

ARTICLES

THE STRUCTURE OF MERGER LAW

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INTRODUCTION

Section 7 of the Clayton Act condemns acquisitions whose effect “may be to substantially lessen competition . . . or tend to create a monopoly.”¹ As originally enacted in 1914, section 7 applied only to mergers that lessened competition “between” the merging firms, requiring that they be competitors.² In 1950 the language was amended to reach any merger that threatened to lessen competition, without specifying the premerger relationship of the parties.³ The Act also condemns mergers that “tend to create a monopoly.”⁴ Today the “may . . . lessen competition” standard reaches mergers creating a firm with a 30% market share, or as little as 15% in concentrated markets.⁵ As a result, the “create a monopoly” clause has little independent relevance. A merger that realistically tends to create a monopoly will already have flunked the “lessen competition” standard.

The courts have responded to this very general standard with a classification system that places mergers into three categories: horizontal, vertical, and a third category usually described as potential competition or conglomerate mergers.⁶ This classification system, which is

1 Clayton Act, ch. 323, § 7, 38 Stat. 730, 731–32 (1914) (codified as amended at 15 U.S.C. § 18 (2018)). A few mergers are also addressed under section 1 or 2 of the Sherman Act. *See, e.g.*, *FTC v. Facebook, Inc.*, 581 F. Supp. 3d 34 (D.D.C. 2022) (sustaining FTC complaint challenging Facebook’s acquisitions of Instagram and WhatsApp under section 2 of the Sherman Act).

2 As originally enacted in 1914, section 7 applied to mergers “where the effect of such acquisition may be to substantially lessen competition between the corporation whose stock is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.” Clayton Act § 7. In *United States v. E.I. du Pont de Nemours & Co.*, which had been brought prior to the 1950 amendment, the Court acknowledged the limitation in the original statute but then applied the policy of the revised language in order to reach a vertical merger. *See United States v. E.I. du Pont de Nemours & Co.*, 353 U.S. 586, 590–92 (1957) (“Although the language of the Act is ambiguous, the relevant legislative history, administrative practice, and judicial interpretation support the conclusion that § 7 does not apply to vertical acquisitions.” *Id.* at 613 (Burton, J., dissenting)).

3 Act of Dec. 29, 1950, ch. 1184, 64 Stat. 1125.

4 Clayton Act § 7.

5 As articulated in the enforcement agencies’ 2023 Merger Guidelines. *See* U.S. DEP’T OF JUST. & FED. TRADE COMM’N, MERGER GUIDELINES § 2.1 (2023) [hereinafter 2023 MERGER GUIDELINES].

6 The *Antitrust Law* treatise follows this classification. *See* PHILLIP E. AREEDA, HERBERT HOVENKAMP, & ERIK HOVENKAMP, ANTITRUST LAW: AN ANALYSIS OF ANTITRUST

not stated in the statute, has been entirely the work of the federal courts, and yields very different analysis for different merger categories. It is largely irrational and undermines effective merger policy.

In 2023 the antitrust agencies issued heavily revised merger guidelines which have been widely perceived as overly aggressive and hostile to business.⁷ At this writing, the Trump administration has stated that it will continue to use them.⁸ How long they survive remains to be seen.

I. MERGER METRICS

The best metrics for identifying lessened competition from a merger are higher prices, lower market output, or diminished innovation, consistent with the goals of antitrust generally. Most Supreme Court and lower court antitrust decisions articulate these goals for antitrust policy.⁹ The 2010 Horizontal Merger Guidelines declared as a “unifying theme” that “mergers should not be permitted to create, enhance, or entrench market power or to facilitate its exercise.”¹⁰ They explain that a merger increases market power if it “is likely to encourage one or more firms to raise price, reduce output, diminish innovation, or otherwise harm customers as a result of diminished competitive constraints or incentives.”¹¹ The 2023 Merger Guidelines, which replaced the 2010 Guidelines, are a step back. They identify the target of merger enforcement as “anticompetitive tendencies” or a lessening of competition, but are less clear about the metrics applying those terms.¹² They do, however, acknowledge the general relevance of low prices, high output, and unrestrained innovation.¹³

PRINCIPLES AND THEIR APPLICATION ¶ 900 (5th ed. 2026, in press) (horizontal mergers); *id.* ¶ 1000 (vertical mergers); *id.* ¶ 1100 (potential competition and other conglomerate mergers).

7 See David R. Brenneman, Harry T. Robins, Ryan Kantor, Y. Frank Ren, & John Cecio, *New US Merger Guidelines Signal Continued Aggressive Merger Enforcement at DOJ, FTC*, MORGAN LEWIS (Dec. 21, 2023), <https://www.morganlewis.com/pubs/2023/12/new-us-merger-guidelines-signal-continued-aggressive-merger-enforcement-at-doj-ftc> [<https://perma.cc/T35A-8MBH>].

8 See Memorandum on the Use of the 2023 Merger Guidelines from Omeed Assefi, Acting Assistant Attorney General, DOJ Antitrust Div., to DOJ Antitrust Div. Staff (Feb. 18, 2025).

9 See generally Herbert Hovenkamp, Antitrust’s Goals in the Federal Courts (July 1, 2024) (unpublished manuscript), <https://ssrn.com/abstract=4519993> [<https://perma.cc/EM9X-AG2P>].

10 See U.S. DEP’T OF JUST. & FED. TRADE COMM’N, HORIZONTAL MERGER GUIDELINES § 1 (2010) [hereinafter 2010 HORIZONTAL MERGER GUIDELINES].

11 *Id.*

12 2023 MERGER GUIDELINES, *supra* note 5, § 1.

13 *Id.* §§ 4.2.B–4.2.E.

A merger is “horizontal” if the merging parties are competitors in at least one market.¹⁴ These are governed by fairly straightforward rules that require a careful market definition, computation of market “concentration” levels, and thresholds that link concentration to presumptive illegality.¹⁵

As with previous guidelines, the 2023 Merger Guidelines use the HHI, or Herfindahl-Hirschman Index, as a metric for assessing concentration.¹⁶ The HHI sums the squares of the market shares of all firms in the market.¹⁷ For example, if a market has three firms with market shares of 25% each, one firm with 15% and one firm with 10%, the HHI would be $25^2 + 25^2 + 25^2 + 15^2 + 10^2 = 2200$. Such a market is considered “highly concentrated” under the 2023 Merger Guidelines, which sets the threshold for “high” concentration at 1800.¹⁸ It would have been considered “moderately concentrated” under the 2010 Horizontal Merger Guidelines, which set the level for high concentration at 2500.¹⁹

If post-merger concentration exceeds 1800 and the increase in the HHI (Δ HHI) resulting from the merger exceeds 100, the merger is presumptively challengeable under the 2023 Guidelines.²⁰ This standard is quite aggressive. For example, in a concentrated market it can reach a merger between two firms whose premerger market shares are 7% and 8%, yielding a 15% market share after the merger and a Δ HHI of 112.²¹

Alternatively, the 2023 Guidelines indicate a challenge if a merger creates a firm whose market share after the merger exceeds 30%, and the Δ HHI is at least 100.²² This presumption, which applies without regard for overall market concentration, prohibits all but the smallest acquisitions in this category. For example, a merger of a 28% firm and a 2% firm would hit the 30% threshold and have a Δ HHI of 112, making it challengeable. A merger of a 29% firm and a 1% firm would have a Δ HHI of 58, which means it would likely be permitted. This standard is far more aggressive than the facts of the *Philadelphia Bank* decision

14 AREEDA, HOVENKAMP, & HOVENKAMP, *supra* note 6, ¶ 900.

15 See 2023 MERGER GUIDELINES, *supra* note 5, § 2.1.

16 *Id.*

17 *Id.*

18 *Id.*

19 See 2010 HORIZONTAL MERGER GUIDELINES, *supra* note 10, § 5.3.

20 See 2023 MERGER GUIDELINES, *supra* note 5, § 2.1.

21 The increase in the HHI, or Δ HHI, is double the product of the market shares of the merging firms. Prior to the merger each of two firms’ contribution to the HHI was $a^2 + b^2$. After the merger it would be $(a + b)^2$, which is $a^2 + 2ab + b^2$. $2ab$ is the increase. See *id.* at 6 n.14.

22 *Id.* § 2.1.

from which the 30% presumption was taken.²³ There, the postmerger market share exceeded 30% but the increase in the HHI was roughly 660.²⁴

Today the general approach to horizontal mergers of looking at both the amount of market concentration and the concentration increase caused by the merger has been subjected to empirical testing.²⁵ While the general approach appears sound, the particular numbers expressed in the 2010 Merger Guidelines were too conservative. They had required a postmerger HHI greater than 2500 and a Δ HHI greater than 200.²⁶ The 2023 Guidelines attempt to correct that by lowering the thresholds to levels stated in earlier guidelines.²⁷ That particular portion of the 2023 Guidelines is an improvement over the 2010 Guidelines.

The empirical studies also indicate that even in highly concentrated markets price effects are diverse. For example, in a 2023 National Bureau of Economic Research (NBER) study of approved retail mergers in highly concentrated markets, roughly one-quarter led to higher prices while another quarter led to lower prices.²⁸ The increases were larger than the decreases, so average results skewed higher.²⁹ Nearly all of the mergers cited in that study were challengeable under the 2023 Guidelines,³⁰ but as many as one-quarter of them would have been false positives—that is, they would have condemned price-reducing mergers. These numbers also indicate that efficiencies (cost savings) resulting from mergers are very common, and in a significant minority of cases are large enough to outweigh any tendencies toward higher prices that the structural evidence suggests.

One fact that very likely explains the heterogeneity in outcomes is the degree of complementarity between the products of the merging firms. These empirical studies generally assume that the merging firms

23 See *United States v. Phila. Nat'l Bank*, 374 U.S. 321, 364 (1963).

24 See the district court's opinion, *United States v. Phila. Nat'l Bank*, 201 F. Supp. 348, 354 (E.D. Pa. 1962) (PNB's premerger share was 22% and Girard's was approximately 15%, making the Δ HHI $22 \times 15 \times 2$, or 660) *rev'd*, 374 U.S. 321.

25 See, e.g., Vivek Bhattacharya, Gastón Illanes & David Stillerman, *Merger Effects and Antitrust Enforcement: Evidence from US Consumer Packaged Goods* (Nat'l Bureau of Econ. Rsch., Working Paper No. 31123, 2024), <https://www.nber.org/papers/w31123> [<https://perma.cc/VG5V-MVXR>]; Annika Stöhr, *Price Effects of Horizontal Mergers: A Retrospective on Retrospectives*, 20 J. COMPETITION L. & ECON. 155 (2024).

26 2010 HORIZONTAL MERGER GUIDELINES, *supra* note 10, § 5.3.

27 See Herbert Hovenkamp, *The 2023 Merger Guidelines: Law, Fact, and Method*, 65 REV. INDUS. ORG. 39, 51–53 (2024).

28 See Bhattacharya et al., *supra* note 25, at 17–18; HERBERT HOVENKAMP, FEDERAL ANTITRUST POLICY: THE LAW OF COMPETITION AND ITS PRACTICE § 12.2b4 (7th ed. 2024).

29 See Bhattacharya et al., *supra* note 25, at 16–18.

30 See *id.* at 10.

were purely competitors. They report price effects without considering whether the merging firm's operations included substantial complements. For complements the more likely effect is that output or quality increases or prices decline. This often distorts outcomes.³¹ For example, the *JetBlue* merger case involved two airlines that had more complementary relationships than competitive ones.³² A hypothetical "retrospective" on that merger looking only at averages might not see that prices went up (or service declined) in the small minority of areas where the two firms faced one another as competitors, but did just the opposite in other areas.

The justification for challenging mergers where the HHI increase is as little as 100 is weakly supported. One important study has found support, although most of the covered mergers were well above the 1800 concentration range that the 2023 Guidelines set as a trigger.³³ Another study suggests that in the $\Delta\text{HHI} = 100$ range about as many mergers result in lower prices as in higher ones.³⁴ That raises the interesting question of whether a merger can be condemned on the basis of statistics showing no more than a fifty-fifty chance that the merger will lead to higher prices, although when they occur the increases are likely to be greater than the decreases. The *Brown Shoe* test requires a "probability" that competition will be lessened.³⁵

So far these recent studies have not provided strong validation of the 2023 Guidelines' proscription of mergers creating single-firm market shares exceeding 30% without regard to overall market concentration. Its *legal* support comes from the *Philadelphia Bank* decision, which is now sixty-two years old.³⁶ That decision cited leading economists from the then-dominant "Harvard School" of antitrust policy in support.³⁷ All made recommendations that were more aggressive than the

31 See *infra* Section III.C.

32 See *infra* notes 133–43 and accompanying text.

33 See Bhattacharya et al., *supra* note 25, at 29, 36; see also *id.* at 10 (noting that most mergers in the study had postmerger HHIs in the 2000–4000 range, with some as high as 6000).

34 See Stöhr, *supra* note 25, at 172 fig. 4.

35 *Brown Shoe Co. v. United States*, 370 U.S. 294, 323 (1962) (Congress's concern was with "probabilities, not certainties. . . . Mergers with a probable anticompetitive effect were to be proscribed. . . ."); see also *id.* at 325 ("[I]t is necessary to examine the effects . . . to determine if there is a reasonable probability that the merger will substantially lessen competition.").

36 See *United States v. Phila. Nat'l Bank*, 374 U.S. 321, 364 (1963).

37 See *id.* at 364 n.41.

30% share that the Court stated.³⁸ In 2024 a district court applied this 30% presumption in the *Tapestry* handbag merger case.³⁹

A second way of assessing horizontal mergers, commonly termed “unilateral effects,” uses econometric modeling to predict higher prices when the merging firms are close competitors in a particular product in a differentiated market.⁴⁰ As a matter of economics that approach need not require a market definition, but the caselaw may require it anyway.⁴¹

The 2010 Guidelines, which were more disciplined than the 2023 Guidelines on this point, expressly link unilateral effects to a predicted price increase.⁴² The 2023 Guidelines refer more generally to the elimination of competition between the merging firms.⁴³ This can refer to “lower prices, new or better products and services, more attractive features, higher wages, improved benefits, or better terms.”⁴⁴ What is unclear is how this array of concerns will be measured. A limitation to price enables the use of econometric tools that depend on estimates of price elasticities and margins as between the merging firms or with nonmerging rivals.⁴⁵ How those metrics will accommodate things like “more attractive features” or “improved benefits” is unclear. No one disputes the fact that competition can occur along several avenues. Modelling them in a useful way is another matter and often requires simplifying assumptions. To be sure, they may be converted to their cash value, but then we would be right back where we started.

In contrast to horizontal mergers, vertical mergers are between firms who are not competitors, but are or could be in a buyer-seller relationship.⁴⁶ They are evaluated very differently. They do not increase concentration levels, but they may “foreclose” rivals from

38 See *id.* (first citing CARL KAYSER & DONALD F. TURNER, *ANTITRUST POLICY: AN ECONOMIC AND LEGAL ANALYSIS* 133 (1959) (suggesting a 20% minimum); then citing George J. Stigler, *Mergers and Preventive Antitrust Policy*, 104 U. PA. L. REV. 176, 182 (1955) (suggesting 20%); and then citing Jesse W. Markham, *Merger Policy Under the New Section 7: A Six-Year Appraisal*, 43 VA. L. REV. 489, 521–22 (1957) (suggesting 25%)).

39 FTC v. *Tapestry, Inc.*, 755 F. Supp. 3d 386, 456–458 (S.D.N.Y. 2024).

40 See 2023 MERGER GUIDELINES, *supra* note 5, § 2.2. On unilateral effects merger challenges, see HOVENKAMP, *supra* note 28, § 12.3.

41 See *United States v. H & R Block, Inc.*, 833 F. Supp. 2d 36, 84 n.35 (D.D.C. 2011) (observing that as a “matter of applied economics” assessing unilateral effects mergers does not require a market definition, but that it may be required by the caselaw, in particular *Brown Shoe Co. v. United States*, 370 U.S. 294, 324 (1962)).

42 See 2010 HORIZONTAL MERGER GUIDELINES, *supra* note 10, § 6.1.

43 See 2023 MERGER GUIDELINES, *supra* note 5, § 2.2.

44 *Id.*

45 On these tools, see generally Sheng Li, Christine Meyer & Gabriella Monahova, *Unpacking the Economic Toolbox: How to Make Sense of Your Economic Expert’s Analysis*, 32 ANTITRUST 24 (2018).

46 AREEDA, HOVENKAMP, & HOVENKAMP, *supra* note 6, ¶ 1000a.

market access or raise their costs.⁴⁷ The term “foreclosure” refers not merely to practices that exclude rivals completely, but also those that unreasonably raise their costs by relegating them to inferior choices.⁴⁸ For example, if an automobile manufacturer acquires a car battery manufacturer, those batteries might no longer be available to rival automakers, or alternatively, rival battery makers may be denied access to a particular customer. As a result, they may be forced to deal with inferior trading partners. Determining competitive harm requires an examination of the two market levels involved and estimating the percentage of sales that might effectively be denied to rivals or the extent to which their costs might increase when the merging firms deal exclusively with one another. Market concentration is relevant to measuring the risk of foreclosure, which is unlikely to occur in an unconcentrated market. The standard articulated in the 2023 Merger Guidelines is a foreclosure trigger of 50%.⁴⁹ This 50% standard is more aggressive than the standard applied in previous vertical merger cases of recent vintage, although it is closer to the standard that the courts apply to two economically similar contract practices, namely exclusive dealing and tying.⁵⁰

Analysis of the third category of mergers, those involving potential competitors, treats them as a variant of horizontal mergers but in which the competition is potential rather than actual.⁵¹ For example, a bank that is currently not operating in a county might acquire a bank operating there. If it had entered “de novo” by opening a new facility, however, the market would have been more competitive.⁵² The theory leads to noncompetitive outcomes only when the affected market is already highly concentrated. Potential competition mergers are discussed more fully below, suggesting that the category is no longer viable.⁵³

Potential competition merger challenges have been uncommon since the 1970s, although the 2023 Guidelines hope to revive them.⁵⁴ Enforcers have a strong incentive to challenge horizontal mergers.

