Accommodating Interaction and the Horizontal Merger Guidelines

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Comments by

Dr. John R. Morris[1]
Economists Incorporated

Even though theories of coordinated interaction have presented vexing issues in litigation for the federal antitrust agencies since the 1992 Merger Guidelines, the questions issued by the agencies for comments did not have a single question devoted to coordinated interaction. This appears odd because the lack of success of coordinated interaction theories in litigation stems directly from language in the merger guidelines that is inappropriate and communicates neither the essential economic nor legal elements concerning coordinated interaction. This comment discusses the economic analysis of coordinated interaction and the current treatment of coordinated interaction in the Merger Guidelines.

A General Theory of Accommodating Interaction

The Merger Guidelines state that coordinated interaction "is comprised of actions by a group of firms that are profitable for each of them only as a result of the accommodating reactions of the others." This provides a workable definition from which to explore at least

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[1] Dr. Morris is a Principal at Economists Incorporated, Washington, DC. He holds a Ph.D. in economics from the University of Washington. Prior to joining Economists Incorporated, he served as a Commissioner Advisor, a Senior Economist, and the Assistant to the Deputy Director for Antitrust in the Bureau of Economics at the Federal Trade Commission. He has taught economics at the University of Washington, Indiana University, and Stanford University (Washington Campus). The comments provided here are his own and do not necessarily reflect the views of Economists Incorporated or any of its clients. Philip Nelson provided useful thoughts on an earlier draft of these comments.

three classes of behavior: explicit collusion, tacit collusion, and traditional oligopolistic interaction.[2] I term these behaviors accommodating interaction because they all contain the element articulated in the Merger Guidelines: actions that are profitable because of the accommodating reactions of competitors.

Explicit collusion is clearly the most well known type of accommodating interaction and its study goes back at least to Adam Smith whom opined that "people of the same trade seldom meet together, even for merriment and diversion, but the conversation ends in a conspiracy against the public, or in some contrivance to raise prices."[3] The pernicious nature of collusion led to the common law not to enforce some restraints on trade.[4] Although collusive contracts were not enforceable, they also were not illegal in the United States before the Sherman Antitrust Act of 1890.[5] Hence, we have a history of explicit cartels in the United States and elsewhere from which to study the formation and demise of explicit collusion agreements.[6] From this experience, we have a sense of factors favorable to collusive agreements.[7]

The study of cartels has led to the agreement-detection-punishment ("ADP") paradigm, which posits that a successful cartel must have some agreed-upon terms to limit competition, a method to detect deviations from the agreement, and a method to bring a firm out of line back into compliance. The history of cartels is that many, if not most, fall apart because one or several members find it economic to cheat on the cartel agreement.[8] For example, Dick reports that the Potash export cartel dissolved when firms with plentiful Canadian supplies expanded

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2 *See* Robert Porter and Douglas Zona, 2008, *Collusion*, in ISSUES IN COMPETITION LAW AND POLICY, 1069-84, at 1070.

3 Adam Smith, 1776, THE WEALTH OF NATIONS, Book I, Chapter X.

4 *See* Ernest Gellhorn, 1981, ANTITRUST LAW AND ECONOMICS IN A NUTSHELL, at 1-14 for a discussion of the common law and restraints on trade.

5 *Id.*

6 The Webb-Pomerene export cartels provide another source on cartel stability. *See* Andrew Dick, 1996, *When Are Cartels Stable Contracts?* JOURNAL OF LAW AND ECONOMICS 39: 241-283.

7 See F. M. Scherer and David Ross, 1990, INDUSTRIAL MARKET STRUCTURE AND ECONOMIC PERFORMANCE, Chapter 7; Dennis Carlton and Jeffery Perloff, 1990, MODERN INDUSTRIAL ORGANIZATION, at 216-223.

8 See Carlton & Perloff (1990), at 218-219.

output beyond their quotas.[9] Without an effective enforcement mechanism, cartels often dissolve.[10]

In a seminal article, Stigler provided an information-based theory that explained how a merger could increase the likelihood of collusion.[11] In Stigler's analysis, colluding firms must decide whether a reduction in sales is the result of a general market decline or cheating by rival firms. In his analysis, the ability to detect cheating was proportional to the Herfindahl-Hirschman Index (HHI) measure of market concentration.[12] Hence, a merger that substantially increased the HHI might lead to collusion by increasing the ability to detect deviations from a cartel agreement.

