* unintuitive.

Finally, some welfare effects emerge from the paper. A frequently advanced argument for allowing conglomerate mergers is that their anticompetitive effects are hard to establish. Our analysis illustrates a heretofore neglected avenue through which the courts' permissive position toward conglomerate mergers may actually be welfare enhancing.

The paper is organized as follows. In the next section we present the dynamic bargaining model, assuming both horizontal and conglomerate merger are legal. The model provides the foundation for the results regarding the various effects of changes in the antitrust environment that are discussed in the third section. Conclusions appear in the final section.

THE ANALYTICAL FRAMEWORK

The dynamic decision model consists of three stages. There are two firms, A and B, that initially operate in distinct markets. Firm A is the (potential) diversifier into firm B's (the incumbent firm) market. Both firms have constant marginal costs. In stage 1, the firms can negotiate about a merger but no synergies are possible between the two firms. Also, in stage 1, firm A's marginal cost is too high to compete profitably in firm B's market.

In stage 2, firm A can make an investment I that generates skills or assets that are transferable to firm B's market and reduce its future marginal cost in that market. We assume that this investment does not generate any externalities. The cost of the investment is normalized to 1 per unit of investment, and there are no other (fixed) entry costs. For simplicity, we assume that the incumbent cannot make investments to lower its future marginal cost. Because in stage 1, firm A has not yet made the investment that would allow it to profitably produce in the new market, a stage 1 merger is clearly a conglomerate (or non-horizontal) merger.

If no merger has taken place in stage 1, then the firms can again agree to merge in stage 3 and obtain monopoly profits. Transaction costs of the merger C are assumed to be the same in stage 1 as in stage 3. For analytical purposes, we can also define a merger in stage 3 as a horizontal merger: While in our three-stage model the entrant never

produces as a separate entity if merger takes place in stage 3, it has made all the investments necessary to profitably produce in the entered market. If negotiations fail again in stage 3, firms maximize profits non-cooperatively and obtain duopoly profits. Third-stage duopoly profits of firm i, $i = A, B$, are a function of I and are denoted by $\pi_i^d(I)$ where $\pi_A^d(I)$ is a non-decreasing function of I and $\pi_B^d(I)$ is a non-increasing function of I. Firm A's *net* duopoly profits (third-stage duopoly profits minus investment cost) are $\pi_A^d(I) - I$. We assume complete information and common knowledge.

The only assumption that we make about non-cooperative play is that if firm A's marginal cost in the incumbent's market falls below some critical value, then the sum of firm A and firm B's duopoly profits is smaller than the maximum of firm A and B's monopoly profits.

It is also important to note that the assumption that there is only one incumbent firm in stage 1 and thus two firms in the market if entry via internal development takes place is only made because it is sufficient to guarantee that, if transaction costs are zero, the firms have a private incentive to merge horizontally after entry via internal development.[2] When the number of firms in the market (including the entrant via internal development) is three or more, private incentives to merge do not necessarily exist.[3] Our results, however, also generalize to the case in which there are many incumbent firms in the market *if* the entrant and one of the incumbents have a private incentive to merge in the absence of transaction costs.

Recall that marginal costs are constant and synergies are assumed to be absent. Thus, if merger takes place in stage 1 or 3, only one firm's production facility will be used. Let π_B^m denote firm B's monopoly profits and let $\pi_A^m(I)$ denote firm A's third-stage monopoly profits as a function of its investment, with the investment cost excluded. The merged firm will then use the facilities of firm B if $\pi_B^m > \pi_A^m(I)$ and of firm A if $\pi_B^m < \pi_A^m(I)$ (and will be indifferent if $\pi_B^m = \pi_A^m(I)$). For simplicity of the exposition, we assume equal division of the surplus from merger. That is the outcome of most bargaining solutions, such as the Nash-bargaining solution, the Kalai–Smorodinsky solution or Rubinstein's solution in a dynamic game with a very small discount rate (Rubinstein, 1982; Friedman, 1986). Equal division is, however, not central to our discussion.