47 See HOVENKAMP, *supra* note 28, §§ 9.4–9.5.

48 See, e.g., David Scheffman & Richard S. Higgins, *Raising Rivals’ Costs*, in 2 THE OXFORD HANDBOOK OF INTERNATIONAL ANTITRUST ECONOMICS 62, 68–70 (Roger D. Blair & D. Daniel Sokol eds., 2014); Michael A. Salinger, *The Complicated Simple Economics of Vertical Mergers* (May 6, 2021) (unpublished manuscript), <https://ssrn.com/abstract=3799273> [<https://perma.cc/664P-8FU4>].

49 2023 MERGER GUIDELINES, *supra* note 5, § 2.5.A.2, at 16 n.30.

50 See AREEDA, HOVENKAMP, & HOVENKAMP, *supra* note 6, ¶ 1709b (tying); *id.* ¶ 1800c5 (exclusive dealing).

51 AREEDA, HOVENKAMP, & HOVENKAMP, *supra* note 6, ¶ 1100a.

52 See, e.g., *United States v. Marine Bancorporation, Inc.*, 418 U.S. 602, 605–06 (1974).

53 See discussion *infra* Section III.D.

54 Herbert Hovenkamp, *Potential Competition*, 86 ANTITRUST L.J. 805, 826 (2025).

The dangers to competition are clearer and less controversial. Success rates have been higher and the models for challenging them have become quite conventional. The record for both vertical and potential competition challenges has been less favorable and the doctrine is more controversial.

Antitrust analysis of mergers is complex, and the number of mergers is large. This makes manageable rules essential. A better classification would divide mergers into two categories. First are mergers that facilitate collusion or collusion-like behavior. Second are mergers that facilitate market exclusion. The latter category includes mergers of complements, which include vertical mergers and most mergers involving networks or ecosystems.⁵⁵ A vertical merger is strictly a merger of complements. Some mergers might facilitate both types of harm, and they can be evaluated accordingly.⁵⁶ The ultimate concern is whether the merger facilitates a market-wide price increase in at least one product that could harm consumers or workers, or else a limitation on innovation.

II. THE RELEVANCE OF MARKET CONCENTRATION

Market concentration has been a concern of both economics and competition policy since the mid-nineteenth century, when Augustin Cournot plotted an inverse relationship between prices and the number of firms in a market.⁵⁷ Early in the twentieth century American Progressive economists John Bates Clark, Richard T. Ely, Jeremiah Jenks, Walter Clark, and Edwin R.A. Seligman developed the idea of rising concentration as an antitrust problem.⁵⁸ From the 1930s through the 1960s the Harvard School of competition economists did a great deal of empirical and theoretical work that established a presumptive relationship between market structure and industry performance, measured mainly by output and price.⁵⁹ The legislative history

55 See *infra* notes 76–83, 397–425 and accompanying text.

56 See, e.g., *Brown Shoe Co. v. United States*, 370 U.S. 294, 323–46 (1962) (challenging and condemning both the horizontal and the vertical aspects of a merger—the former between two firms as competitors, the latter between a manufacturer and a retailer).

57 See AUGUSTIN COURNOT, *RESEARCHES INTO THE MATHEMATICAL PRINCIPLES OF THE THEORY OF WEALTH* 84 (Nathaniel T. Bacon trans., MacMillan & Co. 1897) (1838).

58 See Herbert Hovenkamp, *The Invention of Antitrust*, 96 S. CAL. L. REV. 129, 150–55, 170–72 (2022) (discussing these economists and others).

59 See, e.g., EDWARD S. MASON, *ECONOMIC CONCENTRATION AND THE MONOPOLY PROBLEM* (1957); Edward S. Mason, *Industrial Concentration and the Decline of Competition*, in *EXPLORATIONS IN ECONOMICS: NOTES AND ESSAYS CONTRIBUTED IN HONOR OF F.W. TAUSSIG* 434 (1936); John Lintner & J. Keith Butters, *Effect of Mergers on Industrial Concentration, 1940–1947*, 32 REV. ECON. & STAT. 30 (1950); Joe S. Bain, *Workable Competition in Oligopoly: Theoretical Considerations and Some Empirical Evidence*, 40 AM. ECON. REV. 35 (1950).

of the 1950 amendments to the merger statute clearly expressed a concern with concentration.⁶⁰ So did the *Brown Shoe* decision, although it ignored the link between concentration and prices.⁶¹

Questions about how industrial concentration should be measured, whether it is rising, and how it relates to prices or output are factual. That entails that evidence about them be subjected to the legal standards for expert testimony.⁶² Further, they must be revised as techniques improve. Overall, the merger guidelines have reflected these developments, changing the concentration standards for evaluating mergers from time to time, as well as their assessment of other factors.⁶³

One troublesome feature of the 2023 Merger Guidelines is that through heavy reliance on caselaw they treat some of these issues, such as “trends” toward concentration or vertical integration, as questions of law rather than questions of fact.⁶⁴ As questions of law they are immune to empirical testing. By contrast, the 2010 Horizontal Merger Guidelines do not cite any judicial decisions and thus treat all of the important issues as ones of fact.

Concentration is not *inherently* a bad thing. Its principal causes are changes in technology and differential rates of firm growth.⁶⁵ New technologies typically bring economies of scale in production or distribution. Most of these favor larger firms.⁶⁶ In addition, more innovative firms grow faster, leading to differences in firm size or the exit of some laggards. In both cases concentration rises.⁶⁷ A third factor is the aggregation of complements.⁶⁸ One reason that retailers such as

60 See H.R. REP. NO. 81-1191, at 2–3 (1949).

61 See discussion *infra* Part IV.

62 As required by *Daubert v. Merrell Dow Pharmaceuticals, Inc.*, 509 U.S. 579, 597 (1993). On the standards for evaluating expert testimony in antitrust cases, see AREEDA, HOVENKAMP, & HOVENKAMP, *supra* note 6, ¶ 309. See also *In re Wholesale Grocery Prods. Antitrust Litig.*, 946 F.3d 995, 1003–04 (8th Cir. 2019) (applying *Daubert* to exclude expert’s testimony relating to market concentration); *In re Dealer Mgmt. Sys. Antitrust Litig.*, 581 F. Supp. 3d 1029, 1058–62 (N.D. Ill. 2022) (applying *Daubert* to admit expert’s testimony relating to market concentration).

63 See Hovenkamp, *supra* note 27, at 52.

64 2023 MERGER GUIDELINES, *supra* note 5, § 2.7; see *infra* Part IV.

65 See Hovenkamp, *supra* note 27, at 62–63.

66 See generally Nathan H. Miller, *Industrial Organization and the Rise of Market Power* (Nat’l Bureau of Econ. Rsch., Working Paper No. 32627, 2024), <https://www.nber.org/papers/w32627> [<https://perma.cc/MQV6-SV2B>]. On its relation to merger policy, see Hovenkamp, *supra* note 27, at 61–64. For an accessible summary, see Nathan H. Miller, *Rising Market Power: Evidence from Industry Studies*, NETWORK L. REV. (Feb. 13, 2025), <https://www.networklawreview.org/rising-market-power/> [<https://perma.cc/WEP7-MQK6>].

67 The HHI rises as the distribution of firm sizes is less even. See Hovenkamp, *supra* note 27, at 63.

68 *Id.*

Walmart or internet platforms such as Amazon and Alphabet are so large is that they provide so many different things. Aggregation of complementary products or features makes firms larger. It can also be harmful if significant market foreclosure results. That is likely to happen, however, only in concentrated markets.⁶⁹

Even as concentration has arguably been rising or margins increasing, inflation-adjusted prices have remained relatively flat.⁷⁰ That indicates two things. First, higher concentration is not necessarily associated with higher prices—more on that below. Second, while margins have in fact been increasing,⁷¹ the cause of the increase is very likely falling costs more than rising prices.⁷² That is, margins can increase when either prices go up or costs go down, and the latter appears to dominate.

What the numbers concerning concentration, margins, and prices indicate is that larger firm size often leads to lower costs, but the savings have not always been passed on to consumers. This can be a problem that relates to higher concentration and for which antitrust can provide a remedy. Neither higher concentration nor higher margins are a problem in themselves until one determines the reason. It is certainly not antitrust's job to impede new technology, restrain innovation, or limit cost reductions. However, to the extent that competition should keep markups in check, antitrust has an important role. In any event, while a higher price is an injury to competition, a higher margin is not unless it also accompanies a higher price.

Antitrust enforcement does have an important obligation to ensure that gains resulting from technological progress are shared with consumers and not retained through collusion or oligopoly behavior. This places a premium on getting the concentration problem right. An antitrust enforcement standard that is too lax will permit oligopoly behavior and can also prevent technology and innovation gains from being passed down to consumers. However, a policy that is too aggressive toward concentration will limit the gains themselves. For this reason, all editions of the merger guidelines have focused on concentrated markets, typically with the equivalent of no more than five or six substantial firms.⁷³

69 See *infra* notes 80–82 and accompanying text.

70 See Christopher Conlon, Nathan H. Miller, Tsolmon Otgon & Yi Yao, *Rising Markups, Rising Prices?*, 113 AEA PAPERS & PROCS. 279, 281 (2023).

71 Jan De Loecker, Jan Eeckhout & Gabriel Unger, *The Rise of Market Power and the Macroeconomic Implications*, 135 Q.J. ECON. 561, 561 (2020).

72 Conlon et al., *supra* note 70, at 281.

73 A market with six equal firms has an HHI of 1667; one with five equal firms has an HHI of 2000. All merger guidelines subsequent to 1968 have identified a threshold of either 1800 or 2500 for “high” concentration, which is where most merger challenges occur.

The best empirical evidence we have today suggests that the concentration standards articulated in the 2023 Merger Guidelines are a good rough guess, but are a crude estimate of data that in fact reveal considerable heterogeneity. Even in highly concentrated markets a significant number of mergers result in lower prices.⁷⁴ Diverse complementary relationships very likely explain a good deal of the heterogeneity in merger outcomes.

Further, citing an industry “trend” toward concentration as the 2023 Merger Guidelines do is harmful policy, although it is more harmful at lower concentration levels.⁷⁵ Concentration naturally increases in response to technological change and innovation. The concentration level matters, however, when it is in a range where the threat of coordinated behavior is likely. The 2010 Horizontal Merger Guidelines did not rely on concentration trends.

III. COMPLEMENTS AND PREMERGER RELATIONSHIPS

Complements are products or services that are either produced together (“complements in production”) or used together (“complements in use”). All vertical mergers are mergers of complements. That is, production and its inputs from raw materials to distribution are complementary goods that either the firm or its customers must provide. Mergers of complements frequently serve to coordinate production internally by reducing either production or transaction costs. The likelihood of efficiencies, measured as cost reductions or quality improvements, is much larger when the merger includes a significant union of complements.

What is more subtle but nevertheless present, this Article argues, is extensive complementary relationships in nominally horizontal or potential competition mergers. For example, two retailers may compete, but at different locations,⁷⁶ price points,⁷⁷ or quality levels.⁷⁸ One of them may offer products, services, or features that the other does not. As a result, the postmerger firm can provide a wider or better set of goods or services than it did prior to the merger. This is particularly

See U.S. DEP’T OF JUST., MERGER GUIDELINES § III(A)(1)(c) (1982); 2010 HORIZONTAL MERGER GUIDELINES, *supra* note 10, § 5.3; 2023 MERGER GUIDELINES, *supra* note 5, § 2.1.

74 See Hovenkamp, *supra* note 27, at 72.

75 See *infra* Part IV.

76 See, e.g., *United States v. Von’s Grocery Co.*, 384 U.S. 270, 272 (1966); see also *infra* notes 154–61 and accompanying text (discussing the Kroger-Albertson’s merger challenge).

77 See, e.g., *United States v. JetBlue Airways Corp.*, 712 F. Supp. 3d 109, 122 (D. Mass. 2024) (distinguishing low-price and ultra-low-price carriers).

78 See, e.g., *Brown Shoe Co. v. United States*, 370 U.S. 294, 298 (1962) (commenting on how Kinney, the acquired firm, made cheaper shoes than Brown).

true of mergers of networks, including those for transportation, where interconnection gains can dwarf competitive losses.⁷⁹

Some product pairs can be either complements in production or in use, depending on how they get to the customer. For example, a camera requires both a camera body and a lens. The two are complements in production when the manufacturer assembles them together, as is generally true for lower-cost cameras. But a camera and its lens can also be complements in use when a customer buys the body of the camera and its lens separately, selecting the pair she wishes to match as well as their manufacturers. The same thing can be said of production and delivery: a manufacturer can either provide delivery or the customer can pick it up.

Innovation often changes the nature of product complementarity. For example, a desktop computer system consists of a computer and a monitor, or display. If customers can mix and match, they are complements in use. Customers can select a computer and a display made by different manufacturers or sold in different stores. By contrast, a laptop computer contains the computer and the display within the same device. In fact, when we buy a laptop most of us very likely do not even think of the computer and the display as separate devices. They are complements in production as well as use. One result that may sometimes be competitively significant is that the customer can no longer choose to purchase the computer from one seller and the display from another.

The competitive threat from mergers of complements is largely foreclosure of nonmerging firms. In the language of the 2023 Merger Guidelines, mergers of complements can eliminate some input or product that rivals “use to compete.”⁸⁰ For example, once a firm acquires two complementary technologies for data processing and display, it may be able to design and build laptop computers. If laptops prove successful, this will harm both independent producers of computers and independent producers of displays. True injury to competition would also require that the defendant increase price or reduce market-wide output or innovation as well.

In cases of innovative products such as laptops, innovation gains are a driving force and thus essential to any antitrust evaluation. The invention of the laptop might be good for consumers even if its *price* is no lower than that of a traditional desktop computer plus monitor. Market structure often provides an antitrust safe harbor. For example, if desktops and traditional displays remain widely available even when

79 See discussion *infra* Section X.B.

80 2023 MERGER GUIDELINES, *supra* note 5, § 2.5 (Guideline 5).

laptops are being sold at a higher price, what we are observing is not anticompetitive foreclosure but unpressured consumer preference.

By contrast, if the laptop drives traditional desktops and displays out of the market, then a further look is needed to see if this was simple product superiority or anticompetitive exclusion. Even significant exclusion, however, need not indicate competitive harm. For example, since Apple installed its first camera on an iPhone, soon copied by Android phones, sales of dedicated digital cameras have fallen by 94%.⁸¹ The smartphone/camera innovation was abetted by several acquisitions of both firms and patents that improved the technology of miniature cameras and enabled smartphone integration.⁸² One could condemn the smartphone/camera union, however, only by being indifferent to consumer preferences. To state the question bluntly, do we want to use merger policy to prevent firms from installing cameras in smartphones, a wildly desirable innovation, even if producers of traditional cameras are injured?

The omission of mergers of complements as a distinct antitrust classification is an unfortunate feature of antitrust law. Union of complements occurs in nearly every merger, although to different degrees. Emphasizing it is often more insightful than simply looking at the traditional classifications. Indeed, the very process of market definition obscures complementary relationships by treating everything inside the market as perfectly competitive. The only current analysis that takes complements into account in a useful way is the law of vertical mergers, where the likelihood of significant cost savings or product improvements is better understood. This problem will loom larger as merger law encounters networks and ecosystems more frequently.⁸³

A. *Complements and the Winslow Decision*

The first Supreme Court decision involving an acknowledged merger of complements was the *Winslow* case in 1913.⁸⁴ Sidney

81 Felix Richter, *Smartphones Wipe Out Decades of Camera Industry Growth*, STATISTA (Aug. 19, 2024), <https://www.statista.com/chart/15524/worldwide-camera-shipments/> [<https://perma.cc/D5WJ-YJ3C>] (reporting a 94% drop in dedicated digital cameras between 2010 and 2023).

82 One was Apple's acquisition of LinX in 2015. See Juli Clover, *Apple Acquires Israeli Camera Tech Company LinX Imaging for ~\$20 Million*, MACRUMORS (Apr. 14, 2015, 12:59 PM PDT), <https://www.macrumors.com/2015/04/14/apple-acquires-linx-imaging/> [<https://perma.cc/VD5B-7L5P>]; see also Sarah Mitroff, *Kodak Sells Digital Camera Patents to Apple, Google, Other Tech Giants*, WIRED (Dec. 19, 2012, 3:31 PM), <https://www.wired.com/2012/12/kodak-patents/> [<https://perma.cc/T3XQ-WEMB>].

83 See discussion *infra* Section X.A.

84 *United States v. Winslow*, 227 U.S. 202 (1913). For a profile of Winslow and his company, see *Sidney Wilmot Winslow—Organizer and First President of the United Shoe Machinery*

Winslow, one of the more overlooked corporate magnates of the Gilded Age, was a shoe manufacturer and founder of the United Shoe Machinery Company (USM).⁸⁵ Mechanized production of leather shoes required an assortment of devices—lasting machines, welt-sewing machines, outsole-stitching machines, machines for fastening metal hooks or buttons, and heeling machines.⁸⁶ Prior to the merger, one firm made roughly 60% of the lasting machines sold in the United States, while another made 80% of the stitching machines.⁸⁷ A third made 80% of the fastening machines, and a fourth made 70% of the heeling machines.⁸⁸ Making leather shoes with mechanized processes required at least one of each of these machines, thus making them complements in production for the shoe manufacturer.

The challenged merger was Winslow's acquisitions of the largest manufacturers of each of these machines into USM.⁸⁹ The government challenged this merger under the Sherman Act as an attempt by these firms "unreasonably to extend their monopolies, rights and control over commerce . . . [and] to enhance the value of the same at the expense of the public."⁹⁰

Justice Holmes's opinion for the Court dismissed the complaint, concluding that it did "not require lengthy discussion."⁹¹ The combination "was simply an effort after greater efficiency."⁹² The merging parties did "not compete with one another."⁹³ As a result, "it is hard to see why the collective business should be any worse than its component parts"⁹⁴:

[W]e can see no greater objection to one corporation manufacturing seventy per cent. of three noncompeting groups of patented machines collectively used for making a single product than to three corporations making the same proportion of one group each. The disintegration aimed at by the statute does not extend to reducing all manufacture to isolated units of the lowest degree. It is as lawful for one corporation to make every part of a steam engine

Co., CTW PHOTOGRAPHY (Aug. 24, 2020), <https://www.ct-williams.com/blog/2020/8/24/sidney-wilmot-winslow> [<https://perma.cc/XJ7A-J7C9>].

