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# Horizontal Mergers: Law, Policy, and Economics

By GEORGE A. HAY AND GREGORY J. WERDEN\*

The legality of a horizontal merger under section 7 of the Clayton Act turns on a reckoning of its social costs and benefits. This paper reviews what economics has to say about that reckoning and explores the relationship between economic learning and merger law and policy.<sup>1</sup>

## I. The Costs and Benefits of Mergers

The main social cost associated with horizontal mergers arises from their potential to raise price and restrict output. Oligopoly models offer insights into such effects, and we consider them in two groups: models that involve something termed "collusion" and models that do not.

Collusion models began with Edward Chamberlin. He argued that, if competitors were sufficiently few, they would recognize the benefit from acting cooperatively and do so, achieving joint profit maximization without communication. This notion of tacit collusion captured the imagination of economists. Difficulties in reaching an agreement on price were recognized, but the incentive to do so was argued to be very powerful.

George Stigler's (1964) highly influential model focused on the problem of enforcing an agreement. Enforcement depends cru-

cially on being able to detect cheating, and Stigler showed that detection is easier with fewer firms.

More recently, game theory has underscored the importance of Stigler's insight and has shown that Chamberlin's notion cannot be captured in a one-shot game because the incentive to cheat is more powerful than the incentive to agree. Models of repeated games, however, have breathed new life into the notion of tacit collusion by demonstrating that joint maximization is an equilibrium of a repeated game with threats of punishment, provided that the discount factor is sufficiently high (see Carl Shapiro, 1989).

Collusion models generally support a structural merger policy but do not make predictions sufficiently clear to be useful in identifying which mergers should be prevented. The models of Chamberlin and Stigler predict that increased concentration from mergers can lead to collusion and identify factors facilitating collusion; however, neither makes more specific predictions. Models of repeated games indicate that tacit collusion is possible even with very large numbers of firms and predict only that collusion is one of many possible equilibria (see e.g., Carl Shapiro, 1989, pp. 364-6, 371, 379).

Noncollusion models provide clearer predictions. The Bertrand model yields a one-shot Nash equilibrium in prices. With differentiated products, Raymond Deneckere and Carl Davidson (1985) have demonstrated fairly generally that mergers in Bertrand models raise price. Auction models are a variation on the Bertrand theme, incorporating uncertainty about costs or values, and they make similar predictions.

The Cournot model yields a one-shot Nash equilibrium in quantities. Joseph Farrell and Shapiro (1990) have demonstrated that mergers in Cournot models always raise price. A limiting case of the

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<sup>1</sup>We also note that the most important contributions made by economics to merger law and policy were the most basic. Economics provided a rationale for merger policy by explaining the welfare effects of monopoly. Economics set the task for merger enforcement by explaining that mergers have both costs and benefits. Economics provided basic constructs critical to understanding markets: supply and demand, equilibrium, opportunity cost, and especially, economic rationality.

Cournot model is the dominant-firm model, and in this model acquisitions of fringe firms by the dominant firm necessarily raise price.

The Cournot model has endured a century of criticism. The oldest criticism is that setting prices rather than quantities is more realistic and that predictions are drastically different with price-setting. This objection has not been disposed of completely, but David Kreps and José Scheinkman (1983) have shown that capacity-setting followed by price-setting yields a Cournot equilibrium, provided that rationing is efficient. Other objections are that firms can do better and that Cournot behavior is inconsistent with rational expectations, but game theory has exploded both objections within the context of one-shot games (see Andrew Daughety, 1985). The Cournot model also is the only one for which it has been shown that price and output effects of mergers are well predicted by conventional measures of market shares and concentration (see Werden, 1991a).

The most telling objection to all oligopoly models is that they are too simplistic, ignoring essential dynamic and strategic aspects of competition. There is no satisfactory answer to this objection, but the detailed analysis done in actual merger investigations fills some of the gaps left by oligopoly models.

It is desirable to have an empirical basis for merger policy, and until the mid-1970's most economists probably believed that interindustry concentration-profits studies provided that basis. These studies have since been attacked on many fronts, and few economists continue to believe that such studies provide a substantial basis for merger policy (see Werden, 1991b pp. 16-17). Richard Schmalensee (1989 p. 988) has deemed intraindustry studies of the relationship between concentration and price to be the best empirical foundation for merger policy (for surveys, see Leonard Weiss [1989] and Werden [1991b]). These studies have significant problems as well, but most suggest that the Cournot prediction is roughly right (see Luke Froeb and Werden, 1991 pp. 12-13).

