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COMPETITIVE HARM FROM VERTICAL MERGERS

Herbert Hovenkamp*

Abstract

The 2020 Vertical Merger Guidelines produced by the antitrust enforcement agencies introduce a nontechnical application of bargaining theory into the assessment of competitive effects from vertical acquisitions. The economics of such bargaining is complex and can produce skepticism among judges, who might regard its mathematics as overly technical, its game theory as excessively theoretical or speculative, or its assumptions as unrealistic. However, we have been there before. The introduction of concentration indexes, particularly the HHI, in the Merger Guidelines was initially met with skepticism but gradually they were accepted as judges became more comfortable with them. The same thing very largely happened again when unilateral effects theories of mergers were introduced in the 1990s. The bargaining theory that drives so much of vertical merger analysis today has much in common with the theory of unilateral effects. In any event, the value of a particular model depends not on its verisimilitude but rather on its testability.

The theory that relates a concentration index to the risk of competitive harm from horizontal mergers involves as much conjecture as does the bargaining theory that the Nash model for vertical mergers contemplates. The concentration thresholds in the Horizontal Merger Guidelines do no more than capture a rough generalization about a large number of collusive or oligopolistic strategies, many of which are not consistent with each other. What they share in common is belief in a link between the number of firms in a market and their relative sizes, and the likelihood and extent of higher prices.

Double marginalization as a vertical merger defense occurs when two bargaining firms each have market power but are unable to coordinate their output. The result is that each takes a markup without

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considering the other, and aggregate markups are too high. Both firms as well as their purchasers would be better off if they could coordinate better.

The debate over the elimination of double marginalization bundles two themes that Ronald Coase developed in his two most well-known articles, *The Nature of the Firm* and *The Problem of Social Cost*. The first argued that the boundaries of a firm are determined by the firm's continuous search to procure inputs in the most cost effective way. The second argued that two traders in a well-functioning market will achieve the joint-maximizing solution. This dual relationship is too often ignored.

The debate over elimination of double marginalization reflects more than a little cognitive dissonance. Anti-interventionist conservatives and libertarians rely heavily on Coasean arguments that unless high transaction costs get in the way firms will bargain to joint maximizing results. By contrast, regulation creates inalienability rules that undermine these results. If that is true, then double marginalization will rarely provide a defense to a vertical merger. The law of vertical mergers deals largely with firms that transact with one another routinely, in legally enforceable buy-sell relationships.

By contrast, the actors who appear in *The Problem of Social Cost* do not bargain with each other regularly. They certainly can and do sue one another, but the transaction costs of litigating are extremely high in comparison with transacting in more conventional markets. Those who populate *Social Cost* are pairs like the doctor and confectioner who share a party wall, the homeowner and the nearby airport, the cattle rancher and neighboring farmer, the spark-emitting chimney and downwind neighbor, or the hotel whose addition blocks light to sunbathers at an adjacent hotel. In all of these cases the parties went to court rather than solve their problem by bargaining. By comparison, joint maximizing contracts in conventional agreements between buyers and seller should be far easier to attain.

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Introduction

The long-needed revision of the antitrust agencies' Vertical Merger Guidelines (VMGs) is an important achievement.¹ This essay examines them in light of the standards articulated in §7 of the Clayton Act.

As originally enacted in 1914, §7 of the Clayton Act did not apply to vertical mergers. The statute referred to mergers that lessened competition “between” the merging firms.² That is clearly the anticipated competitive threat from a horizontal merger, although it also applies to potential competition mergers.³ The lessening of competition that occurs in a vertical merger is generally not between the merging firms, but between the post-merger firm and other firms who were not parties to the merger. In the simple vertical merger case, there was no competition “between” the merging firms prior to the merger. That is not invariably true. Some cases, such as *Columbia Steel* and *Brown Shoe*, were simultaneously vertical and horizontal because the parties operated in both the upstream and downstream markets.⁴ An important purpose of the 1950 Clayton Act amendments was to add vertical mergers to the practices that fell within the statute. The statutory language was also amended so as to apply to asset acquisitions. The original statute applied only to stock acquisitions.

A principal instigator of the 1950 amendments was the Supreme Court's 1948 *Columbia Steel* decision. That decision had refused to condemn a vertical asset acquisition under the Sherman Act,

¹ United States Dept. of Justice and Federal Trade Commission, Vertical Merger Guidelines (VMG) (June 30, 2020), available at https://www.ftc.gov/system/files/documents/reports/us-department-justice-federal-trade-commission-vertical-merger-guidelines/vertical_merger_guidelines_6-30-20.pdf.

² Original §7 applied to acquisitions “... where the effect of such acquisition may be to substantially lessen competition between the corporation whose stock is so acquired and the corporation making the acquisition...”

³*E.g.* *El Paso Natural Gas Co.*, 376 U.S. 651 (1964).

⁴*Brown Shoe Co. v. United States*, 370 U.S. 294 (1962); *United States v. Columbia Steel Co.*, 334 U.S. 495 (1948).

largely because of ambiguities about market definition and market shares that the Court found to be too small.⁵ The purpose of the 1950 §7 Amendments was threefold. First, it was drafted to expand the reach of the statute to vertical mergers. Second, the statute was amended so as to include both stock and asset acquisitions. Third, the new provision applied the Clayton Act's broader "may substantially lessen competition" standard to both vertical mergers and mergers by asset acquisition.⁶ The amendments were presumably intended to establish that the market share standards applied in the *Columbia Steel* case were too narrow.

Prior to the amendments, the Supreme Court had also addressed the difference between the Sherman and Clayton Act standards of legality in another vertical case, although one that involved a contract practice rather than a merger. In *Standard Stations* (1949) the Court condemned exclusive dealing under §3 of the Clayton Act, observing that the statute was "directed to prohibiting specific practices even though not covered by the broad terms of the Sherman Act..."⁷ The Court also declined to hold that the Sherman Act would condemn the restraint.⁸ So the clear message was that the Clayton Act's injury language – "may ... substantially lessen competition ... or tend to create a monopoly" – reached more broadly than the Sherman Act language in vertical cases.

These important statutory differences notwithstanding, the sharp expansion in merger policy that occurred under the 1950 Amendments was actually driven less by technical changes in the language of the revised statute than by the legislative history. That became clear in the *Brown Shoe* decision, which examined the legislative history at some length. *Brown Shoe* was both horizontal and vertical. Further, it was a stock acquisition, so the horizontal portion of the merger was already covered by the original Clayton Act's substantially lessen competition standard. Relying on *Reports* from both the House and the Senate, however, *Brown Shoe* concluded that the amendments to §7 changed the merger law's standard of

⁵*Ibid.*

⁶*See Id.*, 334 U.S. at 507, n. 7 (action was not brought under Clayton Act because it was an asset rather than a stock acquisition).

⁷*Standard Oil v. United States*, 337 U.S. 293 (1949). *See Id.* at 297, 300-301.

⁸*Id.* at 314.

legality, even under the “may substantially lessen competition” standard. The revised statute was “intended to reach incipient monopolies and trade restraints outside the Sherman Act.”⁹ The Court concluded that the “dominant theme pervading congressional consideration of the 1950 amendments was a fear of what was considered to be a rising tide of economic concentration in the American economy.”¹⁰

The Court also noted a 1947 FTC study citing “the danger to the American economy in unchecked corporate expansions through mergers.” One prominent antitrust economist from the period hailed that Report as representing the FTC’s increased use of economics in merger cases.¹¹ In addition, *Brown Shoe* observed, the legislative history reflected Congress’ belief in the “desirability of retaining ‘local control’ over industry and the protection of small businesses,”¹² as well as “other values” that a “trend toward concentration” threatened.¹³ Those other values were described as something other than “accelerated concentration of economic power on economic grounds.”¹⁴ Finally, the Court observed that repeated acquisitions in an industry could have a “cumulative effect,” and that “control of the

⁹*Brown Shoe*, 370 U.S. at 318 n. 32, citing H.R.Rep. No. 1191, 81st Cong., 1st Sess. 8 (‘Acquisitions of stock or assets have a cumulative effect.’); S.Rep. No. 1775, 81st Cong., 2d Sess. 4—5, U.S.Code Cong. and Adm.News, 1950, p. 4296 (‘The intent here * * * is to cope with monopolistic tendencies in their incipiency and well before they have attained such effects as would justify a Sherman Act proceeding.’).

¹⁰*Brown Shoe v. United States*, 370 U.S. 294, 315-316 (1962).

¹¹See Jesse W. Markham, *The Federal Trade Commission’s Use of Economics*, 64 COL. L. REV. 405, 412-413 (1964). Markham was an economics professor at both Princeton and Harvard Business School, as well as chief economists for the FTC. Cf. Derek C. Bok, *Section 7 of the Clayton Act and the Merging of law and Economics*, 74 HARV. L. REV. 226, 233–238 (1960) (criticizing Congressional concern with protecting small business); Herbert Hovenkamp, *Derek Bok and the Merger of Law and Economics*, 21 J. L. REFORM 515 (1988).

