

COORDINATED INTERACTION: PRE-MERGER CONSTRAINTS AND POST-MERGER EFFECTS

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INTRODUCTION

Concern about coordinated effects long has been central to U.S. merger policy. The first sets of Horizontal Merger Guidelines (“Guidelines”), issued by the Department of Justice in 1982 and 1984, focused their attention squarely on coordinated effects.¹ The language of the 1984 Guidelines articulated the “unifying theme . . . that mergers should not be permitted to create or enhance ‘market power’ or to facilitate its exercise,” and went on to note that “[w]here only a few firms account for most of the sales of a product, those firms can in some circumstances either explicitly or implicitly coordinate their actions in order to approximate the performance of a monopolist.”² In an important antitrust case just two years later, Judge Richard Posner echoed this view when he wrote that the “ultimate issue” in reviewing a merger under the antitrust laws is “whether the challenged acquisition is likely to hurt consumers, as by making it easier for the firms in a market to collude, expressly or tacitly, and thereby force price above or farther above the competitive level.”³ In the last five years alone, the Antitrust Division and the Federal Trade Commission (“FTC”) have successfully challenged 11 proposed mergers under a coordinated effects theory. The agencies won either partial divestitures or complete abandonment of those proposed consolidations.⁴

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¹ U.S. Department of Justice, Antitrust Division, *1982 Horizontal Merger Guidelines*, available at <http://www.usdoj.gov/atr/hmerger/11248.htm>; U.S. Department of Justice, Antitrust Division, *1984 Horizontal Merger Guidelines*, available at <http://www.usdoj.gov/atr/hmerger/11249.htm>.

² U.S. Department of Justice, Antitrust Division, *1984 Horizontal Merger Guidelines*, at §1, reprinted in 4 Trade Reg. Rep. (CCH) ¶ 13,103 at 20,555-6 [hereinafter *1984 Guidelines*].

³ *Hosp. Corp. of Am. v. Fed. Trade Comm’n*, 807 F.2d 1381, 1386 (7th Cir. 1986).

⁴ See the tables at the conclusion of this paper for a listing of the cases.

The analytics of coordinated effects also have received heightened attention of late, both in the private bar and at the antitrust agencies. This Review brought together leading antitrust practitioners to debate the question: “*Coordinated Interaction: Is there a need for more rigor*”? A session at the Spring 2002 Annual Meeting of the American Bar Association’s Antitrust Law Section explored lessons that can be drawn for coordinated effects analysis in mergers and civil non-merger litigation from the Antitrust Division’s history of criminal cartel prosecutions.⁵ In recent speeches to American Bar Association audiences, senior officials from the Division unveiled a major initiative at the agency to re-tool their procedures in coordinated effects merger investigations.⁶ And in the recently concluded cruise ships merger investigation, the FTC took the step of explaining publicly and in some detail the analytical basis for its decision not to challenge a merger that some had argued could facilitate coordinated pricing or capacity investment decisions in ocean cruises.⁷

This renewed spotlight on coordinated effects analysis provides a timely juncture to review some basic economic principles on collusion and to suggest a way to organize those principles for merger analysis. A logical place to begin both tasks is by recalling that the central question in merger review is: “*Will this merger matter to the state of competition*”? In the context of coordinated effects analysis, a merger can “matter” if it makes rival suppliers more likely collectively to restrict output, raise price, reduce quality, and/or restrain innovation. A merger also can “matter” if it leads rivals to coordinate their strategic choices more perfectly, more completely, or more durably.⁸

⁵ James W. Lowe, Moderator; Thomas O. Barnett, Timothy P. Daniel, Roxann E. Henry, Richard G. Parker, Panelists, *Implication of the Cartel Experience on Civil Litigation and Merger Analysis*, American Bar Association, Antitrust Law Section, Spring 2002 Annual Meeting, Washington, D.C. (Apr. 25, 2002).

⁶ Charles A. James, *Rediscovering Coordinated Effects*, Address Before the American Bar Association Annual Meeting Section of Antitrust Law, Washington, D.C. (Aug. 13, 2002), available at <http://www.usdoj.gov/atr/public/speeches/200124.htm>; William J. Kolasky, *Coordinated Effects in Merger Review: From Dead Frenchmen to Beautiful Minds and Mavericks*, Address Before the American Bar Association Section of Antitrust Law Spring Meeting (Apr. 24, 2002), available at <http://www.usdoj.gov/atr/public/speeches/11050.htm> [hereinafter Kolasky, *Coordinated Effects*].

⁷ Statement of the Federal Trade Commission Concerning Royal Caribbean Cruises, Ltd./P&O Princess Cruises plc and Carnival Corporation/P&O Princess Cruises plc, FTC File No. 021 0041 (Oct. 4, 2002), at <http://www.ftc.gov/os/2002/10/cruisestatement.htm>; see also David T. Scheffman & Mary T. Coleman, *Quantitative Analysis of Potential Competitive Effects from a Merger* (June 9, 2003), available at <http://www.ftc.gov/be/quantmergeranalysis.pdf>.

⁸ In this paper, I will generally use the example of suppliers jointly raising their prices when they exercise collective market power. Where relevant, I will discuss how the analysis differs (or not) when suppliers exercise collective market power through some other means.

One way that a merger could make coordination *more likely* is by reducing the number of independent decision-makers. A merger that lowers the number of competing suppliers can simplify the organizational tasks facing the remaining suppliers who attempt to reach an understanding about price, output, or market allocations and then monitor each other's compliance with that understanding. A merger also could make coordination more likely by removing a supplier who has a history of disrupting coordination by under-pricing rivals or refusing to follow a market leader's pricing.

A merger could make coordination *more perfect* by enabling suppliers to support a higher coordinated price. For example, a merger could make coordination more perfect by creating a market leader whose announcements and actions might serve as a focal point for rivals' decision-making. Or, a merger could make enforcement of coordination more perfect by removing a source of independent pricing variation from the market.

Industry consolidation could make coordination *more complete* if it enables suppliers to support coordinated pricing against a larger population of buyers, for more products, or for a longer duration. Suppliers might be able to broaden the reach of their coordinated pricing and better enforce their agreement if, for example, their merger increased the number of product or geographic markets where the competitors overlap.

Finally, a merger could make coordination *more resilient* or *durable* by enabling suppliers to better monitor compliance with agreed terms of coordination. For example, a merger that increased the transparency of sellers' actions could have this effect.

Asking the question "*Will this merger make coordination more likely, perfect, complete, or durable?*" is the logical inquiry in a coordinated effects merger analysis. But this logic has not always been apparent. Early antitrust analysis implemented a "checklist" approach that sought to link sellers' propensity to collude to an assortment of market factors.⁹ In many cases, the checklist approach devolved into a subjective inquiry that involved first counting market factors on the plus and minus sides of the coordination ledger and then applying a subjective (and unstated) weighting scheme to deduce whether market conditions were sufficiently conducive to collusion to raise antitrust concerns.