⁸⁵ See *Sidney Wilmot Winslow—Organizer and First President of the United Shoe Machinery Co.*, *supra* note 84.

⁸⁶ *Winslow*, 227 U.S. at 215.

⁸⁷ *Id.*

⁸⁸ *Id.*

⁸⁹ *Id.* at 216.

⁹⁰ *Id.*

⁹¹ *Id.* at 217.

⁹² *Id.*

⁹³ *Id.*

⁹⁴ *Id.*

and to put the machine together as it would be for one to make the boilers and another to make the wheels.⁹⁵

Justice Holmes's opinion did not address one of the problems articulated in the 2023 Merger Guidelines that can result from mergers of complements: the merger might create a dominant firm by enabling it to offer a combination of goods or services that rivals cannot match.⁹⁶ That is, although a merger of noncompeting machines might not facilitate collusion, it could threaten anticompetitive exclusion.

USM went on to become one of the most storied monopolists of the twentieth century until its forced breakup in 1968 and subsequent dissolution and exit.⁹⁷ The combination of assets created by the *Winslow* merger very likely facilitated its rise, although by providing shoe manufacturers with a superior and lower-cost technology for making shoes. One firm that offered the full array of machines could ensure that they worked well together, coordinate their maintenance, and reduce costs.⁹⁸

One enduring friction in the analysis of mergers of complements is that to the extent a union of complements lowers costs or results in a better product, rivals will need to compete with the postmerger firm. As a result, product superiority must be distinguished from exclusion that is unreasonable because it is not driven by something that pleases consumers. If USM's offering of coordinated, lower-cost one-stop shopping in the provision of shoemaking machines offered no advantages, then it would not have been difficult for rivals to compete. That of course invites an important question: If a firm's power to exclude rests on nothing more than the superiority of its product, should antitrust be in the business of condemning it?

B. *Complementary Relationships in Horizontal Merger Cases*

The *Winslow* merger that created USM was the first time the Supreme Court acknowledged the role of complements in an antitrust case. It was not the first time, however, that the Court considered

95 *Id.* at 217–18.

96 See 2023 MERGER GUIDELINES, *supra* note 5, § 2.5.

97 See *United States v. United Shoe Mach. Corp.*, 110 F. Supp. 295, 352–54 (D. Mass. 1953), *aff'd*, 391 U.S. 244 (1968); see also *Hanover Shoe, Inc. v. United Shoe Mach. Corp.*, 392 U.S. 481 (1968) (“passing on” defense in private monopoly challenge); *United States v. United Shoe Mach. Corp.*, 391 U.S. 244 (1968) (divestiture decree).

98 See *United Shoe Mach. Corp.*, 110 F. Supp. at 315, 329–33 (noting defendant's activities in maintaining the machines, which were leased, and coordinating design and placement of the machines so as to take advantage of small spaces). On the causes and consequence of United Shoe Machine's dominance, see generally Scott E. Masten & Edward A. Snyder, *United States Versus United Shoe Machinery Corporation: On the Merits*, 36 J.L. & ECON. 33 (1993).

unacknowledged complementary relationships. That was the *Trans-Missouri* railroad case, which was the Supreme Court's first antitrust decision on the merits.⁹⁹ *Trans-Missouri* was a joint venture decision, not a merger case.¹⁰⁰

Today *Trans-Missouri* is seen as a typical cartel case and little more, but in fact it involved a vexing problem in the management of a national railway system.¹⁰¹ Most railroads were state chartered and operated within a single state.¹⁰² While they competed for some portion of their business, the lines served different towns and passed through different areas. Interstate movement of packages required the participation of multiple lines and often required that freight be transferred from one line to another.¹⁰³ Doing this effectively required coordination of timetables, track gauges and—significantly—freight rates.¹⁰⁴

The *Trans-Missouri* joint venture, one of many “joint running arrangements” in the railroad industry, was an effort to achieve such a system. Both the Interstate Commerce Commission and the Eighth Circuit below had approved the venture, describing its value:

The fact that the business of railway companies is irretrievably interwoven, that they interchange cars and traffic, that they act as agents for each other in the delivery and receipt of freight and in paying and collecting freight charges, and that commodities received for transportation generally pass through the hands of several carriers, renders it of vital importance to the public that uniform rules and regulations governing railway traffic should be framed by those who have a practical acquaintance with the subject¹⁰⁵

The Supreme Court reversed, condemning the arrangement.¹⁰⁶ It focused on the price fixing, ignoring other elements of the venture.¹⁰⁷ It did largely the same thing a year later in the *Joint Traffic Association* case.¹⁰⁸ One result was antitrust's per se rule governing price-fixing.

The railroad decisions were woefully inadequate to address the more fundamental need to forge a national transportation network out of a patchwork of numerous small trunk and branch railroads. The

99 See *United States v. Trans-Mo. Freight Ass'n*, 166 U.S. 290, 308 (1897).

100 See *id.* at 310.

101 See Herbert Hovenkamp, *Regulatory Conflict in the Gilded Age: Federalism and the Railroad Problem*, 97 *YALE L.J.* 1017, 1040–41 (1988).

102 *Id.* at 1038.

103 *Id.* at 1031–32.

104 See generally *id.* at 1037–43, 1049–67.

105 *United States v. Trans-Mo. Freight Ass'n*, 58 F. 58, 79–80 (8th Cir. 1893) (discussing Fourth Annual Report of the Interstate Commerce Commission), *rev'd*, 166 U.S. 290.

106 See *Trans-Mo. Freight Ass'n*, 166 U.S. at 343.

107 *Id.* at 341.

108 See *United States v. Joint Traffic Ass'n*, 171 U.S. 505, 577 (1898).

railroads had characteristics resembling a modern digital network—more valuable as it was able to reach more places and the number of participants increased. Further, interconnection was costly but essential. Today the joint ventures in those cases would very likely be addressed under antitrust’s rule of reason, as one court recently did in a case involving a joint venture between American Airlines and Jet-Blue.¹⁰⁹ Even the agreement on rates, which an agent in the 1890s calculated with pencil and paper, might have been found reasonable. They were rates on connecting lines as much as on competitors.¹¹⁰ Rate-making required the agent to compute the rates of as many railroads as a trip required.¹¹¹

One consequence of the Court’s per se condemnation of joint-running arrangements was a rapid increase in railroad mergers, which could achieve the same level of coordination of freight without requiring agreement among multiple railroads.¹¹² In general, aggressive use of the Sherman Act against joint ventures and cartels led firms to merge, thus producing the great American merger movement of the early twentieth century.¹¹³

Railroad mergers themselves became the subject of antitrust attack a few years later with the *Northern Securities* decision.¹¹⁴ The case is commonly presented as involving a merger to monopoly,¹¹⁵ and it did in fact involve two large east-west transcontinental railroads, the Northern Pacific and the Great Northern.¹¹⁶ The two railroads had come under common ownership under a New Jersey corporation.¹¹⁷ In 1888, New Jersey had amended its corporate law to permit holding companies plus ownership of out-of-state assets—two things that nineteenth-century corporate law had generally disapproved.¹¹⁸ The case

109 *United States v. Am. Airlines Grp. Inc.*, 121 F.4th 209, 219, 227 (1st Cir. 2024) (applying the rule of reason and condemning joint venture).

110 See LOGAN G. MCPHERSON, *RAILROAD FREIGHT RATES IN RELATION TO THE INDUSTRY AND COMMERCE OF THE UNITED STATES* 165 (1909); see also WILLIAM Z. RIPLEY, *RAILROADS: RATES AND REGULATION* 133–34 (2d ed. 1913).

111 See MCPHERSON, *supra* note 110, at 166.

112 See Hovenkamp, *supra* note 101, at 1043. For a contemporary account of the need for mergers by the most distinguished railroad economist of the period, see WILLIAM Z. RIPLEY, *RAILROADS: FINANCE AND ORGANIZATION* 412–15 (1915).

113 See NAOMI R. LAMOREAUX, *THE GREAT MERGER MOVEMENT IN AMERICAN BUSINESS, 1895–1904*, at 109 (1985).

114 *N. Sec. Co. v. United States*, 193 U.S. 197, 317–18 (1904).

115 See Justin Desautels-Stein, *A Structuralist Approach to the Two State Action Doctrines*, 7 N.Y.U. J.L. & LIBERTY 254, 315 n.160 (2013).

116 *Id.* at 320.

117 *Id.* at 321–22.

118 Act of Apr. 4, 1888, ch. 269, 1888 N.J. Laws 385–86; Act of Apr. 17, 1888, ch. 295, 1888 N.J. Laws 445–46. On the history, see Phillip I. Blumberg, *The Transformation of Modern Corporation Law: The Law of Corporate Groups*, 37 CONN. L. REV. 605, 607 (2005). For

became a Progressive poster child for corporate monopoly control, because the merger was viewed as eliminating the only two east-west competitors in the region, and also because it involved entirely out-of-state assets.¹¹⁹ While Northern Securities was a New Jersey corporation, the lines stretched from the Great Lakes to the West Coast.¹²⁰ They contained no track in New Jersey.¹²¹

Just as in the *Trans-Missouri* case, the layout of the two railroads tells a more complex story than the simple creation of monopoly. The Great Northern Railroad stretched across the country just south of the Canadian border, shown on this map¹²²:

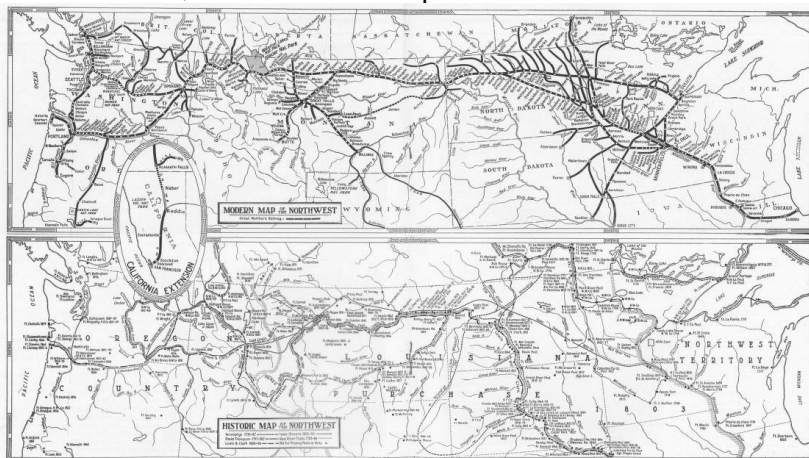


Figure 1. Map of the Northwest Great Northern Railway, 1920.¹²³

The Northern Pacific Railroad line also ran east to west, but its principal trunk line lay several hundred miles to the south, coming closer to the Great Northern at the two ends¹²⁴:

contemporary commentary, see Edward Q. Keasbey, *New Jersey and the Great Corporations*, 13 HARV. L. REV. 198 (1899).

119 See *N. Sec. Co.*, 193 U.S. at 325–28.

120 *Id.* at 320.

121 *Id.*

122 For other comparisons, including maps, discussing the two routes, see Duane W. Krohnke, *Federal Regulation of Railroads During U.S. President Theodore Roosevelt's First Term (1901–1905): The Northern Securities Case*, DWKCOMMENTARIES (July 20, 2014), <https://dwkcommentaries.com/tag/northern-securities-company/> [<https://perma.cc/BF9S-ZX7K>].

123 Modern Map of the Northwest Great Northern Railway, (1920). Historic Map of the Northwest (WSU Libs. Digital Collections, Wash. St. Univ.), F852.G739 1927.

124 Krohnke, *supra* note 122.

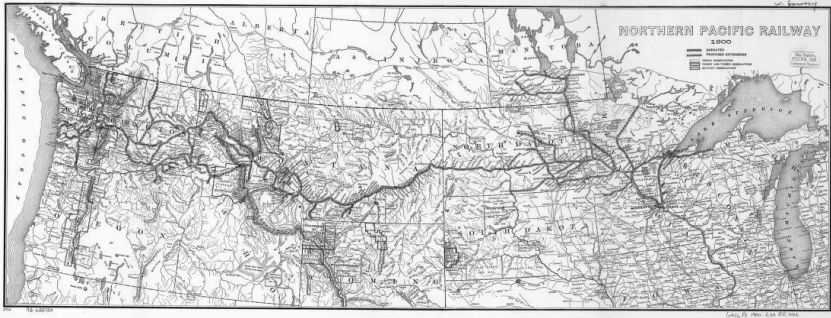


Figure 2. Map of the Northern Pacific Railway, 1900.¹²⁵

Both railroads either owned or were connected to numerous branch lines, which were necessary to provide railroad services to communities that had developed across this very large part of the country but were not on the main lines themselves.¹²⁶ Indeed, economic development was heavily driven by the presence of a nearby railroad.¹²⁷

As a result, to a very significant extent the merging railroads were sellers of complements. For long-haul traffic, such as freight going from Illinois to California, considerable competition existed between the two main lines.¹²⁸ However, for short-haul traffic along the way the two railroads did not compete but rather cooperated in the delivery of freight. The merger facilitated cargo management and transfers in the same fashion that the forbidden joint-running arrangement in *Trans-Missouri* had done.¹²⁹

To the extent the railroads operated as competitors, one might expect lower output and higher prices. However, to the extent they operated as interconnecting complements one could expect just the opposite, particularly since the *Trans-Missouri* decision denied them

¹²⁵ Northern Pacific Railway 1900 (Lib. of Cong. Geography and Map Div. Wash., D.C.), G4126.P3 1900 .L55.

¹²⁶ Krohnke, *supra* note 122; *N. Sec. Co.*, 193 U.S. at 321.

¹²⁷ See Dave Donaldson & Richard Hornbeck, *Railroads and American Economic Growth: A "Market Access" Approach*, 131 Q.J. ECON. 799, 854–55 (2016); cf. Marc Nerlove, *Railroads and American Economic Growth*, 26 J. ECON. HIST. 107, 115 (1966) (reviewing L.H. Jenks, *Railroads as an Economic Force in American Development*, 4 J. ECON. HIST. 1 (1944); and then reviewing ROBERT WILLIAM FOGEL, *RAILROADS AND AMERICAN ECONOMIC GROWTH: ESSAYS IN ECONOMETRIC HISTORY* (1964)).

¹²⁸ *N. Sec. Co.*, 193 U.S. at 320.

¹²⁹ On the distinction between short-haul and long-haul competition, see Hovenkamp, *supra* note 101, at 1049–54. See also *United States v. S. Pac. Co.*, 239 F. 998, 1006–07 (D. Utah 1917) (emphasizing need for interconnection, but Supreme Court reversed the merger that the lower court had approved), *rev'd*, 259 U.S. 214 (1922); *United States v. Reading Co.*, 226 F. 229, 250, 255, 263 (E.D. Pa. 1915) (similar), *rev'd*, 253 U.S. 26 (1920).

the legal ability to accomplish the same result by agreement. Contemporary economists and other railroad experts argued that consolidation of the railroads was the key to reducing costs, improving function, and saving railroads from bankruptcy.¹³⁰ Some Progressives even argued that the system functioned best as a monopoly and advocated public ownership. For example, Ohio Progressive Frederic Howe concluded: “It is probable that the consolidation of the railroads, the unification of terminals, the utilization of motive power and cars to their capacity would involve savings of hundreds of millions of dollars in transportation cost.”¹³¹ Corporate law scholar William Cook made similar arguments in urging nationalization of the railroads.¹³²

One hundred and twenty years later the *JetBlue* merger case raised similar issues. The challenged merger was between two air carriers, JetBlue and Spirit, that operated in the discount portion of passenger air travel.¹³³ They competed directly on city pairs that accounted for a minority of their routes, but offered connecting services on many others.¹³⁴ Their total route map looked like this:

130 See, e.g., Walter Splawn, *The Ripley Report on Railroad Consolidation*, 5 SW. POL. & SOC. SCI. Q. 1, 12 (1924); William Z. Ripley, *The American Railroad Outlook*, 215 N. AM. REV. 433, 440–41 (1922). Earlier writing includes John Gibbon, *Railroad Consolidation*, 154 N. AM. REV. 251, 251 (1892); Collis P. Huntington, *A Plea for Railway Consolidation*, 153 N. AM. REV. 272, 272–74 (1891). For a fuller discussion, see Hovenkamp, *supra* note 101, at 1042–43.

131 Frederic C. Howe, *The Necessity for Public Ownership of the Railways*, 76 ANNALS AM. ACAD. POL. & SOC. SCI. 157, 162–63 (1918).

132 See William W. Cook, *A Plan for the Nationalization of Railroads*, 24 YALE L.J. 370 (1915).

133 See *United States v. JetBlue Airways Corp.*, 712 F. Supp. 3d 109, 122 (D. Mass. 2024).

134 *Id.* at 138–39.