¹²*Brown Shoe. supra*, discussing FTC, *The Present Trend of Corporate Mergers and Acquisitions* (1947), reprinted in Hearings on H.R. 515 at 300-317 (1950).

¹³*Brown Shoe, Ibid.*

¹⁴*Id.* at 316.

market * * * may be achieved not in a single acquisition but as the result of a series of acquisitions.”¹⁵

With that, the Supreme Court embarked on a substantial expansion of merger law, often on rationales that did more harm than good to competition. Among these rationales were exaggerated theories of harm as well as the perverse idea that mergers should be condemned because of efficiencies that served to harm rivals.

It is important not to cast too much of the blame for this on the Supreme Court, however. First, the legislative debates supported it, as the legislative reports made clear. Second, all of the Supreme Court’s expansive decisions during this period was brought by either the Antitrust Division or the Federal Trade Commission.¹⁶ The Court merely did what the enforcement agencies requested, condemning mergers on small markets shares that would never be challenged today, and on rationales, including the creation of efficiencies that harmed competing business or higher concentration for its own sake, that were subsequently rejected categorically.¹⁷ The Supreme Court was no more to blame than Congress and the enforcement agencies. Indeed, in cases of statutory interpretation it had a duty to follow the statute, not to make its own economic policy.

Subsequently, both Harvard and Chicago School thinking pushed back at the aggressive attitudes about industrial concentration, as well as the idea that merger-induced efficiency was an affirmative harm.¹⁸ But the Chicago School went much further. Particularly in the writings of Robert Bork, vertical mergers came to be viewed as virtually always harmless.¹⁹ These positions were heavily reflected in the 1984 Merger Guidelines, which were written during the high point of Chicago School influence on government policy and were the most

¹⁵*Id.* at 317-318 & n. 32.

¹⁶*E.g.*, *Brown Shoe, supra*; *United States v. Von’s Grocery Co.*, 384 U.S. 270 (1966); *FTC v. Procter & Gamble Co.*, 386 U.S. 568 (1967).

¹⁷*E.g.*, *In re Foremost Dairies, Inc.* 60 F.T.C. 944, 1084 (1962), modified, 67 F.T.C. 282 (1965) (condemning a merger because its efficiencies would give the firm a “decisive advantage” over competitors).

¹⁸See ROBERT H. BORK, *THE ANTITRUST PARADOX: A POLICY AT WAR WITH ITSELF*, CHS. 9 & 10 (1978); 4 & 5 PHILLIP AREEDA & DONALD TURNER, *ANTITRUST LAW*, Ch. 9 (1980).

¹⁹Bork, *id.* at Chs. 11, 14-15.

recent previous Guidelines to address the topic of vertical mergers prior to the 2020 Guidelines.²⁰

The economic writing since the 1980s has largely repudiated both the *Brown Shoe* view and the Bork view of vertical mergers. Today vertical mergers are regarded with less suspicion overall than horizontal mergers. Nevertheless, they still pose competitive threats in some cases, with harm measured by realistic threats of reduced output, higher prices, or harms to innovation. The 2020 VMGs are a first public attempt to capture these concerns in a way capable of being implemented in enforcement policy.

Proof Requirements

One important public enforcement question is what evidence the government needs in order to forbid a merger by showing that the “effect ... may be substantially to lessen competition....”²¹ When the government is suing as enforcer it need not quantify the harm to competition other than showing that it “may be ... substantial.” One qualification is that if a factually supported efficiency defense is established (something that the statute itself does not acknowledge), then the person with the burden of showing merger-specific efficiencies must show that these would be sufficient to prevent prices from rising above premerger levels. Proof of that would require quantification at least in cases where substantial merger-specific efficiencies have been shown and the balance between price increase effects and efficiency effects is close.

Private plaintiffs can also challenge vertical mergers, and the standards for substantive illegality articulated in the Guidelines presumably apply to them as well. If they are seeking treble damages, however, they have to be able to quantify their injury sufficiently to support a reasonable estimate of damages.²² If they are seeking only an injunction they must show “threatened loss or damage,”²³ which does not require quantification. For purposes of damages, the nature

²⁰ Department of Justice, 1984 Merger Guidelines §4.2, available at <https://www.justice.gov/archives/atr/1984-merger-guidelines>.

²¹ 15 U.S.C. §18.

²² See 2A PHILLIP E. AREEDA, HERBERT HOVENKAMP, ROGER D. BLAIR, AND CHRISTINE PIETTE DURRANCE, ANTITRUST LAW ¶340 (5th ed. 2021).

²³ 15 U.S.C. §26.

of the proof depends on the identity of the plaintiff. For example, a customer complaining that a merger produced an overcharge would have to be able to quantify a post-merger price increase and show causation.²⁴ By contrast, an excluded rival may claim lost profits or sales as damages.²⁵

The 2020 VMG must be regarded as a very considerable improvement over any Agency or judicial policy statement in the past. They are certainly not the final word and one anticipates that they will be revised from time to time, just as the Horizontal Merger Guidelines have been. The balance of this paper examines some of the most important features of the Guidelines' approach to vertical mergers.

The VMG's Theories of Harm

Foreclosure and Raising Rivals' Costs (RRC)

Historically the economics of vertical relationships spoke of vertically related "markets," usually described as an upstream market and a downstream market. For example, in a case such as *Brown Shoe*, manufacturing of leather shoes was the upstream market and retailing was the downstream market. By contrast, the VMG speak of a "relevant market" as the market where a threat to competition is to be investigated. In addition are one or more "related products," which can be either vertically related to the relevant market or else complementary.²⁶ This usage is part of a progression in merger analysis away from traditional market definition/market share assessment and toward examination of bargaining relationships. Here, as in the case of "unilateral effects" horizontal mergers, traditional market definitions are not usually necessary to the analysis.²⁷

On the other hand, older language in the case law seems to require a market definition.²⁸ Problematically, relatively recent

²⁴2A AREEDA & HOVENKAMP, *supra* note __, ¶395.

²⁵*Id.*, ¶397.

²⁶VMG, *supra* note __, §3.

²⁷See 4 PHILLIP E. AREEDA & HERBERT HOVENKAMP, ANTITRUST LAW ¶913-914 (4th ed. 2017).

²⁸See *Brown Shoe v. United States*, 370 U.S. 294, 324 (1963) (interpreting Clayton Act's "section of the country" and "line of commerce" language as requiring, respectively, a geographic market and a product market); *and see*

language in the 2018 *AmEx* decision requires a market definition in a case involving “vertical restraints.”²⁹ The Court in that case was not referencing mergers and was speaking of §1 of the Sherman Act. Nevertheless, the theories of harm in vertical restraints cases are analogous to those in most merger cases. Enforcers and economists evaluating vertical mergers may have to confront the scope of the Supreme Court’s statement. One troublesome implication of the *AmEx* Court’s language is that it turns into a question of law something that has always been treated and should be treated as a question of fact.

The VMGs acknowledge several ways that a vertical merger might harm competition by raising rivals’ costs (RRC), which means “increasing the price or lowering the quality” of the related product. This is a product that the rivals buy from or occasionally sell to the now merged firm. The RRC theory is grouped in the Guidelines with foreclosure, in a more general discussion of unilateral effects.³⁰ Many of the RRC theories of harm depend on assumptions about bargaining behavior and outcomes.³¹

As historically developed in the courts, “foreclosure” was very largely a binary concept. Practices such as exclusive dealing or tying foreclosed when they made it contractually impossible for a rival of the contracting party to do business in a market. For example, a truck manufacturer might acquire a producer of wheels and brakes and then refuse to sell these essential inputs to rival truck makers.³²

Raising rivals’ costs (RRC) is, in essence, a “metered” alternative to foreclosure. Incrementally raising a rivals’ costs eventually hits a point where the rival can no longer compete and is forced to exit from the market, and then we have foreclosure. Short of that, however, raising its costs can still produce competitive harm by

HERBERT HOVENKAMP, FEDERAL ANTITRUST POLICY: THE LAW OF COMPETITION AND ITS PRACTICE §3.1 (6th ed. 2020).

²⁹ *Ohio v. American Express co.*, 138 S. Ct. 2274, 2285 n.7 (2018).

³⁰VMG, *supra* note __, §4.a.

³¹The theory of RRC dates back to seminal work done in the 1980s. See Steven C. Salop and David T. Scheffman, *Raising Rivals’ Costs*, 73 AM. ECON. REV. 267 (1983); and Thomas G. Krattenmaker & Steven C. Salop, *Anticompetitive Exclusion: Raising Rivals’ Costs to achieve Power Over Price*, 96 YALE L.J. 209 (1986).