While the individual factors enumerated on the checklist generally enjoyed theoretical and empirical support in economics, the checklist offered neither necessary nor sufficient conditions for coordinated interaction.¹⁰

⁹ This approach can be traced back to seminal work in RICHARD A. POSNER, *ANTITRUST LAW: AN ECONOMIC PERSPECTIVE* (1976).

¹⁰ See, e.g., Andrew R. Dick, *Identifying Contracts, Combinations and Conspiracies in Restraint of Trade*, 17 *MANAGERIAL & DECISION ECON.* 203 (1996); Andrew R. Dick, *When Are Cartels Stable Contracts?*, 39 *J.L. & ECON.* 241 (1996).

The conditions' necessity was belied by the observation that cartels frequently have formed and endured in markets where seemingly non-conductive factors were present.¹¹ The conditions' sufficiency was belied by the observation that cartels frequently have failed to organize or have broken down in markets where conducive factors seemingly were prevalent.¹² More problematically, the checklist approach traditionally has been applied to assess an industry's propensity for coordination at a snapshot in time rather than to respond directly to the fundamental question in merger review: "*Does this merger matter*?"

A two-prong inquiry is required to assess whether a proposed merger may facilitate coordination. The inquiry begins by asking: "*What constrains suppliers' pre-merger incentive or ability to coordinate their actions*?" Next, it asks: "*How will the proposed merger change those existing constraints on coordination*?" The Antitrust Division recently articulated this two-prong inquiry when explaining its basis for challenging the proposed acquisition of Masonite (a leading manufacturer of molded doorskins) by Premdor (a leading manufacturer of interior molded doors).¹³ Acknowledging that there were only two major competitors in both the doorskins and door markets prior to the merger, the Division began by arguing:

But for several impediments to coordination that result from the current structure of the upstream and downstream markets, the markets for interior molded doorskins and interior molded doors sold to U.S. consumers would be more conducive to anticompetitive coordination of output and price by the market participants. Despite the high concentration and homogeneous products of these markets—characteristics that tend to make coordination possible—the evidence developed in the investigation of the proposed transaction revealed at least four significant factors in the current structure of these markets that make coordination less likely.¹⁴

The Division linked these four "significant factors" to suppliers' individual incentives and abilities to disrupt coordination.¹⁵ Specifically, the Division identified four pre-merger constraints on coordinated interaction:

¹¹ MARGARET C. LEVENSTEIN & VALERIE Y. SUSLOW, WHAT DETERMINES CARTEL SUCCESS? 13-14 (Univ. of Mass. Dept. of Econ. and Univ. of Mich. Sch. of Bus., working paper, 2002), available at <http://www-unix.oit.umass.edu/~maggie/Grossman.pdf>.

¹² For some discussion along these lines, see Kolasky, *Coordinated Effects*, *supra* note 6, at 24.

¹³ Compl. for the United States at IV.A-C., *United States v. Premdor Inc.*, 2002-2 Trade Cas. (CCH) ¶ 73,737 (D.D.C. 2002) (No. 01-01696), available at <http://www.usdoj.gov/atr/cases/f8800/8893.htm>.

¹⁴ Competitive Impact Statement for *United States at II.C.2., United States v. Premdor Inc.*, 2002-2 Trade Cas. (CCH) ¶ 73,737 (D.D.C. 2002) (No. 1:01CV01696), available at <http://www.usdoj.gov/atr/cases/f9000/9017.htm>.

¹⁵ *Id.*

- (1) Premdor's ability and potential incentive to expand its toehold position in the doorskins market in the event of attempted coordinated pricing for this important input had the effect of constraining the risk of *upstream* coordination;¹⁶
- (2) Masonite's ability and potential incentive to expand doorskins sales to smaller, non-integrated manufacturers in the event of attempted coordinated pricing by major door manufacturers had the effect of constraining the risk of *downstream* coordination;¹⁷
- (3) The major non-merging supplier constrained coordination by reason of its differing cost structure that created opportunities for this supplier to increase its market share profitably through lower prices;¹⁸ and
- (4) Asymmetries in suppliers' market intelligence constrained coordination by making it difficult for the firms to monitor and punish deviations from attempted coordination.¹⁹

Having identified pre-merger constraints on coordination, the Division then turned to the question of how the merger would relax each of those constraints. The Division argued:

- (1) The merger would lessen Premdor's incentive to expand its toehold position in doorskins to disrupt potential coordination upstream because, as an integrated supplier, it would now be more likely to benefit from any attempt to collectively raise the price of doorskins sold to non-integrated door manufacturers;²⁰
- (2) The merger would lessen Masonite's incentive to increase doorskins sales to disrupt potential coordination *downstream* because it would now be more likely to benefit from any attempt to collectively raise the price of finished doors;²¹
- (3) The vertical merger would make the merged entity's cost structure more similar to that of its only remaining major rival, thereby better aligning the two remaining suppliers' pricing preferences;²² and
- (4) The merger would increase transparency in the market by combining Premdor's intelligence about pricing and sales in the downstream market with Masonite's intelligence about the upstream market.²³

¹⁶ See Premdor Competitive Impact Statement, *supra* note 14. Pre-merger, Premdor was a small, but significant participant in the doorskins market.

¹⁷ *Id.*

¹⁸ *Id.*

¹⁹ *Id.*

²⁰ *Id.*

²¹ *Id.*

²² *Id.*

More generally, the forces that may constrain coordination can be organized into three main categories:

- (1) The presence of many rival suppliers will tend to make negotiating and enforcing an industry consensus more difficult, in part because the gains to poaching new customers from rivals by offering them a discount usually will outstrip the return to protecting a collusive return on one's existing customer base;
- (2) Asymmetries between suppliers can hamper coordination because they can lead rivals to perceive very differently the long-run benefits from abiding by coordination relative to the short-run gains from pursuing more aggressive pricing or output strategies; and
- (3) Coordination is constrained by the ease with which 'industry mavericks' can conceal their competitive behavior from view or expand their capacity to disrupt the competitive status quo in a market.

A merger can relax one, two, or all three of these constraints and, in the process, can make coordination more likely, more perfect, more complete, or more durable. Alternatively, a merger can make coordination *less* likely, perfect, complete, or durable by strengthening either or both of constraints (2) and (3). As with any antitrust investigation, a coordinated effects merger analysis necessarily will be a fact-driven inquiry tailored to the important characteristics and trends of the market(s) under review. The remaining sections explain how these organizing principles can be applied to analyze proposed mergers. I illustrate these applications with examples drawn from mergers that have been challenged by the antitrust agencies.