Other studies also indicated that increases in market concentration would increase the likelihood of collusion.[13] Dick, however, found that additional members in a cartel did not decrease cartel stability.[14]

Explicit collusion did not adequately explain the performance of many oligopolistic industries. Some industries had no evidence of explicit agreement, but also did not seem to be performing in a perfectly competitive fashion. For example, Albæk, Møllgaard, and Overgaard report the case of the Danish government publishing firm-specific prices for ready-mix concrete.[15] Within one year, prices rose by 15 to 20 percent. There is no evidence of explicit collusion. Indeed, if explicit collusion occurred before the price publishing, then there is little reason for prices to have increased. But the price increase is consistent with the firms gaining

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9 Dick (1996).

10 *Id.*

11 George Stigler, 1964, *A Theory of Oligopoly*, JOURNAL OF POLITICAL ECONOMY 72: 44-61.

12 The Herfindahl-Hirschman Index of concentration is equal to the sum of the squared market shares of the firms in the market. If a market had four firms with shares of 40, 30, 20, and 10 percent, the HHI would be equal to $40^2 + 30^2 + 20^2 + 10^2 = 1,600 + 900 + 400 + 100 = 3,000$.

13 *See* Scherer & Ross (1990), at 277-78; Tirole, 1990, THE THEORY OF INDUSTRIAL ORGANIZATION, at 247-48.

14 Dick (1996), at 266-67.

15 Svend Albæk, Peter Møllgaard, and Per Overgaard, 1997, *Government-Assisted Oligopoly Coordination? A Concrete Case*, JOURNAL OF INDUSTRIAL ECONOMICS 45: 429-443.

information on competitors and competing less aggressively based upon that information.[16] Economists and lawyers developed two schools of thoughts on these industries.

One school of thought was "tacit collusion" in the economic literature and "conscious parallelism" in the legal literature. The thinking is that when firms are few, they would recognize their mutual situation and behave similar to a cartel, restricting competition on some dimension. But because explicit cartels are unlawful, the firms could only tacitly collude. This reasoning leads to the same ADP paradigm that was developed for explicit collusion. It was necessary for the firms tacitly to agree to limit some competitive dimension, detect deviations from the agreement, and punish cheaters in order to return then to the cartel. In order to have some tacit agreement, it was necessary to have some meaningful communication between the firms, such as announcements of intended price changes or changes in capacity. It was also necessary that colluding firms have some information in which to determine whether the collusion was being maintained, such as data on total industry output, posted prices, transaction-specific prices, or capacity expansions. Finally, it was necessary to have a creditable threat to punish would-be cheaters. For example, a large firm with significant excess capacity might be in a position to expand output quickly to retaliate for cheaters' output expansions. Targeting the specific customers of a potential cheater might provide another form of retaliation.

Game theorists provided intellectual support for the tacit collusion hypothesis. Once terms of collusion are reached, sufficiently quick detection and punishment can result in prices somewhere between competitive levels and monopoly levels.[17] In a simple experiment, Anatol Rapoport showed that a simple tit-for-tat strategy could be an effective method of maintaining cartel compliance. In a study by Robert Axelrod to find strategies for cooperation, Rapaport submitted a simple computer program that began with cooperation, retaliated when others did not cooperate, and otherwise cooperated. This simple algorithm dominated many other more sophisticated programs over time.[18] Additional research more explicitly modeled the role of the

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[16] *Id.*

[17] This is a standard result of the Folk Theorem. *See* Tirole (1990), at 245-247.

[18] *See* Robert Axelrod and William Hamilton, 1981, *The Evolution of Cooperation,* SCIENCE 211: 1390-96.

speed and likelihood of detection.[19] The quicker and more likely the detection (and response), the greater the ability to have prices near the monopoly price instead of the competitive price.[20]

A second tack was to argue that oligopoly interaction resulted in coordinated behavior without tacit collusion. The structure of oligopoly in and of itself creates interdependent behavior. This reasoning goes back at least as far as Chamberlin in 1929.[21] Chamberlin theorized that when sellers were few, each would realize that cutting prices would be matched by competitors. Because such a price-cut would be matched, each oligopolist would recognize the futility of cutting prices, so the result, although through independent decisions, would be the monopoly price. As stated by Scherer (1980), "[f]or the monopoly price to emerge, it is essential only that the firms *recognize* their mutual interdependence and their mutual interest in high price." No "agreement" or "terms of coordination" are necessary to elevate prices above competitive levels.