To understand the discussion in the following section regarding the various effects of changes in antitrust policy, it is important to introduce the firms' decision problems in the subgame in which conglomerate merger has not taken place in stage 1. In this subgame, firm A has to decide on an optimal investment, knowing that subsequent horizontal merger will take place if third-stage profits of the merged firm (monopoly profits minus transaction costs) exceed duopoly profits. The difference, denoted $M(I)$, where $M(I) = \max[\pi_A^m(I), \pi_B^m] - \pi_A^d(I) - \pi_B^d(I) - C$, is then divided equally among the firms. Horizontal merger will not take place if $M(I)$ is negative. Firms then play non-cooperatively. Two special cases of investment levels need to be defined for our analysis. First, define I^d as the investment yielding the highest net duopoly profits $\pi_A^d(I) - I$ for firm A, assuming $\pi_A^d(I) - I$ has a unique maximum. Second, define $\tilde{I}^m$ as the investment that maximizes firm A's profits net of investment costs, knowing that horizontal merger can take place in stage 3: $\tilde{I}^m$ thus maximizes

$$\max\left[F_A(I),\ \pi_A^d(I) - I\right]$$

where $F_A(I) = \pi_A^d(I) - I + (M(I)/2)$.

The function $F_A(I)$ represents firm A's net duopoly profits $\pi_A^d(I) - I$ plus its share of the surplus $M(I)/2$ resulting from a horizontal merger in period 2; this surplus may be negative if transaction costs are too high, in which case such merger will actually not take place. We assume that $F_A(I)$ has a unique maximum. If the maximum satisfies $F_A(\tilde{I}^m) \leq \pi_A^d(\tilde{I}^m) - \tilde{I}^m$, then no merger takes place and $\tilde{I}^m$ coincides with I^d.

The interesting case occurs when $F_A(\tilde{I}^m) > \pi_A^d(\tilde{I}^m) - \tilde{I}^m$. Note that $\tilde{I}^m$ will then typically differ from I^d. In this case, the investment $\tilde{I}^m$ provides firm A with the most favorable bargaining position in horizontal merger negotiations in stage 3. The investment $\tilde{I}^m$ depends not only on the monopoly profits of the merged firm but also on the disagreement outcome in stage 3 which equals firms' duopoly profits associated with this investment $\tilde{I}^m$.

The scenario in which firm A chooses an investment $\tilde{I}^m$ in view of future horizontal merger is very relevant for our discussion below. However,

when both conglomerate and horizontal mergers are allowed, it is straightforward to see that immediate conglomerate merger is always at least as favorable to both firms. The diversifier never has an incentive to first invest and enter via internal development in order to be in a superior bargaining position during horizontal merger negotiations after entry. The credibility of the threat to enter via internal development in view of future horizontal merger is sufficient for this scenario not to take place. Either entry takes place via conglomerate acquisition or via internal development without subsequent horizontal merger (when firm A makes a positive investment I^d). The latter only takes place if transaction costs are too high.

This is very intuitive. Under immediate merger, the firms can always imitate the optimal behavior under delayed horizontal merger in stage 3, when firm A has chosen an investment $\tilde{I}^m$, and can thus always obtain the same net profits as under delayed merger. Under conglomerate merger, the firms can usually obtain higher net profits by choosing an investment level that maximizes the joint net profits of the merged firm rather than the investment $\tilde{I}^m$.

ANTITRUST IMPLICATIONS

We are now in a position to analyze the effect of antitrust policy toward horizontal mergers on the diversification decision, the choice of the entry mode and the conglomerate acquisition price.

The Effect of Antitrust Policy toward Horizontal Mergers on Entry

Antitrust policy has typically been more tolerant toward conglomerate than toward horizontal mergers. The vigor of enforcement toward horizontal merger has, however, decreased strongly in the last decade. The imprint of the enforcement actions of the Reagan Administration on horizontal merger activity has been severely criticized (e.g., Krattenmaker and Pitofsky, 1988). Our analysis reveals an additional effect of such weakening of antitrust enforcement against *horizontal* mergers. The proposition below shows that a lenient position toward horizontal mergers not only invites horizontal merger but can also induce firms that would not have entered if future horizontal merger were prohibited to enter via *conglomerate* acquisition.[4] The propositions are proved in the Appendix.