I. THE NUMBER OF COMPETITORS

Beginning with *United States v. Philadelphia National Bank*,²⁴ the case law has maintained a consistent structural presumption that suppliers will tend to have a greater *incentive* to coordinate when they face fewer competitors:

In determining whether to follow a unilateral price increase by a competitor, a firm in a relatively concentrated market will recognize that . . . its pricing and output decisions have an effect on market conditions and . . . the firm may recognize that . . . [a] higher price is one that

²³ *Id.*

²⁴ *United States v. Phila. Nat'l Bank*, 374 U.S. 321 (1963).

would produce higher profits . . . knowing that the other firms will likely see things the same way.²⁵

The case law also embraces the presumption that suppliers' *ability* to coordinate should be closely linked to their fewness in numbers: "[W]here rivals are few, firms will be able to coordinate their behavior, either by overt collusion or implicit understanding, in order to restrict output and achieve profits above competitive levels."²⁶

Economics provides a broad (although not entirely unchallenged) empirical foundation for these twin presumptions. A large number of empirical studies—in industries ranging from banking services to cement, and from offshore oil and timber auctions to newspaper advertising—have found that prices tend to be higher on average in industries with higher levels of concentration or fewer suppliers.²⁷ This empirical regularity is consistent with concentration fostering coordination (as well as with some unilateral effects theories).²⁸ More directly on-point, a recent survey of the economics literature on cartel incidence and longevity concluded that "[c]oncentration has been shown to be consistently and positively related to collusive success."²⁹

Economic theory also provides a solid analytical foundation to believe that suppliers who face numerous rivals will be constrained in their incentive and ability to coordinate. There are a number of reasons to expect this. First, there is a tendency for it to be harder to reach and sustain a consensus on price, outputs, and shares when a larger number of suppliers must be brought into the consensus. When more parties are involved in bargaining to reach a consensus, it is more likely that they will hold divergent preferences over the choice of the collusive equilibrium. Second, when suppliers face more rivals, each supplier will tend to have a weaker self-interest in contributing to the reduction in industry output that is required to elevate the market price artificially. Third, it can be harder to detect and punish

²⁵ *In re* Coordinated Pretrial Proceedings in Petroleum Prods. Antitrust Litig., 906 F.2d 432, 443 (9th Cir. 1990).

²⁶ Fed. Trade Comm'n v. PPG Indus., Inc., 798 F.2d 1500, 1503 (D.C. Cir. 1986).

²⁷ See Richard Schmalensee, *Inter-Industry Studies of Structure and Performance*, in THE HANDBOOK OF INDUSTRIAL ORGANIZATION 988 (Richard Schmalensee & Robert D. Willig eds., 1989); PAUL A. PAUTLER, EVIDENCE ON MERGERS AND ACQUISITIONS (Fed. Trade Comm'n, Bureau of Econ., Working Paper No. 243, 2001), available at <http://www.ftc.gov/be/workpapers/wp243.pdf>. These studies measure industry concentration using alternatively the Herfindahl-Hirschman Index (HHI) or a 4-seller concentration ratio.

²⁸ Schmalensee, *Inter-Industry Studies of Structure and Performance*, *supra* note 27 at 969.

²⁹ See LEVENSTEIN & SUSLOW, WHAT DETERMINES CARTEL SUCCESS?, *supra* note 11 at 13-14 (citing references). Notwithstanding these findings, however, the empirical literature has not identified a critical or threshold level of concentration, common across industries, above which coordination becomes more likely than not. See F. E. Geithman et al., *Concentration, Price, and Critical Concentration Ratios*, 63 REV. ECON. & STAT. 346 (1981).

cheating against a consensus when rivals are more numerous. Cheating by any single seller is more apt to go undetected because it is unlikely to have a dramatic effect on price. When cheating does not dramatically affect price, rivals also will be less willing to punish a cheater severely. And when severe punishments lose their credibility, undercutting is likely to become sellers' preferred pricing strategy.

When analyzing a proposed merger, the relevance of the number of competitors enters through the fact that eliminating one supplier always will make it at least incrementally easier for the remaining suppliers to collude. First, the merger will reduce the number of independent parties who must be brought together to forge an agreement on price or output. Second, as concentration increases, the merged supplier faces a shrinking base of rivals' customers from which to attract new sales, thus depressing the short-run gains from undercutting the consensus price. At the same time, the merged supplier expands its installed base of customers on which the firm will wish to protect its above-competitive margin, thus raising the long-run return to preserving collusion. Third, as concentration increases, punishments that are intended to maintain pricing discipline will gain credibility because the opportunity cost grows of turning a blind eye to undercutting by a now larger rival.

While any horizontal merger will tend to make collusion *incrementally* easier to negotiate and sustain, the quantitative importance of this effect will vary with the pre-merger structure of the market. A merger that reduces the number of substantial rivals in a relevant market from three to two carries with it a presumption from both the case law and empirical studies that coordination can be significantly facilitated by the elimination of an independent decision-maker in a highly concentrated market.³⁰ The presumption that attaches to a 6-to-5 or a 5-to-4 merger, in contrast, implies that a weaker relaxation of the constraints on coordination will follow the elimination of just one among several rivals.³¹

II. SUPPLIER ASYMMETRIES AND INDUSTRY MAVERICKS

Asymmetries among competitors can act as a second category of constraints on industry coordination. Asymmetries can lead suppliers to di-

³⁰ The court in *American Hospital Supply Corp. v. Hospital Products Ltd.*, 780 F.2d 589, 602 (7th Cir. 1986), stated that "it is easier for two firms to collude without being detected than for three to do so."

³¹ This is not to say that there have not been instances where mergers in less concentrated industries may have fostered coordination. It appears that one "industry had attempted unsuccessfully to coordinate prices for several years before the cartel finally got off the ground after the industry consolidated down to approximately six players." Kolasky, *Coordinated Effects*, *supra* note 6, at 18.

verge in their incentive and ability to coordinate with rivals by setting a common price or allocating output or customers. These conflicts of interest can manifest themselves in particular suppliers' having a diminished willingness to reach an agreement that elevates long-run returns over short-run gains, or a diminished willingness to abide by a collective price (or output or market allocation) in the face of opportunities to reap still larger private gains by pursuing more aggressively competitive actions. Suppliers who perceive especially large returns from short-run undercutting (or output or market share expansion) are particularly likely to upset attempts at coordinated pricing. These suppliers have been given the moniker "industry mavericks" in antitrust parlance.³²

There are many situations whereby a merger might facilitate coordinated interaction by narrowing asymmetries between suppliers. For example, a merger may homogenize competing suppliers' product attributes, cost structures, planning horizons, geographic coverage, or excess capacity holdings. Homogenization along such dimensions can align more closely suppliers' incentives and abilities and can make it easier for the surviving suppliers to reach and defend a consensus on price, output, or market allocation.

The "changes in asymmetries" effect will not necessarily reinforce the "reduction in numbers" effect from a merger. To illustrate, consider a market where all suppliers initially are symmetrically positioned. A merger between any two of these rivals would tend to inject asymmetry into the post-merger market structure—thus tending to frustrate coordination—whereas the reduction in the number of rivals should tend to facilitate coordination. Both the empirical economics literature and the case law suggest that the "reduction in numbers" effect is more likely to dominate the "increased asymmetries" effect when the pre-merger market is highly concentrated. As a result, antitrust agencies are more likely to challenge and successfully block under a coordinated effects theory a merger between two of only three symmetric rivals than it would a merger that injected asymmetries by combining two of five or more comparably positioned rivals. As suggested by these examples, therefore, predicting a merger's net effects will turn on factual circumstances specific to the transaction and the market under review.