³²*Fruehauf corp. v. FTC*, 603 F.2d 345 (2d Cir. 1979).

creating an umbrella that will permit the defendant to raise its own prices. The theory of RRC is an inescapable conclusion from marginalist economics, in which virtually everything is graduated, and it is hard to see why some people doubted it.³³ The theory was implicitly recognized in the antitrust case law at least as far back as *American Can*, where the defendant bought up exclusive rights on all the best can making technology in order to relegate competitors to inferior manufacturing methods.³⁴ The theory of RRC rests on the simple observation that a practice that makes it more costly for a competitor to do business can harm competition even though the firm is not forced out of the market.³⁵ This is particularly true of practices that can force a price increase in a rival's inputs. The harm is measured, not by the competitor's demise, but rather by the increase in equilibrium prices.

RRC and Bargaining Theory

A focal point of vertical merger analysis under the VMG is mergers that change the bargaining position of the post-merger firm in transactions with others, resulting in higher prices. Although the theory derived from Cournot's work in the nineteenth century the modern theory depends heavily on work that John Nash and others did in the 1950s and after.³⁶ Bargaining theory is not new to antitrust analysis. For example, it also drives a great deal of "unilateral effects"

³³See, e.g., RICHARD A. POSNER, *ANTITRUST LAW* 196 (2d ed. 2001) (RRC is "not a happy formula"). See Herbert Hovenkamp, *Exclusion and the Sherman Act*, 72 *UNIV. CHI. L. REV.* 147, 159 (2005).

³⁴*United States v. American Can Co.*, 230 F. 859 (D.Md. 1916), app. dism'd, 256 U.S. 706 (1921).

³⁵Salop & Scheffman, *supra* note ____.

³⁶John Nash, *The Bargaining Problem*, 18 *ECONOMETRICA* 155 (1950); Ariel Rubinstein, *Perfect Equilibrium in a Bargaining Model*, 50 *ECONOMETRICA* 97 (1982). For general discussions, see MARTIN OSBORNE AND ARIEL RUBINSTEIN, *BARGAINING AND MARKETS* (1990); ABHINAV MUTHOO, *BARGAINING THEORY WITH APPLICATIONS* (1999).

analysis in horizontal merger cases,³⁷ and has also had a more limited role in patent damages determinations.³⁸

Despite its long pedigree, the bargaining economics of vertical mergers can become quite complex. The result can be dueling experts' reports that are beyond the ability of most judges to understand. This fact has produced judicial resistance and very likely affected the outcome in the *AT&T/Time Warner* case.³⁹ In such cases the court should consider appointing a neutral expert to evaluate the conflicting claims. While the use of third-party experts is cumbersome and costly, much is at stake in a large vertical merger case, and the parties should have sufficient resources to cover it. Judge Posner approved such an approach in a case that contemplated a jury trial,⁴⁰ and it is even more readily adaptable to a bench trial in a civil merger challenge.

In its simplest and most relevant form, bargaining theory considers how a change in two bargainers' reservation prices might affect the equilibrium result of their bargain. For example, Jack wants to purchase a refrigerator from Jane. The most Jack is willing to pay is \$100 and the least Jane is willing to accept is \$60. That leaves \$40 worth of surplus, or bargaining room, so the parties should be able to reach a deal. But what will the price be? In a competitive market it would be the sellers' marginal cost, so most of the surplus would go to Jack. By contrast, if Jane is a monopolist and all of the competition is on the buy side, then most of the surplus would go to Jane. In a bilateral monopoly, where neither party sees good alternatives the

³⁷See, e.g., Gregory J. Werden and Luke M. Froeb, *Unilateral Competitive Effects of Horizontal Mergers*, in *ADVANCES IN THE ECONOMICS OF COMPETITION LAW* (Paolo Buccirossi, ed., MIT Press 2005); Steven W. Salant, Sheldon Switzer & Robert J. Reynolds, *Losses from Horizontal Merger: the Effects of an Exogenous Change in Industry Structure on Cournot-Nash Equilibrium*, 98 Q.J. ECON. 185 (1983).

³⁸See discussion *infra*, text at notes __.

³⁹United States v. AT&T, Inc., 916 F.3d 1029 (D.C.Cir. 2019). See HOVENKAMP, *FEDERAL ANTITRUST POLICY*, *supra* note __, §9.5.

⁴⁰See *In re High Fructose Corn Syrup Antitrust Litigation* (HFCS), 295 F.3d 651, 665 (7th Cir.2002), cert. denied, 537 U.S. 1188 (2003) (creating a procedure for selecting a neutral expert in a situation involving a dispute between warring regression models).

parties will make a deal but under the classic theory the price will be indeterminate.⁴¹

One important contribution of John Nash and subsequent game theorists such as Ariel Rubinstein was to show that under a broad and plausible range of assumptions the equilibrium price would tend toward an even split of the surplus. This result has been confirmed in hundreds of empirical models.⁴² How close to even can depend on several factors, including each party's risk aversion, transaction costs and how evenly they are balanced, identity of the first mover, quality of information about own and others' preferences, the bargaining power or "toughness" of the parties, and time horizons. In general, the models as well as the experiments that begin with equal risk aversion, bargaining power, and information quality arrive at robust equilibria at or very close to a 50-50 split.⁴³ To the extent there is an imbalance the results may differ. For example, a more risk averse bargainer will get less of the surplus. Bargainers with more bargaining power will get more. This could have important implications for merger policy. To the extent that a vertical merger increases the post-merger firm's bargaining power the bargaining outcome is more likely to be greater than a 50% share of the surplus. That could also be the case if the seller is a risk neutral firm and the buyer is a risk averse customer. The seller would get more than half of the surplus. A priori, there is no reason for thinking that the post-merger firm would get less than half of the surplus.

The role of transaction costs in this bargaining theory is interesting. In the standard Coasean literature high transaction costs generally interfere with the market's ability to reach joint maximizing equilibria.⁴⁴ In bilateral monopoly situations, however, positive

⁴¹See Roger D. Blair, David L. Kaserman, and Richard E. Romano, *A Pedagogical Treatment of Bilateral Monopoly*, 55 S. ECON. J. 831 (1989).

⁴²Po-Hsuan Lin, et al, *General Economic Principles of Bargaining and Trade: Evidence from 2000 Classroom Experiments*, NATURE (HUMAN BEHAVIOR) (Aug. 2020), available at <https://www.nature.com/articles/s41562-020-0916-8#citeas>.

⁴³ *Ibid.*

⁴⁴See, e.g., Guido Calabresi & A. Douglas Melamed, *Property Rules, Liability Rules, and Inalienability: One View of the Cathedral*, 85 HARV. L. REV. 1089 (1972); Ian Ayres & Robert Gertner, *Filling Gaps in Incomplete Contracts: An Economic Theory of Default Rules*, 99 YALE L.J. 87 (1989).

transaction costs can actually induce an equilibrium by making bargaining rounds costly.⁴⁵ The story is similar to the bargaining that occurs in the Coase Theorem literature, where two people are in conflict over a particular legal entitlement, such as a physician's annoyance at a neighboring baker's noisy mortar and pestle.⁴⁶ Coase concluded that an efficient bargain would result in an exchange any time the buyer's reservation price was higher than the seller's. For example, if the physician valued the right to be free from the noise at \$500, while the baker valued continued operation at \$400, the two would conclude an agreement under which the baker would shut down. The term "shut down" here actually describes a range of possibilities that may fall short of complete shut down, such as reducing activity levels so as to cause less harm, or installing devices that reduce or eliminate the harm. If the baker had a legal right to operate, the physician would have to pay for this shut down. The amount would be indeterminate, but somewhere between \$400 and \$500.

On the question of how the surplus would be divided, Coase himself intuited but never proved that the two parties would divide the surplus evenly. He did this in a response to a literature that emerged in the 1980s about the failure of a core, or bargaining equilibrium, under the Coase theorem. His response was that as soon as you account for transaction costs bargaining must eventually end. Rational maximizers will realize that there is more to be had from reaching a deal than endless bargaining. Further, the most likely outcome is an even split.⁴⁷

⁴⁵On this point, see Herbert Hovenkamp, *Arrow's Theorem: Ordinalism and Republican Government*, 75 IOWA L. REV. 949, 970 (1990); Herbert Hovenkamp, *Bargaining in Coasian Markets: Servitudes and Alternative Land Use Controls*, 27 J. CORP. L. 519, 524-526 (2002).

⁴⁶*Sturges v. Bridgman*, (1879) 11 Ch.D. 852, (1883), 32 Reports of Cases Decided by the English Courts 837. See Ronald H. Coase, *The Problem of Social Cost*, 3 J. L. & ECON. 1, 8-9 (1960).

