MERGERS THAT ELIMINATE POTENTIAL COMPETITION

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1. INTRODUCTION

Modern merger analysis began with the promulgation of the 1982 Merger Guidelines by the Antitrust Division of the Department of Justice and the Federal Trade Commission. Those guidelines focused on harm to competition from various types of mergers, primarily those between direct competitors but also including vertical mergers and those that “eliminate[d] specific potential entrants.”¹ As part of the latter concern, Section 4.11 of the guidelines endorsed the “theory of potential competition”—the proposition that a merger between an incumbent firm and another at the “edge of the market” could adversely affect competition—and outlined an analytical framework for policy toward such mergers.

Over the following fifteen years, the Justice Department and FTC have issued three revisions of the Merger Guidelines—in 1984, 1992, and 1997. Each extended and clarified the guidelines with respect to particular issues—entry, efficiencies, and competitive effects—but the revisions were also notable for what they deleted. One notable omission from the 1992 and all subsequent versions of the Guidelines was any explicit reference to potential competition. While the agencies provided an accompanying statement asserting there was “no change in their policy toward non-horizontal mergers”² (a category that included potential competition), it seemed clear that potential competition concerns had been downgraded. Indeed, enforcement practice confirmed this.

The reason for this shift of policy emphasis was not any new research indicating that the previously-stated concern with mergers eliminating potential competition was unfounded. The

underlying theory remained unchanged, and the economic evidence, if anything, was becoming stronger. Rather, the root cause of the policy shift was a combination of (a) a stringent new legal standard of proof for potential competition mergers, together with (b) a progressive decline in overall merger challenges as the antitrust agencies and courts came to view mergers in a more favorable light.³

This essay will examine the analytical underpinnings of concern with mergers eliminating potential competition, as well as the policy standards and actual practice toward such mergers. It begins with an outline of the legal foundations of antitrust policy toward mergers between an incumbent and a potential entrant. This is followed by a formalization of theory of such mergers that demonstrates both the incentive of firms to engage in them and the competitive harm from such mergers. We then note a key judicial ruling that reflected doubts about the basis for the doctrine of potential competition and heightened the evidentiary standard for challenging potential competition mergers. The subsequent section provides evidence dispelling such doubts, evidence both old and new that demonstrates the constraining effect of potential competition and the deconstraining effect of merging the potential competitor out of existence. The last substantive section examines some recent cases raising potential competition concerns, with attention to methods used by the antitrust agencies to preserve elements of this doctrine in the face of heightened standards of proof and a skeptical judiciary.

2. EARLY POLICY DECISIONS

Recognition of the importance of potential competition dates back at least to the Temporary National Economic Committee in 1941. In conjunction with the TNEC’s investigation into economic concentration and market power, a congressional staff report concluded:

Potential competition...as a substitute for...[actual competition] may restrain producers from overcharging those to whom they sell or underpaying those from whom they buy... Potential competition...may compensate in part for the imperfection characteristics of actual competition in the great majority of competitive markets.

The legal doctrine of potential competition was the collective product of several decisions of the Supreme Court dating from the mid-1960s through the early 1970s. This section reviews those decisions, focusing on important details of the doctrine and the criteria that they established.

The four leading cases are commonly known as El Paso Natural Gas, Proctor & Gamble, Falstaff Brewing, and Penn-Olin. The named party in United States vs. El Paso Natural Gas was a large Texas-based supplier of natural gas to California, by itself accounting for one-half of that state’s total supply. El Paso had a contract for so-called interruptible supply with a major California utility, Southern California Edison. Pacific Northwest Pipeline Corp. was another out-of-state gas supplier that had previously bid on contracts for So Cal Edison’s business, offering both cheaper service and “firm” or non-interruptible supply. The difficulty with Pacific Northwest’s offer was that the company had no existing pipeline directly serving California, although Pacific Northwest and So Cal Edison had in fact entered into an agreement providing for the construction of the necessary pipeline. One immediate result of that agreement was that

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El Paso reduced its price to So Cal Edison by 25 percent and offered its supply on a firm basis. The other result was that El Paso proposed to acquire Pacific Northwest.

The Justice Department sued to block the acquisition and the Supreme Court upheld the challenge. The Court reviewed evidence of the effect of Pacific Northwest’s bidding on El Paso’s offer prices and concluded that “the mere efforts of Pacific Northwest to get into the California market, though unsuccessful, had a powerful influence on El Paso’s business attitudes within the state.” The fact that Pacific Northwest was not currently supplying natural gas was irrelevant. The Court asserted that “unsuccessful bidders are not less competitors than the successful one. The presence of two or more suppliers gives buyers a choice.”

While the El Paso opinion provided a strong endorsement of the application of potential competition in that case, it offered limited policy guidance regarding the standard for challenging mergers eliminating potential competitors. It stated only that “the effect on competition in a particular market through acquisition of another company is determined by the nature or extent of that market and by the nearness of the absorbed company to it, that company’s eagerness to enter that market, its resourcefulness, and so on.” The Court soon had opportunities to clarify and advance its thinking.

U.S. v. Penn-Olin expanded the reach of the potential competition doctrine to cover joint ventures between two potential entrants into the same market, that is, between two firms neither of which produced in the market in question. Pennsalt Chemicals produced sodium chlorate but

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6 Ibid.
7 Ibid.
not in the southeastern United States, a region where Olin Mathieson had a distribution system
for sodium chlorate (indeed, for Pennsalt) but no production. Growing demand in the southeast
had prompted both companies to consider starting production there, but ultimately they decided
to form a single joint venture production facility.

The Justice Department challenged the joint venture. In the district court’s view, the
relevant question was whether “as a matter of reasonable probability both Pennsalt and Olin
would have built plants in the southeast if Penn-Olin [the joint venture] had not been created.”\textsuperscript{10}
Concluding that was unlikely, the court observed that the outcome of the joint venture was the
creation of one new competitor—the most that otherwise would have occurred—and therefore held
for the parties. The Supreme Court reversed, asserting that the lower court had failed to consider
that the possibility that, even if only one of the companies actually entered, “Penn-Olin
eliminated the potential competition of the corporation that might have remained at the edge of
the market, continually threatening to enter.”\textsuperscript{11}

The Court found evidence that both companies had a basis for independent entry. It
acknowledged the fact that since neither company had competed in the market in question, “it is
impossible to demonstrate the precise competitive effects of elimination of either Pennsalt or
Olin as a potential competitor.” It nonetheless noted that “the existence of an aggressive, well
equipped and well financed corporation in the same or related lines of commerce waiting
anxiously to enter an oligopolistic market would be a substantial incentive to competition which

\textsuperscript{9} Ibid at 378.
\textsuperscript{11} 378 U.S. 158 at 173, 1964.
cannot be underestimated. On this basis, it remanded the case for rehearing.

Two later cases sharpened and extended the doctrine of potential competition. In *Proctor & Gamble*, the Court was confronted with that company’s acquisition of Clorox, which was the largest seller of household liquid bleach. P&G was a large manufacturer of various household products, but contended that it never intended to enter the bleach market itself. There was evidence that P&G had considered but apparently rejected that alternative, and as a result the lower court approved the acquisition. The Supreme Court reversed, noting a number of factors indicating that P&G had both the ability and incentive to enter the market de novo or through a smaller toehold acquisition. As for intent, the Court concluded that P&G’s internal decision not to enter was actually motivated by the fact that “the acquisition of Clorox would enable Proctor to capture a more commanding share of the market.” In summary, the court stated that “the market behavior of the liquid bleach market was influenced by each firm’s predictions of the market behavior of its competitors, actual and potential.” Thus, it seemed, elimination of a firm perceived to be a potential entrant could violate the antitrust statutes much as a merger between actual competitors.