The kinked demand curve hypothesis is a simple model that captures much of Chamberlin's reasoning.[22] The reason for the kinked demand curve facing an individual firm is that if a firm was to raise prices, its competitors would not follow the price increase; therefore, the firm would lose substantial sales.[23] If a firm decreased prices—that is, cheated—other firms would retaliate by also lowering prices. This asymmetry in price changes produces a "kink" in the firm' demand curve at the current price level, which produces a gap in the firm's marginal revenue curve. The result is that small exogenous changes in demand or cost result in no price changes. The lack of price movement was seen by some as an indication of collusion-like

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[19] *See* Tirole (1980), at 245-276 and sources therein.

[20] *See* Dick (1996), at 250. This result is also consistent with the supply function equilibrium framework in which certain demand can result in monopoly prices but uncertain demand results in prices no higher than the Cournot solution. *See* Paul Klemperer and Margaret Meyer, 1989, *Supply Function Equilibria in Oligopoly under Uncertainty*, ECONOMETRICA 57: 1243-78.

[21] Richard Chamberlin, 1929, *Duopoly: Value where Sellers Are Few*, QUARTERLY JOURNAL OF ECONOMICS 43: 61-100.

[22] See R. L. Hall and C. J. Hitch, 1939, *Price Theory and Business Behavior*, OXFORD ECONOMIC PAPERS 2: 12-45; Paul M. Sweezy, 1939, *Demand Under Conditions of Oligopoly*, JOURNAL OF POLITICAL ECONOMY 47: 568-73.

[23] The kinked demand curve analysis implicitly assumes that all rivals instantaneously know of all price changes.

activity.[24] Conjectural variation models with accommodating conjectures are another type of economic model of accommodating behavior without agreement on terms of coordination.[25]

The tacit collusion models and interdependent oligopoly models may be similar in many ways, but have one distinct difference.[26] Although both types of models reason that small numbers of competitors may act similarly to an explicit cartel because the few rivals recognize their interdependent position, only tacit collusion models posit some type of tacit agreement which may be inferred from the firm behavior. One example of a tacit agreement would be independent retailers agreeing to boycott wholesalers that vertically integrate into retail sales.[27] The Department of Justice alleged that the U.S. tobacco companies tacitly colluded on price during the 1930's.[28] The interdependent oligopoly models, however, have no such agreement. One firm might concentrate on price, another firm concentrate on prices relative to costs, and another concentrate on returns from new investments. Although each firm uses a separate metric for its pricing, output, and judgments of competitive behavior, the net effect is the same: prices are elevated relative to costs beyond the level at which they would have been had each firm not relied upon accommodating reactions from competitors.

Finally, economists have conducted empirical research to try to confirm the presence of accommodating interaction. Initial studies attempted to relate price-cost margins to measures of market concentration. Although many inter-industry studies found that greater market concentration resulted in higher prices, many such studies had serious methodological flaws that limited their applicability.[29] Intra-industry studies have related prices to concentration, with mixed results: higher concentration is related to higher prices in some industries but not in

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[24] *See* sources cited in Scherer (1980) at 167, note 32. Scherer also discusses the opposing evidence suggesting other explanations for price rigidity.

[25] Keith Cowling and Michael Waterson, 1976, *Price-Cost Margins and Market Structure*, ECONOMICA 43: 267-74; Roger Clark and Stephen Davies, 1982, *Market Structure and Price-Cost Margins*, ECONOMICA 49: 277-87.

[26] *See* George Hay, 2008, *Facilitating Practices*, Chapter 50 in ISSUES IN COMPETITION LAW AND POLICY, 1189-1218, at 1195-1201.

[27] *Eastern States Retail Lumber Dealers' Association* v. *U.S.*, 234 U.S. 600 (1914).