Figure 3. JetBlue Routes: Week of 8 August 2022.¹³⁵

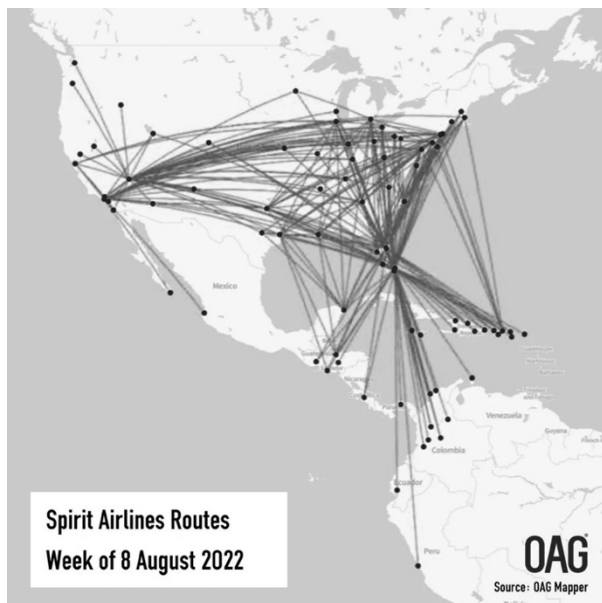


Figure 4. Spirit Airlines Routes: Week of 8 August 2022.¹³⁶

¹³⁵ *JetBlue Routes: week of 8 August 2022* (illustration), in Becca Rowland, *Network Synergy for JetBlue and Spirit Airlines*, OAG (Aug. 11, 2022), <https://www.oag.com/blog/network-synergy-jetblue-spirit-airlines> [<https://perma.cc/W7BE-NWXP>].

¹³⁶ *Spirit Airlines Routes: Week of 8 August 2022* (illustration), in Rowland, *supra* note 135.

By contrast, these were the overlapping routes (city pairs) on which the two airlines flew in competition with each other:



Figure 5. Routes operated by both JetBlue and Spirit Airlines Week of 8 August 2022.¹³⁷

The court acknowledged that overall, the defendants had provided “strong evidence that the combined, post-merger airline would be procompetitive and result in substantial benefits for consumers.”¹³⁸ It elaborated:

The Defendant Airlines have demonstrated that an expansion of all aspects of JetBlue’s business—including network, fleet, and loyalty program—would allow for more vigorous competition with the Big Four, which carry most passengers in the country. The size of an airline, the number of routes it serves, the number of options it offers to consumers—all of these aspects add to an airline’s relevance to consumers, and were JetBlue to become more relevant, it would immediately place more pressure on its greatest competitors, the Big Four. . . . Were JetBlue to expand via the proposed acquisition, not only would that product become more widely available to more consumers, but the increased revenue available could also allow

137 Routes operated by both JetBlue and Spirit Airlines Week of 8 August 2022, in Rowland, *supra* note 135.

138 JetBlue, 712 F. Supp. 3d at 161.

JetBlue to innovate further and create an even stronger customer experience.¹³⁹

However, there were also those routes on which the merger would eliminate competition between the two firms. Further, under merger law’s “single market” rule,¹⁴⁰ the merger could be enjoined if it was anticompetitive in “any line of commerce,” without tradeoffs for pro-competitive results in other markets.¹⁴¹ The court issued an injunction as the government requested, but it rejected its request that the defendants be enjoined from any revised future acquisition.¹⁴² As a result, they would be allowed to fix the competitive problems on those routes where competition was threatened and propose the acquisition anew.¹⁴³ All of these results are consistent with a literature showing significant gains from mergers of the complementary portions of transportation networks.¹⁴⁴

The case of nominal competitors who actually compete in only a portion of their business is not uncommon. The 1948 *Columbia Steel* case involved a merger of two steel manufacturers that the government had treated as horizontal.¹⁴⁵ However, the merging firms largely operated in different sections of the country.¹⁴⁶ Further, one of them made large, heavy steel products while the other made lighter steel products.¹⁴⁷ Their bidding behavior suggested the extent of their competition¹⁴⁸:

139 *Id.* at 161–62. The “Big Four” refers to Delta, American, United, and Southwest. *Id.* at 123.

140 *See infra* notes 351–55 and accompanying text.

141 15 U.S.C. § 18 (2018).

142 *JetBlue*, 712 F. Supp. 3d at 163–64.

143 The parties later abandoned the transaction. *See* Mary Schlangenstein, *JetBlue Abandons Troubled \$3.8 Billion Deal for Spirit Air*, BLOOMBERG (Mar. 4, 2024, 9:45 AM EST), <https://www.bloomberg.com/news/articles/2024-03-04/jetblue-abandons-troubled-3-8-billion-offer-for-spirit-airlines?embedded-checkout=true> [https://perma.cc/M7AQ-ZVNT].

144 *See* Yanyou Chen, *Network Structure and the Efficiency Gains from Mergers: Evidence from U.S. Freight Railroads 5* (Aug. 21, 2024) (unpublished manuscript), <https://ssrn.com/abstract=4742990> [https://perma.cc/N4XA-8RGM] (noting that interchange costs between complementary portions of a railroad network constitute 21% of average shipment prices).

145 *See* *United States v. Columbia Steel*, 334 U.S. 495, 511 (1948).

146 *Id.* at 501–02.

147 *Id.* at 500.

148 *Id.* at 515 n.13.

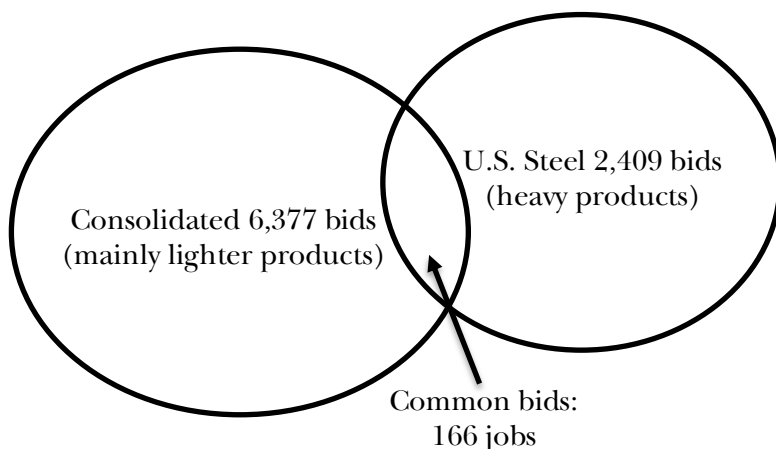


Figure 6. Bid overlap between *Columbia Steel* companies.

While both companies made steel, they bid on the same jobs roughly 2% of the time.¹⁴⁹ Those were the jobs in which they aspired to be competitors. The record also indicated that their bids were successful roughly one-third of the time,¹⁵⁰ which means that they were making sales in markets that both actually served less than 1% of the time. That the parties' gains from this merger came from eliminating competition is highly doubtful. Rather, they came from the postmerger firm's expansion into new product lines and new geographic locations. That is, *Columbia Steel* was mainly a merger of complements.¹⁵¹

In his dissent in the *Von's Grocery* case Justice Stewart raised the same issue, criticizing the government's approach for "indiscriminately lump[ing] together horizontal and market-extension mergers."¹⁵² The latter is a merger of complements. While both of the merging firms sold groceries in Los Angeles, which was deemed to be

149 *Id.*

150 *Id.* (noting that U.S. Steel succeeded on 839/2,409 bids in the relevant area, while Consolidated succeeded on 2,390/6,377 bids). The average tonnage for the consolidated bids was 90 tons, while that of U.S. Steel was 528 tons. *Id.*

151 *See also* *Brown Shoe Co. v. United States*, 370 U.S. 294, 326 (1962) (regarding a merger of a high-quality shoe manufacturer (Brown) and a cheaper shoe manufacturer (Kinney)); *United States v. Gen. Dynamics Corp.*, 415 U.S. 486, 493 (1974) (merger of a deep coal miner and a strip miner).

152 *United States v. Von's Grocery Co.*, 384 U.S. 270, 294 (1966) (Stewart, J., dissenting).

the relevant market, they were largely located in different parts of the city, which was much too big to constitute a customer's reasonable shopping range.¹⁵³ Justice Stewart concluded that the merger foreclosed only 1% of grocery sales in the Los Angeles area.¹⁵⁴

At this writing a district court has agreed with the Federal Trade Commission and some states that a contemplated merger between two large grocery chains, Kroger and Albertson's, would very likely be unlawful, and granted a preliminary injunction.¹⁵⁵ Both firms are predominantly grocery retailers, although the plaintiffs had also unsuccessfully challenged the merger's effects on unionized employees.¹⁵⁶ We might assume that the individual stores behave mainly as competitors in the product market. But what about geographic markets? Pre-merger, the map of their stores looks like this:

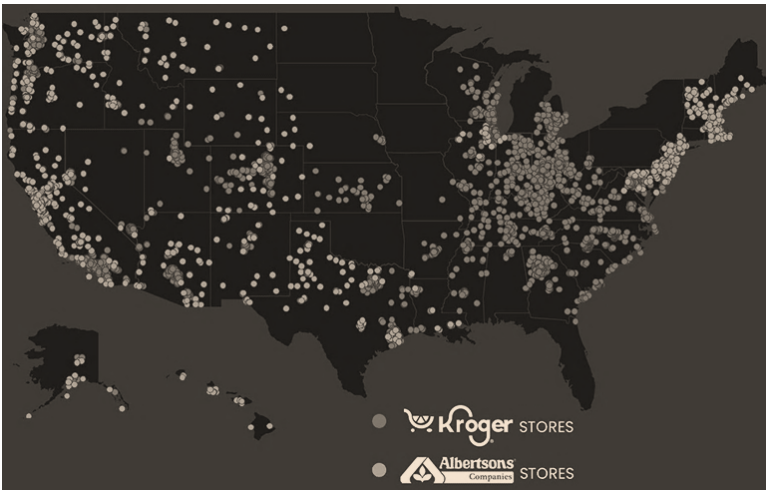


Figure 7. Map of Kroger and Albertsons stores.¹⁵⁷

153 Brief of Appellee Von's Grocery Co. at 38–39, *Von's Grocery Co.*, 384 U.S. 270 (No. 303).

154 *Von's Grocery*, 384 U.S. at 296 (Stewart, J., dissenting) (Even among those stores which competed at least partially with one another, the overlap in sales represented only approximately 25% of the combined sales of the two chains in the overall Los Angeles area. The present merger was thus three parts market-extension and only one part horizontal, but the Court nowhere recognizes this market-extension aspect that exists within the local market itself. The actual market share foreclosed by the elimination of Shopping Bag as an independent competitor was thus slightly less than 1% of the total grocery store sales in the area).

155 *FTC v. Kroger Co.*, No. 3:24-cv-00347, 2024 WL 5053016, at *39 (D. Or. Dec. 10, 2024).

156 *Id.* at *38.

157 A map showing Kroger and Albertsons stores (illustration), in Alex Bitter, *Kroger and Albertsons Would Likely Shutter Stores as Part of a Planned Merger*. See if Your Local Store Is at

In some geographic areas, stores owned by the two firms are in close proximity and compete with one another. But in others one chain operates but not the other. So how should this merger be addressed? The literature on grocery store distribution indicates that prices tend to rise when a merger unites competing stores that are close together in concentrated markets.¹⁵⁸ However, they tend to go down when a chain simply expands into a new area and no competition is eliminated.¹⁵⁹ Instead, they become a type of entry by merger.¹⁶⁰ In such cases the merger might lead to lower prices or better service much more than it leads to the reverse. Under the “single market” rule, however, the merger is challengeable if it threatens competition in *any* market, with no offsets for benefits in other markets.¹⁶¹

The Kroger/Albertson’s map does not address every question about possible elimination of competition. The merger may also reduce competition for unionized workers. The court found that the FTC had not adequately presented such evidence, but did not reject it on principle.¹⁶² Evaluating that claim requires a determination of both the geographic and the product markets in which the firms compete for labor. For example, to the extent that grocery store employees have fairly general retailing skills that can readily serve other types of employers, market shares of grocery sales alone overstate the degree of market concentration.¹⁶³ By contrast, a merger of two hospitals in a single community may be an entirely different matter for employees such as nurses, who have specialized skills that are less portable. As for geography, stores in close proximity certainly compete for the same employees, but that is less likely as the individual stores are further apart. In those areas where the merger leads to an increase in grocery sales it would also provide more jobs.

Risk., BUS. INSIDER (Dec. 14, 2022, 1:00 PM EST), <https://www.businessinsider.com/where-kroger-and-albertsons-grocery-stores-overlap-2022-12> [<https://perma.cc/8RNA-6ZJ9>].

158 Daniel S. Hosken, Luke M. Olson & Loren K. Smith, *Do Retail Mergers Affect Competition? Evidence from Grocery Retailing*, 27 J. ECON. & MGMT. STRATEGY 3 (2018).

159 See *id.*; see also Rigoberto A. Lopez, Sandro Steinbach & Mengjie Lie, *Evolution of Entry into U.S. Food Retailing: Implications for Local Competition*, AGECON SEARCH (2023) (finding, in general, lower prices and better service in response to new entry).

160 See Kosuke Uetake & Yasutora Watanabe, *Entry by Merger: Estimates from a Two-Sided Matching Model with Externalities 1* (Dec. 9, 2020) (unpublished manuscript), <https://ssrn.com/abstract=2188581> [<https://perma.cc/QP8F-SUKN>].

161 See *Kroger*, 2024 WL 5053016, at *25–26. On the single market rule, see *infra* notes 351–55 and accompanying text.

162 *Kroger*, 2024 WL 5053016, at *38.

163 The question can be addressed with data concerning the extent to which grocery store employees move to employers who are not grocery retailers, and vice versa.

C. *Heterogeneity in Observed Results; Implications for Settlement*

One problem with traditional merger analysis is that market definition is “lumpy.” Once the market is defined, everything in the market is treated as if it competes perfectly with everything else. But diversity in firm structure and location is ubiquitous and often requires a closer look. Quite commonly firms that have been defined into the same relevant market interact as complements as well. When that happens the opportunities for limiting competition are fewer and the opportunities for reducing costs or improving products are greater.

The hypothetical monopolist test (HMT) for relevant markets, which is technically more accurate than alternatives in most cases, can actually make this problem worse. That test often groups together firms whose current relationship is complementarity, but who could readily become competitors in response to a small price increase.¹⁶⁴ For example, two hospitals in different areas might be in the same relevant market under the hypothetical monopolist test because each could be offering services competing with the other in response to a small but significant price increase.¹⁶⁵ Nevertheless, the merger itself might be a cost-reducing or quality-improving expansion of the parties’ network.¹⁶⁶

Varying degrees of complementarity between merging firms can help explain one widely observed phenomenon: mergers with similar concentration profiles (postmerger HHI and Δ HHI) can have widely different price results.¹⁶⁷ This is often true even of merging firms in the same industry.¹⁶⁸

One likely explanation for this is that firms are actually quite diverse from one another. As in the *Columbia Steel* case discussed above, they exhibit different amounts of complementarity. Figure 8 offers a crude illustration:

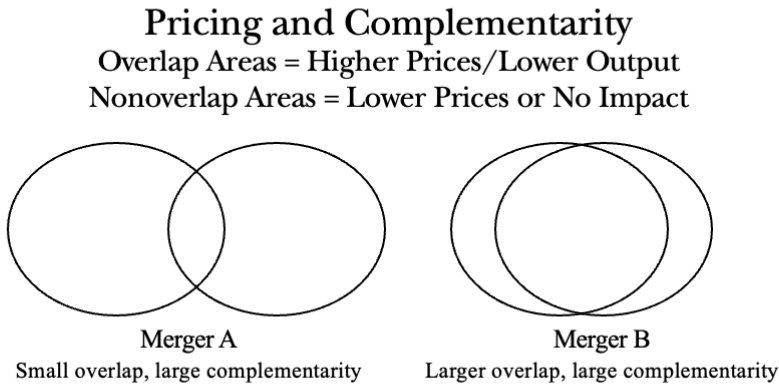
164 On the HMT for relevant markets, see *infra* notes 193–97 and accompanying text, and AREEDA, HOVENKAMP, & HOVENKAMP, *supra* note 6, ¶¶ 530, 536–39.

165 See, e.g., *FTC v. Hackensack Meridian Health, Inc.*, 30 F.4th 160, 171 (3d Cir. 2022).

166 See *infra* notes 302–306 and accompanying text.

167 For discussion of merger retrospective studies, see *infra* notes 356–57 and accompanying notes.

168 See *infra* notes 356–57 and accompanying text.



Even with the same market structure, Merger B shows higher average prices

Figure 8. Pricing and complementarity illustration.

Mergers A and B in Figure 8 are both “horizontal” in that a portion of their output overlaps—i.e., premerger the two firms sell in the same region and offer some closely competing products. However, the merger on the left is more like the one in many of the previously discussed cases such as *Northern Securities*, *JetBlue* or *Columba Steel*: the two firms are competitors in a relatively small part of their business but operate as complements in the balance. The merger on the right has a much larger proportion of competitive overlap. At high concentration levels we would expect prices to increase in the overlap areas, but to go down or remain unchanged in the areas that do not overlap. Any merger study methodology that averages the firm’s postmerger prices across the board is going to show a significantly higher price increase for the merger on the left, and a smaller increase, no increase at all or even a decrease for the merger on the right. Further, under the “single market” rule both mergers would be challengeable if they meet the lessen-competition standard in at least one area that they serve.¹⁶⁹

One feature of heterogeneity is that it makes aggregated concentration measures such as the HHI less accurate. The HHI is built on an assumption that the products contained in the market definition that it measures are pure substitutes. To the extent that the merging firms show some complementarity this is not the case. We might be able to address this by defining more focused markets. For example, if one of two merging hospitals has an oncology department that the other one lacks, a merger that unites them might create significantly

169 See *infra* notes 336–39 and accompanying text.

better performance in that area. One way to reflect this is simply to regard the hospitals as perfect competitors and aggregate their shares with other hospitals in the market but then have an efficiency “defense” that covers the better oncology offerings. But this is not so much an efficiency as it is recognition of the fact that the gross HHI numbers misstate the competitive impact in oncology. This merger is not eliminating any competition in oncology, but only making it available to the second hospital.