The fourth significant case of this era involved the acquisition of Narragansett, a large New England brewer, by Falstaff Brewing. Falstaff was at the time the fourth largest national brewer but without a presence in the region. It had considered but, according to its executives,

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12 Ibid, at 176.
13 On rehearing, the district court found that neither of the two firms would have entered independently, thus permitting the joint venture to go forward.
15 Ibid, at 578.
16 Ibid.
rejected other alternatives for entering the New England market, including building a new brewery, acquiring a smaller local brewer, or shipping its beer from its existing breweries. Based on this evidence, the lower court approved the acquisition but the Supreme Court again reversed, this time on somewhat different grounds.

The court did not directly dispute the conclusion that Falstaff would not otherwise in fact have entered. Rather, it argued that independent of that, consideration had to be given to the possibility that “Falstaff was a potential competitor in the sense that it was so positioned on the edge of the market that it exerted beneficial influence on competitive conditions in the market.”

The Court directed attention to underlying market conditions and observed that “if it would appear to rational beer merchants in New England that Falstaff might well build a new brewery to supply the northeastern market then its entry by merger becomes suspect.” Thus, the court endorsed the proposition that a company that is perceived as a potential competitor may be prohibited from merging with an incumbent, regardless of whether it was in fact intending separate entry.

The opinions in the El Paso, Penn-Olin, P&G, and Falstaff cases—three of which were reversals of narrower interpretations by lower courts—expanded the reach of the antitrust laws. The Supreme Court made clear that merger enforcement should encompass not only mergers of actual competitors but also mergers between incumbents and potential competitors. Moreover, the latter category included potential competitors in the sense of firms actually contemplating entry and those perceived to be possible entrants. The former represented constraining

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18 Ibid, at 533.
influences on incumbent behavior ("perceived potential competitors" or "constraining competitors") while the latter, absent the merger, would enter and thereby help to reduce industry concentration ("actual potential competitors" or "deconcentrating competitors"). In what follows, we focus primarily on the case of a constraining competitor, or what is sometimes termed “pure” potential competition.

3. ECONOMIC FOUNDATIONS OF THE POTENTIAL COMPETITION DOCTRINE

The economic framework for evaluating the competitive consequences of a merger eliminating a potential competitor is similar to that for a merger between two incumbent firms in a market. The key question in both cases is whether or not the merger relaxes the competitive constraint on pricing by the remaining firms. To be sure, there are differences between the cases that require differences in the analyses. For example, since the potential entrant is not committed to the industry to the same degree as an incumbent with sunk costs and dedicated operations, the behavior of the potential entrant in response to certain price or profit signals may differ. In addition, unlike an actual competitor, the potential entrant does not currently produce in the relevant market, requiring a different method for assessing its importance and the effect of its elimination.

Despite these differences, there is much in common in the analyses of a merger between actual competitors and one involving a potential competitor. This section illustrates several

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19 The terminology of “perceived” and “actual” potential competitors is standard but somewhat opaque. The alternative of “constraining” and “deconcentrating” competitors has therefore been suggested. John Kwoka, “Non-Incumbent Competition: Mergers Involving Constraining and Prospective Competitors,” 52 Case W. Res. L. Rev. 2001.
fundamental points by use of a simple analytical model. We begin by contrasting the competitive and monopoly outcomes in a specific market setting, and then consider how that market equilibrium changes in the presence of a second actual or potential competitor. Since a merger between a single incumbent and that second competitor will preserve or restore the monopoly result, the difference in profits to the incumbent is a measure of its incentive to merge. Corresponding changes in allocative efficiency and in consumer harm measure the adverse effects of the merger on market equilibrium.

3.1 The Effect of Actual and Potential Competition

From among the limitless possible specifications of market demand, firm costs, and behavior, we employ a simple, but familiar and tractable, example. Though specific in its details, this example serves as a guide for intuition about the effects of various types of competition between incumbent firms and with a potential entrant, and ultimately a guide to the effects of merger that eliminates the latter. Throughout we assume a linear inverse market demand curve \( P = A - bQ \), where \( P \) and \( Q \) are market price and quantity, respectively. All firms are initially assumed to have constant and identical unit costs—that is, no scale economies and no differences among firms, actual or potential. This assumption implies a cost function \( C = cq \), where \( c \) is marginal cost and \( q \) is any single firm’s output. A later cost function will add fixed costs \( F \) to \( C \). This market demand curve and cost curve are shown in Figure 1 (the other entries will be explained momentarily). Firm profit may be written simply as \( \pi = Pq - cq \).

We begin with two benchmark cases—perfect competition and then unconstrained monopoly. In the perfectly competitive case, the market equilibrium is determined by setting price equal to marginal cost. Thus, \( P = c \), which implies that market quantity \( Q = (A - c)/b \).
These results are shown in Table 1, column (a), and illustrated in Figure 1. Given the fragmented nature of a perfectly competitive industry, each individual firm’s output is negligible and its profits (as well as those of the entire industry) are zero. Consumer surplus—the difference between consumers’ valuation of the product and the price they must pay—is graphically the total of areas D, E, and F in Figure 1. Under competition, area DEF constitutes the maximum total of consumer surplus possible in this market, so that “consumer harm” at the competitive point of operation is zero. These, too, are shown in Table 1.

We next turn to the case of a simple monopoly unconstrained by the threat of entry. Such a firm maximizes profit $\pi = (P - c)q$ by setting its marginal cost $c$ equal to marginal revenue in the market. For the demand curve in Figure 1, marginal revenue is also a straight line but with twice the slope of demand. Again for this example, the intersection of $c$ with marginal revenue MR is at $Q^m = (A - c)/2b$, or one-half the competitive output. Market price $P^m$ is readily determined to be $(A + c)/2$, which in turn implies profits (shown as area E) in the amount

$$\Pi^m = \frac{(A - c)^2}{4b}. \quad (1)$$

This profit represents a transfer from consumers to producers and is one portion of consumer harm from monopoly. The other portion is the loss of surplus on output that the monopolist does not produce, i.e., between $Q^m$ and $Q$. This added harm, sometimes called deadweight loss, is shown as D in Figure 1 and in the present case equals one-half of the amount of profit, or $(A - c)^2/8b$. Together with profit, total consumer harm consists of D plus E, specifically, $3(A - c)^2/8b$. All of these results are summarized in Table 1.

If the competitive case serves as a benchmark against which to compare other outcomes, monopoly represents the extreme alternative that maximizes profit extraction from the market.
In addition, the monopoly outcome is also the objective that firms in more constrained market conditions seek to realize by merger. We next specify a range of such other market conditions and then measure the gains that firms in each case realize from merger.

The “shared monopoly” case involves joint profit maximization by the incumbent firm and the second firm—the potential entrant—when the latter indeed does enter the market. If those two firms jointly maximize profit, there would be no difference in overall market outcomes. Rather, under present assumptions they would share the market equally, so that the incumbent firm’s profit would decline from the full monopoly level to one-half that amount. The remaining half would simply become the entrant’s profit.

More likely than such perfect cooperation would be a post-entry equilibrium that involves some shortfall of total profit from the monopoly case. That equilibrium might range from nearly perfect cooperation down to intense competition with zero profit to both the incumbent firm and the entrant. Here we focus on a standard intermediate case, namely, the Cournot model, which can be taken as illustrative of equilibria between those extremes.20

In the familiar Cournot model, each firm acts independently, choosing its output in the belief that its rival will not change its own output from the observed level. From this behavioral assumption, firm and market equilibria can be derived. In the present case entry results in two identical firms each with profit-maximizing output given by the usual formula:

\[ q_1^c = q_2^c = \frac{(A - c)}{3b}. \quad (2) \]

so that total \( Q^c = 2(A - c)/3b \). That in turn implies market price \( P^c = (A + 2c)/3 \), from which it
follows that each firm’s profit
\[ \pi_1^c = \pi_2^c = \frac{(A - c)^2}{9b}. \quad (3) \]
Total output in the market has now increased relative to the monopoly result, since
\[ 2\frac{(A - c)}{3b} > \frac{(A - c)}{2} \quad (4) \]
Deadweight loss has been reduced to \( \frac{(A - c)^2}{18b} \) and total consumer harm reduced to \( \frac{5(A - c)^2}{18b} \). These results appear in Table 1 as column (c). As is apparent, Cournot outcomes lie between the competitive result and full monopoly.