⁴⁷RONALD H. COASE, *THE FIRM THE MARKET AND THE LAW* 162 (1988). See also Ronald H. Coase, *The Coase Theorem and the Empty Core: A Comment*, 24 J.L. & ECON. 183, 184 (1981) (responding to critique that under Coase theorem there would be no equilibrium by illustrating repeated rounds of bargaining converging on even division of the surplus). See Varouj A. Aivazian & Jeffrey L. Callen, *The Coase Theorem and the Empty Core*, 24

If an equal division of the surplus is a likely outcome, a change in reservation prices will affect the equilibrium bargain in the same direction and by half the amount of the change. For example, in the refrigerator example Jack was willing to pay \$100 and Jane was willing to accept \$60, so an even split price would be \$80. What if Jane's options change? Perhaps as a result of some change in circumstances she can make the sale elsewhere at a price of \$70. As a result, her opportunity costs and her reservation price to Jack is at least \$70 as well. Now the Nash equilibrium will split the difference between \$70 and \$100, or \$85.

A vertical merger will raise a seller's reservation price when it makes alternative transactions more attractive. Typically the change results from a change in opportunity costs that results from the availability of some new alternative. To hypothesize some facts from the *AT&T/Time-Warner* case, prior to the merger TW's assets consisted of an enormous amount of highly desirable video content subject to high fixed costs, very low short-run marginal costs, and non-rivalrous output. The last attribute means simply that a single digital program, such as *Harry Potter and the Sorcerer's Stone*, can be licensed an infinite number of times. In the absence of any restraints on pricing, and with the power to price discriminate, TW's maximizing strategy would be to license every taker willing to pay more than marginal cost. It would have no incentive to block any customer because that would simply mean less revenue. TW very likely has some market power, however, meaning that it can obtain more revenue if it rations *Harry Potter* by setting a price higher than its marginal costs.

After the merger with AT&T, however, TW faces a different calculus. AT&T owns DirecTV, whose satellite broadcasting competes with consumer cable, Dish Network, and other TV programming nationwide. So now it is not only a producer of video content, it is also a consumer in behalf of its subscription customers. This may give it an incentive to either black out content or charge higher prices to rival program retailers. For example, a price increase from \$2 to \$3 may not have been profit maximizing prior to the merger. However, after the merger AT&T/TW might be able to recapture some

J.L. & Econ. 175 (1981). For good discussion, see Maxwell L. Stearns, *The Misguided Renaissance of Social Choice*, 103 YALE L.J. 1219 (1994).

of the lost revenue if in response to the price increase some customers switch away from a competing cable company to DirecTV.

The effect will be to raise AT&T/TW's reservation price to outside distributors of programming and, accordingly, the equilibrium sale price will increase. In sum, a price increase that was not profit maximizing prior to the merger is profit maximizing after, once we consider recaptured income that comes from people who switch to DirecTV.

This analysis of revenue recapture is not fundamentally different from what occurs in unilateral effects merger cases. Prior to the merger a particular price increase produces so many lost sales that it is unprofitable. To the extent some of these sales go to the acquired firm, however, the post-merger firm recaptures that revenue and the price increase becomes profitable. It is also captured for vertical merger analysis by the development of relatively easy-to-use tools such as the Vertical Gross Upward Pricing Pressure Index, or vGUPPI, which measures changes in incentives that serve to increase the post-merger firm's profit-maximizing price.⁴⁸

Predicting the size of the price increase requires an inquiry into how the acquisition would change the sales calculus of AT&T after the TW content is folded into the firm. This would require examining the payoffs and costs, including margins and volume of lost and recaptured sales, and opportunity costs.

Merger law does not require the government as enforcer to quantify the size of the price increase with any precision. Since the government is seeking only an injunction, it simply needs to show the existence of harm under a "where the effect may be substantially to lessen competition" standard. This does not require proof of the amount. As a result, showing sufficient harm to enjoin a merger on this basis need not require an assumption that the parties will split the surplus in half, but only that the equilibrium price will rise as the post-merger firm's reservation price increases.

⁴⁸Steven C. Salop, *Invigorating Vertical Merger Enforcement*, 127 YALE L.J. 1962 (2018); Serge Moresi & Steven C. Salop, *VGuppi: Scoring Unilateral Pricing Incentives in Vertical Mergers*, 79 ANTITRUST L.J. 185 (2013).

Estimating the amount of the price increase requires a deeper dig. That would be necessary, for example, if the action had been brought by a private plaintiff purchaser seeking damages. It would have to quantify the overcharge. However, an action for damages would necessarily be post-acquisition, because no damages would ordinarily result until after the merger occurred. In that case there could be alternative mechanisms for estimating damages, such as before-and-after or perhaps yardstick methods.⁴⁹ If the private plaintiff is seeking to enjoin a contemplated but not consummated merger the statutory standard is “threatened loss or damage,” and no quantification is necessary.⁵⁰

One analogue that has produced some case law is the computation of patent damages, where there has been significant judicial resistance to the use of Nash bargaining models. The Patent Act prescribes a market-mimicking approach to assessing damages, that must be “in no event less than a reasonable royalty.”⁵¹ One historical starting point was the “25% rule,” which simply assumed that 25% of an infringer’s profits from the infringement would be paid out as a royalty, but in *Uniloc* the Federal Circuit rejected that approach as having no foundation.⁵²

The Nash bargaining approach provides an alternative by assuming as bargaining parameters that the royalty be not less than zero and not more than the defendant’s entire profit from use of the invention. That suggests that the Nash bargaining solution would be a fifty-fifty split of the infringer’s profits. If the patentee also practices the patent, then licensing may involve some lost product sales and these would have to be included in the computation. In any event, the Federal Circuit has also rejected this approach, at least for the time being.⁵³ The result is that patent damages are most frequently

⁴⁹See 2A AREEDA, HOVENKAMP, BLAIR & DURRANCE, *supra* note __, at ¶¶392, 395b, 397f.

⁵⁰15 U.S.C. §26.

⁵¹35 U.S.C. §284.

⁵² *Uniloc USA, Inc. v. Microsoft corp.*, 632 F.3d 1292 (Fed. Cir. 2011).

⁵³E.g., *Virnetx, Inc. v. Cisco Sys., Inc.*, 767 F.3d 1308 (Fed. Cir. 2015) (patent damages; evidence based on Nash bargaining model inadmissible). See also *Vaporstream, Inc. v. Snap, Inc.*, 2020 WL 2543814 (C.D.Cal. Jan. 10, 2020) (rejecting expert testimony on damages using Nash bargaining model); *Oracle America, Inc. v. Google, Inc.*, 798 F.Supp.2d 1111, 1119-

computed by using a yardstick methodology along with a hodgepot of factors under the so-called *Georgia-Pacific* test that attempts mainly to identify arms' length bargains over similar patents and similar acts of infringement.⁵⁴

In term of relative admissibility, that approach seems wrong-headed. To be sure, the bargaining theory is complex and rests on many assumptions. But the hodgepot of factors that constitute the *Georgia-Pacific* test is certainly no better, and the 25% rule is nothing but an unsupported generalization.

In any event, the problem of predicting merger harm is fundamentally much easier because it does not require quantification in the sense that the measurement of damages does, but only a showing that the effect of the merger may be to increase prices.

Nash Bargaining and Offsetting Efficiencies

Assessing consumer harm a vertical merger can become more difficult if the merger produces significant and merger-specific efficiencies.⁵⁵ Here the Merger Guidelines state that a prima facie unlawful merger can be saved by merger specific efficiencies that will be passed on to consumers sufficiently that the post-merger price will be no higher than the pre-merger price.⁵⁶ The term "merger specific" means that the efficiency cannot readily be attained by some means other than the merger. In cases with offsetting efficiencies the predicted price increase and the size of the efficiency offset would

1121 (N.D.Cal. 2011) (copyright; refusing to admit expert testimony on damages using Nash bargaining model); *Robocast, Inc. v. Microsoft corp.*, 2014 WL 350062 (D.Del. 2014). *Cf.* *AstraZeneca AB v. Apotex Corp.*, 782 F.3d 1324 (Fed. Cir. 2015) (not explicitly referencing Nash bargaining model, but approving expert's testimony of 50-50 split when it was within the historical range of actual royalties). *See* William Choi & Roy Weinstein, *An Analytical Solution to Reasonable Royalty Rate Calculations*, 41 IDEA 49, 56-60 (2001).

⁵⁴*Georgia-Pacific corp. v. U.S. Plywood Corp.*, 318 F. Supp. 1116 (S.D.N.Y. 1970); *see* *Utex Indus., Inc. v. Wiegand*, 2020 WL 873985 (S. D. Tex. Feb. 21, 2020) (dicta approving yardstick method for patent damages). For a severe critique, *see* Erik Hovenkamp & Jonathan Masur, *How Patent Damages Skew Licensing Markets*, 36 REV. LITIG. 379 (2018).

⁵⁵On efficiencies, *see* discussion *infra*, text at notes __.

⁵⁶VMG, *supra* note __, §6.

need to be estimated sufficiently to show that the post-merger price is no higher than the pre-merger price. While establishing this can be difficult, it still does not require a determination of how much prices will go up, but only that they will go up. Prediction becomes more difficult as cases are closer.