Proposition 1:
(A) Suppose firm A can credibly enter via internal development only if it is allowed to merge horizontally after entry ($I^d = 0$, but $\tilde{I}^m > 0$ so that $F_A(\tilde{I}^m) > 0$). Then (1) entry via conglomerate acquisition takes place if horizontal mergers are allowed; and (2) entry (either via conglomerate acquisition or via internal development) does not take place if horizontal mergers are prohibited.

(B) Suppose firm A can credibly enter via internal development whether or not horizontal merger is allowed after entry ($I^d > 0$). Then horizontal merger law affects neither the entry decision (entry always takes place) nor the choice of entry mode: entry takes place via internal development (without subsequent horizontal merger even if allowed) or via conglomerate acquisition.

Thus, horizontal merger policy can influence whether an established firm chooses to enter via conglomerate acquisition as opposed to not entering at all. A lenient horizontal merger policy will induce a firm that would otherwise not have entered to enter via conglomerate merger if, in the subgame in which no conglomerate merger has taken place, the profitability of entry via internal development depends on the ability to merge horizontally thereafter. Conglomerate merger thus takes place if horizontal merger is allowed if the maximum net duopoly profits that the potential entrant can obtain equal zero ($I^d = 0$ and so $\pi_A^d(I^d) - I^d = 0$) while the maximum net duopoly profits plus its share of the surplus from horizontal merger ($F_A(\tilde{I}^m)$) are positive.

This finding is consistent with the observation of record-breaking volumes of both horizontal and conglomerate merger activity during the 1980s (Bauer, 1983; Scherer, 1988). It is important, however, to mention that, if our theory is correct, the increase in conglomerate mergers following the relaxation in enforcement of horizontal merger law should involve firms that are credible potential entrants. As outside researchers, we cannot claim to be able to disentangle which of the observed conglomerate mergers qualify for that criterion. Even the US government has in no way been successful in court at proving the feasibility of entry via internal development of one of the

merging firms. It therefore seems reasonable to abstain from taking a stance on this issue (more on this topic below).

We can also apply the finding of proposition 1 to reconsider earlier interpretations of the classic case *United States v. El Paso Natural Gas Co.* (376 US 651, 84 S. Ct. 1044 (1964)). Here, the incumbent, El Paso Natural Gas Co., tried to acquire a probable actual entrant, Pacific Northwest Pipeline Company. Given the vigorous enforcement of the law against horizontal mergers at the time, it is very likely that if Pacific Northwest had successfully entered the market (so that $I^d > 0$), El Paso would not have been allowed to acquire it horizontally. It has been argued (e.g., Steiner, 1975) that El Paso tried to acquire Pacific Northwest prior to entry via internal development because the Clayton Act was vigorously enforced against horizontal mergers. Our analysis suggests that this explanation is implausible: If Pacific Northwest could have entered profitably via internal development, then pre-entry acquisition should also have taken place even if horizontal merger was allowed after Pacific Northwest's entry via internal development.

Entry for Buyout

The second antitrust application relates to the interpretation of the virtual absence of the phenomenon of buyout following (and as a motivation for) entry. In a discussion of the entry deterrence models of Spence (1977) and Dixit (1980), Rasmusen (1988) presents an interesting argument to show that the possibility of post-entry buyout fundamentally affects the nature of the entry game and incumbents' incentives to invest in capital to deter entry.[5] In his model, the incumbent first chooses a level of capacity. Afterwards, the entrant decides whether to enter the incumbent's market, choosing a strictly positive capacity level, or to stay out of that market. Then the incumbent decides whether or not to buy out the entrant. If no buyout takes place, both firms decide whether to stay in or exit the industry. Rasmusen shows how the credibility of buyout may lead a firm to invest in capital to enter a market even if it would not have entered if buyout was impossible (see also Saloner, 1987, for a related scenario). Thus, a firm enters to be acquired (or to acquire). Rasmusen then suggests that antitrust laws against horizontal acquisitions prevent us from observing blatant examples of entry for buyout today.