The joint profit maximization and Cournot models presume some accommodation of the potential entrant by the incumbent. Alternatively, the incumbent can seek to deter the potential entrant altogether by setting a price (or equivalently, output) that results in non-positive profits to that firm upon entry. Under present assumptions about costs, that crucial price (the “limit price”) would be equal to the entrant’s unit cost \( c \). Any higher price would permit profitably sales by the entrant in the market. In setting that price, however, the incumbent also guarantees zero profit to itself, making entry deterrence supremely costly. Unless the incumbent finds some other advantage in entry deterrence, this case seems unlikely to arise.

A more interesting strategy is the leader-follower model originally developed by Stackelberg. In this model the incumbent firm exploits its advantage of already being in the market to move prior to the entrant. As a result, when the entrant or follower calculates its optimum output, it is confronted with the incumbent’s existing output and must maximize its profit given that output. But that in turn permits the incumbent or leading firm to factor into its

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20 Discussion of the Bertrand, Cournot, and other modes of competition discussed in this section can be found in standard industrial organization texts. See, for example, Jeffrey Church and
own profit calculation the later output decision of the follower, thereby allowing the leader to increase its share of sales and profit.\textsuperscript{21}

Formally, the follower’s residual demand is given by

\[ P_2(q_1, q_2) = A - bq_1 - bq_2 \] (5)

and so its profits can be written

\[ \pi_2(q_1, q_2) = P_2(A - bq_1 - bq_2) q_1 - cq_2 \] (6)

Equating marginal revenue to marginal cost gives the follower’s best response function

\[ q_2 = R_2(q_1) = \frac{A - bq_1 - c}{2b} \] (7)

The leader’s profit function can be written as follows:

\[ \pi_1(q_1, q_2) = P(Q) q_1 - cq_1 \] (8a)

\[ = (A - bq_1 - bq_2) q_1 - cq_1 \] (8b)

Now substituting for \( q_2 \) what is known to be the follower’s output response yields the leader’s profit as

\[ \pi_1(q_1, R_2(q_1)) = (A - bq_1 - bR_2(q_1)) - cq_1 \] (9)

Maximizing with respect to its own \( q_1 \) implies the leader’s profit-maximizing output as \( q_1^* = (A - c)/2b \). Substituting this into equation (7) gives the follower’s output as \( q_2^* = (A - c)/4b \), so that total market quantity \( Q^* = 3(A - c)/4b \) and price \( P^* = (A = 3c)/4 \). Profit earned by the leading

Roger Ware, Industrial Organization: A Strategic Approach 2000.

\textsuperscript{21} As is well known, this requires the leader’s output choice to be irreversible. A common interpretation is therefore that \( q \) denotes capacity, rather than output. See, for example, Church and Ware, op. cit.
firm is readily calculated to be $\pi_1^s = (A - c)^2/8b$, while the follower earns only half that amount, or $\pi_2^s = (A - c)^2/16b$.

Note that total output under Stackelberg exceeds that under Cournot, so that total industry profits decline. The profits of the leading firm rise, however, reflecting its first-mover advantage, while the second firm/follower’s profits fall substantially. The increase in total output ensures that both deadweight loss and consumer harm decline. The former is now $(A - c)^2/32b$ and the latter $7(A - c)^2/32b$, both less than under Cournot and much less than under monopoly.

Our final example modifies the Stackelberg model in a manner that illustrates entry deterrence rather than accommodation in any form. It also illustrates a crucial motivation for merger eliminating a potential competitor. The key modification to the previous model is the inclusion of a fixed and irreversible cost $F$, so that $C = c q + F$. The incumbent firm again moves first, but now solves for the state of residual demand that is just insufficient for an entrant with fixed costs $F$ to be able to cover its full cost of operation in the market. The necessary residual demand is determined by the incumbent’s choice of output, so the incumbent can maximize its profitability conditional on entry deterrence. Its profitability will be less than the unconstrained level, of course, but will generally exceed that from simple Stackelberg leadership, which after all accommodated some level of output by the entrant.

Formally, the entrant’s profit function in the presence of fixed cost $F$ will be given by

$$\pi_2 (q_1, q_2) = (A - bq_1 - bq_2) q_1 - cq_2 - F \quad (10)$$

Substituting the entrant’s best response function from equation (5), we can solve for the entrant’s
profit:
\[
\pi_2(q_1) = \frac{(A - bq_1 - c)^2}{4b} - F. \tag{11}
\]

The incumbent’s entry-deterring (“limit”) output is found by setting this equal to zero and obtaining an explicit expression for \(q_1^d\). In this model, that is given by
\[
q_1^d = \frac{A - c - 2\sqrt{bF}}{b} \tag{12}
\]

All of these are shown in column (e) of Table 1. Not surprisingly, the limit output depends upon the magnitude of fixed cost \(F\). A larger \(F\) implies that the entrant needs larger output to break even, so that the incumbent is free to restrict its output to a greater degree (i.e., more closely approximating the monopoly level) without inducing entry.

It should be noted that entry deterrence may not in all cases result in greater profit relative to accommodation. Whether that holds can be determined by comparing the incumbent’s profit from Stackelberg leadership and from entry deterrence. As shown in Table 2, that difference will depend on the value of \(F\). Assuming, however, that the incumbent’s profits are greater from entry deterrence, total market quantity is reduced even though the incumbent itself produces more than it did under simple leadership. The actual values again depend on the magnitude of fixed cost \(F\). Market price \(P^d = c + 2\sqrt{bF}\) and deadweight loss is simply given by \(2F\). Total consumer harm is again the sum of deadweight loss and profit and depends in a complicated way on the magnitude of fixed cost.

This analysis has demonstrated a variety of possible outcomes when an incumbent firm is faced with either the threat of entry or its realization. The outcome depends on such factors as
the nature of post-entry competition, a possible first-mover advantage, and the existence and size of fixed costs. Common to all scenarios is the fact that the incumbent’s profits are reduced relative to unconstrained monopoly. We shall now explore another alternative strategy, namely, merger to eliminate that second firm.

3.2 The Merger Option

Faced with a constraining second firm, the incumbent may pursue an entirely different strategy, namely, merging with that firm and thereby eliminating the constraint. Here we examine three key effects of the merger option: the increase in the incumbent’s profit, the increase in allocative inefficiency from the merger, and the increase in total consumer harm. The first measures the incumbent’s incentive to merge the constraining competitor out of existence, while the latter two capture different aspects of the adverse consequences of such a merger.

Central to this analysis is the fact that, under present assumptions, elimination of the second firm results in the incumbent achieving (or restoring) the unconstrained monopoly outcome. Table 2 reports the differences in incumbent profits, in allocative inefficiency, and in consumer harm for the three alternatives to monopoly that have been examined. Each of these difference is net of the cost to the leading firm of acquiring the second or potential competitor. For example, in the case of Cournot competition, each firm earns \((A - c)^2/9b\) in profit. In order to eliminate the rival by merger, the leading firm would have to compensate the rival for its foregone profit, presumably through the purchase price. The incumbent can afford to pay that amount to eliminate the rival since the resulting unconstrained monopoly yields more than

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22 To this point we have assumed that the potential entrant is unique. The next subsection examines the effect of modifying this assumption.
sufficient incremental profit.