Ideally, we would want to base policy on experience with actual consummated merg-

ers, but only a handful of such mergers have been studied. David Barton and Roger Sherman (1984), Severin Borenstein (1990), and Werden et al. (1991) examined four mergers that were opposed by federal antitrust enforcement agencies and that involved large shares in the relevant markets. They found that at least three raised price significantly. Lawrence Schumann et al. (1992) examined three mergers not opposed by federal antitrust enforcement agencies. They found that at most one raised price significantly.

There is less economic learning on the social benefits of mergers than on their social costs. Oligopoly theory makes no important predictions about mergers efficiencies. The empirical literature indicates that shareholders benefit from takeovers (see e.g., Michael Jensen and Richard Ruback, 1983), but shareholders would benefit from anticompetitive mergers as well as efficient ones. It also indicates that mergers generally have not increased the profitability of the acquired firms, but few significant horizontal mergers have been examined (see e.g., David Ravenscraft and F. M. Scherer, 1987 [especially pp. 211-12]). We know of no published case studies evaluating in detail the effects of particular mergers on costs.

Economics also offers little in the way of tools for assessing the magnitude of likely efficiencies from proposed mergers. Moreover, efficiencies may not be unique to merger (i.e., they may be achievable, at least to some extent, without horizontal mergers), and it is difficult to assess the feasibility of various sorts of contracts and joint ventures that can be used to achieve the same efficiencies.

Also critical to the social costs and benefits of mergers are prospects for entry. Economics offers many useful insights about entry, but reliable predictions normally are not possible. Theory has demonstrated the crucial role of sunk costs (see William Baumol et al., 1982), but it has not indicated how large sunk costs must be or how long investments must be committed in order to deter entry (see e.g., Marius Schwartz, 1986). Experience teaches that entry can be a powerful engine for competition—so pow-

erful that mergers may not matter. Experience also teaches that market power may be exercised for a long time despite the possibility of entry.

## II. Merger Law and Policy

Two Supreme Court cases in the early 1960's established the case law's basic approach to mergers under section 7 of the Clayton Act. Economic learning shaped this case law, but the courts generally did not cite it. In *Brown Shoe*, the Court set out criteria for market delineation, including cross elasticity of demand, borrowed from economics, and seven infamous "practical indicia" for delineating "submarkets." In *Philadelphia National Bank*, the Court established a presumption of illegality for horizontal mergers based on market shares, and this presumption was justified in part on the grounds that it was "fully consonant with economic theory."

These two decisions led to hundreds of others in which markets typically were delineated arbitrarily and mergers were held unlawful even when the alleged markets were relatively unconcentrated and the combined market shares of the merging firms were less than 10 percent. Apart from the oblique reference in *Philadelphia National Bank*, the only other reference to economic theory was one in *Rome Cable*, apparently to Chamberlin's notion. Efficiencies were held to be grounds for condemning a merger, and entry was barely mentioned. In dissent, Justice Potter Stewart wrote: "The sole consistency that I can find is that in litigation under §7, the Government always wins."

In this era, economic learning had greater influence on merger policy. Donald Turner, a Harvard Ph.D. in economics and an adherent of Chamberlin's view of oligopoly, was responsible for the 1968 Merger Guidelines. Their restrictive market share and concentration thresholds no doubt reflected the conventional economic wisdom of the day. The 1968 Guidelines did not adopt the "practical indicia" or "submarket" concepts, but still entertained rather arbitrary

market delineation. The 1968 Guidelines made no mention of entry and considered efficiencies to be a possible defense only in "exceptional circumstances."

Merger policy over the past decade has differed markedly from that in the 1960's. The changes are largely attributable to new economic learning, and the 1982 Merger Guidelines were a major milestone. Those Guidelines were the first important policy statement to rely explicitly on oligopoly models. They devoted a great deal of attention to collusion models and a little to the dominant-firm model. Their creator, William Baxter, rejected Chamberlin's view of oligopoly, and their market-share and concentration presumptions were much less restrictive than those in the 1968 Guidelines. The 1982 Guidelines created safe harbors for mergers in markets with (postmerger) HHI's below 1,000 and for mergers that increased the HHI less than 50. The 1982 Guidelines placed substantial weight on entry considerations and considered efficiencies to be a possible defense in "extraordinary circumstances." The 1982 Guidelines also articulated market-delineation principles based on the fundamental concern in merger cases: market power.