The burden of proof for defenses should generally be on the defendants. Defenses are all about engineering costs, economies of scale, distribution, management, transaction costs, IP portfolios, or make-vs-buy alternatives. For all of these the defendant is in a better position to have information about them and how they will be affected by the merger.⁵⁷ Indeed, predicted efficiencies provide the motives for any merger whose gain comes from a source other than a price increase. Presumably a rational acquiring firm has evaluated these possibilities before it made its decision. The merging firms are also in the better position in most cases to show that the claimed efficiencies are verifiable and merger specific.

Bargaining Analysis of Vertical Mergers: Relative Robustness

The Nash bargaining evaluation of vertical mergers may produce a certain amount of skepticism among judges, who might regard its mathematics as overly technical, its game theory as excessively theoretical or speculative, or its assumptions as unrealistic. However, we have been there before. The introduction of concentration indexes, particularly the HHI, in the Merger Guidelines was initially met with skepticism. Gradually they were accepted as judges became more comfortable with them.

In fact, the theory that relates a particular reading on a concentration index to the risk of noncompetitive outcomes from horizontal mergers involves at least as much conjecture as does the bargaining theory that the Nash model contemplates.⁵⁸ A few early

⁵⁷See 4A PHILLIP E. AREEDA & HERBERT HOVENKAMP, ANTITRUST LAW ¶970f (4th ed. 2016).

⁵⁸See 4 Phillip E. Areeda & Herbert Hovenkamp, Antitrust Law ¶930-932 (4th ed. 2016).

decisions showed strong skepticism about the HHI and either rejected or seriously qualified its use.⁵⁹

The HHI as used in the Horizontal Merger Guidelines expresses a generalization about diverse anticompetitive strategies, including explicit or follow-the-leader collusion as well as noncooperative Cournot pricing under a variety of behavioral assumptions. A number of these assumptions have been criticized as unrealistic. For example, the HHI itself is mathematically derived from a pure Cournot theory⁶⁰ and used even though most models of coordinated interaction today deviate significantly from the original Cournot assumptions.⁶¹

The many theories of cooperative and noncooperative oligopoly rest on different assumptions about firm behavior and response. Sometimes the behavioral assumptions driving these models are inconsistent. For example, a factor such as disparities in firm size may serve to raise the Cournot equilibrium price, but at the same time it may make it more difficult for a cartel to reach a stable agreement. That is, sometimes the assumptions pull in opposite directions.

What they generally share in common, however, is the view that the number of firms in a market is strongly relevant to competitive harm, and disparities in firm size perhaps a little less relevant but important nonetheless. If the fear is a cooperative form of collusion the resulting price is typically the same no matter how many participants, although the likelihood of success and cartel stability is greater as the number of participants is smaller. Likewise, in a cartel the price does not vary systematically with firm size. By contrast, if the fear is

⁵⁹*E.g.*, *United States v. Black & Decker Mfg. Co.*, 430 F. Supp. 729, 748-749 n.38 (D. Md. 1976) (rejecting HHI); *Marathon Oil Co. v. Mobil Corp.*, 530 F. Supp. 315, 323 n.15 (N.D. Ohio 1981), *aff'd*, 669 F.2d 378 (6th Cir. 1981), *cert. denied*, 455 U.S. 982 (1982) (HHI okay as alternative to CR4).

⁶⁰*See* George J. Stigler, *A Theory of Oligopoly*, 72 J. POL. ECON. 44 (1964).

⁶¹On the relation of the HHI to pure Cournot assumptions *see* Daniel P. O'Brien and Steven C. Salop, *Competitive Effects of Partial Ownership, Financial Interest and Corporate Control*, 67 ANTITRUST L.J. 559, 594-596 (2000). *See also* William E. Kovacic, Robert C. Marshall, Leslie M. Marx & Steven P. Schulenberg, *Quantitative Analysis of Coordinated Effects*, 76 ANTITRUST L.J. 397 (2009); Janusz A. Ordover, *Coordinated Effects in Merger Analysis: An Introduction*, 2007 COLUM. BUS. L. REV. 411, 414.

noncooperative Cournot-style oligopoly then the size of the price increase depends on both the number of firms and size disparities.

All of this, including the manifold variety of models, is well established in the industrial organization literature on collusion and oligopoly.⁶² The concentration thresholds in the Horizontal Merger Guidelines do no more than capture a rough generalization about the link between higher prices, the number of firms in a market, their size disparities, and the extent of the increase that results from the merger.

The judicial decisions today do not revisit all of these issues and most willingly conclude that changes in concentration indexes are predictive of merger outcomes. Of course, the value of an economic model is not its descriptive realism but its testability. Empirically, the links between concentration, concentration increases, and post-merger price increases resulting from horizontal mergers does fairly well.⁶³

The use of concentration indexes in the Horizontal Merger Guidelines does have one thing going for it that the vertical merger measures do not, and that is the imprimatur of the Supreme Court. In the *Philadelphia Bank* decision the Court wrote that a numerical prediction of competitive consequences:

is sound only if it is based upon a firm understanding of the structure of the relevant market; yet the relevant economic data are both complex and elusive. * * * [U]nless businessmen can assess the legal consequences of a merger with some confidence, sound business planning is retarded. * * * So also, we must be alert to the danger of subverting congressional intent by permitting a too-broad economic investigation.

[W]e think that a merger which produces a firm [1] controlling an undue percentage share of the relevant market, and [2] results in a significant increase in the concentration of

⁶²*E.g.*, Carl Shapiro, *Theories of Oligopoly Behavior*, Ch. 6, in HANDBOOK OF INDUSTRIAL ORGANIZATION 329-414 (Richard Schmalensee & Robert Willig, eds., 1989). *See generally* 1 HANDBOOK OF GAME THEORY AND INDUSTRIAL ORGANIZATION (Luis C. Corchon and Marco A. Marini, eds., 2018), esp. Chs. 2, 3, 5, 6, 7.

⁶³*See* JOHN KWOKA, *MERGERS, MERGER CONTROL, AND REMEDIES: A RETROSPECTIVE ANALYSIS OF U.S. POLICY* (2014).

firms in that market, is so inherently likely to lessen competition substantially that it must be enjoined [3] in the absence of evidence clearly showing that the merger is not likely to have such anticompetitive effects. * * *⁶⁴

This numbered set of criteria claims widespread support as being at least relevant, although perhaps not decisive. What we want to know about a horizontal merger is something about the post-merger market share and the amount by which the merger increases market concentration.⁶⁵ It is unclear that the Court had any particular model of collusion or oligopoly in mind. Indeed, it is not even clear that the Court was concerned about high prices. It may just as possibly been concerned about the post-merger firm's ability to undersell rivals.

Another important attribute of concentration indexes is that they cannot be applied until a market has been defined. Market definitions are always problematic, particularly in differentiated markets such as are common subjects of merger litigation. To the extent a market definition includes differentiated products they are treated as perfect competitors, which is wrong and invariably underestimates the amount of power that individual firms can exert. To the extent they exclude differentiated products they treat them as if they do not compete at all, which is also wrong and tends to exaggerate power.⁶⁶ Indeed, these under- and over-inclusive characteristics of market definition largely undermine its value in the treatment of unilateral effects mergers.

The best case for use of the HHI or any concentration index is an informed hunch that the threat of noncompetitive behavior gets bigger as the number of effective players in a market diminishes. Empirically, that hunch turns out to be fairly robust, although the HHI itself gives an illusion of precision that is not justified by reality.⁶⁷

⁶⁴United States v. Philadelphia Natl. Bank, 374 U.S. 321, 362-363 (1963) (bracketed numbers added).

⁶⁵ On this point, see Herbert Hovenkamp & Carl Shapiro, *Horizontal Mergers, Market Structure, and Burdens of Proof*, 127 Yale L.J. 1996 (2018),

⁶⁶See Louis Kaplow, *Why (Ever) Define Markets?*, 124 HARV. L. REV. 437 (2010); 4 AREEDA & HOVENKAMP, *ANTITRUST LAW*, *supra* note __, ¶910e.

⁶⁷See John E. Kwoka, *The Herfindahl Index in Theory and Practice*, 30 ANTITRUST BULL. 915 (1985).

Seen in this light, the emergence of unilateral effects theory was a significant improvement in analysis.⁶⁸ Dispensing with traditional market definition, it focuses on substitution rates, or elasticities, among competitive pairings of firms. Where the data are available, measurement of these is almost certainly much better than use of the HHI as a predictor of collusive interaction.

Stacked up against this history, the Nash bargaining theory that suggests a presumptive fifty-fifty split of the surplus is defensible – certainly sufficiently defensible to meet §7’s “may substantially lessen competition” standard. Nevertheless, the theory places a burden on both the agencies as well as consulting and academic economists to test their analysis empirically and also produce simplifying methodologies that make the analysis more accessible. That can only improve over time. This places a premium on continuous empirical investigation of merger outcomes, as we have done for horizontal mergers.