This can be illustrated with an example from Table 1. As shown there, profits from an unconstrained monopoly total \((A - c)^2/4b\) whereas each firm in the two-firm Cournot case earns profits of \((A - c)^2/9b\). Assuming one of those two firms fully compensates the other in the process of acquisition, the target firm therefore collects \((A - c)^2/9b\) from the acquirer. After payment of that amount, the remaining firm still earns positive net profit relative to the Cournot outcome, since monopoly profit exceeds the sum of its original profit plus the cost of eliminating its rival: \(((\frac{1}{4} - \frac{29}{9})(A - c)^2/b) = (A - c)^2/36b > 0.\) It is this net profit gain that is recorded in column (a) of Table 2.\(^{24}\)

Since the monopoly outcome produces the maximum profit to the incumbent, all merger scenarios in fact result in net profit increases, implying that the incumbent generally has an incentive to merge the constraining other firm out of existence. Columns (b) and (c) of Table 2 report the net profits to the leading firm from eliminating its rival in the case of Stackelberg leadership and of entry deterrence, respectively. While the algebraic expressions become increasingly complex, suffice it to say that positive net profits result in each case. Comparison

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\(^{23}\)Knowing this, the rival might demand more than \((A - c)^2/4b\), but we leave complications of bargaining strategies aside here. It is also possible that the potential entrant is producing profitably in another market, in which case its foregone profits from being eliminated from production of this product are reduced.

\(^{24}\) These entries represent per-period profits, whereas the rival would presumably be paid a lump-sum equal to the present value of its profit stream. The results are equivalent. It should also be noted that, despite the Cournot environment, this merger does not run afoul of the paradoxical result that mergers in a Cournot industry are generally not profitable. That result arises for mergers among incumbents, not, as here, between an incumbent and a potential entrant. See S. Salant, S. Switzer, and R. Reynolds, “Losses from Merger: The Effects of an Exogenous Change in Industry Structure on Cournot-Nash Equilibrium,” Quarterly Journal of Economics, May 1983.
reveals that the gain is greater in the case of Stackelberg leadership, while the case of entry
deterrence depends on the magnitude of fixed cost F (more on this below).

The other rows in Table 2 report the increase in deadweight loss from a merger that
creates a monopoly from a market previously characterized by Cournot behavior, Stackelberg
leadership, and entry deterrence. Deadweight loss, for example, rises by \(5(a - c)^2/72b\) when
Cournot competition is eliminated, and consumer harm rises by \(7(A - c)^2/72b\). When the pre-
merger market involves Stackelberg leadership, these increases are larger than in the Cournot
case since the elimination cost of the rival is smaller in the case of Stackelberg leadership. For
the case of entry deterrence, once again the magnitude of fixed cost affects the conclusion.

These results confirm two important propositions. First, merging with a constraining
competitor—actual or potential—generally is a profitable course of action to the leading or
incumbent firm. Second, such a merger can produce competitive harm, and that harm will be
larger when the competition that previously existed in the market was stronger.

The case of in which the incumbent firm initially behaved so as to deter entry is closest to
our concern with mergers that eliminate a constraining firm. In this case merging with that
constraining outside firm increases the incumbent’s profit as well as allocative inefficiency and
consumer harm by amounts that depend in complicated ways on the magnitude of fixed cost.
The profit gain is more modest than in other scenarios,\(^{25}\) in part because with fixed costs

\(^{25}\) In order to calculate correctly the change in profit when the incumbent eliminates a
constraining potential entrant, the cost functions of the monopoly and Cournot incumbents must
include the same fixed cost term F as the entry-deterring Stackelberg leader. This departs from
the earlier models of monopoly and Cournot firms, whose cost functions have no fixed cost term.
Alternatively, “profits” could be interpreted throughout as variable profits, i.e., apart from any
preventing entry, the incumbent is already earning substantial profit. This result corroborates the proposition (and empirical finding) that eliminating a constraining potential competitor is likely to have a smaller effect than the elimination of an actual competitor.

Since the complexity of some of the formulas in Table 2 may obscure their significance, we offer a numerical example. Suppose simply that \( A = 9, b = 1, c = 1, \) and \( F = 2. \) Thus demand can be written as \( P = 9 - Q \) and total cost as either \( C = q \) or \( C = q + 2. \) Table 3 reports the increases in profit, inefficiency, and consumer harm from merger eliminating a second firm, either an actual or potential competitor, much as in Table 2 but now for this numerical example. As is again evident from the Table 3 entries, all of these changes are positive, indicating that there is private gain (profit) from such mergers, but also social losses (allocative inefficiency and consumer harm). Most significantly for present purposes, if a potential entrant that has been deterred by a Stackelberg incumbent is eliminated by that incumbent, the incumbent’s net profit rises by 1.4, whereas allocative inefficiency rises by 4.0 and consumer harm by 5.4. Relative to industry revenues of 21.2, this represents a 6.6 percent gain in profit, an 18.9 percent increase in allocative inefficiency, and a 25.4 percent rise in consumer harm—all nontrivial effects.

3.3 Some Generalizations

The above model has been based on a number of specific assumptions, including a single potential entrant, identical incumbent and entrant, and a homogeneous product. Here we reexamine these assumptions to determine to what extent they relax that constraint and alter the basic results.
We begin by considering the possibility that there exist two or more potential entrants. If all the potential entrants are identical and identical to the incumbent, then the elimination of any single one of them by merger is without social harm since the remaining one(s) would continue to impose the same competitive constraint. Of course, since such a merger would not relax the constraint on the incumbent, it would not increase the incumbent’s profitability. Accordingly, if such a merger were observed, it must occur for some other reason other than increased market power.

Next we return to the case of a single potential entrant but allow the possibility that the entrant’s unit costs $c_1$ exceed those of the incumbent, that is, $c_1 > c$. The constraint imposed by that potential entrant is now of lesser magnitude, since even without merger the incumbent can raise price to $P_1 = c_1$ and earn unit profit $(P_1 - c) = (c_1 - c) > 0$ without inducing entry. It also follows that the elimination of such a potential entrant is less beneficial to the incumbent under any scenario, since the incumbent’s but-for profits are larger.

These two generalizations might arise simultaneously insofar as there are multiple potential entrants with different costs. For concreteness, suppose that there are two potential entrants, one with costs identical to those of the incumbent ($c_1 = c$) while the second has higher unit costs $c_2$. As before, a merger between the incumbent and the most efficient potential entrant relaxes the constraint on price, but in this case the magnitude of the effect is limited to the difference between the unit cost of the most efficient potential entrant and that of the next most efficient entrant, that is, $c_2 - c_1$. This difference could be a very small increment if the potential entrants are nearly identical, or larger as their costs differ by more.

All of the above has assumed that the incumbent and the potential entrant(s) produce the
same product and that they differ—if at all—in their unit costs. These assumptions make the analysis straightforward, but in many real world settings, firms’ products in fact differ in substantive ways (“quality”) or in intangibles (“reputation”). As a result potential entrant’s unit costs do not fully determine its constraining effect, since a lower cost entrant may offer a lower quality product that is dispreferred by many customers. A determination of the constraining effect of any potential entrant and hence the value of its elimination through merger requires a different framework.

That framework is provided by the differentiated-products Bertrand model. For competition among multiple incumbents, that model assumes a set of products with varying characteristics that have some appeal to all customers but each appealing more strongly to some. As is well-known, a merger between two incumbents in such a market setting may have anti-competitive effects that depend on the degrees of substitutability between the two products and also with other products in the relevant set. When one of the merging parties is a potential entrant whose product, upon entry, would be differentiated, the same considerations apply. The entrant’s degree of product differentiation would determine the extent of constraint imposed prior to entry as well as the extent to which the constraint is relaxed by merger. Calculation of effects is not straightforward, but the basic methodology would follow that used to evaluate mergers between incumbents with differentiated products.

4. SECOND THOUGHTS AND HEIGHTENED STANDARDS

26 Church and Ware, op. cit.
27 For example, there are no diversion ratios to estimate post-merger shares, since the potential
The cases reviewed in Section 2 constituted the foundation of an antitrust policy toward mergers that eliminated a potential competitor that was consistent both with policy toward mergers between actual competitors and with the underlying economics. Despite this, the court soon appeared to have misgivings about this position. These misgivings manifested themselves in changes in evidentiary standards articulated by the court in the next such case before it. Those new standards had the effect of circumscribing that policy. This section examines that case, with particular attention to the standard of proof.