The level of heterogeneity also suggests that it was unwise for the enforcement agencies to adopt a policy of refusing to settle merger challenges but rather to litigate them.¹⁷⁰ Mergers between multiproduct or multimarket firms can involve numerous complementary as well as competitive relationships. Coming up with a satisfactory fix is likely to be a highly individualized activity, and the courts are more likely to make errors. This can make individually negotiated settlements desirable.¹⁷¹

D. Potential Competition Mergers

Potential competition mergers occur when a firm uses an acquisition to extend its reach into a new product¹⁷² or a new geographic area.¹⁷³ Potential competition cases trade off an actual expansion by the merging firm into a new market, against the possibility that entry de novo by building a new plant or facility would have been even more competitive.¹⁷⁴ For example, Marine Bancorporation, which previously had no branch banks in the Spokane area, could have entered that area either by building a new branch or by acquiring an existing

170 See, e.g., Jonathan Kanter, Assistant Att’y Gen., Remarks to the New York State Bar Association Antitrust Section (Jan. 24, 2022), <https://www.justice.gov/opa/speech/assistant-attorney-general-jonathan-kanter-antitrust-division-delivers-remarks-new-york> [<https://perma.cc/4M5A-BUAL>]; Margaret Harding McGill, *FTC’s New Stance: Litigate, Don’t Negotiate*, AXIOS (June 8, 2022), <https://www.axios.com/2022/06/09/ftcs-new-stance-litigate-dont-negotiate-lina-khan> [<https://perma.cc/D9WX-6QV2>].

171 See George L. Priest & Benjamin Klein, *The Selection of Disputes for Litigation*, 13 J. LEGAL STUD. 1, 37 (1984) (on the incentives of parties to settle). In the context of patents, see Erik Hovenkamp, *Antitrust Law and Patent Settlement Design*, 32 HARV. J.L. & TECH. 417 (2019).

172 See, e.g., *FTC v. Procter & Gamble Co.*, 386 U.S. 568, 570, 572 (1967) (producer of household chemicals adds bleach to its product line).

173 See, e.g., *United States v. Marine Bancorporation, Inc.*, 418 U.S. 602, 605 (1974) (multibranch bank expands by acquisition into a county it had not previously served).

174 In a few cases both firms might be expanding. See, e.g., *United States v. Penn-Olin Chem. Co.*, 378 U.S. 158, 168 (1964) (formation of a joint venture by one firm which had not produced the product before and another which was expanding its output into a new region).

bank.¹⁷⁵ Such mergers can exhibit strong product complementarity. By adding a branch in a new town Marine Bancorporation can extend any benefits that accrue from branch banking. However, by building a new bank rather than acquiring an existing one Marine Bancorporation may have been able to increase direct competition even more.

The Supreme Court developed its entire caselaw governing potential competition mergers during a ten-year period, beginning with the *El Paso* decision in 1964¹⁷⁶ and ending with *Marine Bancorporation* in 1974.¹⁷⁷ One striking fact about the 2023 Merger Guidelines is how little has changed. The Guidelines seek to revive enforcement of mergers on potential competition grounds, but with no advances in theory from where the Supreme Court left it fifty years ago.¹⁷⁸ By contrast, the 2010 Horizontal Merger Guidelines ignored them.

The antitrust analysis of a potential competition merger begins with a target market that is already concentrated¹⁷⁹ and as a result experiences lower output and prices higher than cost. New entry by another firm would promise to deconcentrate this market.¹⁸⁰ The potential competition problem arises when a likely entrant from outside acquires a firm that is already in the market rather than coming in anew.¹⁸¹ If that likely entrant is the only one, then that particular potential for increased competition has been lost.¹⁸² Offsetting this, a firm's expansion by acquisition is itself a merger of complements when the acquiring firm has not previously served that market.¹⁸³ The acquisition can create network benefits that were not well understood during the 1960s.¹⁸⁴

The potential competition doctrine comes in two versions. Under the "perceived potential entrant" version the firms already in the

175 *Cf. Marine Bancorporation*, 418 U.S. at 605.

176 *United States v. El Paso Nat. Gas Co.*, 376 U.S. 651, 662 (1964) (condemning merger).

177 *Marine Bancorporation*, 418 U.S. at 630, 641–42 (refusing to condemn a merger on potential competition grounds).

178 See 2023 MERGER GUIDELINES, *supra* note 5, § 2.4 (Guideline 4).

179 The 1982 Merger Guidelines, which were the last to speak to potential competition mergers prior to 2023, would have required a concentrated market with an HHI greater than 1800. See 1982 MERGER GUIDELINES, *supra* note 73, § IV.A.3.a ("The Department is unlikely to challenge a potential competition merger unless overall concentration of the acquired firm's market is above 1800 HHI . . .").

180 See 2023 MERGER GUIDELINES, *supra* note 5, § 2.4.

181 See *id.* § 2.4.A.

182 See *id.*

183 As in *United States v. Marine Bancorporation, Inc.*, 418 U.S. 602, 605 (1974).

184 See *Uetake & Watanabe*, *supra* note 160, at 5; *cf.* Mark J. Buono & B. Kelly Eakin, *Branching Restrictions and Banking Costs*, 14 J. BANKING & FIN. 1151, 1160–61 (1990) (noting economies available from branch banking).

market realize that the outside firm is a competitive threat.¹⁸⁵ They accordingly restrain their own pricing in order to deter entry.¹⁸⁶ When the inside firm and the outside potential competitor merge, however, that threat is removed.¹⁸⁷ Prices can rise without concern about new entry.

Under the second “actual potential entrant” version, new entry would have made the concentrated market more competitive.¹⁸⁸ Instead of coming in by new entry, however, the outsider enters by acquiring a firm that is already in the market.¹⁸⁹ As a result, the increase in competition never occurs.¹⁹⁰ One problem with the actual potential entrant doctrine is doubt about statutory coverage. The statute condemns mergers that may “substantially lessen competition,” but not those that merely fail to increase competition.¹⁹¹ Nevertheless, the 2023 Guidelines embrace both versions without discussing the issue.¹⁹²

Even setting aside the worries about excessive speculation that led to the Supreme Court’s skepticism in the 1970s,¹⁹³ the continued viability of potential competition merger doctrine is doubtful. Changes in the approach to market definition during the last fifty years have given the potential competition doctrine a much smaller domain—or perhaps no domain at all.¹⁹⁴ Under the modern hypothetical monopolist test (HMT) for market definition,¹⁹⁵ mergers that were once classified as “potential” competition are actually horizontal mergers.

The HMT places “in the market” not only all firms selling a product at this instant, but also those that would be selling it in response to a non-cost-justified price increase.¹⁹⁶ These include “rapid” entrants who can come into the market without incurring significant sunk costs. The 2023 Merger Guidelines embrace the HMT, elaborating:

Firms that are not currently active in a relevant market, but that very likely would rapidly enter with direct competitive impact in the event of a small but significant change in competitive conditions, without incurring significant sunk costs, *are also considered market participants*. These firms are termed “rapid entrants.” Sunk costs

185 See 2023 MERGER GUIDELINES, *supra* note 5, § 2.4.B.

186 See *id.*

187 See *id.*

188 See HOVENKAMP, *supra* note 28, § 13.4b.

189 See *id.*

190 See *id.* § 13.4a (perceived potential entrant); *id.* § 13.4b (actual potential entrant).

191 15 U.S.C. § 18 (2018).

192 See 2023 MERGER GUIDELINES, *supra* note 5, § 2.4.A.

193 Culminating in *United States v. Marine Bancorporation, Inc.*, 418 U.S. 602, 625, 641–42 (1974).

194 See Hovenkamp, *supra* note 54, at 823–26.

195 See AREEDA, HOVENKAMP, & HOVENKAMP, *supra* note 6, ¶ 530a.

196 See *id.*

are entry or exit costs that cannot be recovered outside a relevant market.¹⁹⁷

The question is whether there are firms that would *not* be regarded as market participants under the 2023 Guidelines, because their entry would require significant sunk costs, but who nonetheless could be treated as “potential entrants” for purpose of section 7. The premise of the perceived potential entrant doctrine, which is the only one that the Supreme Court has approved, is that new firms would come in if the price rose. How much they would need to rise is not clear.

Another liability of the potential competition doctrines is factual complexity. The verbal account of a group of incumbent firms who keep their prices low in order to deter new entry is appealing. But the assumption is that the firms in question, who cannot lawfully collude, have an equilibrium oligopoly price but have elected to charge a lower, or “limit,” price in order to deter entry. Establishing that with sufficient reliability is very likely beyond the evaluation capacity of a court. Judicial treatment of limit pricing undertaken by a single firm has proven to be difficult enough,¹⁹⁸ but treating limit pricing by an oligopoly of multiple firms acting without an agreement sounds completely unmanageable.¹⁹⁹ The approach taken in the 2023 Merger Guidelines would require identification of firms whose entry costs and risks are not so low as to make them market participants, but not so high as to remove them from consideration as potential entrants.

In sharp contrast, defining the market so as to include the presumably “potential” entrant as an actual competitor, as the hypothetical monopolist test does, turns these into much simpler horizontal mergers, and ones in which by definition the market concentration level is already high. Further, it is unlikely that the range of firms included as actual competitors under that treatment would be much narrower than the range of those who might be regarded as qualifying potential competitors. Treating these mergers as horizontal would be a more straightforward and also more pro-enforcement way of

197 2023 MERGER GUIDELINES, *supra* note 5, § 4.4.A (emphasis added); *see also* AREEDA, HOVENKAMP, & HOVENKAMP, *supra* note 6, ¶ 536; Herbert Hovenkamp, Antitrust Market Definition: The Hypothetical Monopolist and *Brown Shoe* 1 (May 6, 2024) (unpublished manuscript), <https://ssrn.com/abstract=4746039> [<https://perma.cc/D4HC-TNB5>].

198 *See In re E.I. DuPont de Nemours & Co.*, 96 F.T.C. 653, 749 (1980) (dismissing complaint charging DuPont with limit pricing of titanium dioxide, a paint additive); *cf.* Darius W. Gaskins, Jr., *Dynamic Limit Pricing: Optimal Pricing Under Threat of Entry*, 3 J. ECON. THEORY 306 (1971).

199 For some of the difficulties, see Richard S. Markovits, *Potential Competition, Limit Price Theory, and the Legality of Horizontal and Conglomerate Mergers Under the American Antitrust Laws*, 1975 WIS. L. REV. 658, 664–66, and compare Victor Goldberg & Sharon Moirao, *Limit Pricing and Potential Competition*, 81 J. POL. ECON. 1460 (1973).

addressing them. It would still have to address the problem of complementarity.

E. Complements and Market Definition

Relevant markets consist of substitutes, or goods that compete with each other. Complements do not compete with one another but are made or used together. An occasional court gets this wrong. For example, in its *Kodak* decision the Ninth Circuit decided that the aggregation of aftermarket repair parts for a Kodak photocopier were in a single relevant market because people using or fixing copiers needed “all [the] parts” in order to produce a working copier.²⁰⁰

But this gets the relationship backwards. Things are in the same relevant market when they compete with one another, which means that the buyer does *not* need all of them. For example, we speak of four gasoline stations at a traffic intersection as competitors, manifestly *not* because a driver needs to go to all four of them. Rather, it is because the driver will go to only one, and the four must compete with one another to have that driver’s business.

Another feature of market definition and market power is that they attach to products, not to firms. Many firms sell multiple products but have very different market shares in them. For example, Microsoft Windows enjoys a 72% market share among operating systems for desktop computers,²⁰¹ but its search engine Bing has an 11% market share among desktop search engines.²⁰² As a result it might be a dominant firm in the market for operating systems, but not in the market for search engines. This can be an issue in cases where the firms that are involved sell more than a single product or operate in more than one territory. Further, the fact that Windows and Bing are complements in use (people use operating systems and search engines together) does not justify placing them into a single market for goods provided by Microsoft.

Once courts have defined the market, they generally assume strong competition among the products in that market. Complementary relationships largely become invisible. They do show up as efficiency “defenses,” although the obstacles to proving them are

200 *Image Tech. Servs., Inc. v. Eastman Kodak Co.*, 125 F.3d 1195, 1205 (9th Cir. 1997).

201 *Desktop Operating System Market Share Worldwide*, STATCOUNTER, <https://gs.statcounter.com/os-market-share/desktop/worldwide> [<https://perma.cc/KS6F-UVC3>] (last visited Oct. 4, 2025).

202 *Desktop Search Engine Market Share Worldwide*, STATCOUNTER, <https://gs.statcounter.com/search-engine-market-share/desktop> [<https://perma.cc/KM53-NWB8>] (last visited Oct. 4, 2025).

substantial.²⁰³ That was the essence of Justice Stewart's objection in the *Von's Grocery* case, discussed above.²⁰⁴ Once the Court had decided that the relevant market for retail groceries was Los Angeles, which contained both chains, it simply aggregated their output as if they were identically placed.²⁰⁵ The same thing happened for the product market in the *Kodak* monopolization case. Once the court had decided that all of Kodak's thousands of aftermarket parts for photocopiers were in a single market, it simply aggregated them for purposes of measuring market share, even though individual parts ranged from the patented image loop, which Kodak controlled, to off-the-shelf nuts and bolts and the flat glass plate.²⁰⁶ These individual components did not compete with each other at all, and for many of them Kodak's market share was trivial.

The previously discussed *Columbia Steel* and *JetBlue* mergers as well as many others eliminated competition between the merging firms in relatively small portions of the markets they served. To that extent they were mergers of competitors. They also enabled the postmerger firms to extend their product lines over a bigger or more differentiated range. That is, they were also mergers of complements.

The *Brown Shoe* decision greatly confused this issue by doing two things. First was its introduction of "submarkets," a meaningless concept.²⁰⁷ Second was its list of "factors" for identifying a relevant market, many of which were incorrect because they ignored the difference between substitutes and complements.²⁰⁸

"Submarkets" were a pure invention of the Supreme Court. The term had no previous usage in merger law, did not appear in the legislative history, and seems facially inconsistent with the statute, which speaks of any "line of commerce."²⁰⁹ It says nothing about "sub-lines." The Court cited its earlier *E.I. du Pont* decision for the proposition that submarkets may exist,²¹⁰ but that decision never used the term.²¹¹ The Court then held that the "outer boundaries" of the market were determined by reference to "reasonable interchangeability" or "cross-

203 See discussion *infra* Section V.B.

204 *United States v. Von's Grocery Co.*, 384 U.S. 270, 294–96 (1966) (Stewart, J., dissenting); see *supra* notes 152–54 and accompanying text.

205 *Von's Grocery*, 384 U.S. at 294–96.

206 See *Image Tech. Servs., Inc. v. Eastman Kodak Co.*, 125 F.3d 1195, 1204–05, 1226 (9th Cir. 1997).

207 *Brown Shoe Co. v. United States*, 370 U.S. 294, 325 (1962).

208 *Id.*

209 15 U.S.C. § 18 (2018).

210 *Brown Shoe*, 370 U.S. at 325 (citing *United States v. E.I. du Pont de Nemours & Co.*, 353 U.S. 586, 593–95 (1957)).

211 See *E.I. du Pont de Nemours & Co.*, 353 U.S. 586.

elasticity of demand.”²¹² However, *within* this grouping there could be “submarkets” which would qualify as product markets for antitrust purposes.²¹³ These could be identified by “practical indicia” such as “peculiar characteristics and uses,” including “unique production facilities, distinct customers, distinct prices, sensitivity to price changes, and specialized vendors.”²¹⁴

This language sowed little but confusion about the difference between substitutes and complements and how they relate to market definition. The factors that *Brown Shoe* identified are still used by some courts to define markets.²¹⁵ Some production facilities produce one and only one product, but many produce multiple noncompeting products. As for specialized vendors and distinct customers, they are more likely to sell or purchase complements. For example, McKesson is a “specialized vendor” who sells pharmaceuticals, catheters, bandages, blood pressure monitors, surgical gloves, and a host of other medical products.²¹⁶ A hospital is a “distinct customer” for all of these things. But neither provides a basis for putting catheters and blood pressure monitors into the same relevant market. A hospital patient might certainly need bandages, a catheter, and the use of a blood pressure monitor during her hospital stay, but that makes them complements, not substitutes. *Brown Shoe* was responsible for the Ninth Circuit’s confusion of complements and substitutes in *Kodak*, which held that the decision compelled its determination of an “all parts” market.²¹⁷

Breaking down the competitive effects of mergers requires a more discerning look at how merging firms react with each other. To the extent a merger eliminates competition, the result can be lower output and higher prices. To the extent the same merger unites complementary products or services it does the opposite. Many, perhaps most, nominally “horizontal” mergers do both of these things at once.

212 *Brown Shoe*, 370 U.S. at 325.

213 *Id.*

214 *Id.*

215 *See, e.g.*, *FTC v. Meta Platforms Inc.*, 654 F. Supp. 3d 892, 913–19 (N.D. Cal. 2023); *Klein v. Facebook, Inc.*, 580 F. Supp. 3d 743, 766–70 (N.D. Cal. 2022); *IGT v. All. Gaming Corp.*, 702 F.3d 1338, 1346–47 (Fed. Cir. 2012); *Spirit Airlines, Inc. v. Nw. Airlines, Inc.*, 431 F.3d 917, 933–35 (6th Cir. 2005); *FTC v. Kroger Co.*, No. 3:24-cv-00347, 2024 WL 5053016, at *32–34 (D. Or. Dec. 10, 2024); *FTC v. Tapestry, Inc.*, 755 F. Supp. 3d 386, 418–39 (S.D.N.Y. 2024).

216 *See Medical Supplies*, MCKESSON, <https://www.mckesson.com/medical-supplies/> [<https://perma.cc/FTM3-BLQJ>] (last visited Mar. 15, 2025).

217 *Image Tech. Servs., Inc. v. Eastman Kodak Co.*, 125 F.3d 1195, 1204 (9th Cir. 1997) (citing *Brown Shoe*, 370 U.S. at 325).

F. Vertical Mergers

Vertical mergers have been a distinctive classification in merger law at least since the 1948 *Columbia Steel* decision, which involved a merger that was both horizontal (manufacturing) and vertical (fabrication of manufactured steel).²¹⁸ All vertical mergers are mergers of complements.²¹⁹ The parties to a vertical merger are generally a producer and either an upstream supplier of an input such as spark plugs to an automobile manufacturer;²²⁰ or else a downstream distribution channel, such as a shoe manufacturer's acquisition of retail stores.²²¹ Getting the final product to the consumer involves both of these, making them complements.