[28] *American Tobacco Co. et al.* v. *U.S.*, 147 F. 2d 93 (1944).

[29] *See* Scherer & Ross (1990), Chapter 11.

others.[30] One problem with this literature is that the results do not differentiate between prices elevated because of accommodation versus prices being elevated purely from firms with large market shares unilaterally exercising market power. Therefore, we are left with the fact that an increase in concentration through merger could increase the likelihood or effectiveness of accommodating interaction, but industry-specific information is necessary to conclude that a specific merger would increase the likelihood or efficacy of accommodating interaction.

There is a common thread to the explicit collusion, tacit collusion, and interdependent oligopoly models. The key insight is that all of these behaviors either create or exploit a structure in which less aggressive competition—for example, collusion—is met with less aggressive competition from competitors while more aggressive competition—for example, cheating—is met with more aggressive competition by competitors. This condition is close to and generally consistent with the Merger Guidelines' definition that coordinated interaction "is comprised of actions by a group of firms that are profitable for each of them only as a result of the accommodating reactions of the others." That is, being less competitive is profitable because it is matched by competitors being less competitive. This thought more accurately catches the fundamental distinction between purely unilateral effects theories and coordinated interaction theories. This thought is much broader than the collusion-only framework described by the Merger Guidelines.

This concept of rivals having accommodating strategies goes beyond the traditional oligopoly models. Although the "kinky" demand curve theory is out of vogue since Stigler's article in 1947, more sophisticated theories can capture the essence.[31] Supply function equilibrium (SFE) models provide one example. In SFE models, firms do not chose either prices or quantities as in traditional oligopoly models; instead, firms chose a price-quantity supply

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[30] *See* Scherer & Ross (1990), at 439-40, 444-46, for a review of the literature. Schmalensee concluded: "In cross-section comparisons involving markets in the same industry, seller concentration is positively related to the level of price." Richard Schmalensee, 1989, *Inter-Industry Studies of Structure and Performance*, in HANDBOOK OF INDUSTRIAL ORGANIZATION, Vol. 2, Richard Schmalensee and Robert Willig Ed., at 998.

[31] George Stigler, 1947, *The Kinky Oligopoly Demand Curve and Rigid Prices*, JOURNAL OF POLITICAL ECONOMY 55: 442-44.

function in which higher prices solicit greater supplies. These models have been utilized extensively in the case of electric power markets in which firms literally offer daily supply schedules.[32] A feature of these models is that the optimal supply function for any single firm depends upon the supply functions of its rivals. When rivals have less aggressive supply functions, the optimal supply function may also become less aggressive. That is, rival supply functions that supply less quantity at a given price level can make the residual demand curve less elastic, which results in less firm supplies for each price level for the firm. This interaction among firms can result in higher prices.[33] A merger in such a market can result in higher prices not only by the lessened competition from the merger, but also by the accommodating reaction of rivals.

Models of Bertrand price competition with differentiated products also have accommodating features. Such models typically have each firm's profit-maximizing price as an increasing function of its competitors' prices.[34] Hence, a merger that results in the loss of direct competition between two firms leading to a price increase would also result in higher prices by the merged-firm's competitors and a positive feedback on the merged-firm's prices.

It should be noticed that interdependent oligopoly models do not eliminate the information requirements of standard collusion models. Chamberlin recognized that competitive prices will prevail when there are many sellers, substantial lags between price cuts and retaliation by competitors, or a lack of information on actions of competitors.[35] In the case of a merger, the rivals must be able to observe the less aggressive supply function or prices of the merged firm,

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[32] At least 11 empirical papers have been published based on SFE Models. See Christopher Day *et al*., 2002, *Oligopolistic Competition in Power Networks: A Conjectured Supply Function Approach*, IEEE TRANSMISSION POWER SYSTEMS 17: 1-10.

[33] With certain demand, SFE solutions can range from the competitive price to the monopoly price. With uncertain demand, SFE solutions can range from the competitive price to the Cournot price. *See* Klemperer & Meyer (1989).

[34] *See* Carl Shapiro, 1989, *Theories of Oligopoly Pricing*, in HANDBOOK OF INDUSTRIAL ORGANIZATION, Vol. 1, Richard Schmalensee and Robert Willig Ed., at 343-48.