The case in question involved Marine Bancorporation,28 the parent of a large Seattle bank that sought to acquire Washington Trust, a midsize bank headquartered in Spokane. Under state banking laws, de novo entry into the Spokane area would have been virtually impossible, but the government contended that Marine Bancorp could have entered in some other less anticompetitive manner. The district court concurred and prohibited the merger, but the Supreme Court reversed. It held that actual potential competition required that the firm have some other feasible means to enter that “offer[ed] a substantial likelihood of ultimately producing deconcentration of that market or other significant procompetitive effects.”29 Based on its view that Washington state banking laws rendered infeasible any method of entry other than acquisition, it concluded that the government’s theory of the case was flawed.

The court took the opportunity presented by Marine Bancorp to expound on its modified views of the potential competition doctrine in general and the standards of proof in particular. It addressed actual potential competition and perceived potential competition separately. With

entrant by definition has no pre-merger sales.

respect to the former, it opined that “[u]nequivocal proof that an acquiring firm actually would have entered de novo but for a merger is rarely available.” This passage at once suggests that the Court would henceforth seek “unequivocal proof” and that it did not expect to find it.

The Court then declared that potential competition issues primarily involved perceived potential competition: “[T]he principle focus of the doctrine is on the likely effects of the premerger position of the acquiring firm on the fringe of the target market.” And with respect to such potential competition, it offered this guidance:

In developing and applying the doctrine, the Court has recognized that a market extension merger may be unlawful if the target market is substantially concentrated, if the acquiring firm has the characteristics, capability, and economic incentive to render it a perceived potential de novo entrant, and if the acquiring firm’s premerger presence on the fringe of the target market in fact tempered oligopolistic behavior on the part of existing participants in that market.

This statement sets out three criteria for applying the doctrine of potential competition. The first--that the market be concentrated--is straightforward and consistent with previously developed economic theory. From an economic and business perspective, the same may be said about the second criterion, that requiring the potential entrant to have relevant “characteristics, capability, and economic incentive.” The third element, on the other hand, is quite different. It requires evidence that the potential entrant “in fact” restrained non-competitive behavior by incumbent firms, that is, a demonstration of a market effect from the premerger interaction of the potential entrant and one or more incumbent firms. While such evidence is obviously important when available, this standard is considerably more stringent than that which has conventionally

29 Ibid, at 633.
30 Ibid, at 636.
31 Ibid.
governed challenges to mergers between two incumbents. For the most part, the latter has
derived from economic understanding of the effect of concentration and mergers on price,
supplemented, to be sure, with whatever evidence of likely actual effects there might be.32 For
mergers that eliminate potential competition, by contrast, the court seemed to signal that
evidence of actual constraining interactions would be required.

The evidentiary standard set out by the Supreme Court in the *Marine Bancorp* case has
been adopted and in some cases extended by the antitrust agencies.33 It has made antitrust
challenges to mergers eliminating a potential competitor considerably more difficult. No doubt
this was the intent, reflecting the court’s unease with proceeding against such mergers based on
its understanding of the economic evidence. As we shall now see, however, evidence of the
effects of eliminating potential competition was (and is) quite substantial, as substantial as that
for mergers reducing actual competition.

4. ECONOMIC EVIDENCE ON THE EFFECT OF POTENTIAL COMPETITION

Economic evidence of the effect of potential competition and the effect of its elimination
falls into two broad categories. One type of evidence consists of studies of markets with
different or changing numbers of potential entrants. With appropriate controls and modeling,
empirical analysis can then determine how equilibrium price in the market varies with the number of potential competitors. The second type of evidence is the direct study of mergers that eliminate a potential, as opposed to an actual, competitor. Again with appropriate controls for other possible influences, a merger-specific study directly measures the change in price in markets where an incumbent firm in fact merges with a potential entrant.

Although merger-specific studies lack the generality of cross-sectional evidence, they have two distinct advantages over those examining numbers of potential competitors. The first advantage is simply that merger-specific studies directly address the key question, whereas studies of the presence of potential competitors rely on inference with respect to mergers. Indeed, merger-specific studies can be viewed as tests of the theory developed in Section 3 that sets out the gain in incumbent profit from removing a constraining potential entrant.

A second advantage of a merger-specific study is that it avoids a bias that likely affects the evidence from studies of different or changing numbers of potential competitors. A merger is a purposeful pairing of particular firms, for example, a particularly constraining firm. By contrast, studies that compare market equilibria with differing numbers of potential entrants cannot capture the unique effect of eliminating a particular potential entrant. Rather, they measure something like the average effect across all potential entrants. Hence, the effect of its elimination via merger is likely to be greater than the effect from a simple reduction by one in the total number of potential competitors in some market.

We now turn to summaries of both types of empirical evidence.

_The governing levels of corporate management_
4.1 Merger Eliminating Potential Competition

Empirical study of mergers eliminating potential competition is in principle no different than the study of mergers between incumbent firms. In practice, however, potential competition mergers pose distinctive challenges, most especially because of the difficulty of reliably identifying firms that are potential entrants. Firms that by virtue of their “characteristics, capability, and economic incentive” can enter quickly and cheaply are not always obvious. For this reason, until recently there appears to have been no empirical studies examining the effects of an actual merger eliminating potential competition. One such study now exists.

That study, by Kwoka and Shumilkina, 34 examines a merger in the airline industry, where mergers have been numerous, where the requisite data on prices and competitors are readily available, 35 and where it is considerably more straightforward to identify potential entrants than in other markets. Airline markets are conventionally defined as city-pairs, and potential entrants are taken as those carriers that serve either or both endpoints but not the route itself. Endpoint-serving carriers are viewed as uniquely and advantageously positioned to enter service on the route quickly, cheaply, and easily for at least three reasons. First, such carriers have in place some of the ground infrastructure required to serve the route. Second, they have market-specific information useful in developing and providing service for local needs. And third, they have the feed or connecting traffic that makes entry more likely profitable relative to a standalone new

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35 As a vestige of their regulated days, airlines are required to report to the Department of Transportation considerable information from a ten percent sample of all tickets written each quarter. That data base is publicly available, permitting research into a variety of pricing, concentration, and other aspects of airlines’ presence in markets throughout the country.
Studies of airline pricing share a common methodology that is relevant to the investigation of potential competition and mergers that eliminate potential competitors. Figure 2 illustrates the standard market setting, with letters X, Y, and Z denoting incumbent firms on the route from A to B, while M and N are endpoint-serving firms, i.e., potential entrants. Note that M serves one endpoint while N serves both, but in neither case does the carrier serve the route itself. Whereas standard studies of airline pricing examine the effect of concentration among incumbents X, Y, and Z, or the effect of changes in concentration caused by a merger between two incumbents (e.g., X and Y), our focus is a merger between one incumbent and one endpoint-serving potential entrant (e.g., X and M). In this latter case, concentration on the route itself does not change, since the incumbent carriers do not change in number, identity, or share. The key question is whether route pricing nonetheless changes as a result of the elimination of a particular potential competitor by merger.

The Kwoka-Shumilkina study examines the 1987 merger between US Air (now US Airways) and Piedmont Airlines.\textsuperscript{36} The data employed in this study consist of 132,000 observations on pricing by carrier, by route, and by time (four quarters before the merger and four quarters after, with a break at the time of merger to minimize transition effects). Routes are separated into several categories, most importantly, (a) those where US Air was an incumbent and Piedmont a potential entrant, or the reverse, (b) those where both US Air and Piedmont were

\textsuperscript{36} At the time of the study USAir-Piedmont was the most recent merger of major carriers not involving a bankrupt or financially distressed airline. The merger of Delta and Northwest occurred subsequently.
incumbents (permitting measurement of the usual merger effect), (c) those where either US Air or Piedmont was an incumbent and the other neither an incumbent nor a potential entrant, and (d) those where neither carrier was an incumbent or a potential entrant. The latter two categories serve as benchmarks since they represent markets not affected by the merger. In addition, the regression models (technically, a difference-in-difference approach) includes a number of other standard control variables.