Why antitrust law recognized a merger classification of vertical mergers but not one for mergers of complements is an interesting question. Very likely it was following the classification system that had been developed in industrial economics, which usually referred to "vertical" integration. The pioneer was Cambridge economist Alfred Marshall, whose *Industry and Trade* observed that it was necessary "to make a clear distinction between two chief forms of business expansion; the vertical and the horizontal."²²² Major Supreme Court decisions issued in the 1940s, including *Columbia Steel*, *Paramount*, and *Standard Oil*, spoke of the advantages and threats posed by vertical integration.²²³ The first set of merger guidelines, issued by the Justice Department in 1968, contained distinctive classifications for horizontal mergers, vertical mergers, and conglomerate mergers.²²⁴ The word "complements" never appeared. When Phillip Areeda and Donald Turner published the first edition of the *Antitrust Law* treatise

218 *United States v. Columbia Steel Co.*, 334 U.S. 495, 511, 524–26 (1948) (discussing vertical aspects of the merger).

219 U.S. DEP'T OF JUST. & FED. TRADE COMM'N, VERTICAL MERGER GUIDELINES § 6 (2020).

220 *See Ford Motor Co. v. United States*, 405 U.S. 562, 574 (1972) (condemning Ford's acquisition of Autolite).

221 *Brown Shoe*, 370 U.S. at 297.

222 ALFRED MARSHALL, *INDUSTRY AND TRADE: A STUDY OF THE INDUSTRIAL TECHNIQUE AND BUSINESS ORGANIZATION; AND OF THEIR INFLUENCES ON THE CONDITIONS OF VARIOUS CLASSES AND NATIONS* 215 (1919); *see also* D.H. ROBERTSON, *THE CONTROL OF INDUSTRY* 31–37 (1923); Lawrence K. Frank, *The Significance of Industrial Integration*, 33 J. POL. ECON. 179, 179, 182–83 (1925); Eva Flügge, *Possibilities and Problems of Integration in the Automobile Industry*, 37 J. POL. ECON. 150, 151 (1929).

223 *See Columbia Steel*, 334 U.S. at 533–34; *United States v. Paramount Pictures, Inc.*, 334 U.S. 131, 173–74 (1948) (featuring a lengthy discussion of vertical integration, but ultimately rejecting Justice Department's apparent argument that the "vertical integration of producing, distributing and exhibiting motion pictures is illegal *per se*"); *Standard Oil Co. of Cal. v. United States*, 337 U.S. 293, 305–07 (1949).

224 U.S. DEP'T OF JUST., 1968 MERGER GUIDELINES §§ I, II & III (1968).

governing mergers in 1980, they followed this organization, and it has remained so through the current edition.²²⁵ The courts follow it as well.

Among mergers of complements, is anything about vertical mergers distinctive? The 2023 Merger Guidelines wisely minimize the distinction, treating vertical mergers under a rubric that can govern other mergers of complements as well. They target mergers that “can limit access to a product [or] service . . . that its rivals may use to compete.”²²⁶ This is strictly a “foreclosure” rationale, as has traditionally been applied in vertical merger cases.²²⁷ But the Guidelines address all such mergers together, including those among complements that are not vertically related.²²⁸

Distinguishing “vertical” mergers from other mergers of complements usually depends on factors that are unhelpful and economically irrelevant. For example, suppose bows and arrows have traditionally been sold by separate firms. The two products are strong complements, in that each is virtually useless without the other. Customers might purchase their bow from one seller and their arrows from another. Now a single firm, dominant in bows, acquires a firm that is dominant in arrows. The result of the acquisition is that some independent bow (or arrow) makers find it difficult to stay in the market, because of insufficient access to the complementary product. If the consequence is to enable the postmerger firm to reduce output and raise price, that could qualify as anticompetitive foreclosure. It need not depend on any assumption that arrow makers supplied bow makers, or vice versa.

The illustration suggests how artificial the distinction between complementary and vertically related goods can be. Production and distribution can be organized in different ways, including one that involves buy-sell relationships between bow and arrow makers and another that involves customers (or retailers) purchasing them through independent channels. In one, an arrow maker supplies a bow maker. In another, a consumer purchases bows from one manufacturer and arrows from another.

One important factual difference between vertical and other complementary relationships is that vertically related firms routinely deal with one another. That is the very nature of procurement.

225 PHILLIP AREEDA & DONALD F. TURNER, *ANTITRUST LAW: AN ANALYSIS OF ANTITRUST PRINCIPLES AND THEIR APPLICATION*, ¶¶ 900–1100 (1980). The current edition is AREEDA, HOVENKAMP, & HOVENKAMP, *supra* note 6.

226 2023 MERGER GUIDELINES, *supra* note 5, § 2.5.

227 *See, e.g.*, *Fruehauf Corp. v. FTC*, 603 F.2d 345, 353 (2d Cir. 1979); *U.S. Steel Corp. v. FTC*, 426 F.2d 592, 599 (6th Cir. 1970).

228 *See* 2023 MERGER GUIDELINES, *supra* note 5, § 2.5.

Manufacturers purchase inputs and sell to distributors or retailers. By contrast, firms that produce complements but who are not vertically related do not deal with one another routinely. Further, in many of the previously discussed cases there was also a competitive relationship sufficient to create suspicion about interfirm dealings. Looking back at the *Columbia Steel* case, Consolidated and U.S. Steel were actual competitors in less than 2% of their jobs, but the merger was defined by the government as horizontal and treated that way by the Court.²²⁹ An output or price agreement between them would almost certainly have been viewed harshly.

One feature of double marginalization, discussed below, is that in order to eliminate it the firms must be able to coordinate their output.²³⁰ They can do this by merger, but otherwise they will likely have to come to an agreement that removes one of the two firms' excessive markups. In the context of traditional vertical integration, such agreements are not particularly suspicious, and most are legal. Vertically related firms deal with one another routinely. For example, one way to eliminate double marginalization is for the manufacturer to impose maximum resale price maintenance on its dealers, limiting their ability to take a second markup.²³¹ Another is to use nonprice distribution restraints to regulate the amount of dealer power. Within the context of an established distribution network these practices are governed by the rule of reason and almost always lawful.²³² By contrast, if two firms are merely makers of complements, with no established distribution relationship, such agreements can be much more suspicious, particularly if they are competitors in other parts of their business.

The 2023 Merger Guidelines were correct to group all mergers of complements, including vertical mergers, under the same heading. They fall short by failing to see the greater range of opportunities for cost reduction or product improvement that arise from integration of complements, including but not limited to vertical integration. Insofar as a merger unites two complements, the opportunities for anticompetitive harm are much less and for reduced production or transaction costs are much greater.

IV. MARKET BOUNDARIES AND CONCENTRATION "TRENDS"

As noted previously, the principal causes of increasing concentration are technology changes and differential rates of innovation and growth. Both are competitively neutral. Nevertheless, the 2023

229 See *United States v. Columbia Steel Co.*, 334 U.S. 495, 515 n.13 (1948).

230 See *infra* Section V.D.

231 See *infra* notes 320–23 and accompanying text.

232 See *infra* notes 321–22 and accompanying text.

Merger Guidelines cite a “trend” toward concentration as increasing the risk of harm caused by a merger.²³³ Separately, they also cite a “trend” toward vertical integration, which is an entirely different thing.²³⁴ The *Brown Shoe* decision cited the same concerns.²³⁵ They had appeared earlier in reports by the New Deal Temporary National Economic Committee (TNEC).²³⁶ A trend toward concentration refers to a progressively smaller number of firms or products in an “industry,” which is the term that the Merger Guidelines employ for horizontal trends.²³⁷ For trends toward vertical integration they speak mainly of “firms.”²³⁸

For both, a better term would be “products,” which is what markets define. Multiproduct firms may face differing amounts of concentration in different product lines. For example, while Microsoft makes both an operating system and computer games, the operating system market is far more concentrated than the computer game market. If our concerns are price-fixing or oligopoly, we need information about the number and market share distribution of the sellers of that particular product.

Product complementarity complicates the distinction between products and firms. For example, the modern supermarket has seriously harmed independent specialty sellers of meat, dairy products, and flowers, to name a few. While competition occurs at the product level, a retailer’s ability to display and offer many different products in a single store can confer significant advantages in cost savings and consumer satisfaction. Today in markets such as retail groceries most competition occurs among multiproduct supermarkets—a fact that the *Kroger* decision took into account in defining a relatively narrow market of grocery supermarkets.²³⁹ Specialty sellers succeed mainly by being able to differentiate their offerings, and some do so successfully.

Observing the movement of grocers from small, specialized retailers to a smaller number of supermarkets certainly suggests a trend toward concentration in retail grocery sales. But much of the cause is the union of complementary products into a single store. One can say the same thing about multiproduct department stores, including online stores such as Amazon. This trend occurs, however, to the

233 2023 MERGER GUIDELINES, *supra* note 5, § 2.7.

234 *Id.* § 2.5.A.2.

235 *See* *Brown Shoe Co. v. United States*, 370 U.S. 294, 316 (1962).

236 Hovenkamp, *supra* note 27, at 61. For the history of the usage, see *id.* at 61–64.

237 2023 MERGER GUIDELINES, *supra* note 5, § 2.7 (“When an Industry Undergoes a Trend Toward Consolidation”).

238 *Id.* § 2.5.A.2.

239 *See* *FTC v. Kroger Co.*, No. 3:24-cv-00347, 2024 WL 5053016, at *12 (D. Or. Dec. 10, 2024).

extent that consumers prefer multiproduct stores. For example, Amazon sells more than 12,000,000 different products.²⁴⁰ For most of these it has a nondominant market share. Amazon's share of U.S. grocery sales is 2.9%, counting Whole Foods, as compared to Walmart's 21.3% or Kroger's 10.2%.²⁴¹ The grocery market is in fact quite unconcentrated nationally, notwithstanding that Amazon is one of the sellers.

Also related to trends is the counting of online sales. Presumptively, online and offline sales compete with one another, although there are important exceptions. For example, e-books and streamed music on demand can only be sold online, so those sales presumptively define a market. On the other hand, groceries, clothing and small appliances are sold both on- and offline in competition with one another.²⁴²

Further, Amazon and other online sellers are often significant contributors to market *de*concentration. For example, a community that previously had four retailers of bicycles has five when Amazon enters. In order to assess market concentration in the retailing of bicycles in, say, Ithaca, New York, we would include everyone selling there, including both offline and online retailers. A potential customer seeking a bicycle will look at the options, comparing price, the ability to examine the product, the availability of independent reviews, subsequent service, and the like. Different customers have different preferences and would make different choices. The fact that Amazon is a very large firm is of little importance because all the buyer wants is a bicycle. The tests that we use to identify markets, such as the hypothetical monopolist test (HMT), could determine the extent to which an online seller such as Amazon and a traditional bicycle retailer compete with one another.

The 2023 Merger Guidelines support their position on concentration trends by quoting the Supreme Court's 1966 *Pabst* decision that a trend toward concentration, "whatever its causes," is "highly relevant."²⁴³ They also state that such a trend may make it "less likely" that new entry will maintain competition, but provide no explanation.²⁴⁴

240 Emily Dayton, *Amazon Statistics You Should Know: Opportunities to Make the Most of America's Top Online Marketplace*, BIGCOMMERCE, <https://www.bigcommerce.com/blog/amazon-statistics/> [<https://perma.cc/74GE-XHWF>] (last visited Jan. 16, 2025).

241 Danny Sheridan, *August 16: Grocery Market Share, Q1 2022*, MEDIUM (Aug. 16, 2022), <https://medium.com/fact-of-the-day-1/august-16-grocery-market-share-q1-2022-8c9def0d0402> [<https://perma.cc/PGR7-ZQPD>].

242 On the need to assess markets across both on- and offline commerce, see Herbert Hovenkamp, *Antitrust and eMarkets*, 36 STAN. L. & POL'Y REV. 147 (2025).

243 2023 MERGER GUIDELINES, *supra* note 5, § 2.7 (quoting *United States v. Pabst Brewing Co.*, 384 U.S. 546, 552–53 (1966) (“[A] trend toward concentration in an industry, whatever its causes, is a highly relevant factor . . .”).

244 *Id.*

To be sure, sufficiently high concentration raises threats of collusion or other coordinated interaction, but it is unclear why the trend that got a market to that point is relevant, or whether it should warrant a more aggressive standard. Indeed, while *Brown Shoe* cited a “trend” toward concentration in shoe manufacturing, its evidence was that between 1947 and 1954 the number of firms manufacturing shoes had declined from 1077 to 970.²⁴⁵ With those numbers the Court could not conceivably have been concerned about collusion or coordinated interaction. The more likely culprits were technology changes and economies of scale leading to larger firms.

A trend toward vertical integration is a very different thing and need not affect concentration at all. For example, if a market contains ten manufacturers and ten retailers and each manufacturer acquires a retailer, concentration at the two market levels would remain precisely the same. Vertical integration is a strict union of complements, and it produces cost savings or product improvements far more often than it leads to anticompetitive foreclosure.²⁴⁶ As a result, the 2023 Merger Guidelines were quite wrong to include a “trend toward vertical integration” as a competitive concern.²⁴⁷ The most robust explanation of any “trend” toward vertical integration or any other integration of complements is either product improvement or production or transaction cost savings. If a postmerger firm is able to eliminate a market transaction or produce a better product by integrating, rivals will feel competitive pressure to attain the same results. The consequence will be a “trend” toward integration. Further, that “trend” could refer either to vertically related firms or firms that merely produce complements.

V. MERGER EFFICIENCIES

A. *Introduction: Merger Law’s Treatment of Efficiency Claims*

Mergers harm competition when they permit the postmerger firm to raise its prices, reduce the amount or quality of the market’s output, or restrain innovation anticompetitively. Cost savings from mergers have the opposite result. Although most efficiencies result from a reduction in costs,²⁴⁸ price effects are the most common metric for

245 *Brown Shoe Co. v United States*, 370 U.S. 294, 301 (1962) (citing U.S. BUREAU OF THE CENSUS, U.S. CENSUS OF MANUFACTURERS: 1958, at 31A-6 (1961)).

246 For recent analysis, see Martino De Stefano & Michael A. Salinger, *The Complicated Simple Economics of Vertical Mergers*, 68 J.L. & ECON. 215 (2025).

247 2023 MERGER GUIDELINES, *supra* note 5, § 2.5.A.1.

248 One exception is elimination of double marginalization. See *infra* Section V.D.

assessing them. A few studies attempt to measure cost reductions or technical improvements directly.²⁴⁹

The primary reasons for the predominance of price studies are, *first*, that pricing is more readily observed from public data and can be viewed for large numbers of firms. As a result, use of pricing data permits empirical studies that examine postmerger pricing of groups of firms over time.²⁵⁰ *Second*, the primary explanations for a price reduction are lower costs, increased complementarity, or increasing amounts of competition. Merger policy need not be concerned about which of these is the dominant explanation, because all three should serve to make the merger economically beneficial and lawful. *Third*, as a formal matter firms set their prices in a range where marginal cost equals marginal revenue. This entails that for any firm with some market power, its profit-maximizing price will go down as its marginal costs go down, making the price decrease a direct effect of declining costs. That makes lower postmerger prices fairly robust evidence of efficiencies. *Finally*, as a purely legal matter, in *Cargill* the Supreme Court made it clear that it would be “inimical” to antitrust law to condemn a merger because it resulted in lower prices that might injure a competitor.²⁵¹ That makes lower prices independently relevant, whatever the economic effects.

A pure merger of complements does not reduce the number of competitors or increase their market share in any market. It presents no obvious mechanism for reducing market output or restraining innovation. Typically, it reduces production or distribution costs, and this could grow its market share at rivals’ expense. Further, firms of any size can attain them. For example, the merger of even a very small bow maker and a small arrow manufacturer could permit cost reductions or product improvements. By contrast, foreclosure of rivals occurs only at relatively high product market shares.

249 See, e.g., Mert Demirer & Ömer Karaduman, *Do Mergers and Acquisitions Improve Efficiency? Evidence from Power Plants* (Nat’l Bureau of Econ. Rsch., Working Paper No. 32727, 2024), <https://www.nber.org/papers/w32727> [<https://perma.cc/C5UQ-AN6E>].

250 See *supra* notes 25–39 and accompanying text.

251 See *Cargill, Inc. v. Monfort of Colo., Inc.*, 479 U.S. 104, 115, 115–16 (1986) (quoting *Brunswick Corp. v. Pueblo Bowl-O-Mat, Inc.*, 429 U.S. 477, 488 (1977)); see also *infra* notes 262–72 and accompanying text.

B. Merger Efficiencies in the Supreme Court

Section 7 of the Clayton Act does not contain an explicit efficiency “defense.”²⁵² Nevertheless, some courts have recognized it,²⁵³ as do the Merger Guidelines.²⁵⁴ Under the framework laid out in the Guidelines the government makes out a prima facie case of merger illegality, usually based on structural evidence.²⁵⁵ At that point the defendant may show offsetting efficiencies and typically bears the burden of proof on this issue.²⁵⁶

The Supreme Court has not generally embraced this approach. One decision, *Procter & Gamble*, did state that “[p]ossible economies cannot be used as a defense to illegality.”²⁵⁷ Other decisions have looked at the efficiencies question differently, however, bundling it into the basic issue whether the merger harmed competition in the first place.

For example, the Supreme Court’s *Philadelphia National Bank* decision never spoke of efficiencies. Rather it considered and rejected as unproven a claim that the merger would enable the merging firm to compete more effectively with larger out-of-state banks or with other banks in the same market.²⁵⁸ It rejected as factually unproven the claim that a bigger bank would stimulate economic development.²⁵⁹

In subsequent decisions the Supreme Court incorporated efficiencies into the theory of harm, making it part of the plaintiff’s primary action. For example, in *Brunswick* a unanimous Supreme Court rejected a private plaintiff’s claim that a merger would enable the acquiring firm to rehabilitate certain bowling alleys that it had acquired, saving them from closure and thus preserving them as competitors

252 See, e.g., *FTC v. Penn State Hershey Med. Ctr.*, 838 F.3d 327, 348 (3d Cir. 2016) (expressing skepticism that such a defense “even exists”); *FTC v. Hackensack Meridian Health, Inc.*, 30 F.4th 160 (3d Cir. 2022); see also *FTC v. Univ. Health, Inc.*, 938 F.2d 1206, 1222–23 (11th Cir. 1991); Daniel A. Crane, *Rethinking Merger Efficiencies*, 110 MICH. L. REV. 347, 355 (2011).