Our analysis provides an alternative explanation for the absence of the phenomenon. While Rasmusen provides an impeccable argument for a world in which buyout is only possible after entry, his argument does not apply if pre-entry acquisition is possible. The analysis of the previous section implies that if entry for buyout is profitable ($F_A(\tilde{I}^m) > \pi_A^d(I^d) - I^d$), that is, if the entrant's threat of incurring an investment $\tilde{I}^m > 0$ in order to be bought out (or to buy out) at a later stage is credible, entry for buyout will in fact not take place. Instead, firms will buy out prior to entry. All anti-competitive effects take place before any investment is incurred. Furthermore, as demonstrated above, the vigor of law enforcement against horizontal mergers does not affect the choice of entry mode and thus cannot be responsible for the absence of the phenomenon of entry for buyout: If entry for buyout is profitable, then it will never take place, whether or not the law is strictly enforced against horizontal mergers.

The Effect of Antitrust Policy toward Horizontal Mergers on the Conglomerate Acquisition Price

The theory presented in this paper suggests that there may exist a heretofore unexplored relationship between antitrust policy toward *horizontal* mergers and the *conglomerate* acquisition price. The nature of this relationship is explored below. The result is important, as it suggests a source of variation in the acquisition price that does not depend on the existence of synergies.

Suppose conglomerate acquisition takes place whether or not horizontal merger is legal ($F_A(\tilde{I}^m) > \pi_A^d(I^d) - I^d > 0$). Suppose, for simplicity, that the incumbent is *mature*: For any level of investment by firm A, its third-stage marginal cost will not be lower than the incumbent's. Using the bargaining solution that we have used throughout this paper, the conglomerate acquisition price equals firm B's disagreement outcome in stage 1 plus half the share of the surplus that is generated by conglomerate merger. The disagreement outcome concerns the profits that firm B can expect to obtain if no conglomerate merger takes place and crucially depends on the investment level that firm A can credibly choose in stage 2. To determine these profits, the firms go through

the thought process of what they would have done if conglomerate merger had been illegal.

If conglomerate merger were illegal and horizontal merger allowed, then horizontal merger would take place in stage 3 since $F_A(\tilde{I}^m) > \pi_A^d(I^d) - I^d$. By assumption of maturity of firm B, only the production facilities of firm B would be used. Firm A thus invests a positive amount $\tilde{I}^m$ even though it is certain beforehand that the investment would never be applied to production. Without such investment, the incumbent firm would not agree to merge in stage 3. If both horizontal and conglomerate mergers are illegal, then firm A would invest an amount I^d in stage 2.

While these scenarios that are envisioned by the firms never take place if conglomerate merger is permitted, they are strategically relevant. The strategically determined profits determine the disagreement outcome for the conglomerate merger negotiations and thus also the conglomerate acquisition price that firm A will have to pay in stage 1. The following proposition expresses how the acquisition price is influenced by antitrust policy toward horizontal mergers.

Proposition 2:
If $\tilde{I}^m < I^d$, the conglomerate acquisition price is higher if horizontal mergers are allowed. If $\tilde{I}^m > I^d$, the conglomerate acquisition price is lower if horizontal mergers are allowed. If $I^d = \tilde{I}^m$, the conglomerate acquisition price is unaffected by horizontal merger policy.

The intuition underlying the specific details of this proposition is rather complex and can be inferred from the proof. The general intuition can, however, be explained in a more accessible manner. An energetic effort to enforce the law against horizontal mergers affects the conglomerate acquisition price not because it decreases the attractiveness of the entered market (which remains unchanged if entry takes place via acquisition) but because it influences the way in which the potential diversifier can credibly threaten to invest strategically if conglomerate acquisition were not to take place. If horizontal mergers are allowed, the credible investment equals $\tilde{I}^m$. If they are not, it equals I^d. Horizontal merger laws thus influence the disagreement outcome in conglomerate merger bargaining and, hence, the acquisition price.

Conglomerate Mergers and Welfare

We now discuss how a tough antitrust policy against conglomerate mergers may decrease welfare. While our reasoning is significantly different from the courts', this provides an additional justification to support the courts' *de facto* permissive position toward conglomerate mergers.