The results of this study are as follows: Where US Air and Piedmont were both incumbents, the merger resulted in a statistically significant price increase of 10.2 percent relative to routes unaffected by the merger. This result is consistent with other studies of the price effect of competitively-problematic airline mergers, including two previous studies of this US Air-Piedmont merger by Peters and by Morrison. Most importantly for present purposes, where one of the two carriers was an incumbent and the other a potential entrant, the merger caused a 6.0 percent price increase on the route. This result is the most direct test of the effect on pricing from a merger eliminating a constraining potential competitor. In this case that effect was a statistically significant price increase more than half as large as that from eliminating an actual competitor, and occurred even though concentration on the route itself did not change.

This study analyzed some variations on this result. These included the following (all results summarized in Table 4):

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39 It is also noteworthy that the total value of consumer harm from this merger was 40 percent as large as that from reduced competition on routes involving the reduction of actual competition,
(1) The price-constraining effect of either US Air or Piedmont as a potential competitor was statistically the same whether that potential competitor was large or small, as measured by the size of their endpoint operations. It appears that the threat itself, more than size, constrains the incumbent.

(2) The effect of the loss of a potential competitor varies with the degree of concentration among incumbents in the market. The effect is greatest for mid-ranges of Herfindahl concentration, lower both when concentration is high (presumably reflecting already successful market coordination) and when concentration is low (presumably because coordination is more difficult, with or without the potential entrant).

(3) The price effect from the loss of either US Air or Piedmont as a potential competitor on routes where the other carrier is an incumbent is statistically the same regardless of whether that potential competitor serves just one endpoint or both endpoints.

(4) The effect is greater when US Air is the incumbent facing Piedmont as the potential entrant, than when their roles are reversed. This scenario is consistent with the fact that US Air initiated the merger, presumably because of the considerable constraint that Piedmont imposed on its pricing.

This study appears to be unique in the literature in that it provides direct evidence on the question of the effect of eliminating a constraining potential competitor.

4.2 The Presence of Potential Competitors

Insight into the effect of eliminating potential competition by merger can also be gleaned from estimates of price differences in markets with and without potential competitors, or more

although this effect is the result of these carriers’ route configurations.
generally with varying numbers of potential competitors. The previously expressed caveat to this approach is that the full effect of a merger between a particular incumbent and a particular potential competitor is likely to be underestimated by comparison of two markets that simply differ in their numbers of potential competitors. The latter is the mean effect of reducing the number of potential competitors by one, whereas a merger—or at least one that raises competitive concerns—should have a distinctly greater effect since it eliminates a potential competitor that is particularly constraining.

The Kwoka-Shumilkina study has already demonstrated this difference. Table 4 reported the estimated price effect from the merger on routes where one of the carriers was an incumbent and the other a potential entrant to be 6.0 percent. In the full regression model not reported here, the estimated effect of another variable that counts the number of potential entrants (other than US Air or Piedmont) implies that one fewer such firm increases price by 1.9 percent. Thus, reducing the number of “anonymous” potential entrants has less than one-third the price effect compared to the case where the merger eliminated the merger partner as a potential entrant. The difference between these two effects is statistically significant, confirming the tendency of studies of the presence of potential competitors to substantially underestimate the price effect from merger eliminating a particular potential competitor.

With that caveat in mind, we nonetheless review studies of varying numbers of potential competitors, since properly interpreted, they do cast some further light on merger effects. The relevant studies derive from four industries—airlines (again), railroads, pharmaceuticals, and cable TV. This section summarizes those studies.
4.2.1 AIRLINES

By far the largest group of studies is in the airline industry. The reasons for the attention to airlines have already been mentioned, and we also have described their standard empirical approach: Across many different city-pair markets, data are compiled on incumbent concentration, the number of potential competitors, and various control variables. Concentration is usually measured by HHI or sometimes by its inverse, "numbers-equivalent,"40 and potential competitors are the count of carriers serving either endpoint but not the route itself, as shown in Figure 2. These data are then used in a regression model on price on the route (generally, yield per mile), controlling for other possible influences.

A good example of such a study is that by Morrison and Winston,41 who investigated 769 airline markets in 1983. After controlling for various other factors and adjusting for service quality, they found that each additional actual carrier on a route causes price to fall by 4 percent, and that one more potential competitor brings price down by 1.4 percent. Both effects are statistically significant, and the difference between them is also significant. The Morrison and Winston results establish two important, and intuitive, propositions: In equilibrium, the number of potential competitors does matter, and each potential competitor matters less than an actual incumbent.

This methodology, with many variations, has been employed in a substantial number of

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40 This inverse measure can be interpreted as the number of equal-size competitors in the market, that is, the number that would generate the measured HHI.
studies of the airline industry. Most are reviewed elsewhere, \(^{42}\) permitting a briefer summary of those studies together with somewhat closer attention to a few additional contributions. Twelve previous studies of the airline industry have included potential competition as a causal factor in explaining prices, one of those studies being that by Morrison and Winston described in detail above. Most studies use a count of endpoint-serving airlines as their measure of potential competition, with some variation in details. All twelve studies find that potential competition results in lower prices by incumbent carriers, in ten cases by statistically significant amounts. Except as noted below, the amounts range between one quarter of one percent to about two percent, and in all cases are less than the amount of the price decline from one additional actual competitor, specifically, from one eighth to one third as large. These results corroborate the proposition that potential competitors indeed do constrain incumbents’ pricing behavior and hence alter market equilibrium toward a more competitive outcome.

Two of those studies, together with one published subsequent to that review, find a larger effect from potential competition in airline markets when the potential entrant is Southwest Airlines. Southwest’s historically low costs, its distinctive service, and until recently its unique business strategy have made it a particularly potent constraint on its rivals. Richards\(^{43}\) found a substantial and significant “Southwest effect” when that carrier served one endpoint of a route, and indeed the effect was essentially the same effect as when it served the route itself.

\(^{42}\) Kwoka (2001), op cit.
Morrison\textsuperscript{44} reports a 33 percent reduction in price when Southwest serves both endpoints and a 12-13 percent effect when it serves one endpoint of a route. These magnitudes should be compared to a 46 percent reduction when it serves the route itself.\textsuperscript{45} Goolsbee and Syverson\textsuperscript{46} estimate a structural model of entry and find that incumbents lower their prices as soon as Southwest is perceived to be positioning itself for entry. Price reductions prior to entry range up to about 19 percent and are followed by further declines up to 13 percent upon actual entry. All of these results demonstrate the constraining effect of potential competition in these markets, and in particular the enormous impact of Southwest Airlines, which has an effect much like a maverick firm even when it is only a potential competitor.

4.2.2 RAILROADS

Much as in the case of airlines, identifying potential competitors in geographic space is somewhat easier than with respect to product market competition. Accordingly, two studies have examined pricing in the railroad industry in ways that cast light on the effect of potential competition. The setting is described in Figure 3, where one railroad X serves the entirety of the origin-to-destination route A-C, whereas a second carrier Y operates only on segment A-B and can therefore offer its customers only inferior “interline” service, i.e., involving a transfer between carriers at point B. By virtue of its proximity to B-C, however, carrier Y can likely enter into operation on that segment B-C, and hence offers full through service more quickly and


\textsuperscript{45} All of these results are statistically significant. Morrison notes that Southwest’s pervasive and enormous presence meant that it accounted for more than half of the total gains from airline deregulation.
cheaply than other carriers.

Two studies of railroad pricing surveyed elsewhere\textsuperscript{47} have examined the effects on incumbent pricing of service on A-C from the existence of another carrier serving A-B in Figure 3. Despite the obvious greater expense and time required to entry into rail markets, these studies nonetheless find substantial and significant price reductions on routes where such competitors were poised to enter.

4.2.3 CABLE TV

In markets where product rather than geography determines potential competition, studies must confront the task of identifying such firms in some other way. The remaining industry studies reviewed here employ a variety of strategies for doing so. Savage and Wirth\textsuperscript{48} examine cable TV markets where technologies such as wireless cable, local telephone companies, second cable operators, and other sources provide threatened or actual competition. The Savage-Wirth study first estimates the probability of entry into a particular market by such alternative providers, depending on various cost, demographic, and local industry characteristics. Those estimated probabilities are used to explain prices charged by the incumbent cable TV monopoly.