253 See, e.g., *New York v. Deutsche Telekom AG*, 439 F. Supp. 3d 179, 208 (S.D.N.Y. 2020).

254 See 2023 MERGER GUIDELINES, *supra* note 5, § 3.3; see also 2010 HORIZONTAL MERGER GUIDELINES, *supra* note 10, § 10.

255 2023 MERGER GUIDELINES, *supra* note 5, §§ 1, 2.1.

256 On the process, see AREEDA, HOVENKAMP, & HOVENKAMP, *supra* note 6, ¶¶ 970–976. On proof burdens, see *id.* ¶¶ 970b, f.

257 *FTC v. Procter & Gamble Co.*, 386 U.S. 568, 580 (1967); see also *Denver & Rio Grande W. R.R. Co. v. United States*, 387 U.S. 485, 504 (1967) (apparently condemning a merger because it would make the post-merger firm more efficient, injuring rivals).

258 See *United States v. Phila. Nat’l Bank*, 374 U.S. 321, 370–71 (1963).

259 *Id.* at 371.

with the plaintiff.²⁶⁰ Those claims were not explicitly characterized as “efficiencies,” although the Court did note that the Third Circuit below had described them as “cost-savings” resulting from “investing in new equipment.”²⁶¹ The Court addressed the remodeling of the acquired assets, not as an efficiency, but rather as showing a lack of the right kind of merger harm. While the plaintiff may have been harmed, it was from more competition in the market rather than less.

Then in *Cargill* the Court rejected the plaintiff’s claim that following the merger the defendant would reduce prices, although not to predatory levels, and that the resulting price reduction would make it more difficult for the plaintiff competitor to compete.²⁶² The Court observed that under the plaintiff’s theory the defendant “would be in a position to do this because of the multiplant efficiencies its acquisition” would provide.²⁶³ The Court did not characterize its analysis as an efficiencies defense, however. Rather, it held that it would be “inimical” to the purpose of antitrust law to condemn a merger because it lowered prices.²⁶⁴ That is, the lower prices were part of the theory of harm, and thus part of the plaintiff’s prima facie case. On this point, *Cargill* silently overruled *Brown Shoe*, which condemned the Brown-Kinney merger for that very reason.²⁶⁵

In sum, the Court’s approach in both *Brunswick* and *Cargill* was not that efficiencies would be used to rebut a prima facie case, but that the efficiencies claim should be rolled into the challenger’s theory of harm. If the likely consequence of a merger is either that it leads to a better product (*Brunswick*) or lower prices (*Cargill*), it does not “lessen competition” in the Clayton Act sense.²⁶⁶ This makes the critique that section 7 does not incorporate an efficiency defense a red herring, because the statute *does* require a harm to competition.

260 *Brunswick Corp. v. Pueblo Bowl-O-Mat, Inc.*, 429 U.S. 477, 488 (1977) (“At base, respondents complain that by acquiring the failing centers petitioner preserved competition, thereby depriving respondents of the benefits of increased concentration. The damages respondents obtained are designed to provide them with the profits they would have realized had competition been reduced.”). The plaintiffs’ “entire proof of damages was based on their claim to profits that would have been earned had the acquired centers closed.” *Id.* at 490.

261 *Id.* at 482 (quoting *NBO Indus. Treadway Cos. v. Brunswick Corp.*, 523 F.2d 262, 268 (3d Cir. 1975), *vacated sub nom. Brunswick Corp. v. Pueblo Bowl-O-Mat, Inc.*, 429 U.S. 477).

262 *Cargill, Inc. v. Monfort of Colo., Inc.*, 479 U.S. 104, 115–16 (1986).

263 *Id.* at 115. The plaintiff’s theory of harm was that subsequent to this post-merger price reduction the plaintiff “would have to lower its prices; as a result, Monfort would suffer a loss in profitability, but would not be driven out of business.” *Id.*

264 *Id.* (quoting *Brunswick*, 429 U.S. at 488).

265 *Brown Shoe Co. v. United States*, 370 U.S. 294, 344 (1962).

266 15 U.S.C. § 18 (2018).

The majority and dissent in *Cargill* differed on the relationship between concentration and prices. Justice Stevens' dissent (joined by Justice White) saw section 7 of the Clayton Act and *Brown Shoe* as expressing concern for increasing concentration without regard to prices.²⁶⁷ Under Justice Stevens's interpretation a merger could both "lessen competition" and result in lower prices, because increased concentration for its own sake was section 7's target.²⁶⁸ One of *Cargill*'s most important aspects was the majority's decisive rejection of that claim—thus another implicit overruling of *Brown Shoe*. The decision did not reject market concentration as irrelevant but saw it as a tool for predicting higher prices or reduced output. Somewhat disingenuously, Justice Stevens lamented that the Court had "defined a violation enforceable by no private party."²⁶⁹ He was wrong about that. While the decision made it harder for a *competitor* to challenge a merger, a *purchaser* injured by a postmerger firm's higher prices could sue. That is, *Cargill* served to align private actions with government policy and the general view that section 7's concern is mergers that result in higher prices. The principal private beneficiaries are either downstream (consumers) or upstream (labor and other suppliers) from the merging firms.

The approach taken to merger efficiencies in both the 2010 and 2023 Guidelines takes a little from both approaches. First, they adopt the view that efficiencies are a "defense" to a prima facie unlawful merger.²⁷⁰ Second, however, they also incorporate the Supreme Court's theory of merger harm: mergers are unlawful to the extent they threaten higher prices or other consumer harm.²⁷¹ As a result, efficiencies will be recognized only to the extent that they result in a reduction of prices to premerger levels. In the broader language of the 2023 Merger Guidelines, proven efficiencies "must be of a nature, magnitude, and likelihood that no substantial lessening of competition is threatened by the merger in any relevant market."²⁷² In that case, the absence of an explicit efficiencies "defense" becomes irrelevant, because the statutory requirement of harm to competition has not been satisfied.

267 See *Cargill*, 479 U.S. at 124–27 (Stevens, J., dissenting) (discussing both section 7 and *Brown Shoe*).

268 *Id.* at 127 (finding "statutory purposes to protect small businesses and to stem the rising tide of concentration").

269 *Id.* at 129.

270 See *supra* note 254 and accompanying text.

271 See 2023 MERGER GUIDELINES, *supra* note 5, § 4.1; 2010 HORIZONTAL MERGER GUIDELINES, *supra* note 10, § 7.

272 2023 MERGER GUIDELINES, *supra* note 5, § 3.3.

1. The Perverse Legacy of *Brown Shoe*

One problematic feature of the 2023 Merger Guidelines is that they cite the Supreme Court's *Brown Shoe* decision more frequently than any other.²⁷³ Why the Guidelines should rely on such an extreme outlier in merger caselaw is not entirely clear. The Supreme Court itself began cleaning up its *Brown Shoe* mess almost immediately, starting with the *Philadelphia Bank* decision a year later that restored a concern about higher prices to merger law.²⁷⁴

The 2023 Merger Guidelines' reliance on old Supreme Court caselaw also reflects a particular attitude toward the federal courts. While the Supreme Court controls lower federal tribunals, it intervenes selectively in order to provide correction or clarity, particularly in the case of divisions among the Courts of Appeal. Beyond that, it permits the lower federal courts to develop the law. By contrast, the 2023 Guidelines' view seems to be that old Supreme Court decisions are preserved in amber, like mosquitoes from the age of dinosaurs, and remain frozen in time until the Supreme Court eventually chisels them free. As a result, more recent lower court decisions can be ignored.

Thankfully, the mosquito story is unnecessary because the Supreme Court itself repaired *Brown Shoe*'s more problematic conclusions.²⁷⁵ The error is in the 2023 Merger Guidelines' elevation of *Brown Shoe* to a kind of super-precedent that makes even later Supreme Court opinions unimportant. For example, the 2023 Guidelines do not even cite the Supreme Court's *Brunswick* and *Cargill* decisions, which completely undermined *Brown Shoe*'s conclusions that a merger could be condemned because it generated better quality or lower prices that might harm a competitor.²⁷⁶

One of *Brown Shoe*'s more troublesome conclusions was the idea that a merger could be unlawful because it enabled the postmerger firm to produce better products or to sell them at lower prices. Speaking of the vertical aspect of the merger involving manufacturing and retailing, the district court had observed:

[I]ndependent retailers of shoes are having a harder and harder time in competing with company-owned and company-controlled retail outlets. National advertising by large concerns has increased their brand name acceptability and retail stores handling the brand

273 See 2023 MERGER GUIDELINES, *supra* note 5.

274 See *infra* text accompanying note 292.

275 See Herbert Hovenkamp, *Did the Supreme Court Fix "Brown Shoe"?*, PROMARKET (May 12, 2023), <https://www.promarket.org/2023/05/12/did-the-supreme-court-fix-brown-shoe/> [https://perma.cc/6RH3-H7ZH].

276 See *supra* notes 260–69 and accompanying text. See generally 2023 MERGER GUIDELINES, *supra* note 5.

named shoes have a definite advertising advantage. Company-owned and company-controlled retail stores have definite advantages in buying and credit; they have further advantages in advertising, insurance, inventory control . . . and price control. These advantages *result in lower prices or in higher quality for the same price* and the independent retailer can no longer compete²⁷⁷

Brunswick, which also involved a vertical merger, overruled *Brown Shoe* on that very point.²⁷⁸

What the *Brown Shoe* Court was describing was very likely transactional efficiencies: it was cheaper for a manufacturer to distribute through its wholly owned stores. In affirming, the Supreme Court acknowledged that “occasional higher costs and prices might result from the maintenance of fragmented industries and markets,” but held (without citation) that Congress preferred it that way.²⁷⁹

A lower court’s horizontal merger decision issued just prior to *Brown Shoe* may have been a source, although the Supreme Court did not cite it. That court concluded:

When a large company increases its size, it has an opportunity to lower its costs of operation . . . [and] accomplish other economies: in purchases, in setting up research and legal staffs, and in increasing its advertising and promotion budgets. Such growth may well result in enabling it to offer its goods at lower prices. That might well be a positive benefit to ultimate consumers.

It is plain however from the Act and its legislative history that concern with such considerations was no part of the Congressional thought. Congress was not concerned about increased efficiency; it was concerned about the competitor,—the small business man whose “[l]ittle, independent units are gobbled up by bigger ones”²⁸⁰

This court and the Supreme Court overlooked that several members of Congress *had* advocated the use of merger policy to police higher prices, and no one expressed disagreement.²⁸¹ The Court

277 *United States v. Brown Shoe Co.*, 179 F. Supp. 721, 738 (E.D. Mo. 1959) (emphasis added), *aff’d*, 370 U.S. 294 (1962).

278 *See supra* notes 260–61 and accompanying text.

279 *Brown Shoe Co. v. United States*, 370 U.S. 294, 344 (1962).

280 *Crown Zellerbach Corp. v. FTC*, 296 F.2d 800, 825 (9th Cir. 1961) (quote corrected) (quoting *United States v. Columbia Steel Co.*, 334 U.S. 495, 534 (1948) (Douglas, J., dissenting)). The *Crown* decision condemned the merger of two paper pulp manufacturers. *Id.* at 827. The court did not acknowledge any vertical elements.

281 *See, e.g.*, 95 CONG. REC. 11493 (1949) (statement of Sen. John Carroll) (“We know that if there is free competition the public will be protected from unduly high prices”); *id.* (statement of Sen. Sidney Yates) (“When three or four producers take the places of 20 or 30, the chances are great that price competition will be crippled”); *id.* at 11495 (statement of Sen. Joseph Bryson) (speaking of a “trend toward more and more mergers

focused instead on the cost-reducing or product-improving effects, making them a reason for condemning mergers rather than approving them.

Brown Shoe produced an economically damaging merger policy that did such things as condemn a merger of a dairy firm and an ice cream manufacturer because the merger enabled the postmerger firm to supply grocers with both dairy products and ice cream.²⁸² Further, as the FTC concluded, geographic diversification resulting from the merger gave it protection from “local business declines” to which smaller dairies had been vulnerable.²⁸³ In effect it held that merger law required firms to be kept more vulnerable to bankruptcy.

The *Wilson* decision a few years later condemned a merger between a maker of sporting equipment and one of gymnastics equipment.²⁸⁴ The rationale was that after the merger Wilson would be able to sell the two lines through a single dealership network. Further, “the potential advantages which Wilson can afford a dealer, with regard to service, credit and billing” would incline the dealer to treat Wilson’s products more favorably.²⁸⁵ Schools in particular purchased athletic equipment through the recommendations of coaches or athletic directors, and the postmerger firm would be in a position to promote both lines of its equipment together.²⁸⁶

In *Allis-Chalmers*, the court looked at product design, condemning a merger between a firm that made steel mills and another that made

which suppress competition, increase the outside control of local enterprise, and cause higher prices and instability of employment”); *id.* at 11506 (statement of Sen. James Byrne) (citing the FTC Report that “under competitive capitalism consumers are protected from high prices by the constant rivalry among numerous firms” (quoting FED. TRADE COMM’N, REPORT OF THE FEDERAL TRADE COMMISSION ON THE MERGER MOVEMENT: A SUMMARY REPORT 66–68 (1948))); *see also* 96 CONG. REC. 16438 (1950) (statement of Sen. Forrest Donnell) (understanding bill to authorize injunctions against “any economic concentration, be it existing or incipient . . . which has power to raise prices, or to exclude competition”).

282 *In re Foremost Dairies*, 60 F.T.C. 944, 999 (1962) (condemning merger because it “gave Foremost a competitive advantage by enabling it to sell a full line of dairy products to its customers”).

283 *Id.* at 1000 (stating that the merger “contributed to Foremost’s geographical diversification, thus protecting it more fully from local business declines in any one area”); *accord* *United States v. Ingersoll-Rand Co.*, 218 F. Supp. 530, 550–51 (W.D. Pa. 1963), *aff’d*, 320 F.2d 509 (3d Cir. 1963) (condemning merger because it unlawfully created sales advantage by enabling firm to sell full line of mining equipment); *United States v. Int’l Tel. & Tel. Corp.*, 306 F. Supp. 766, 777 (D. Conn. 1969) (condemning merger because it unlawfully gave firm “marketing and promotional advantages” by creating an “opportunity for Grinnell to include additional products in its line and to engage in package or system selling”).

284 *United States v. Wilson Sporting Goods Co.*, 288 F. Supp. 543, 546, 570 (N.D. Ill. 1968).

285 *Id.* at 555.

286 *Id.*

the electrical hookups that such mills required.²⁸⁷ As a result of the merger, the defendant became

the only company capable of designing, producing and installing a complete metal rolling mill. The emergence of a company offering such a complete product would raise higher the already significant barriers to the entry of others into the various segments of the metal rolling mill market.²⁸⁸

Allis-Chalmers was a high point in judicial use of merger law to condemn product improvements. That decision, if followed, would use merger law against product designs that combined two previous technologies in order to create something new and desirable—like the hypothetical firm that acquired processor and display technology in order to create the laptop computer, or the firms that combined the smartphone with a digital camera.²⁸⁹

The tide turned in the 1980s. In 1983 a court refused the government's request to condemn a merger of a school textbook publisher and a manufacturer of band uniforms on the theory that schools, who were its principal purchasers, preferred one-stop shopping.²⁹⁰ The government had alleged that the merger was unlawful because the postmerger firm "will be able to offer convenient one-stop-shopping to schools for all their needs."²⁹¹ Nevertheless, until the Supreme Court corrected it, *Brown Shoe* created a twenty-year regime of hostility to cost reduction and product improvement unprecedented in the development of antitrust law.

2. Supreme Court Self-Correction

The Supreme Court itself changed course from the *Brown Shoe* approach almost immediately—and it did so acting through its liberal Justices as spokespersons. In *Philadelphia Bank*, one year after *Brown*, Justice Brennan wrote the Court's opinion concluding that "little weight" should be given to the testimony of small competitors in a merger case, because they "may be perfectly content to follow the high prices set by the dominant firms."²⁹² As a result, the decision concluded, the test should be "whether consumers are well served."²⁹³ A

287 *Allis-Chalmers Mfg. Co. v. White Consol. Indus., Inc.*, 414 F.2d 506, 517–19, 525 (3d Cir. 1969).

288 *Id.* at 518.

289 *See supra* notes 81–82 and accompanying text.

290 *United States v. Crowell, Collier & Macmillan, Inc.*, 361 F. Supp. 983, 986, 992, 996 (S.D.N.Y. 1973).

291 *Id.* at 992.

292 *United States v. Phila. Nat'l Bank*, 374 U.S. 321, 367 & n.43 (1963).

293 *Id.* at 367 n.43.

year later Justice Douglas wrote the opinion in *El Paso Natural Gas*, condemning a merger because it eliminated a low price bidder.²⁹⁴

The 1977 *Brunswick* decision, refusing to condemn a merger on the ground that it enabled the defendant to improve the acquired firm, was written by liberal Justice Thurgood Marshall.²⁹⁵ Finally, in 1986 Justice Brennan again wrote the Supreme Court's opinion holding that to condemn a merger on the theory that it would result in lower prices injuring a competitor would be "inimical" to the purpose of the antitrust laws.²⁹⁶ Justices Brennan, Douglas and Marshall were pro-enforcement liberals who sided with Chief Justice Warren, *Brown Shoe's* author, most of the time. If it was not clear in 1963, the year of *Philadelphia Bank*, it was certainly clear by the 1980s that the Court would not countenance merger challenges based on the theory that the postmerger firm would be able to produce better products or offer lower prices.