[35] See Scherer (1980), at 156.

and the merged firm must be able to observe accommodating reactions of its rivals. Without some information or feedback, there cannot be accommodating reactions. Similarly, if some firm adopts a more aggressive strategy, it must be observed by its rivals for them to adjust their supply schedules. Hence, non-collusive analyses of oligopoly interaction still require some information flow between rivals. The better the information flows, the more likely that interaction between the firms will go beyond simple unilateral incentives.

Accommodating Interaction in the Merger Guidelines

The question is whether the Merger Guidelines are written to account for all the ways in which the accommodating reactions of rivals can result in or enhance the anticompetitive effects of a merger. Hence, we now explore the Merger Guidelines and accommodating interaction.

Instead of describing accommodating interaction, Section 2.1 of the merger guidelines defines objectionable *coordinated interaction* in four steps. Step one provides a general, and economically correct, definition of coordinated interaction, which "is comprised of actions by a group of firms that are profitable for each of them only as a result of the accommodating reactions of the others." Step two equates coordinated interaction with collusion. Section 2.1 states that coordinated interaction "includes tacit or express collusion, and may or may not be lawful in and of itself." Step three then gives the necessary conditions for this collusion. "Successful coordinated interaction entails reaching terms of coordination that are profitable to the firms involved and an ability to detect and punish deviations that would undermine the coordinated interaction. Finally, in step four, Section 2.1 states that mergers "may diminish competition by enabling the firms selling in the relevant market more likely, more successfully, or more completely to engage in coordinated interaction that harms consumers." Hence, mergers are objectionable only if they make collusion more likely or if current collusion is more successful or more complete.

Some may object to the characterization that coordinated interaction is the same as

collusion, and some may cheer. Regardless, the Merger Guidelines equate coordinated interaction with collusion. The Merger Guidelines state that coordinated interaction "includes tacit or explicit collusion." They do not state that coordinated interaction "may include tacit or explicit collusion or other mutually interdependent behavior." And although the word "agreement" is not to be found, the "reaching terms of coordination", "detect", and "punish" words clearly match the standard ADP paradigm for collusion.

Section 2.11 goes on to specify the "conditions conducive to reaching terms of coordination." Coordinating firms "need not reach complex terms ... [nor] perfectly achieve the monopoly outcome." Coordinating terms "may be incomplete ... [and] omit some market participants, omit some dimensions of competition, omit some customers." However, coordinating firms must "follow simple terms such as common price, fixed price differentials, stable market shares, or customer or territorial restrictions." Without both the ability and the incentive to reach specific terms or coordination, coordinated interaction cannot occur according to the Merger Guidelines. The Merger Guidelines and Commentaries compound the emphasis on the necessity of agreement by discussing prior instances of explicit collusion as indicators that the necessary conditions for coordinated interaction exist in an industry or within the relevant market. Explicit collusion clearly requires some terms of agreement. The Merger Guidelines do not discuss the differences between information required for explicit collusion versus tacit collusion versus any other form of accommodating interaction.

The Merger Guidelines next discuss factors affecting the detection and punishment of "significant deviations"—that is, cheaters. The section describes the customary factors that make detection easier such as stable costs and demand, available information in prices and quantities, small and frequent transactions, and information on customer-specific transactions. Furthermore, the Merger Guidelines correctly point out quicker detection makes coordinated interaction more likely. The Merger Guidelines are silent on the necessary conditions for punishment. Economic literature suggests that creditable punishment requires available capacity

to expand output to punish the cheater.[36] The only mention of excess capacity in the Merger Guidelines is a discussion of mavericks—that is, firms that could destabilize a cartel because they have either a significant ability or incentive to cheat.

The discussion of mavericks is misplaced in the Merger Guidelines because it is discussed in terms of detecting deviations and not in terms or reaching terms of coordination. If a true maverick exists prior to a merger, then firms would not be able to reach terms of coordination. Allowing an incumbent firm to purchase and change the maverick would then allow rivals to reach terms of coordination when it was not possible prior to the acquisition. Therefore, the discussion of a maverick would be better within a discussion about reaching terms of coordination, rather than detection or punishment of cheaters.