Interpreting the estimated entry probabilities as a measure of the constraining effect of potential competition, the Savage-Wirth results imply that potential competition has a substantial effect on incumbents’ behavior. Interestingly, however, the effect is not to force prices down, but rather to increase “quality” by adding channels. As the probability of entry rises from 3 to 42


\textsuperscript{47} Kwoka (2001), op cit.
percent, the incumbent monopoly cable operator responds by offering six additional channels, a substantial increase over the mean of 32 channels. This evidence corroborates the competitive effect of potential entry, although the precise reasons that the response takes the form of a quality increase rather than a price reduction requires further study.

4.2.4 PHARMACEUTICALS

The pharmaceutical industry has been the focus of several studies of the effects of potential competition. Each study has a somewhat different method for identifying potential entrants. The first, illustrated in Cool et al., involves estimating a “presence vector” of overlapping segments in the operations of existing pharmaceutical firms. Overlap between firms is taken as an indication of their similar interests and comparable resources and hence their potential to enter each other’s segment. The profitability of 22 leading pharmaceutical firms in the U.S. between 1963 and 1982 is then related to actual rivalry and potential rivalry, as measured by overlap, after controlling for other factors. Cool et al find that both greater actual competition and greater potential competition are effective in reducing return on sales. The effects are roughly comparable up through the late 1970s, after which actual competition has had a larger effect than does potential competition. Both effects, however, remain statistically significant.

The other approach for isolating the role of potential competition in specific drug markets

exploits the important patent feature of the industry.\textsuperscript{50} During the period of a drug’s patent protection, of course, there can be no competition. But the pricing strategy of the incumbent firm during this period of time reflects the prospect of future entry and competition. Moreover, after patent expiration the incumbent is faced with actual generic entry or at least the bona fide threat of such entry at any time. Two studies make use of these facts to measure the effect of potential competition.

Ellison and Ellison\textsuperscript{51} examine marketing, product proliferation, and pricing strategies of an incumbent pharmaceutical company in the period leading up to patent expiration. Conditioned by the prospect of generic entry (but without any fear of hastening it), the incumbent’s typical response is found to be to increase its price on the branded version of the drug in the period immediately before patent expiration. The reason is that the incumbent seeks to preserve the high-margin branded segment of the market, while ceding to lower-cost generic rivals the more price-sensitive segments of the market. As a result, somewhat paradoxically, prospective competition increases pre-entry price in a market subject to such segmentation, although post-entry prices generally decline at least moderately.

\textsuperscript{50} Another practice involving pharmaceutical patents may also illustrate the effect of potential competition (though not its merger-related elimination). So-called “reverse payments” involve an agreement between an incumbent drug company with a patented product that enters into an agreement with a generic entrant to postpone entry in trade for a direct payment. One interpretation is that the incumbent is seeking to buy off the constraining competitor, although the practice has other interpretations. For discussion of non-merger related issues raised by potential competition, see John Bigelow and Robert Willig, “Reverse Payments” in Settlements of Patent Litigation,” The Antitrust Revolution ed. John Kwoka and Lawrence White, 2009.

Work by Bergman and Rudholm\textsuperscript{52} examines drug pricing in Sweden, specifically, the behavior of post-patent-expiration price in markets where entry has actually occurred and separately in markets without actual but with potential entry. This study finds that prices fall by essentially the same amount in both cases—about 4 to 8 percent—a result that they interpret as evidence of the substantial importance of the constraining effect of potential competition. Notably, the reason for the smaller price reductions in this study compared to the Ellison and Ellison finding is that in Sweden the incumbent firm commits to what is effectively a maximum price for a drug during the lifespan of its patent. This creates a powerful incentive for a lower base price throughout the patent period, and hence a smaller price reduction after patent expiration, compared to the U.S. experience.

4.2.5 **SUMMARY OF EVIDENCE**

As the above makes clear, there is a substantial body of evidence regarding the effect of the presence of potential competitors on equilibrium in a wide variety of markets. In conjunction with the one study of an actual merger eliminating a potential competitor, this evidence provides considerable support for the proposition that such mergers can have significant anticompetitive effects, support analogous to that underlying policy toward mergers between incumbent firms.

5. **CURRENT APPROACHES TO POTENTIAL COMPETITION MERGERS**

Despite these theoretical and empirical bases for concern with the elimination of potential competition, the evidentiary hurdles set for challenges to such mergers have chilled enforcement

efforts. At the same time potential competition matters continue to arise, perhaps most especially in industries where deregulation has blurred traditional distinctions between services, and in high technology industries, where the possibility of product changes creates more abundant opportunities for entry. Despite the importance of such matters, the antitrust agencies have limited their challenges to potential competition mergers, and when they have pursued them, have modified the manner in which they proceed.

These cases and matters largely fall into three categories.\(^{53}\) First, a few merger cases involving potential competition have gone to trial. Where this has occurred, however, potential competition has been raised as a secondary matter, with the primary allegation being the loss of actual competition. Notable among such cases is the Staples-Office Depot matter, where in addition to evidence of price differences between them due to varying amounts of actual competition, the documents made clear that pricing decisions were altered as a result of the threat of possible entry by the other merging party.\(^{54}\) Both actual and potential competition concerns were in the complaint.

A second and larger category of cases involving the elimination of a potential competitor are those that have settled rather than going to trial. Settlements are particularly useful tools for

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\(^{53}\) Summaries can be found in Kwoka (2001); in Darren Bush and Salvatore Massa, “Rethinking the Potential Competition Doctrine,” Wisconsin Law Review, 2004; and in Darren Tucker, “Thoughts on Revising the Horizontal Merger Guidelines,” The Antitrust Source, October 2009. Also of interest are two recent potential competition mergers that have been the subject of extensive reports by the UK Competition Commission. See “A Report on the Proposed Acquisition by SvitzerWijsmuller A/S of Adsteam Marine Ltd” UK Competition Commission 2007; also, “Ticketmaster and Live Nation Merger Inquiry: Provisional Findings Report,” UK Competition Commission, 2009.

resolution of issues where the agencies prefer to avoid judicial review of legal or economic theories. A number of such cases have arisen in the pharmaceutical, airline, technology, and other industries, including the Primestar-News Corp merger, the proposed US Air-United merger, Google-DoubleClick, and the Hospira-Mayne merger. Many of these have involved considerable concessions by the parties in the face of agency concerns over the loss of potential competition that would result from the merger, but notably without judicial review.

Thirdly, many examples of mergers arguably eliminating potential competition have arisen in regulated or partially deregulated industries. In many such cases primary jurisdiction over competition matters lies with the regulatory agency rather than the antitrust agencies. Regulatory agencies’ “public interest” standard permits a broader approach to mergers eliminating potential competition than strictly antitrust standards, although agencies have dismissed concerns over such mergers at least as often as they have used their authority creatively. Examples include the various mergers between the Bell Operating Companies in the telecommunications sector (reviewed by the Federal Communications Commission), railroad mergers such as that between the Union Pacific and Southern Pacific (reviewed by the Surface Transportation Board), and natural gas pipelines and electric power companies (reviewed by

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60 John Kwoka and Lawrence White, “Manifest Destiny? The Union Pacific and Southern
the Federal Energy Regulatory Commission).  

These cases and others serve to illustrate several observations: First, mergers involving potential competitors continue unabated, and indeed may even be on the increase. Second, these cases involve major industries and companies, suggesting broad importance to the issues. And third, the agencies have sought to avoid direct challenges to such mergers, undoubtedly concerned about their likelihood of prevailing. This has had the unfortunate effect of limiting and distorting policy.