There also can be situations in which mergers leading to *wider* asymmetries might, in principle, *foster* coordination. For example, a supplier who has an unrivaled ability to expand sales—perhaps because it has substantial idle capacity—might find it profitable to assume the mantle of a

³² For a discussion of mavericks in merger and non-merger analysis, see Jonathan B. Baker, *Mavericks, Mergers and Exclusion: Proving Coordinated Competitive Effects Under the Antitrust Laws*, 77 N.Y.U. L. REV. 135 (2002).

cartel leader.³³ To develop and support such an argument, one would need to explain why this low-cost producer would find it more profitable to act as a cartel's ringmaster—shouldering most of the cost of restricting output and meting out punishment—than as an aggressive competitor earning a margin on each additional sale stolen by undercutting its rivals. This argument also would imply that a merger could *tighten* constraints on coordination by *narrowing* asymmetries between an industry leader and its rivals. Sorting out whether particular supplier asymmetries are more likely to constrain or facilitate coordination will fall to a fact-based inquiry in the market(s) under investigation.

To illustrate some of the principles that one might encounter in analyzing a merger in the presence of supplier asymmetries, I will discuss next in somewhat greater detail the situations of (1) asymmetries in suppliers' product attributes and (2) asymmetries in suppliers' cost structures.

A. *Asymmetries in Product Attributes Can Constrain Coordination*

A number of economic studies have found that product asymmetries or heterogeneity tend to limit the incidence and success of seller coordination. According to Wayne Baker and Robert Faulkner, in the 1950s, electrical equipment manufacturers found it harder to negotiate terms of coordination for the less standardized of their products.³⁴ I found that U.S. export cartels were somewhat less common among relatively more differentiated (consumer) products than they were for relatively less diverse (producer) goods.³⁵ George Hay and Daniel Kelly found a strong inverse relationship between the formation of price fixing or market allocation agreements and product diversity, while Alexis Jacquemin, Tsuruhiko Nambu and Isabelle Dewez documented a negative correlation between product diversity and longevity among Japanese export cartels.³⁶

³³ The lysine conspiracy appears to have involved dynamics such as these: "ADM, which had substantial excess capacity, repeatedly threatened to flood the market with lysine if the other producers refused to agree to a volume allocation agreement proposed by ADM." Kolasky, *Coordinated Effects*, *supra* note 6, at 19.

³⁴ Wayne E. Baker & Robert R. Faulkner, *The Social Organization of Conspiracy: Illegal Networks in the Heavy Electrical Equipment Industry*, 58 AMER. SOC. REV. 837 (1993).

³⁵ Dick, *Identifying Contracts, Combinations and Conspiracies in Restraint of Trade*, *supra* note 10, at 208-09.

³⁶ George A. Hay & Daniel Kelly, *An Empirical Survey of Price Fixing Conspiracies*, 17 J.L. & ECON. 13, 15 (1974); Alexis Jacquemin et al., *A Dynamic Analysis of Export Cartels: The Japanese Case*, 91 ECON. J. 685, 692 (1981).

Asymmetries in suppliers' product attributes can constrain industry coordination for a number of reasons.³⁷ To begin, reaching terms of coordination tends to become more difficult when products differ widely between individual suppliers in terms of their quality, durability, availability, after-sale service, or other dimensions that are important to buyers.³⁸ The more dimensions along which products diverge across suppliers, the more opportunities that will arise for disagreement over what is the most profitable set of terms on which to coordinate. To help forge an agreement, suppliers will need to specify coordination terms separately for each product dimension and develop a consensus on what constitutes "similar enough" products for purposes of setting price and non-price terms. Suppliers may seek to circumvent the complexity of direct negotiations by adopting cruder terms of coordination, such as allocating markets or customers. But implicit in such allocations and suppliers' associated profit shares will be an assessment of underlying product asymmetries and the relative valuations that buyers attach to individual suppliers' product attributes. The wider the disparity in these valuations, the more likely suppliers are to harbor differing viewpoints about what constitutes a 'fair' market or customer allocation and how these allocations should be adjusted to re-achieve equity when market conditions change.

Next, product asymmetries also create complications for enforcing terms of coordination.³⁹ Product diversity can undermine the transparency of suppliers' actions, thereby making it harder to detect cheating along any one of numerous non-price dimensions of rivalry. Additionally, the less similar that products are among sellers, the more difficult it will be to punish cheating because suppliers will need to cut their price drastically in order to force a given sized reduction in a cheater's sales. An offsetting consideration, however, arises from the recognition that the less similar products sold by conspiring sellers are, the smaller also will be any supplier's gain from undercutting the collusive price. If one seller cuts its price it will attract additional sales, but not as many as when its product is regarded as a close substitute for its higher-priced rivals' products.

One merger decision in which product asymmetries played an important role in the coordinated effects analysis was *New York v. Kraft General Foods*.⁴⁰ In that case, the court acknowledged Kraft's position that ready-to-eat cereals are extremely heterogeneous and that, as a result, manufac-

³⁷ Marc Ivaldi et al., *The Economics of Tacit Collusion*, Final Report for DG Competition, European Commission, at 45-47 (Mar. 2003), available at http://europa.eu.int/comm/competition/mergers/review/the_economics_of_tacit_collusion_en.pdf.

³⁸ *Id.* at 45.

³⁹ *Id.* at 46.

⁴⁰ *New York v. Kraft Gen. Foods*, 926 F. Supp. 321, 346-47 (S.D.N.Y. 1995).

turers “compete on the basis of price, quality, new product introductions, consumer promotions, trade promotions, and advertising.”⁴¹ The court cited approvingly the defendants’ arguments in reaching the conclusion that “[f]or collusion to be successful, it would have to control most or all of these forms of competition.”⁴² By inference, the court appeared to have in mind the belief that rival manufacturers would need to agree on wholesale list prices or price differentials for hundreds of products, monitor the quality and production costs associated with each of those products, regulate the introduction of new products and the exit of current products, control advertising expenditures, and regulate the timing and extent of couponing and trade promotion activity among other steps.⁴³ The court apparently believed that the likelihood was sufficiently low that each of these steps could be completed successfully, and thus it concluded that “[t]he combination of RTE [ready-to-eat] cereals’ heterogeneity and the multiple forms competition takes, renders anticompetitive coordinated effects difficult and unlikely.”⁴⁴

Similar issues arose in the Surface Transportation Board’s consideration of the proposed merger between the Union Pacific and Southern Pacific railroads.⁴⁵ The applicants pointed to “fundamental differences” between competitors’ product offerings to support their contention that coordination was infeasible in this industry:

Railroads do not offer a standardized product; they offer heterogeneous, complex products and they compete along multiple dimensions in ways that are evolving rapidly and that are reflected in the complex bidding that often occurs in this industry Fundamental differences between complex systems such as BN/Santa Fe and a merged UP/SP reduce both the incentive and the ability to achieve sustained coordinated interaction. Such differences mean that [terms of] coordination[] that would advantage one railroad are not necessarily going to advantage the other. Limitations on output that maximize profits for one are not likely to do the same for the other.⁴⁶

⁴¹ *Id.* at 342.