As with the other language of coordinated interaction in the Merger Guidelines, the discussion of detection and punishment is written in terms of collusion. Significant deviations are deviations from "the terms of coordination," which presupposes the firms have agreed upon specific terms.

Recommendations

Given that mergers may increase the likelihood of accommodating interactions and that the Merger Guidelines' current discussion of coordinating interaction largely focuses on the anticompetitive effects recognized by the ADP framework, I recommend that the Merger Guidelines be revised. Specifically, I recommend the revised guidelines:

- Eliminate the current tie between collusion and accommodating interactions;
- Replace the current ADP framework with a Information-Structure framework which would include:

[36] Martin Osborne and Carolyn Pitchik, 1987, *Cartels, Profits, and Excess Capacity*, INTERNATIONAL ECONOMIC REVIEW 28: 413-28.

- More specific guidance on the structural features likely to lead to accommodating interactions;
- More specific guidance on the inter-firm information exchanges likely to lead to accommodating interactions.

To capture the underlying economics, it is necessary for the Merger Guidelines to be revised to reflect the more general framework of accommodating interactions. To accomplish this, it will be necessary to eliminate the ADP language. Instead, the underlying concepts can be addressed in another fashion.

First, it is not necessary "to reach terms of coordination". As discussed above, it is sufficient for firms to recognize their interdependence and act accordingly. Of course, each accommodating firm must conclude that the present value of accommodation exceeds the present value of vigorous competition. To reach such a conclusion, each firm must decide that the necessary informational and structural conditions exist to make accommodation a profitable strategy. Such decisions form an analytical counterpart to reaching terms of coordination. Accordingly, rather that referring to "terms of coordination," the Merger Guidelines may refer to "decisions to accommodate".

Second, the ADP framework can be replaced with a structure-information framework. The pioneering work of Chamberlin accepted that the number of firms needed to be small and the products standardized in order for firms to recognize their interdependence.[37] The number of sellers is reflected in the market shares and HHI thresholds elsewhere in the Merger Guidelines. Similarly, the necessity of entry barriers is also discussed elsewhere in the Merger Guidelines. Section 2.11 already discusses product and firm homogeneity and existing practices that may make accommodating strategies profitable. Section 2.12 already discusses "buyer characteristics

[37] Scherer (1980), at 155.

and the nature of the procurement process."[38] It goes on to state that "If orders for the relevant product are frequent, regular and small relative to the total output of a firm in a market, it may be difficult for the firm to deviate in a substantial way without the knowledge of rivals and without the opportunity for rivals to react. If demand or cost fluctuations are relatively infrequent and small, deviations may be relatively easy to deter." It also discusses the presence of maverick firms that would have sufficiently different incentives that they would not accommodate and make accommodation by rivals unprofitable. The 1982 and 1984 versions of the Merger Guidelines also discussed (1) stable market shares; (2) declining market share for the leading firms; and (3) profitability compared to other markets with comparable risk. These are all factors that are important to a structural analysis of accommodating behavior, whether the accommodation is part of an agreement (tacit or otherwise) or part of accommodating interaction without agreement.

Sections 2.11 and 2.12 of the current Merger Guidelines also discuss information requirements for establishing terms of coordination and detecting deviation, although the references are vague. For example, Section 2.11 states: "Key information about rival firms and the market may also facilitate reaching terms of coordination." But the Merger Guidelines do not specify what information is "key." Section 2.12 states that "if key information about specific transactions or individual price or output levels is available routinely to competitors, it may be difficult for a firm to deviate secretly. Finally, Section 2.12 states: "A firm also may be a maverick if it has an unusual ability secretly to expand its sales in relation to the sales it would obtain if it adhered to the terms of coordination. This ability might arise from opportunities to expand captive production for a downstream affiliate."