6. CONCLUSIONS

This essay has examined the economic and policy issues raised by mergers that eliminate potential competitors. Such mergers are common and may have substantial effects—not as large as from mergers between incumbent firms, but large enough to raise policy concern. Policy and practice, however, have not reflected the importance of potential competition mergers, largely due to the standards set by judicial precedent and the resulting marginalization of such concerns in the FTC-DOJ Merger Guidelines. As reviewed herein, however, both economic theory and empirical evidence make clear that mergers that eliminate a potential competitor can have the effect of relaxing a competitive constraint on incumbent firm pricing, with substantial adverse effects on consumers.

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While as noted existing evidence is substantial, further research into the effects of potential competition and the effects of eliminating particular potential competitors would provide further corroboration and additional details about those effects. Most important would be direct studies of actual mergers that have eliminated potential competitors that constrain incumbent firm behavior. Mergers that have been allowed to proceed in the belief that there would be no adverse effect from eliminating a potential competitor would provide particular insights into the relevant effects. Out of such research efforts, it may be hoped, a more sophisticated and rigorous policy toward mergers eliminating potential competition will emerge.
### Table 1
Market and Firm Outcomes under Various Competitive Scenarios

<table>
<thead>
<tr>
<th></th>
<th>(a) Perfect Competition</th>
<th>(b) Monopoly</th>
<th>(c) 2-Firm Cournot</th>
<th>(d) Stackelberg Leadership</th>
<th>(e) Stackelberg Entry Deterrence</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Market Quantity</strong></td>
<td>( \frac{A-c}{b} )</td>
<td>( \frac{A-c}{2b} )</td>
<td>( 2(A-c) )</td>
<td>( \frac{3(A-c)}{3b} )</td>
<td>( \frac{A-c-2\sqrt{bF}}{b} )</td>
</tr>
<tr>
<td><strong>Market Price</strong></td>
<td>( c )</td>
<td>( \frac{A+c}{2} )</td>
<td>( \frac{A+2c}{3} )</td>
<td>( \frac{A+3c}{4} )</td>
<td>( c + 2\sqrt{bF} )</td>
</tr>
<tr>
<td><strong>Incumbent Quantity</strong></td>
<td>( - )</td>
<td>( \frac{A-c}{2b} )</td>
<td>( \frac{A-c}{3b} )</td>
<td>( \frac{A-c}{2b} )</td>
<td>( \frac{A-c-2\sqrt{bF}}{b} )</td>
</tr>
<tr>
<td><strong>Incumbent Profit</strong></td>
<td>( - )</td>
<td>( \frac{(A-c)^2}{4b} )</td>
<td>( \frac{(A-c)^2}{9b} )</td>
<td>( \frac{(A-c)^2}{8b} )</td>
<td>( \frac{2(A-c)\sqrt{bF}}{b} - 5F )</td>
</tr>
<tr>
<td><strong>Entrant Quantity</strong></td>
<td>( - )</td>
<td>( - )</td>
<td>( \frac{A-c}{3b} )</td>
<td>( \frac{A-c}{4b} )</td>
<td>( - )</td>
</tr>
<tr>
<td><strong>Entrant Profit</strong></td>
<td>( - )</td>
<td>( - )</td>
<td>( \frac{(A-c)^2}{9b} )</td>
<td>( \frac{(A-c)^2}{16b} )</td>
<td>( - )</td>
</tr>
<tr>
<td><strong>Allocative Inefficiency</strong></td>
<td>0</td>
<td>( \frac{(A-c)^2}{8b} )</td>
<td>( \frac{(A-c)^2}{18b} )</td>
<td>( \frac{(A-c)^2}{32b} )</td>
<td>2F</td>
</tr>
<tr>
<td><strong>Consumer Harm</strong></td>
<td>0</td>
<td>( \frac{3(A-c)^2}{8b} )</td>
<td>( \frac{5(A-c)^2}{18b} )</td>
<td>( \frac{7(A-c)^2}{32b} )</td>
<td>( \frac{2(A-c)\sqrt{bF}}{b} - 3F )</td>
</tr>
</tbody>
</table>
TABLE 2
Change in Profit and Inefficiency for Merger that Eliminates Actual or Potential Competition

<table>
<thead>
<tr>
<th></th>
<th>(a) 2-FIRM COURNOT</th>
<th>(b) STACKELBERG LEADERSHIP</th>
<th>(c) STACKELBERG ENTRY DETERRENCE</th>
</tr>
</thead>
<tbody>
<tr>
<td>LEADER’S GAIN IN PROFIT</td>
<td>( \frac{(A - c)^2}{36b} )</td>
<td>( \frac{(A - c)^2}{16b} )</td>
<td>( \frac{(A - c)^2}{4b} - \frac{2(A - c)\sqrt{bF}}{b} + 4F )</td>
</tr>
<tr>
<td>INCREASE IN ALLOCATIVE INEFFICIENCY</td>
<td>( \frac{5(A - c)^2}{72b} )</td>
<td>( \frac{3(A - c)^2}{32b} )</td>
<td>( \frac{(A - c)^2}{8b} - 2F )</td>
</tr>
<tr>
<td>INCREASE IN CONSUMER HARM</td>
<td>( \frac{7(A - c)^2}{72b} )</td>
<td>( \frac{5(A - c)^2}{32b} )</td>
<td>( \frac{3(A - c)^2}{8b} - \frac{2(A - c)\sqrt{bF}}{b} + 2F )</td>
</tr>
</tbody>
</table>
TABLE 3
Change in Profit and Inefficiency for Merger that Eliminates Actual or Potential Competition: Numerical Example

<table>
<thead>
<tr>
<th></th>
<th>(a)</th>
<th>(b)</th>
<th>(c)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>2-FIRM COURNOT</td>
<td>STACKELBERG LEADERSHIP</td>
<td>STACKELBERG ENTRY DETERRENCE</td>
</tr>
<tr>
<td>LEADER'S INCENTIVE TO MERGE</td>
<td>1.8</td>
<td>4.0</td>
<td>1.4</td>
</tr>
<tr>
<td>INCREASE IN ALLOCATIVE INEFFICIENCY</td>
<td>4.4</td>
<td>6.0</td>
<td>4.0</td>
</tr>
<tr>
<td>INCREASE IN CONSUMER HARM</td>
<td>6.2</td>
<td>10.0</td>
<td>5.4</td>
</tr>
</tbody>
</table>

Note: Calculations based on model

\[ P = 9 - Q \]
\[ c = 1 \]
\[ F = 2 \]
TABLE 4
Estimated Price Increases from USAir-Piedmont Merger

<table>
<thead>
<tr>
<th>Scenario</th>
<th>Price Increase</th>
</tr>
</thead>
<tbody>
<tr>
<td>Elimination of Actual Competition</td>
<td>10.2%</td>
</tr>
<tr>
<td>Elimination of Potential Competition (a)</td>
<td>6.0%</td>
</tr>
<tr>
<td>(b) When Potential Competition is:</td>
<td></td>
</tr>
<tr>
<td>Large</td>
<td>6.2%</td>
</tr>
<tr>
<td>Small</td>
<td>5.4</td>
</tr>
<tr>
<td>(c) When HHI is:</td>
<td></td>
</tr>
<tr>
<td>High</td>
<td>3.9%</td>
</tr>
<tr>
<td>Medium High</td>
<td>7.9</td>
</tr>
<tr>
<td>Medium Low</td>
<td>7.6</td>
</tr>
<tr>
<td>Low</td>
<td>3.5</td>
</tr>
<tr>
<td>(d) When Potential Competition is at:</td>
<td></td>
</tr>
<tr>
<td>Two Endpoints</td>
<td>5.9%</td>
</tr>
<tr>
<td>One Endpoint</td>
<td>6.1</td>
</tr>
<tr>
<td>(e) When Incumbent is:</td>
<td></td>
</tr>
<tr>
<td>USAir</td>
<td>6.8%</td>
</tr>
<tr>
<td>Piedmont</td>
<td>5.1</td>
</tr>
</tbody>
</table>

FIGURE 1

Price

$P_m$

$P$

Demand

Quantity

$Q_m$

$Q$

$C$

$E$

$D$

$MR$