⁴² *Id.*

⁴³ *Id.*

⁴⁴ *Id.*

⁴⁵ Union Pac. Corp., 1 S.T.B. 233 (1996).

⁴⁶ Verified Statement of Robert D. Willig (Nov. 20, 1995) at 615, 628, Union Pac. Corp., Merger Application [Redacted Public Record], I.C.C. Fin. Docket No. 32760 (Surface Transp. Bd. Nov. 30, 1995) [hereinafter Willig Verified Statement].

B. *A Merger Can Facilitate Coordination By Narrowing Product Asymmetries*

A merger could relax constraints on industry coordination by narrowing product asymmetries among the remaining suppliers. Greater symmetry in sellers' post-merger product lines could dampen potential conflicts of interest in price setting or market and customer allocations. Greater symmetry also might allow suppliers to avoid having to specify what constitutes "similar enough" products for purposes of setting price and non-price terms. Finally, greater post-merger symmetry could facilitate cartel monitoring and punishment by making suppliers' actions more transparent and their threatened reversion to competitive pricing more credible.

Perhaps the clearest way that a merger could bring about these effects is if the merged entity dropped those parts of its existing product line that had strongly differentiated it from rivals. In *Federal Trade Commission v. H.J. Heinz Co.*, the FTC alleged that the proposed merger between Heinz and Beech-Nut would lead to a reduction in product diversity.⁴⁷ The FTC contended that the defendants planned to eliminate many products from distribution, leaving the market with substantially less product variety.⁴⁸ The government reasoned that reaching and sustaining a coordinated interaction agreement between Gerber and Heinz likely would be easier post-merger once the product lines of the two surviving suppliers were more similar to each other.⁴⁹

C. *Asymmetries in Cost Structures Can Constrain Coordination*

A number of economic studies have found that asymmetries in sellers' cost structures also tend to limit the incidence and success of seller coordination. In their study of cartelization efforts among U.S. crude oil suppliers, for example, Steven Wiggins and Gary Libecap discovered that differences in suppliers' production costs were an important driver of their willingness to cheat against assigned production quotas.⁵⁰ Alexander found that the pasta industry was unable to coordinate in the 1930s because of disagreements between large and small suppliers stemming from their very different

⁴⁷ Reply brief at 12, n.3, *Fed. Trade Comm'n v. H.J. Heinz Co.*, 246 F.3d 708 (D.C. Cir. 2001), available at <http://www.ftc.gov/os/2001/01/heinze.pdf>.

⁴⁸ *Id.*

⁴⁹ *Id.*

⁵⁰ Steven N. Wiggins & Gary D. Libecap, *Firm Heterogeneities and Cartelization Efforts in Domestic Crude Oil*, 3 J.L., ECON & ORG. 1, 16 (1987).

cost structures.⁵¹ In their recent survey article, Margaret Levenstein and Valerie Suslow identified cost asymmetries as one among a relatively few market conditions that have received consistent empirical support as being unsettling to coordination.⁵²

Economic theory identifies several bases for why collusion will tend to be harder to negotiate among suppliers who have asymmetric cost structures.⁵³ First, when suppliers have different variable costs of production, they may find it difficult to agree on a common pricing policy.⁵⁴ Suppliers who have lower variable costs will insist upon lower prices than those preferred by suppliers who have higher variable costs. These disagreements may preclude coordination altogether, or they may force suppliers to reach compromises that fall short of perfect or complete coordination. In addition, asymmetries in suppliers' cost structures may rule out simple focal points, which suppliers otherwise might have used to simplify reaching agreement on pricing schedules. Agreements therefore may need to be more complex or cumbersome, and thus more often subject to misinterpretation or willful cheating.⁵⁵

Second, in the event that suppliers are able to overcome cost asymmetries to reach an initial consensus, they will still need to enforce compliance with their cartel agreement. Patrick Rey has explained how asymmetries in suppliers' (marginal) costs can hamper punishment of suspected cheaters:

[L]ow-cost firms will be more difficult to discipline, both because they might gain more from undercutting their rivals and because they have less to fear from retaliation by high-cost firms. Retaliation is indeed less effective when exerted by an inefficient firm against an efficient one, since the ability of the former to compete against the latter is more limited. In particular, the inefficient firm will not be able to induce a substantial profit loss on the efficient one without imposing on itself an even larger burden. This means that the retaliation that the inefficient firm will be rationally willing to undertake will impose little discipline on the ef-

⁵¹ Barbara Alexander, *Failed Cooperation in Heterogeneous Industries Under the National Recovery Administration*, 57 J. ECON. HIST. 322, 327-32 (1997).

⁵² LEVENSTEIN & SUSLOW, WHAT DETERMINES CARTEL SUCCESS?, *supra* note 11, at 7.

⁵³ Ivaldi et al., *The Economics of Tacit Collusion*, *supra* note 37, at 41.

⁵⁴ *Id.*

⁵⁵ A cartel that seeks consensus on output or market share allocations, rather than fixing price, likewise may be frustrated when its members' cost structures diverge widely. Suppliers' joint profits would be maximized by assigning output or market share disproportionately to suppliers with lower variable costs. But reaching a consensus to implement this allocation rule almost certainly would necessitate explicit communications and side-payments between suppliers. These types of activities would expose companies to the risk of criminal antitrust penalties. Ongoing antitrust exposure will be heightened further by the likelihood that colluding suppliers who face divergent cost structures will need periodically to renegotiate their output or market share allocations and profit-sharing rules in response to changes in market demand conditions.

ficient firm. Thus the low cost firm's incentive to deviate from the collusive conduct will be larger than if it faced another low-cost firm.⁵⁶

Recall that in its review of the proposed merger between Premdor and Masonite in the residential doors and doorskins industries, the Antitrust Division cited cost asymmetries as being among the several factors constraining pre-merger coordination.⁵⁷ The Division's Competitive Impact Statement cited the extent of suppliers' vertical integration as contributing to "differing cost structure[s] among the dominant firms" and described these asymmetries as "an impediment to coordination."⁵⁸

Another case in which merging parties cited cost asymmetries as an impediment to coordination was the proposed merger between the Union Pacific and Southern Pacific railroads. The parties argued:

[W]ith non-price competition altering the design and cost of the product, it is difficult to discern what is to be the coordinated level of price; there is bound to be disagreement over that price level among those with products having different costs and elasticities; and it will be correspondingly difficult to recognize adherence versus deviation from coordinated terms of pricing.⁵⁹

D. *A Merger Can Facilitate Coordination By Narrowing Cost Asymmetries*

A merger can facilitate coordination by narrowing cost asymmetries among suppliers. Greater commonality in suppliers' cost structures can narrow conflicts of interest in price setting or market and customer allocations, and can facilitate suppliers' identification of focal points for reaching those agreements. A narrowing of cost asymmetries also can assist in enforcing a collusive agreement by limiting the necessity for explicit communications, side-payments, and frequent renegotiation of profit shares to enforce a consensus.