Horizontal mergers have typically been challenged more successfully than conglomerate mergers because the anti-competitive effects of the latter are much harder to establish. One of the ways a conglomerate merger can be condemned is due to its harm to 'actual potential competition' (Department of Justice Guidelines, 1984). Under this theory, if the acquiring firm could enter directly, the conglomerate merger is condemned because it fails to increase competition. However, both the Supreme Court and some circuit courts (e.g., *US v. Marine Bancorporation, BOC Int'l Ltd. v. FTC* and *FTC v. Atlantic Richfield Co.*) have put the burden on the government to prove that the acquiring firm could actually enter via internal development (or 'toehold' acquisition) if conglomerate acquisition was somehow prohibited (see also Hovenkamp, 1985).[6] This proof is extremely difficult for two reasons. First, the acquirer has no incentive to reveal the feasibility of diversification via internal development to the government (but it does have such incentive toward the incumbent). Second, in its 1984 Guidelines, the Department of Justice has required 'particularly strong' evidence of the likelihood of entry via internal development before challenging a merger. The courts have, however, required the government to prove that entry via internal development is feasible. Given the formidable evidentiary requirements, the government has not been very successful at blocking conglomerate mergers and only a few have been blocked on the basis of the actual potential competition doctrine (see, e.g., *Yamaha Motor v. FTC*, 657 F 2d. 971, 977-78 (8th Cir. 1981)).

We suggest a theoretical welfare rationale for this antitrust position by pointing at the harmful effects of prohibitions against conglomerate mergers in the hypothetical scenario in which horizontal mergers are allowed. In addition, our model also implies that if horizontal mergers are illegal, conglomerate mergers can still be welfare enhancing, which should reduce concerns about

the harmful effects of conglomerate mergers. Both claims are discussed below.

Suppose again for simplicity that the incumbent's market is mature, and that conglomerate merger takes place whether or not horizontal merger is legal ($F_A(\tilde{I}^m) > \pi_A^d(I^d) - I^d > 0$). Then, if conglomerate mergers are allowed, only the production facilities of firm B would be used and the actual investment of the merged firm would equal zero. Suppose *for the sake of the argument* that conglomerate mergers are prohibited but horizontal mergers are allowed. Then firm A makes an investment $\tilde{I}^m$ in stage 2 and horizontal merger takes place in stage 3. After the horizontal merger, only the production facilities of firm B are used.

In this scenario, firm A makes an investment $\tilde{I}^m$ solely for strategic purposes. This investment determines the disagreement outcome in stage 3 and thus the division of profits that emerge from the horizontal merger. Its sole purpose is to allow the acquirer to obtain a larger share of monopoly profits because of its manipulation of the non-cooperative outcome that will never occur. Other than that, the investment is a waste. Such rent-seeking behavior does not generate any socially valuable by-product but only results in the dissipation of profits (see Posner, 1975, for a discussion). Thus, while consumer welfare is unchanged, total welfare is decreased by the amount of the strategically determined investment level.[7]

A lenient policy toward conglomerate mergers may also improve total welfare even when horizontal mergers are prohibited. In this scenario, the conditions under which the welfare change resulting from the conglomerate merger is positive are complex, which is elucidated by the following example. The specific conditions of this example only hold when third-stage duopoly profits are generated by a Cournot quantity game. Suppose that demand in the incumbent's market is given by $P(Q) = a - Q$, where Q is total industry output. Let MC_B be the incumbent's marginal cost. The welfare change associated with blocking a conglomerate merger can be written as a function of I^d, and is $\Delta W(I^d) = (1/2)\Delta P(I^d)[(a - MC_B) - 11\Delta P(I^d)] - I^d$, where $\Delta P(I^d)$ is the price decline (written as a positive function of I^d) that would be generated by entry via internal development. This price decline is a decreasing function of firm A's marginal cost at the time of entry and, thus, an increasing function of I^d. Now, $\Delta W(I^d)$ is positive if (1) the scale of entry (and hence the price decline) is sufficiently small or if (2) the investment I^d is sufficiently large (for a given price decline) so that almost all net duopoly profits would be eroded by the investment cost.[8]

A final application of our analysis relates to the welfare effects of *anticipated* changes in antitrust policy. We mentioned that the vigor of antitrust enforcement has waned considerably since the Reagan administration's ascendance to power. Our analysis implies that such anticipated relaxations in antitrust enforcement can generate savings or waste of societal resources that differs from the well-known static welfare changes that the concentration of a market can produce. Consider the case in which antitrust authorities prohibit both horizontal and conglomerate mergers until the end of stage 2. Due to an anticipated change in administration, mergers are not challenged in stage 3. Thus, in stage 2 firm A will make an investment $\tilde{I}^m$ to optimize its bargaining position in horizontal merger negotiations in stage 3 rather than an investment I^d that it would have made if enforcement would have remained vigorous over time. Compared to the case in which the vigor of enforcement remains unchanged, the switch toward a lenient antitrust stance thus generates a welfare gain given by $(I^d - \tilde{I}^m)$ in addition to the traditional static welfare change generated by the monopolization of the market.