Finally, all of these methodologies share an assumption that business firms are rational profit-maximizers. Such an assumption is essential to economics generally, as well as to rational antitrust policy. For their part, judges must accept and internalize the fact that rational actor assumptions are the things that makes economic prediction possible. To that end, it was a serious misstep in the AT&T/TW litigation for the district judge to acknowledge a defense argument that after the merger the firm would not seek to maximize overall profits but would consider the profits of each division separately.⁶⁹ Accepting an assumption of that nature would not only defeat vertical merger analysis, it would make a wide range of economic policy making based on prediction impossible.

One example of an area where this approach shows up clearly is in the analysis of entry barriers employed in the Guidelines. The

⁶⁸Carl Shapiro, *The 2010 Horizontal Merger Guidelines: From Hedgehog to Fox in Forty Years*, 77 ANTITRUST L.J. 49 (2010); 4 AREEDA & HOVENKAMP, *supra* note __, ¶914e; Carl Shapiro & Joseph Farrell, *Mergers with Unilateral Effects: A Simpler and More Accurate Alternative to Market Definition* (FTC, Feb. 12, 2008), available at <http://www.ftc.gov/bc/unilateral/docs/shapiro.pdf>.

⁶⁹United States v. AT&T, 310 F. Supp. 3d 161, 222-223 (D.D.C. 2018), *aff'd*, 916 F.3d 1029 (D.C. Cir. 2019).

“timeliness, likelihood, sufficiency” analysis that the agencies employ is strictly neoclassical, based on assumptions about when a profit-maximizing actor would find it profitable to enter a market, and when its entry would be sufficient to drive prices back to premerger levels.⁷⁰

Even in the presence of substantial merger specific efficiencies, the precise location of the Nash bargaining outcome will be crucial only in close cases. Given the very small number of times efficiencies of this nature and magnitude have been found, this problem should not arise frequently. The problem of elimination of double marginalization, discussed below, presents some different issues.⁷¹

Market Structure and Product Differentiation

Competition is always about the existence and availability of alternatives. They are what force a firm to keep its price down, knowing that a customer will easily be able to buy from someone else. The bargaining theory that guides vertical merger analysis depends heavily on the availability of alternatives. A bargainer’s willingness to pay a particular seller for any good is substantially a function of the amount it would have to pay for a similar good from someone else. To take an obvious example, if a grocery chain acquires an egg producer and the egg market is competitive, the acquisition is unlikely to have much effect on the chain’s ability to force higher egg costs on its rivals. They have plenty of alternatives and all eggs are alike. If the post-merger firm attempts to jack up the price of wholesale eggs they will go elsewhere.

One of the more important illustrations in the VMG is unfortunate, or at least unrealistic. The illustration involves oranges, generally thought to be an undifferentiated commodity. The example that the VMG give is that by acquiring an orange supplier an orange juice manufacturer is able to charge rivals a higher price for oranges, or perhaps stop supplying to them altogether.⁷²

⁷⁰See United States Dept. of Justice and FTC, Horizontal Merger Guidelines §9 (2010), available at <https://www.justice.gov/atr/horizontal-merger-guidelines-08192010>

⁷¹See discussion *infra*, text at notes ___.

⁷²VMG, §4.a, Example 2.

That illustration would be much more plausible if it involved a more specialized manufactured product and a more concentrated market with fewer alternatives. For example, it could be a microprocessor chip or perhaps even the heavy duty truck wheels in the *Fruehauf* case.⁷³ Oranges for the United States market are grown by thousands of domestic growers, situated mainly in California, Florida, Texas, and Arizona. In addition are significant foreign imports, mainly from Mexico, Chile, South Africa and Australia.⁷⁴ To be sure, transportation costs may limit some processing markets to local areas, although the Example does not say that and the fact of transportation from far off places such as Australia makes it unlikely.

The strategy outlined in the Guidelines orange example works much better in a case such as *AT&T/Time-Warner* because TW's content is unique, significantly differentiated, and highly desirable. Rival cable companies certainly need TW's content much more than any particular orange juice maker needs a particular supplier's oranges. In sum, what would be helpful is some more factually realistic information about exactly how a vertical acquisition goes about denying access to rivals or raising their costs. The Guidelines decline to state a minimum market share, but they do state that they "may rely on evidence of head-to-head competition between one merging firm and rivals that trade with the other merging firm when evaluating unilateral effects," which includes the foreclosure and RRC theories.⁷⁵

This formulation reflects a reality that has already been developed in the 2010 Horizontal Merger Guidelines analysis of unilateral effects mergers. Even for firms that compete with one another, the elasticity of substitution among various pairs of competitors can vary a great deal. That is, in a differentiated market not every competitor's offering represents an equally good alternative. As a result, the question of how costly it is to deny a specialized input to a manufacturer is one of degree. After a vertical merger a firm that

⁷³ *Fruehauf Corp. v. FTC*, 603 F.2d 345 (2d Cir. 1979).

⁷⁴ See <https://www.producenews.net/markets-and-trends/10662-citrus-import-demand-up-and-growing-in-the-united-states#:~:text=South%20Africa%2C%20Chile%2C%20Mexico%20and,U.S.%20market%20essentially%20since%202003.>

⁷⁵ VMG, §2.

raises its price for the related product above pre-merger levels will still lose sales, just as the related product did prior to the merger. The question is how many and how much will be recaptured at the other level.

For example, if post-merger AT&T/TW raise the rates on TW content, companies that compete with AT&T will be tempted not to purchase, but by not purchasing they will lose customers who desire TW content to DirecTV or one of AT&T's regional cable companies.⁷⁶ Or in *Fruehauf*, if the post-merger firm raises the price of wheels to Fruehauf's competitors, those competitors will face higher costs. On the one hand they will purchase fewer wheels. On the other, truck trailer customers will respond by purchasing more trailers from Fruehauf.⁷⁷ The tradeoff is what determines profitability, and the equilibrium price after the merger could be higher.

What Happened to Intellectual Property?

One lamentable omission in the Guidelines is discussion of intellectual property rights and the role that they might play in vertical mergers. There is no sustained treatment of patents and no mention at all of licensing.

IP rights have many distinct features that can affect vertical merger analysis. One is the fact that IP rights are nonrivalrous, which means that when they are licensed they can permit unlimited copying. To illustrate, one of the foreclosure complaints in the FTC's unsuccessful *Fruehauf* case was that the wheels and brakes acquired by a truck manufacturer were products that might sometimes be in short supply.⁷⁸ The court noted that these items had "been subject to periodic shortages in the past,"⁷⁹ and the merger increased the likelihood that the post-merger firm would favor its own parent rather than outside purchasers. Whatever one thinks of that as a rationale for estimating foreclosure from a vertical merger, it has no application to an IP right such as licenses to the digital video content at issue in *Time-Warner*. The post-merger firm could consume internally an indefinite

⁷⁶United States v. AT&T, 310 F. Supp. 3d 161, 222-223 (D.D.C. 2018), *aff'd*, 916 F.3d 1029 (D.C. Cir. 2019).

⁷⁷Fruehauf corp. v. FTC, 603 F.2d 345 (2d Cir. 1979).

⁷⁸*Ibid.*

⁷⁹*Id.* at 349.

number of copies of the *Harry Potter* movies, a Time-Warner asset, and still have an unlimited number of copies left over for outside buyers if it chose to license them.

Pulling the other way, another fact about IP rights is that they can promote product differentiation and, in the absence of a license, limit copying. This tends to narrow or make more costly the available alternatives. By acquiring a portfolio of valuable patents or other IP rights a post-merger manufacturer may be able to raise its licensing fees to rival manufacturers. If these competing manufacturers cannot find adequate substitutes they will have to raise the prices of their output, and some customers will substitute away from them and to the post-merger firm's manufactured output. The AT&T/TW case presented precisely this story in the context of copyrighted video content. Without a license to *Harry Potter*, a rival firm can certainly make its own movie, but making it is far more costly than licensing an existing copy and success by no means assured.

Indeed, it may well turn out that one of the areas in which vertical mergers present the most significant competitive threats are those that involve significant IP licensing, both of patents and copyrighted media. Further, the fact that these rights are both nonrivalrous and have very low marginal costs is likely to have a significant impact on the range over which the parties will bargain. The unintegrated holder of an IP portfolio has very low variable costs, no constraint on production, and thus an incentive to license to everyone, particularly if price discrimination is readily available. By contrast, the vertically integrated holder of IP rights must balance revenue gains from licensing against revenue losses from the vertically related product.