The Antitrust Division reviewed whether Premdor's acquisition of Masonite might facilitate coordination by narrowing cost asymmetries in the markets for residential doors and doorskins.⁶⁰ The Competitive Impact

⁵⁶ PATRICK REY, COLLECTIVE DOMINANCE AND THE TELECOMMUNICATIONS INDUSTRY 10 (unpublished working paper) (on file with author).

⁵⁷ Compl. at ¶ 35, *Premdor*, 2002 U.S. Dist. LEXIS 18376.

⁵⁸ Competitive Impact Statement at 9, *Premdor*, *supra* note 14.

⁵⁹ Willig Verified Statement, *supra* note 46, at 626.

⁶⁰ Compl., *Premdor*, 2002 U.S. Dist. LEXIS 18376.

Statement accompanying the Division's challenge of the proposed merger articulated the following case theory:

The [vertically-integrated, non-merging rival] firm . . . has certain cost advantages over Masonite and Premdor that it has used to lower prices to build market share. This differing cost structure among the dominant firms is an impediment to coordination . . . [P]ost acquisition, the cost structures of the two [surviving suppliers] would be more closely aligned [as a result of the vertical merger], decreasing the opportunity for the [rival] firm to increase its market share profitably through lower prices, and thus increasing the [rival] firm's incentive to coordinate with the combined Premdor/Masonite.⁶¹

Similarly, in *Federal Trade Commission v. H.J. Heinz Co.*, the government asserted that the proposed "merger [would] make Heinz more similar to Gerber in its cost structure."⁶² The FTC argued that homogenization of the cost structures of the two surviving baby food suppliers would allow these rivals "to arrive at a mutually advantageous detente."⁶³

Both of these merger challenges raise a potential analytical tension between the mergers' tendency to narrow competitor cost asymmetries and the fact that this narrowing is caused by the merging parties achieving cost reductions by combining complementary assets. While in principle the merged firm's lower costs will enable it to more credibly threaten to punish price cutting, and in so doing could make rivals less likely to cheat, anti-trust agencies need exercise care before challenging mergers that generate cost savings. A complete merger review will require a fact-based comparison of the possibility that coordination could be facilitated versus the likelihood that creating an additional low-cost producer would benefit consumers by tightening constraints on the pricing of the current industry leader.⁶⁴

III. *Opportunities to Disrupt Coordination*

A final category of constraints on coordination is the opportunities that exist for suppliers to disrupt coordination by acting on their differential incentives and abilities to accommodate each other's behavior. Coordination is constrained by the ease with which industry mavericks can conceal their competitive behavior from view, or expand their capacity to disrupt the competitive status quo in a market. An additional potential constraint on coordination comes from the prospect that innovative products or technologies will be introduced and disrupt the status quo. It follows that a merger

⁶¹ Competitive Impact Statement at 9, *Premdor*, *supra* note 14.

⁶² Reply Br. for the Fed. Trade Comm'n at 12 n.3, *Heinz*, 246 F.3d 708 (public version available at <http://www.ftc.gov/os/2001/01/heinze.pdf>).

⁶³ *Id.*

⁶⁴ I have benefited from discussions with Steven Salop on this point.

can make coordination more likely, perfect, complete, or durable through its effect on (for example) keeping disruptive new technologies or products off the market, increasing transparency in suppliers' strategies or payoffs, or creating barriers to expansion for industry mavericks. I will discuss in further detail the first two of these effects.

A. *Opportunities For Innovation Can Constrain Coordination*

The prospect that new products or technologies may be introduced into the market can constrain the likelihood of coordinated industry pricing—particularly when such innovations are associated with dramatic and uneven changes to suppliers' relative costs or product positions. A number of industry case studies have documented the destabilizing effect of innovation on industry coordination. F. M. Scherer and David Ross describe how the adoption of efficient continuous strip mills in the 1930s by selected steelmakers precipitated active price-cutting and a breakdown in coordinated pricing that had characterized steel markets.⁶⁵ In the 1970s and 1980s, the selective introduction of low-cost mini-mills played a similar disruptive role.⁶⁶ Scherer and Ross also describe how the advent of mechanized window glass production techniques around the turn of the century prompted price wars in which prices were driven below cost even for the new and more efficient machine methods.⁶⁷ Pricing stability later was restored through formal cartel agreements.⁶⁸ But coordination broke down again in the early 1930s, this time as a result of price warfare between glassmakers using new continuous process techniques and suppliers using obsolete production methods.⁶⁹ In his survey of international cartels, James Griffin reported that technological change proved to be the “decisive” cause of the demise of cartels in rubber, zinc, sulphur, and nitrate.⁷⁰

Economic theory identifies a number of reasons why the prospect of innovation can constrain coordinated action.⁷¹ First, the anticipation of product or process innovations creates the likelihood that particular suppliers will gain a significant competitive advantage over their rivals. The

⁶⁵ F. M. SCHERER & DAVID ROSS, *INDUSTRIAL MARKET STRUCTURE AND ECONOMIC PERFORMANCE* 285 (Houghton Mifflin 3rd ed. 1990) (1970).

⁶⁶ *Id.*

⁶⁷ *Id.*

⁶⁸ *Id.*

⁶⁹ *Id.*

⁷⁰ James M. Griffin, *Previous Cartel Experience: Any Lesson for OPEC?*, in *ECONOMICS IN THEORY AND PRACTICE: AN ECLECTIC APPROACH* 198 (Lawrence R. Klein & Jaimie Marquez eds., 1989).

⁷¹ See Ivaldi et al., *The Economics of Collusion*, *supra* note 37, at 32-35.

prospect that a major innovation will create a maverick supplier capable of leap-frogging over its rivals will reduce the perceived value that each supplier attaches to continued industry coordination. Stated differently, the prospect of major innovations will shorten suppliers' planning horizons. A supplier who has a shorter planning horizon will tend to attach greater weight to short-run strategies to cut price and attach less weight to longer-run punishments that rivals may impose in retaliation against price-cutting.

Second, frequent innovation usually will make it necessary for suppliers periodically to renegotiate their terms of coordination. For example, suppliers may anticipate that new product introductions might disturb buyers' traditional purchasing habits and brand loyalties, which would force suppliers to renegotiate agreed-upon market shares or customer allocations. Periodic renegotiation increases the direct cost of organizing collusion, undermines suppliers' ability to commit to a particular course of action, and raises the likelihood of detection by antitrust agencies that observe frequent communications among the same competitors.