The 1984 Merger Guidelines were a minor revision aimed primarily at taking some of the weight off the numbers and perhaps relaxing the standards. The 1984 Guidelines considered efficiencies in all cases but required "clear and convincing evidence."

The case law over the past decade also differs greatly from that discussed above, and the 1982 Merger Guidelines and new economic learning probably have been largely responsible for the changes. We suspect that objections to the concentration-profits studies have played a significant role in the relaxation of merger standards. The case law still relies little on oligopoly models, but references to them have become more prominent, and all have been to collusion models. Earlier cases holding that efficiencies were grounds for condemning, rather than permitting, mergers have not been explicitly overruled, but only a radical fringe consider them to be good law today. Many relatively recent cases have adopted

and applied the important insights on market delineation in the 1982 Merger Guidelines. The two most notable features of merger law over the past decade have been that the government generally has lost and that the stated rationale most often was that entry or the threat of entry would prevent or cure any anticompetitive effects.

The 1992 Guidelines pay roughly equal attention to collusion models and the Bertrand model for differentiated products. While not invoked in an easily recognizable way, the Cournot and dominant-firm models also are mentioned. The 1992 Guidelines devote extraordinary attention to entry. Their extensive discussion is difficult to summarize, but the important point is that the 1992 Guidelines offer what is meant to be a means of predicting whether entry will prevent or cure any anticompetitive effects of a merger.

### III. Conclusions

Merger law and policy have come a long way under the guidance of economic learning, and we think that both are basically sound. While there is considerable room for disagreement about the implications of economic learning for merger policy, we believe that there is a sufficient theoretical and empirical basis for a structural merger policy that accords proper weight to considerations of entry and efficiencies. The Cournot, the Bertrand, dominant-firm, and other models support the prevention of at least very substantial mergers in most cases, as does the limited empirical evidence.

Collusion of various sorts does occur and is a real concern in merger cases; however, the available evidence indicates that collusion concerns do not justify a merger policy significantly more restrictive than that suggested by noncollusive models. While the presence or absence of factors facilitating collusion certainly is relevant in merger cases, the absence of such factors does not justify permitting a merger if noncollusive models and the facts of the particular case indicate that the merger's costs exceed its benefits. Noncollusion models should be relied on more than they have been.

Following the advice of economists, there has been a pronounced movement in merger law and policy away from reliance on simple presumptions, and it may have gone too far. There certainly is an important role to be played by careful economic analysis of particular mergers. The economist's basic tools applied to the detailed facts of an actual industry may yield valuable insights. However, we should not kid ourselves about our ability to predict accurately the effects of particular mergers. Estimation of the price and output effects of mergers (assuming no efficiencies) is rather crude, and estimation of the magnitude of unique efficiencies and prediction about entry are even less reliable.

In light of these limitations, we think that there is considerable merit to a merger policy that relies to some extent on simple rules and that makes no pretext of explicitly measuring the costs and benefits of particular mergers. In addition to the fact that there may be no reasonable alternative, simple rules have significant advantages. They make enforcement far more predictable, benefiting business planning, and they make enforcement less expensive. While the accuracy of court decisions may suffer, that is not so clear. It may come as a blow to economists' vanity, but the outcome of merger litigation probably is not greatly affected by careful economic analysis.

Simple rules come in many flavors, some of which are more popular than others. The most popular is the delineation of safe harbors based on concentration and market shares. Another fairly popular one is considering efficiencies primarily implicitly, in formulating market share and concentration standards. Less popular are rules presuming mergers to be unlawful on the basis of market shares and concentration, but we favor such presumptions under certain circumstances. Thresholds for making a challenge truly likely should be fairly high (e.g., an HHI of 2,500 and a change of 500), and even then, entry, efficiencies, and other factors should be considered. We also would not invoke any such presumptions for differentiated products or products sold through auction mechanisms. For such

products, more direct estimation of the effects of mergers, focusing on the degree of head-to-head competition, would be better.

As we learn more, we can expect merger law and policy to adapt. We hope that neither will be too receptive to the latest developments in oligopoly theory or the latest empirical results. One clear message from history is that new ideas and results ultimately may have little policy relevance. Papers with strong, and unjustifiable, policy conclusions appear regularly, even in *The American Economic Review*.

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