With respect to information, the Merger Guidelines have two shortfalls. First, as can be seen in the previous paragraph, the Merger Guidelines do not explain what types of information

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[38] Section 2.12 states that when "large buyers likely would engage in long-term contracting, so that the sales covered by such contracts can be large relative to the total output of a firm in the market, firms may have the incentive to deviate." Although such price terms may violate terms of coordination on price, such contracting may not eliminate the incentive to accommodate. Such contacting would defeat accommodating strategies only if it also corresponds to a significant output expansion and the long-term contract protects the firm from retaliation by others.

are problematic and likely to result in accommodation. As a result, merging firms have little idea as to the information exchanges that are likely lead to a challenge versus information that is deemed innocuous. Second, the discussion on information is not tied to a more general discussion on the economics of accommodating interaction. That is, to have accommodating interactions, firms must have the ability to gauge or to judge the competitiveness of rivals. This information does not need to be specific enough to establish "terms of coordination" on any one dimension, but the information does need to be specific enough to allow a calculation to determine whether continuing to accommodate is a superior strategy compared to competing vigorously.

Section 2.1 of the Merger Guidelines, accordingly, can be improved by providing more specific guidance as is currently provided in other sections. For example, Section 1.5 specifies market share and concentration standards on mergers that are unlikely to cause competitive problems and those mergers that are likely to receive substantial scrutiny. Section 2.12 specifies market shares of at least 35 percent before a unilateral theory of effects would be relevant. Section 3.2 specifies a period of two years from initial market planning to significant market impact for entry conditions. Section 3.3 introduces the concept of minimum viable scale for the evaluating the likelihood of entry. Section 2.1, however, has no such standards to evaluate the evidence. Providing more objective standards in Section 2.1 would provide greater guidance to merging firms.

One avenue for greater quantitative guidance concerns the information exchanged between competitors and the time in which capacity is contracted. In some markets, productive capacity is sold each day; in other markets, productive capacity is sold with annual contracts; in other markets, productive capacity is sold in multi-year contracts over the course of several years. The length of contract and marketing period compared to the speed of information dissemination may be an important determinant of whether sufficient information exists for accommodating interactions. For example, in the electric power industry suppliers compete

every day, but firm-specific data on output is available only after four to six months.[39] Therefore, rival generation companies compete over many contracting periods before competitors know each other's behavior. In contrast, in the market for Southern Powder River Basin coal, contracts are typically for three-year durations so it takes three years to complete a round of contracting. Coal producers know each other's coal production and contract-specific prices every quarter from government reports.[40] Under these conditions it is difficult secretly to expand output within the contracting period.

These examples suggest comparing the period for information dissemination to the contract period. For example, in electric power, the period for dissemination may be 135 days whereas the period for contracting is daily. Hence, the information ratio for electric power would be on average 135.[41] In contrast, the information ratio for SPRB coal may be 0.25.[42] The antitrust agencies may determine that if two or more sources of data (e.g., prices and quantities shipped) have ratios less than 1, then they would conclude that sufficient information exists for accommodating interactions within the market.

Conclusion

The 1992 Merger Guidelines expanded the focus of merger enforcement on unilateral effects theories. Given the increased attention on unilateral effects, it is not surprising that most challenged mergers have involved situations where the post-merger firm has a market share above 35 percent. However, there is reason to be concerned that the focus on unilateral effects

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[39] The Environmental Protection Agency posts hourly emissions data for each thermal generation unit that is greater than 25 mega-Watts of capacity. These data are released by quarter with a one-quarter lag. From the emissions data, one can infer the amount of generation produced. In addition, the Energy Information Administration posts data on total net generation by month. These data have lags of several months.

[40] The U.S. Department of Labor's Mine Health & Safety Administration posts data on tons of coal produced and total hours worked for each quarter. The Energy Information Administration posts data on coal received at each utility plant by month, including the mine source and quality. Regulated utilities also report the delivered cost of the coal. There is about a one-quarter lag in posting of these data.

[41] The electric power ratio is 135 days until information is available (on average) divided by the contracting period of one day.

[42] The SPRB coal ratio is 9 months until information is available (on average) divided a 36 month contracting period.

and an overly narrow description of coordinated effects has led the agencies to miss cases that involve accommodating effects in markets where structural characteristics indicate an increased likelihood of accommodating responses after the merger even if the merged firm would not have a market share of 35 percent. Because anticompetitive effects may occur without explicit or tacit agreements or terms of coordination, I recommend that the federal antitrust agencies consider revisions to Section 2.1 of the Merger Guidelines to reflect this possibility. Such a change would be consistent with sound economic theory and evidence.