Third, in technologically dynamic markets, suppliers' research and development investments will tend to be important strategic decisions. However, research and development can be a very difficult dimension along which to collude. The assessment of costs and benefits is, by the nature of technological uncertainty, inherently speculative and likely to be subject to divergent perceptions across suppliers. As compared with investments in physical plant facilities, investments in research and development also can more easily be shielded from rivals' view, meaning that an aggressive competitor could more readily lay the groundwork surreptitiously for a major innovation to steal market share from unsuspecting rivals.

New York v. Kraft General Foods offers an example of a case in which the court cited approvingly claims made by merging parties that their industry's proclivity for continual product innovation and product improvements sharply limited opportunities for price coordination.⁷² The court believed that recurring opportunities for innovation would allow suppliers to expand sales beyond any agreed quota by catering to consumers who value a new or improved product's attributes. The court reasoned:

Because of consumers' demand for variety, new products are key to the growth of any RTE [ready-to-eat] cereal firm . . . RTE cereal manufacturers . . . compete on the basis of new product introductions . . . [T]he continual introduction of new RTE cereal products is pro-competitive and makes coordination more difficult.⁷³

⁷² *Kraft Gen. Foods*, 926 F. Supp. at 346-47.

⁷³ *Id.*

B. *A Merger Can Facilitate Coordination by Limiting Innovation*

A merger can facilitate coordination by reducing the likelihood that potentially disruptive products or processes will come to market that might otherwise have enabled maverick suppliers to enter or expand. For example, the acquisition of a potential entrant or nascent competitor who was on course to introduce into the market a dramatically more efficient production technique or a substantially improved product could preempt what otherwise could have been a destabilizing obstacle to industry coordination. Alternatively, the acquisition of a fledgling innovator by a much larger supplier with complementary assets could serve to strengthen constraints on coordination by bringing an innovation to market faster or more widely.

The question of whether a proposed merger would spur or retard innovative effort was a central question in *Federal Trade Commission v. H.J. Heinz Co.*⁷⁴ One of the effects alleged by the Federal Trade Commission in challenging Heinz's proposed acquisition of Beech-Nut was that the merger would dampen Heinz's incentive to bring new products to the market in the quest to gain market share from Beech-Nut and Gerber. By slowing the rate of product innovation, the government alleged, the merger would lead to an environment that was more conducive to coordination.⁷⁵ The merging companies responded by arguing that substantial efficiencies flowing from the merger instead would enhance Heinz's ability and incentive to bring new and improved products to market, with the result that Heinz would be more likely to conduct itself as a maverick following the merger.⁷⁶ The district court credited the parties' argument and concluded that "[t]he conditions for increased competition in the form of product innovation and product differentiation will be enhanced by the merger."⁷⁷ However, the circuit court later rejected the view that "the merger is necessary for innovation" as being "unsupported and clearly erroneous."⁷⁸

⁷⁴ See *Fed. Trade Comm'n v. H.J. Heinz Co.*, 116 F.Supp.2d 190 (D.D.C. 2000), *rev'd* 246 F.3d 708 (D.C. Cir. 2001).

⁷⁵ Reply Br. for the Federal Trade Commission, at 12, n.3, *Heinz*, 246 F.3d 708 (public version available at <http://www.ftc.gov/os/2001/01/heinze.pdf>).

⁷⁶ Jonathan B. Baker, *Efficiencies and High Concentration: Heinz Proposes to Acquire Beech-Nut*, in *THE ANTITRUST REVOLUTION: ECONOMICS, COMPETITION, AND POLICY* 150, 158 (John E. Kwok, Jr. & Lawrence J. White eds., Oxford Univ. Press 4th ed. 2003) (1989) [hereinafter *ANTITRUST REVOLUTION*].

⁷⁷ *Heinz*, 116 F.Supp. 2d at 199.

⁷⁸ *Heinz*, 246 F.3d at 723.

C. *Non-transparency Can Constrain Coordination*

The degree to which suppliers' actions and important competition variables such as prices, outputs, or market shares are transparent to rivals has been found empirically to affect the incidence and success of industry coordination. Svend Albaek, Peter Mollgaard and Per Overgaard reported that a policy by the Danish government to publish transaction prices charged by cement companies made suppliers' pricing strategies much more transparent to their rivals and, by so doing, facilitated price coordination.⁷⁹ David Genesove and Wallace Mullin discovered that depression-era collusion in the sugar industry was substantially facilitated by the industry trade association's adoption of rules requiring "open prices and publicly announced terms."⁸⁰ Severin Borenstein found that price transparency created by the Airline Tariff Publishing Company had a substantial collusive effect on airline ticket prices.⁸¹ And from natural experiments in laboratories, Charles Plott and Charles Holt have reported experimental findings that higher prices emerge in games such as open-price auctions where agents' actions are more transparent to each other.⁸²

Economic theory provides a complementary analytical foundation to explain why coordination agreements should be more susceptible to disruption by maverick suppliers when those firms can maintain secrecy in their actions.⁸³ One reason is that negotiating terms of coordination and detecting cheating on those terms will tend to be harder when sellers' strategy choices are less transparent to their rivals. If suppliers cannot directly observe each other's transaction prices or outputs, they will be less well equipped to assess their rivals' fidelity to agreed terms of coordination.⁸⁴ Anticipating that subsequent monitoring will be costlier and less accurate in this situation, suppliers may find it harder to reach a coordinated agreement. Suppliers also may conclude that it is necessary to limit rivals' temp-

⁷⁹ Svend Albaek et al., *Government-Assisted Oligopoly Coordination? A Concrete Case*, 45 J. INDUS. ECON. 429 (1997).

⁸⁰ David Genesove & Wallace Mullin, *Rules, Communication, and Collusion: Narrative Evidence from the Sugar Institute Case*, AMER. ECON. REV., June 2001, at 379, 383.

⁸¹ Severin Borenstein, *Rapid Price Communication and Coordination: The Airline Tariff Publishing Case (1994)*, in ANTITRUST REVOLUTION, *supra* note 76, at 233.

⁸² Charles A. Holt, *Industrial Organization: A Survey of Laboratory Research*, in THE HANDBOOK OF EXPERIMENTAL ECONOMICS 349 (John H. Kagel & Alvin E. Roth, eds., 1995); Charles R. Plott, *Industrial Organization Theory and Experimental Economics*, 10 J. ECON. LIT. 1485 (1982).

⁸³ See Jonathan B. Baker, *Efficiencies and High Concentration: Heinz Proposes to Acquire Beech-Nut*, in ANTITRUST REVOLUTION, *supra* note 76, at 150.