CONCLUSION

This paper has studied the effect of antitrust policy on the strategic decisions of established firms that consider entering a market either through conglomerate acquisition or through internal development. The analysis shows that a reduction in the vigor of enforcement of horizontal merger law does not affect the choice of entry mode, although it does affect the conglomerate acquisition price and may induce firms that would otherwise not have entered to diversify via conglomerate acquisition. This is consistent with the strong increase in both horizontal and conglomerate merger activity that has been observed during the last decade. The paper also implies that if conglomerate merger is allowed, entry for buyout should not take place. In fact, such entry has

virtually never been observed. Finally, the courts' *de facto* permissive position toward conglomerate mergers can increase welfare either by eliminating wasteful rent seeking expenditures or by preventing costly investments required to diversify via internal development.

APPENDIX

Proof of Proposition 1: (A) (i) Assume horizontal mergers are allowed. Consider the subgame in which conglomerate merger has not taken place. If $I^d = 0$ and $F_A(\tilde{I}^m) > 0$, firm A will invest $\tilde{I}^m$, enter via internal development and merge horizontally with firm B in stage 3. Since delayed merger is inferior to immediate merger (which saves $\tilde{I}^m$), conglomerate merger will take place. (ii) Assume horizontal mergers are not allowed. In the subgame in which conglomerate merger has not taken place, firm A will not enter via internal development since $I^d = 0$. Thus, in stage 1, firm B has no incentive to merge since firm A cannot credibly threaten to invest in stage 2.

(B) Follows directly from the second section of this paper. ■

Proof of Proposition 2: We prove the result for the case in which the surplus is divided in two, but it also holds when each firm gets any given fraction of the surplus under either conglomerate or horizontal merger. Denote by τ_i, $i = A, B$, the disagreement outcome in stage 1. These are the payoffs of the firms in the subgame in which no conglomerate merger has taken place. In general, the surplus obtained from conglomerate merger equals $M(M = \max[\pi_A^m(I^m) - I^m, \pi_B^m] - \tau_A - \tau_B - C)$. The acquisition price thus equals $\tau_B + (M/2) = (\pi_B^m + \tau_B - \tau_A - C)/2$. This reduces to

$$\left(\pi_B^m + \pi_B^d(I^d) - \pi_A^d(I^d) - C + I^d\right)/2$$

if horizontal mergers are illegal, and to

$$\left(\pi_B^m + \pi_B^d(\tilde{I}^m) - \pi_A^d(\tilde{I}^m) - C + \tilde{I}^m\right)/2$$

if horizontal mergers are allowed. Thus, the acquisition price will be at least as high when horizontal mergers are allowed if

$$\pi_B^d(I^d) - \pi_A^d(I^d) + I^d \leq \pi_B^d(\tilde{I}^m) - \pi_A^d(\tilde{I}^m) + \tilde{I}^m \quad (A1)$$

and strictly higher if and only if Eqn (A1) holds with strict inequality. The acquisition price will be lower if

$$\pi_B^d(I^d) - \pi_A^d(I^d) + I^d > \pi_B^d(\tilde{I}^m) - \pi_A^d(\tilde{I}^m) + \tilde{I}^m \quad (A2)$$

Case 1: $I^d > \tilde{I}^m$
By definition of I^d, it follows that

$$\pi_A^d(I^d) - I^d > \pi_A^d(\tilde{I}^m) - \tilde{I}^m$$

Since $\pi_B^d(I)$ is non-increasing in I, $\pi_B^d(I^d) \leq \pi_B^d(\tilde{I}^m)$ so that Eqn (A1) holds with strict inequality.