Efficiencies and Double Marginalization

Introduction

Most of the traditional discussion of vertical merger defenses was about integration. This was true of both production cost savings and transaction cost savings. To the extent that a merger facilitates the physical integration of production, costs can decline. This fact was not always offered as a defense and in the 1960s even became a rationale for condemning some mergers. One example is *Allis-Chalmers*, a vertical merger case that condemned the merger of a manufacturer of

rolling mills in the steel industry and the electrical wiring harnesses used to transmit power to such mills.⁸⁰ The court not only recognized the efficiency but actually condemned the merger for that reason. The court concluded that the merger would raise entry barriers into the production of rolling mills, because it would create “the only company capable of designing, producing and installing a complete metal rolling mill.”⁸¹

Production cost savings have always played a significant role in vertical merger decisions and should be treated as qualifying efficiencies. One warning here is that a merger in and of itself does not create a single plant integrating the two levels, but only a single firm owning two plants. As a result, production shifts and perhaps even new plant construction or outfitting will be necessary. This is another situation in which IP rights are relevant. AT&T’s DirecTV can integrate TW’s digital content with little or no reconstruction of physical facilities.

The Government’s Vertical Merger Guidelines say very little about specific efficiency effects from vertical mergers, except to rename them “procompetitive effects” and combine the analysis with the elimination of double marginalization (EDM).⁸² Nor do the Guidelines discuss burdens of proof. As noted previously, however, the burden of proof of efficiencies should sensibly rest on the

⁸⁰Allis-Chalmers Mfg. Co. v. White Consol. Indus. 414 F.2d 506, 515-518 (3d Cir. 1969).

⁸¹*Cf.* the “portfolio effects” or “range effects” theory that has had some use in the EU but not the U.S., to condemn a vertical or conglomerate merger if the ability of the post-merger firm to develop or sell the two products together threatened to drive unintegrated rivals out of business. The EU relied on the theory in 2005 to block the merger of General Electric Co. and Honeywell, Inc., See Case No. COMP/M 2220, General Electric/Honeywell, available at https://ec.europa.eu/competition/mergers/cases/decisions/m2220_en.pdf. See Eric S. Hochstadt, *The Brown Shoe of European Union Competition Law*, 24 CARDOZO L. REV. 287 (2002); William J. Kolasky, *Conglomerate Mergers and Range Effects: It’s a Long Way from Chicago to Brussels*, 10 GMU L. REV. 533 (2002).

⁸²VMG, *supra* note __, §6.

defendant, who almost always has better control over the relevant evidence.⁸³

Transaction Cost Savings, EDM, and Coase

In addition to engineering and physical integration costs, transaction cost savings figure prominently in the analysis of vertical mergers. The costs of reaching and enforcing a bargain may be high in some cases, and vertical ownership can eliminate these. If a firm can produce a widget internally at the same cost as that of an outside seller, then any significant cost of using the market gives the advantage to internal production.

The origin of many of our ideas about transaction cost savings is Ronald Coase's 1937 article, *The Nature of the Firm*. There, he developed the theory that firm boundaries are explained by transaction costs, which he termed "marketing costs."⁸⁴ He compared the costs of purchasing an input against the costs of internal production. The firm will choose the method that results in the best payoff, given that transacting is costly, and the aggregation of these choices determines the boundaries of the firm.

In making this calculation, merger would seem to be a relevant alternative that should have been on the table. However, Coase never discussed them. Nevertheless, transaction costs savings are relevant to merger analysis when the costs of purchasing and operating a firm are less than the cost of either new entry or purchasing the finished input on a market. That is, the hypothetical firm in Coase's model actually has *three* choices rather than two: procurement of Alpha on the market, entry into self-production, or purchase of an Alpha manufacturer. It chooses whichever of the three promises the best payoff.

The double marginalization problem is part of the transaction cost problem. It arises when a bargaining impediment limits the ability of two firms with market power to reach the joint maximizing position. Double marginalization occurs when each firm maximizes without taking into account that the other firm also has market power. As a

⁸³See discussion *supra*, text at notes __.

⁸⁴Ronald H. Coase, *The Nature of the Firm*, 4 *ECONOMICA* (n.s.) 386 (1937).

result, each one takes an excessive monopoly markup, output is too low and price too high to be maximizing for either party.⁸⁵

In fact, even absent double marginalization the elimination of transaction costs typically operates the same way. The fact that something is a cost does not dictate who must pay for it. So if two parties can eliminate a particular transaction cost they can both profit. This might occur, for example, if a buyer and seller agree to eliminate the services of a broker and deal with each other directly. This method of transaction cost reduction occurs frequently enough that it was separately addressed by the Robinson-Patman Act, in a provision referencing price concessions that might be given in lieu of brokerage.⁸⁶

As a result, the VMG are incorrect to state that the elimination of double marginalization is not a “procurement efficiency,” but simply a failure of alignment of the economic incentives between the merging firms.⁸⁷ Any transaction cost savings could be divided by the parties through a suitably renegotiated contract. As a result, all such costs indicate a failure of alignment.

As noted above, in *The Nature of the Firm* Coase discussed outside procurement and internal production as alternative ways of obtaining an input, but he did not discuss merger. There is a good reason for his omission: he himself did not believe it. He did speak about mergers as an alternative to contracting in his later writing on the merger between General Motors and one of its major input suppliers, Fisher Body Works. Coase strongly dissented from the view that complexities in contracting explained that merger. By using side-payments, two-part contracting or other more complex contracting relationship the firms should have been able to achieve joint maximizing results.

⁸⁵For development, see HOVENKAMP, FEDERAL ANTITRUST POLICY, *supra* note __, §9.2.

⁸⁶See 15 U.S.C. §13c (making it unlawful to give a price discount in lieu of brokerage unless the buyer actually performed the brokerage services in question). See *FTC v. Henry Broch & Co.*, 363 U.S. 166 (1960); and 13 Herbert Hovenkamp, *Antitrust Law* ¶ 2362 (4th ed. 2019).

⁸⁷VMG, *supra* note __, §6.

The standard theory that asset specificity, sunk costs, or other precommitments can cause negotiation breakdown and lead to vertical mergers was developed in a well-known paper by Klein, Crawford, and Alchian (KCA).⁸⁸ They argued that holdup problems upset a long standing bilateral bargaining relationship between Fisher Body and GM, which GM was able to resolve only by acquiring Fisher. Fisher Body's nearby geographic location to GM gave it unique advantages as GM's supplier, and vice-versa, locking the two firms together to the extent that contracting with others would have been more costly. The fact that auto bodies had to be individually designed in a costly and specialized plant and guaranteed in sufficient numbers in advance created significant opportunities for holdup. Each party effectively became a hostage to the other. The result was bargaining breakdowns, or instances in which one party did not behave in ways that the other party anticipated. Contracting finally broke down when GM wanted to open a new plant in Flint, some sixty miles away, and wanted Fisher to build a plant there as well. This resulted from GM's preference that all elements of production be located close together. Fisher, however, preferred to expand output from its existing plant in Detroit.

The KCA view was that this dispute was an impasse that resulted in GM's acquisition. Coase's view was that it was soluble by contract. In fact, the parties actually had been able to bargain to the joint maximizing position.⁸⁹ Thereupon a lively and largely unresolved debate ensued over what really happened in the Fisher Body case, and the extent to which contracting could work as easily as merger to solve the problem.⁹⁰

⁸⁸Benjamin Klein, Robert G. Crawford & Armen A. Alchian, *Vertical Integration, Appropriate Rents, and the Competitive Contracting Process*, 21 J.L. & ECON. 297 (1978).

⁸⁹Ronald H. Coase, *The Acquisition of Fisher Body by General Motors*, 43 J. L. & ECON. 15 (2000); Ronald H. Coase, *The Conduct of Economics: The Example of Fisher Body and General Motors*, 15 J. ECON. MAN. 255 (2006).

⁹⁰See Benjamin Klein, *Fisher-General Motors and the Nature of the Firm*, 43 J. L. & ECON. 105 (2000); Ramon Casadesus-Masanell & Daniel Spulber, *The Fable of Fisher Body*, 43 J. L. & ECON. 67 (2000); Robert F. Freeland, *Creating Holdup Through Vertical Integration: Fisher Body Revisited*, 43 J.L. & ECON. 33 (2000). See also Douglas G. Baird, *In*

The debate over vertical integration and holdup bundled themes that Coase had developed in his two most well-known articles, *The Nature of the Firm*⁹¹ and *The Problem of Social Cost*.⁹² The first argued that the boundaries of a firm are determined by the firm's continuous search to procure inputs in the most cost effective way. The second argued that two traders in a well-functioning market will be able to achieve the joint-maximizing solution. That relationship is too often ignored. For example, Ben Klein's article responding to the Coase critique of the Fisher Body merger relied heavily on Coase's *Nature of the Firm*, as it should have, but it never cited *The Problem of Social Cost*.⁹³

There is more than a little cognitive dissonance in the debate over elimination of double marginalization (EDM). Anti-interventionist conservatives and libertarians rely heavily on Coasean arguments that unless high transaction costs get in the way firms will be able to bargain to joint maximizing results. By contrast, regulation creates inalienability rules that undermine these results.⁹⁴ If that is true, then double marginalization will rarely provide a defense to a vertical merger. The law of vertical mergers deals largely with firms that transact with one another routinely, in legally enforceable buy-sell relationships. Yet for some reason they are unable to arrive at joint maximizing agreements.