⁸⁴ Prices and outputs tend to be less transparent when products are complex and highly differentiated, when sales are individually negotiated, and when sellers do not advertise prices or other sales terms publicly to prospective customers.

tation to cheat by making coordination incomplete or imperfect—e.g., selecting a lower cartel price or narrowing the markets covered by the agreement—or they may opt to design elaborate monitoring techniques in order to constrain the temptation to cheat.⁸⁵

One merger challenge in which the effect of non-transparency figured prominently in the coordinated effects analysis involved the proposed Union Pacific/Southern Pacific merger.⁸⁶ In arguing that coordinated pricing would be difficult to negotiate and sustain in the railroad industry, the merging parties pointed to incomplete information about their rivals' actions as being an important constraint on coordination.⁸⁷ The Surface Transportation Board credited this argument, stating:

Another factor making tacit collusion unlikely is the secrecy about rail price and service offerings that now characterizes the rail industry. Contracts between railroads and shippers for major movements are now the rule, and railroads are no longer required to file public tariffs for the remainder of their traffic. Contracts often incorporate detailed specifications for a wide variety of service aspects. Confidentiality clauses in those contracts effectively deter collusive action because information about these competitive actions is shielded from competitors.⁸⁸

D. *A Merger Can Facilitate Coordination By Increasing Transparency*

A merger could relax constraints on coordinated pricing if it increased the transparency of suppliers' actions. One way that a merger could have this effect is by consolidating the market information to which two suppliers have access. In its review of Premdor's proposed acquisition of Masonite, for example, the Antitrust Division alleged that the merger would enhance transparency by combining Premdor's information about the downstream residential doors market with Masonite's information about the upstream doorskins market.⁸⁹ The Division alleged that one effect of the merger would be to enable the merged supplier to better detect price devia-

⁸⁵ Transparency in suppliers' payoffs, *e.g.*, their profits or market shares, generally will be an imperfect substitute for transparency in strategy choices. Suppliers' payoffs are jointly determined by suppliers' actions and market demand conditions, and thus suppliers can use payoff information only to draw probabilistic inferences rather than direct conclusions about rivals' cheating.

⁸⁶ *Union Pac.*, 1 S.T.B. 233.

⁸⁷ Expert Report of Robert D. Willig at 629-30, *Union Pac.*, 1 S.T.B. at 233 (No. 44) (public version).

⁸⁸ *Union Pac.*, 1 S.T.B. at 570.

⁸⁹ *See* Compl. at 35, *Premdor*, 2002 U.S. Dist. LEXIS 18376.

tions by its sole remaining competitor in those two markets.⁹⁰ The Competitive Impact Statement read in relevant part:

[T]he asymmetries of information available to the firms about the upstream and downstream markets impede coordination. Masonite specializes in interior molded doorskin production, whereas its most significant competitor, the non-party firm, competes in both the interior molded doorskin and interior molded door markets. The differences in vertical integration between the two firms create information asymmetries that would make it difficult for the firms to monitor and punish deviations from attempted coordination on the terms of sale of interior molded doorskins. For example, since the non-party firm uses internally most of the doorskins it produces, Masonite lacks an ability to observe a market price for the non-party firm's doorskins and the number of doorskins that it produces. Similarly, since Masonite does not sell in the downstream market, it lacks information about the non-party firm's production and pricing in the interior molded door market The proposed acquisition would eliminate much of the information uncertainty by adding Premdor's downstream market information to Masonite's upstream market information, enhancing the combined firm's ability to detect deviations by the non-party firm on any coordinated price increase.⁹¹

While the Premdor/Masonite merger involved a vertical transaction, a similar effect could arise in the case of a horizontal merger. Eliminating an independent source of pricing can incrementally increase the accuracy with which the industry's remaining suppliers can monitor each other's actions. A merger could have this effect by reducing both the likelihood of overlooking cheating that does occur (false negatives) and the likelihood of erroneously punishing rivals who have not in fact cheated (false positives).

One way that a merger could have the *opposite* effect is by expanding opportunities for a maverick supplier to keep hidden from rivals' view its efforts to expand output substantially. As suggested by the Horizontal Merger Guidelines, a maverick is most likely to undermine coordinated pricing when "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."⁹² Intra-firm transfers often are harder to monitor and substantially harder to price than market transactions between arms-length suppliers. A vertical merger could expand opportunities for concealing sales to a downstream affiliate. If rivals anticipate that it will become harder to monitor the merged supplier's sales of the upstream product, they may be less willing to attempt to coordinate on pricing for that intermediate input. In some settings, a horizontal merger might yield similar effects. If a supplier is integrated downstream and uses its upstream production to supply it, then after its acquisition of an upstream rival, the merged supplier now will be able to supply its downstream division with output from two

⁹⁰ *Id.*

⁹¹ See Competitive Impact Statement at II(C)(2), Premdor, 2002 U.S. Dist. LEXIS 18376.

⁹² 1984 *Guidelines*, *supra* note 2, at §2.12.

sets of production facilities. The substitution of intra-firm shipments for market-based sales means that upstream rivals likely will find it harder to monitor total industry sales following the merger.

CONCLUSIONS

Renewed attention paid by the federal antitrust agencies to the topic of coordinated interaction underscores the importance of approaching coordinated effects merger review with a set of organizing principles. One structured approach breaks merger review into two parts. First, one identifies the set of constraints that limit suppliers' pre-merger incentive or ability to coordinate their actions. Constraints generally stem from three main sources: (1) the presence of many rival suppliers; (2) asymmetries in the competitive positioning of those rivals; and (3) opportunities for "maverick suppliers" to disrupt coordination. Next, one identifies whether or how the proposed merger may change the existing set of constraints to render coordination more likely, more perfect, more complete, or more durable. As with all merger investigations, the conclusions of this two-prong coordinated effects analysis will be fact-driven and cognizant of important economic characteristics of and trends in the markets under review.

FILED COORDINATED EFFECTS MERGER
CHALLENGES IN THE LAST FIVE YEARS

MERGER CHALLENGES RESULTING IN A CONSENT DECREE

| <i>CASE NAME</i> | <i>DISTRICT AND YEAR</i> | <i>OUTCOME</i> |
|---|--------------------------|---------------------------|
| <i>United States v. A.D.M. and Minnesota Corn Processors</i> | D.C. 2003 | Joint venture dissolution |
| <i>United States v. Manitowoc, Grove Investors and National Crane</i> | D.C. 2002 | Partial divestiture |
| <i>United States v. Premdor and Masonite</i> | D.C. 2002 | Partial divestiture |
| <i>United States v. Alcoa and Reynolds Metal</i> | D.C. 2000 | Partial divestiture |
| <i>United States v. Earthgrains and Metz Holdings</i> | N.D. Ill. 2000 | Partial divestiture |
| <i>United States v. Fiat, New Holland and Case</i> | D.C. 2000 | Partial divestiture |
| <i>United States v. Suiza Foods and Broughton Foods</i> | E.D. Ky. 1999 | Partial divestiture |

LITIGATED MERGER CASES

| <i>CASE</i> | <i>DISTRICT AND YEAR</i> | <i>OUTCOME</i> |
|---|--------------------------|----------------|
| <i>United States v. UPM-Kymmene Oyj</i> | N.D. Ill. 2003 | Merger blocked |
| <i>Federal Trade Commission v. H.J. Heinz Company</i> | D.C. Cir. 2001 | Merger blocked |
| <i>Federal Trade Commission v. Swedish Match</i> | D.D.C. 2000 | Merger blocked |
| <i>Federal Trade Commission v. Cardinal Health</i> | D.D.C. 1998 | Merger blocked |