Case 2: $I^d < \tilde{I}^m$
Since $\tilde{I}^m$ maximizes $F_A(I)$, it follows that

$$\left(\pi_B^m + \pi_A^d(\tilde{I}^m) - \pi_B^d(\tilde{I}^m) - C\right)/2 - \tilde{I}^m > \left(\pi_B^m + \pi_A^d(I^d) - \pi_B^d(I^d) - C\right)/2 - I^d$$

so that

$$\pi_A^d(\tilde{I}^m) - \pi_B^d(\tilde{I}^m) - 2\tilde{I}^m > \pi_A^d(I^d) - \pi_B^d(I^d) - 2I^d$$

and therefore

$$\pi_A^d(\tilde{I}^m) - \pi_B^d(\tilde{I}^m) - \tilde{I}^m > \pi_A^d(I^d) - \pi_B^d(I^d) - I^d + (\tilde{I}^m - I^d)$$

Since $I^d < \tilde{I}^m$, $\pi_B^d(I^d) - \pi_A^d(I^d) + I^d > \pi_B^d(\tilde{I}^m) - \pi_A^d(\tilde{I}^m) + \tilde{I}^m$ so that inequality (A2) is satisfied.

Case 3: $I^d = \tilde{I}^m$
Then condition (A1) holds with equality. ■

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NOTES

1. In this paper, we use the terms merger and acquisition interchangeably. Financial and tax distinctions between those two forms are not important for the discussion.
2. The assumption that there are private incentives to merge is satisfied in a Cournot quantity game if there are only two firms in the market (if both would produce a strictly positive duopoly output level) and transaction costs are zero. The same holds true for a Bertrand price game as long as the monopoly price of the most efficient firm exceeds the marginal cost of the least efficient firm.
3. For an analysis of these incentives, see Salant, Switzer and Reynolds (1983), Perry and Porter (1985), Deneckere and Davidson (1985), Farrell and Shapiro (1990), Willig (1991), and Gilbert and Newbery (1992). The latter authors extend the work of Salant *et al.* on horizontal mergers to analyze the choice of the entry mode (acquisition versus direct entry) in a Cournot–Nash setting as a function of the number of incumbents, the number of potential entrants and the sequence of entry moves (simultaneous versus sequential). Because the technical conditions that give rise to private incentives to merge are only of subsidiary importance to our paper, we do not focus on these complications and limit the number of firms to two.
4. Clearly, mergers to monopoly were still illegal under the Reagan/Bush administrations. Recall, however, that our model applies to any situation in which a private incentive exists to merge horizontally between one of the incumbents and the entrant via internal development. In this context, the proposition says that a more lenient policy toward horizontal mergers can induce conglomerate merger between the potential entrant and the incumbent. The leniency of the policy must not be interpreted as allowing mergers to monopoly, only as allowing horizontal merger between the entrant and *an* incumbent.
5. In Rasmusen, the incumbent buys out the entrant. In our model, the entrant is the acquiring firm. The distinction is unimportant.
6. In *US v. Marine Bancorporation* (418 US at 633, 94 S. Ct. at 2875 (1974)), the Supreme Court held that at the very least, the government must show the feasibility of an alternative entry method. In *BOC Int'l Ltd. v. FTC* (557 F. 2d 24, 29 (2d. Cir. 1977)), the Second Circuit required a showing of a 'reasonable probability' that the acquiring firm would have entered the market anyway in the near future. The Fourth Circuit has even required 'certainty' of entry by an alternative route if conglomerate acquisition was not allowed (*FTC v. Atlantic Richfield Co.*, 549 F. 2d 289 295 (4th Cir. 1977)).
7. Some antitrust scholars and practitioners, including the National Association of Attorneys General, have typically focused on the risk of higher prices generated by merger (Farrell and Shapiro, 1990). Partly because of the virtually intractable measurement requirements of total welfare analysis, they have only paid scant attention to efficiency considerations (Hovenkamp, 1985). In the described scenario, such measurements are not needed to infer that conglomerate mergers enhance overall welfare.
8. Clearly, for a given relation between I and the marginal cost reduction in the entered market, $\Delta P(I^d)$ is an increasing function of I^d so that the scale of entry and price decline are positively related to I^d. However, if functional forms of the marginal cost decline as a function of I differ across diversifying firm, then the relation between $\Delta P(I^d)$ and I^d will also differ across firms.

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