One interesting thing about *The Problem of Social Cost* is that most of the actors that appear in it do not bargain with each other regularly. They are certainly in a position to sue one another, and do, but the transaction costs of litigating are extremely high in comparison with the give and take of more conventional markets. The potential bargainers who populate *Social Cost* are pairs like the doctor and

Coase's Footsteps, 70 UNIV. CHI. L. REV. 23 (2003); Yoshiro Miwa & J. Mark Ramseyer, *Rethinking Relationship-Specific Investments: Subcontracting in the Japanese Automobile Industry*, 98 MICH. L. REV. 2636 (2000); Susan Helper, John Paul MacDuffie, and Charles Sabel, *Pragmatic collaborations: Advancing Knowledge While Controlling Opportunism*, 9 INDUSTRIAL & CORP. CHANGE 443 (2000).

⁹¹See note __.

⁹²Ronald H. Coase, *The Problem of Social Cost*, 3 J.L. & ECON. 1 (1960).

⁹³Klein, *Fisher-General Motors*, *supra* note __.

⁹⁴For a good statement of the positions, see Calabresi & Melamed, *supra* note __.

confectioner who share a party wall,⁹⁵ the homeowner and the nearby airport,⁹⁶ the cattle rancher and neighboring farmer,⁹⁷ the spark-emitting chimney and downwind neighbor,⁹⁸ or the hotel whose addition blocks light to sunbathers at an adjacent hotel.⁹⁹ In all of these cases the parties actually go to court rather than solve the problem by bargaining. The principal relationship among all of these is that they are physical neighbors, not that they engage in regular buyer-seller contracting. If anything, contractual solutions to the double marginalization problem should be far easier to come by.

The theory of double marginalization is heavily driven by the economics of the business firm, although too often this relationship is overlooked. The economics of double marginalization was developed in the 1950s in a context that tended to view firms as fixed entities unto themselves.¹⁰⁰ If a firm is simply a nexus of contracts, however, and anything that can be accomplished within a firm can also be accomplished by a suitably designed contract, then double marginalization should not exist. Two firms contracting with one another should be able to solve the problem just as much as two different departments or divisions within a single firm. Nevertheless, we do not think of double marginalization as something that occurs between the separately incorporated divisions of a single firm.

As noted above, a vertical merger typically involves firms who are already in a bargaining relationship or at the very least are well positioned to be in such a relationship. As Cournot originally developed what came to be known as the theory of “Cournot complements,” or double marginalization, it involved firms who

⁹⁵*Id.* at 2-3, discussing *Sturges v. Bridgeman*, (1879) LR 11 Ch D 852.

⁹⁶*Id.* at 25, discussing *Delta Air Corp. v. Kersey*, 193 Ga. 862, 20 S.E.2d 245 (1942).

⁹⁷Coase, *Social Cost*, *passim*.

⁹⁸*Id.* at 11, discussing *Bryant v. Lefever*, 4 C.P.D. 172 (1878-1879)

⁹⁹*Id.* at 8, discussing *Fontainebleu Hotel corp. v. Forty-Five Twenty-Five, Inc.*, 114 So.2d 357 (1959).

¹⁰⁰*E.g.*, Joseph J. Spengler, *Vertical Integration and Antitrust Policy*, 58 J. POL. ECON. 347 (1950). *See also* Fritz Machlup & Martha Taber, *Bilateral Monopoly, Successive Monopoly, and Vertical Integration*, 27 *ECONOMICA* 101 (1960) (discussing scholarship to that time).

produced complementary inputs sold to a common buyer.¹⁰¹ A well known example is royalty stacking vis-à-vis a licensee that needs several patents in order to produce a product.¹⁰² Firms that sell complementary inputs do not ordinarily deal with one another, and as a result coordination is more difficult to achieve.

For example, suppose a device such as a toaster requires licenses from A, B, C & D, each of which owns a patent covering a distinct but essential component. The theory of Cournot complements states that each will set a royalty that maximizes its returns individually and the sum of the resulting royalties will be too high. The patentees could earn more by coordinating their license fees, and the output gains would more than offset the lower royalty rates that they receive. The toaster manufacturer would profit because the input costs for making toasters would go down. Consumer would benefit because the price of toasters would decline as well. However, if the complementary sellers of inputs to a common licensee agreed to coordinate license fees with one another they would very likely be guilty of collusion.¹⁰³ One alternative that might eliminate double marginalization while avoiding antitrust liability would be pooling, in which the four patentees aggregated their patents by cross-licensing and a single entity licensed them out to the toaster maker.

By contrast to sellers of complements, vertically related firms deal with each other regularly. Two firms who bargain with one another regularly should be able to reach the joint maximizing result, and double marginalization is not joint maximizing. To the extent they can coordinate price and output they both will be better off. Merging is of course a way of coordinating price and output, but Coase's point was that the firms should be able to reach that result without having to merge.

¹⁰¹AUGUSTIN COURNOT, RESEARCHES INTO THE MATHEMATICAL PRINCIPLES OF THE THEORY OF WEALTH 99-116 (Nathaniel T. Bacon trans., Augustus M. Kelley Publishers 1971) (1838).

¹⁰²Mark A. Lemley & Carl Shapiro, *Patent Holdup and Royalty Stacking*, 85 TEX. L. REV. 1991 (2007); Josh Lerner and Jean Tirole, *Efficient Patent Pools*, 94 AM. ECON. REV. 691 (2004).

¹⁰³See Erik Hovenkamp, *Competition, Inalienability, and the Economic Analysis of Patent Law*, 21 STAN. TECH. L. REV. 33 (2018).

The thing that can defeat this result is high transaction costs, but in a case that involves durable vertical relationships transaction costs should induce the firms to reach a deal more quickly. In addition, another bargaining impediment to EDM was harsh rules against vertical restraints such as minimum and maximum resale price maintenance. But those constraints have very largely been removed by the Supreme Court.¹⁰⁴ EDM may also require price discrimination favoring some buyers, but such discrimination rarely raises antitrust issues.

Contractual EDM is usually superior to vertical mergers because it permits the parties to focus on the input in question. The double marginalization problem concerns specific assets, not necessarily entire firms. For example, the gasoline refiner with market power who sells gasoline to a local retailer with market power faces a double marginalization problem with respect to gasoline. For the rest of the local retailer's business the refiner is presumably indifferent. Even traditional gasoline stations sell tires, batteries, and auto repair services. Gasoline sellers who operate through convenience stores sell a great deal more. The contractual solution permits the parties to bargain over the one input, gasoline, over which the two are failing to maximize. By contrast, the merger focuses the refiner to go into the retailing business.

As a result, it is quite appropriate for the Agencies evaluating vertical mergers to apply a strong presumption that elimination of double marginalization is not a "merger specific" defense. In most cases contractual alternatives should be both superior and available. Significantly, this becomes relevant only after a prima facie case against the merger has been made. Without explicitly assigning the burden of proof, the Agencies are thus correct to require the merging firms "to provide substantiation for claims that they will benefit" from EDM.¹⁰⁵ The Guidelines add:

¹⁰⁴See *Leegin Creative Leather Products, Inc. v. PSKS, Inc.*, 551 U.S. 877 (2007) (overruling per se rule against resale price maintenance); *State Oil Co. v. Khan*, 522 U.S. 3 (1997) (overruling per se rule against maximum resale price maintenance).

¹⁰⁵VGM, *supra* note ___, §6.

In assessing the merger-specificity of the elimination of double marginalization, the Agencies typically examine whether it would likely be less costly for the merged firm to self-supply inputs following the merger than for the downstream firm to purchase them from one or more independent firms absent the merger. The merging parties' evidence about existing contracting practices is often the best evidence of the price the downstream firm would likely pay for inputs absent the merger. The Agencies also consider other evidence, such as contracts between similarly situated firms in the same industry and contracting efforts considered by the merging firms.¹⁰⁶

The Guidelines then go on, however, to say that they will not require bargaining solutions that might “theoretically be achieved” but that are “not reflected in documentary evidence.”¹⁰⁷ That position is needlessly conservative.

Conclusion

The 2020 Vertical Merger Guidelines are not perfect, but they are a significant step in the right direction. Now, as in the case of horizontal mergers, the track record of vertical mergers must be evaluated, focusing mainly on the more marginal cases in which a merger was approved. The courts for their part would do best to give the Agencies the benefit of the doubt, using third-party court-appointed experts in difficult cases.

¹⁰⁶*Ibid.*

¹⁰⁷*Ibid.*