C. *Complements and Efficiency in Nominally Horizontal Mergers*

The efficiencies associated with mergers of pure competitors are typically related to scale in production or procurement economies. There is also a miscellany of things related to more efficient management or advertising scale.²⁹⁷ Most mergers do not enable firms to attain production economies quickly because the merger does not automatically give the firms a larger or more efficient plant.²⁹⁸ It may permit output to be transferred from an older plant to a more efficient new one, or it may facilitate multiplant economies. But these gains are more likely to accrue over time.

Most efficiency claims in contested merger cases relate to some kind of complementarity between the two firms. While the merging firms are being examined as competitors, one firm possesses some input or asset whose benefits can be shared with the other firm.²⁹⁹ When

294 See *United States v. El Paso Nat. Gas Co.*, 376 U.S. 651, 652, 657 (1964).

295 *Brunswick Corp. v. Pueblo Bowl-O-Mat, Inc.*, 429 U.S. 477 (1977); see *supra* notes 260–61 and accompanying text.

296 *Cargill, Inc. v. Monfort of Colo., Inc.*, 479 U.S. 104, 115 (1986) (quoting *Brunswick*, 429 U.S. at 488); see *supra* notes 262–72 and accompanying text.

297 See AREEDA, HOVENKAMP, & HOVENKAMP, *supra* note 6, ¶ 975a (classifying permissible efficiencies).

298 See *id.*

299 See, e.g., *FTC v. H.J. Heinz Co.*, 246 F.3d 708, 720–22 (D.C. Cir. 2001) (rejecting argument that the merger would permit Heinz to take advantage of Beech-Nut's superior recipes); *FTC v. Sanford Health*, 926 F.3d 959, 965 (8th Cir. 2019) (concerning the ability to offer program integrating genetic medicine and primary care); *New York v. Deutsche Telekom AG*, 439 F. Supp. 3d 179 (S.D.N.Y. 2020) (enabling firm to share superior technology); cf. *Saint Alphonsus Med. Ctr.–Nampa Inc. v. St. Luke's Health Sys., Ltd.*, 778 F.3d 775, 791–92 (9th Cir. 2015) (noting the claim that merger would enable firms to make

courts speak of “synergies” that might result from a merger, they are speaking about the union of complementary products or processes.³⁰⁰ Sometimes these defenses are based on the economies of spreading the brand through lower costs of advertising or distribution.³⁰¹

When markets function well, complements are often supplied by separate firms. For example, automobile manufacturers typically buy rather than make their tires, and farmers usually purchase rather than develop their tools and seed. If the market for the complementary asset is undifferentiated and competitive, then the gains from merger tend to be small. For example, while truck delivery is a widely used complement to purchased goods, the delivery market is itself competitive and most smaller firms purchase it rather than acquiring or building their own delivery networks.

When markets function less well, however, then unions of complements can save considerable cost and improve product quality.³⁰² When the asset is specialized to a firm, such as many component parts in manufactured goods, then the gains from internal production can be significant.³⁰³ For example, an automobile manufacturer might

common use of a physician management program). *See generally* Federico Etro, *Mergers of Complements and Entry in Innovative Industries*, 65 INT’L J. INDUS. ORG. 302 (2019).

300 *See, e.g.*, *FTC v. Tronox Ltd.*, 332 F. Supp. 3d 187, 215–17 (D.D.C. 2018) (identifying synergies with efficiencies); *FTC v. CCC Holdings Inc.*, 605 F. Supp. 2d 26, 73 (D.D.C. 2009) (noting that firms had hired consultants to explore range of likely synergies, similar to *Tronox*); *In re AMR Corp.*, 625 B.R. 215, 233 (Bankr. S.D.N.Y. 2021) (speaking of “network synergies” and other cost savings), *aff’d*, 2023 WL 2563897 (2d Cir. 2023). *See generally* Louis Kaplow, *Efficiencies in Merger Analysis*, 83 ANTITRUST L.J. 557, 561 (2021) (“[S]ources of efficiencies (in particular, what are often referred to as synergies) involve complements between firms’ activities and assets and hence are analogous to or directly involve vertical relationships even when the merger under consideration is horizontal.”).

301 *See, e.g.*, *FTC v. Procter & Gamble Co.*, 386 U.S. 568, 579–80 (1967) (rejecting claim of multiproduct advertising economies); *United States v. Anthem, Inc.*, 855 F.3d 345, 357–58 (D.C. Cir. 2017), *cert. denied*, 582 U.S. 901 (2017) (rejecting defendant’s claim that rebranding of lower-cost company with higher-cost company’s name led to stronger sales).

302 *See generally* Simon Loertscher & Michael H. Riordan, *Make and Buy: Outsourcing, Vertical Integration, and Cost Reduction*, 11 AM. ECON. J.: MICROECONOMICS 105 (2019). On the substantial scope economies that can come from mergers, focusing on the beer industry, see Ekaterina Khmel'nitskaya, Guillermo Marshall & Scott Orr, *Identifying Scale and Scope Economies Using Demand-Side Data* (Mar. 26, 2025) (unpublished manuscript), <https://ssrn.com/abstract=4757085> [<https://perma.cc/PE4L-R5G9>].

303 For a good summary, although emphasizing vertical relationships over other complements, see Roger D. Blair, Christine S. Wilson, D. Daniel Sokol, Keith Klovers & Jeremy A. Sandford, *Analyzing Vertical Mergers: Accounting for the Unilateral Effects Tradeoff and Thinking Holistically About Efficiencies*, 27 GEO. MASON L. REV. 761 (2020). Classic treatments include OLIVER E. WILLIAMSON, *MARKETS AND HIERARCHIES: ANALYSIS AND ANTITRUST IMPLICATIONS* (1975), and Benjamin Klein, Robert G. Crawford & Armen A. Alchian, *Vertical Integration, Appropriable Rents, and the Competitive Contracting Process*, 21 J.L. & ECON. 297 (1978).

purchase its tires but manufacture its own engine blocks. The tires are standard across the market, while the engine blocks are unique to a particular automobile model. In cases where merger law has its bite, these markets are relatively concentrated or have bilateral monopoly issues.³⁰⁴ Whenever the participating firms have some market power, the gains from elimination of double marginalization (EDM) are significant as well.³⁰⁵

The economic literature on cost savings from vertical integration is large and rich. What is not so well developed in legal doctrine, however, is that these cost savings can come from any type of product complementarity and are not limited to vertical integration as such. As a result, the issue is relevant to unions of complements that cannot be characterized as vertical. Many mergers formally characterized as “horizontal” in fact include significant amounts of product complementarity, and the possibility of efficiency gains is prominent for these as well. In some, as noted earlier, complementary relationships dominate the competitive ones.³⁰⁶

D. Double Marginalization

Double marginalization occurs when three conditions are met: (1) the products of two or more firms are complements, (2) each firm has some market power in its product, and (3) the firms are unable to coordinate their output.³⁰⁷ If each firm maximizes its profit separately, without considering what the other firm is doing, the effect will be output reductions that are greater and prices that are higher than if a single monopolist controlling both set its profit maximizing output and price level.

In antitrust the problem has emerged mainly in the context of vertical integration and mergers.³⁰⁸ When its conditions obtain, one relatively robust defense of vertical mergers is that they can result in the elimination of double marginalization (EDM). Further, the less competitive the vertically related markets, the greater the gains from EDM. So the defense is most likely to arise in markets where the threat of competitive harm is greatest.

304 See Tirza J. Angerhofer & Roger D. Blair, *Successive Monopoly, Bilateral Monopoly and Vertical Mergers*, 59 REV. INDUS. ORG. 343, 344 (2021).

305 See *infra* Section V.D.

306 See discussion *supra* Section III.B.

307 See HOVENKAMP, *supra* note 28, § 9.2c. On treatment in the 2023 Merger Guidelines, see Steven C. Salop, *The 2023 Merger Guidelines: A Post-Chicago and Neo-Brandeisian Integration*, 65 REV. INDUS. ORG. 79, 100–01 (2024).

308 The secondary literature also recognizes its relevance to some tying arrangements. See AREEDA, HOVENKAMP, & HOVENKAMP, *supra* note 6, ¶ 1712.

EDM is a different economic concept than is presented by merger efficiencies generally. The vast majority of merger efficiencies fall into the category of productive or engineering efficiencies that reduce a firm's costs or enable it to produce a better product.³⁰⁹ By contrast, EDM refers to the amount of markup or price reduction that can occur, even as all technology and other costs are held constant.³¹⁰ As a result, it is best considered as an element of allocative efficiency— or efficiencies that accrue as markets become more competitive and prices get closer to marginal cost. When it occurs, EDM results in higher output, lower prices, and is beneficial for downstream customers and upstream suppliers, including labor.

In economics the double marginalization problem applies equally to both conventional sellers of complements and to vertically related firms. Thus EDM should serve as a merger defense for both vertical mergers and other mergers of complements. Indeed, Cournot's original presentation of the problem was in reference to what are today called "Cournot complements"—that is, producers of complementary products who are unable to coordinate their output.³¹¹

Double marginalization is not "joint maximizing" in the sense that Ronald Coase developed in *The Problem of Social Cost*.³¹² For example, two firms selling in a complementary relationship could earn more if they could coordinate their output, and the Coase Theorem suggests exactly that. This simplified figure illustrates the problem of uncoordinated output in the context of vertically related firms:

309 See *supra* Section V.C.

310 See AREEDA, HOVENKAMP, & HOVENKAMP, *supra* note 6, ¶ 1712b.

311 See, e.g., Nicholas Economides & Steven C. Salop, *Competition and Integration Among Complements, and Network Market Structure*, 40 J. INDUS. ECON. 105, 106 (1992).

312 See generally R.H. Coase, *The Problem of Social Cost*, 3 J.L. & ECON. 1 (1960) (emphasizing that in a well-functioning market firms will bargain to a position that maximizes their joint profits).

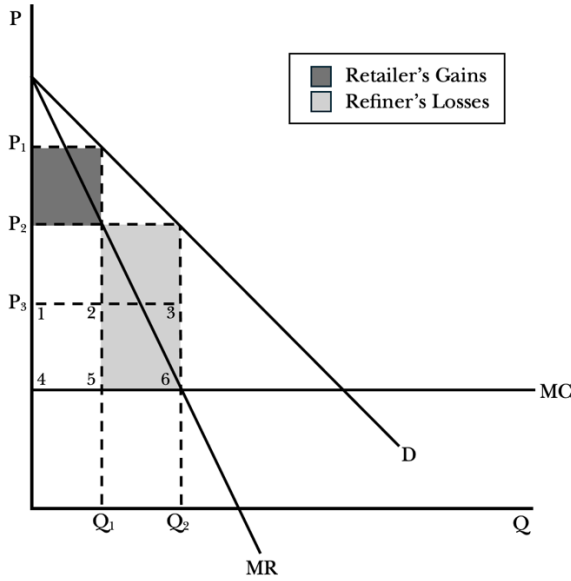


Figure 9. Uncoordinated output for vertically related firms.

Suppose a firm has marginal costs MC and marginal revenue MR . It will maximize its return by equating MC and MR , which means that its price would be P_2 . If it chooses to distribute through an independent seller, it will subtract competitive distribution costs and charge a wholesale price of P_3 . A competitive retailer would then take the markup and restore the price to P_2 . That would give the monopolist its maximizing return, while the dealer earned a competitive return.

Suppose, however, that the retailer also has market power. For example, perhaps the primary firm is a refiner/wholesaler of gasoline, and the secondary firm is a gasoline retailer who is surreptitiously fixing prices in the retail market. In that case the retailer will take a higher markup, charging an output price of P_1 and reducing output to Q_1 . As a result, the primary firm earns significantly less, because its own output drops from Q_2 to Q_1 as well. Moreover, the joint profits of the refiner plus dealer are lower. The retailer's gains are the dark gray square, while the refiner's losses are the light gray rectangle. Thus, double marginalization injures both the primary firm and all those who are injured by reduced output, which includes both consumers and labor. Even the dealer would be better off if it negotiated an agreement with the refiner that brought output back up to Q_2 and permitted it to share some of the additional profits (light gray) that resulted.

The double marginalization problem explains phenomena such as "royalty stacking," which occurs when multiple patentees or other

IP owners individually license their intellectual property rights to a manufacturer but do not coordinate their royalties.³¹³ The patents themselves are complements. The result is that the total royalty is much larger than it should be and output accordingly less.³¹⁴ That could be relevant in the merger context when the acquired assets include patents held by separate patentees that would otherwise need to be licensed.³¹⁵ It may also account for United Shoe Machinery's rise to dominance in the previously discussed *Winslow* decision.³¹⁶ It involved a merger of complementary producers, each of whom had a dominant market share.³¹⁷ Through EDM their union very likely enabled USM to charge less for a full line of shoemaking equipment than would have occurred had each machine been sold or leased by a separate firm.

Any merger of complementary firms, vertically related or not, can eliminate double marginalization. As Figure 9 also illustrates, EDM can generate lower prices and higher output even if costs (MC) do not change. It does not require changes in technology or any other reduction in the costs of production. Theoretically, it can be implemented quickly through output and price adjustments.

Sometimes the double marginalization issue can be addressed by other means, such as negotiation among the separate firms to an output-maximizing solution. As a general matter, however, a single firm will always maximize internally, meaning that a merger of the separately marginalizing firms provides a full solution.

One important question is the extent to which EDM improves outcomes of nonvertical mergers that include a significant complementary relationship. The answer is that it depends on the situation, but in some cases such as *Sidney Winslow* the gains can be significant.³¹⁸ By uniting these machines under a single firm USM was able to offer a turnkey shoe manufacturing system at a lower price. Assuming others could not match these gains, they might also give USM a monopoly.

One place where EDM is treated as similar to the general run of production efficiencies is that both require proof that they are "merger specific." The 2023 Merger Guidelines are clear on this point, noting that EDM can sometimes be obtained through various contracting

313 Mark A. Lemley & Carl Shapiro, *Patent Holdup and Royalty Stacking*, 85 TEX. L. REV. 1991, 1993, 2013–14 (2007).

314 *See id.*

315 On patents as asset acquisitions, see AREEDA, HOVENKAMP, & HOVENKAMP, *supra* note 6, ¶ 1202f.

316 *United States v. Winslow*, 227 U.S. 202 (1913); *see supra* Section III.A.

317 *See supra* notes 84–88 and accompanying text.

318 *See supra* Section III.A.

practices.³¹⁹ Of course, in some cases a solution that requires a different but foreclosing alternative, such as exclusive dealing, might not be an improvement. Others, however, are much more promising. For example, while the Merger Guidelines do not mention maximum resale price maintenance (RPM), it can often assist in situations where double marginalization is a concern. A manufacturer such as the one in Figure 9, concerned that the dealer is taking an excessive markup, can use maximum RPM to limit dealer markups to the competitive level.³²⁰ That route was not legally available when maximum RPM was unlawful per se,³²¹ but since the Supreme Court began applying the rule of reason³²² it has virtually never been condemned.

It is harder to identify a lawful contractual equivalent to maximum RPM when two firms are not in the same vertical production chain. For two firms to agree about output or pricing when their only relationship is that they make complements can be highly suspicious conduct. A production joint venture might work, but there is no obvious reason that it would not meet the same hurdles as a merger does. Other contractual ways of eliminating double marginalization, such as patent pooling, are more promising although they apply only to IP rights and could be difficult to achieve as an alternative to merger.³²³

VI. LABOR AND PRODUCT COMPLEMENTARITY

Labor and production are also complements. Making a finished product requires both. Although the relationship is not rigid, output changes in the product market typically track changes in the demand for labor.³²⁴ As all complements, they generally go up and down together. For example, suppose a cartel raises price and accordingly reduces product market output by 20%. All else equal, it will also reduce the demand for labor by 20%, given that most of labor is a variable cost.³²⁵ Firms might accommodate reduced product output by making

319 2023 MERGER GUIDELINES, *supra* note 5, § 2.5.A.2, at 16 n.31 (considering whether “contracts short of a merger have eliminated or could eliminate double marginalization such that it would not be merger-specific”).

320 See Herbert Hovenkamp, *Harvard, Chicago, and Transaction Cost Economics in Antitrust Analysis*, 55 ANTITRUST BULL. 613, 640 (2010).

321 See *Albrecht v. Herald Co.*, 390 U.S. 145, 153 (1968), *overruled by State Oil Co. v. Khan*, 522 U.S. 3 (1997).

322 *Khan*, 522 U.S. at 17.

323 See Josh Lerner & Jean Tirole, *Efficient Patent Pools*, 94 AM. ECON. REV. 691, 702 (2004); Daniel F. Spulber, *Antitrust Policy Toward Patent Licensing: Why Negotiation Matters*, 22 MINN. J.L. SCI. & TECH. 83, 155 (2020).

324 See Herbert Hovenkamp, *Worker Welfare and Antitrust*, 90 U. CHI. L. REV. 511, 520 (2023).

325 *Id.*

adjustments to their production, changing the proportion of labor that they use. But as a rough average the demand for labor and output in the product market move in tandem.

As a result, the exercise of increased market power in product markets also injures labor.³²⁶ Even if a firm or cartel has no market power on the purchasing side of its market, that particular firm or cartel will hire fewer employees. This conclusion, driven by the economics of monopsony generally, induces some people to conclude that instead of “consumer” welfare, antitrust should speak of “trading partner” welfare.³²⁷ That would cover both consumers and suppliers, including suppliers of labor.³²⁸

One oversight in the 2023 Merger Guidelines’ discussion of mergers that harm labor is failure to acknowledge that a merger that limits output in a product market can harm labor as well as consumers.³²⁹ Presumptively, harm to consumers and harm to labor travel in the same direction. For example, an overly aggressive antitrust rule condemning a merger that would have produced a 10% output increase harms consumers. But that foregone increase in product market output also represents a roughly 10% foregone increase in a labor market of the same size.³³⁰

VII. MERGER REMEDIES AND THE SINGLE MARKET RULE

The ubiquitous presence of complements in merger cases adds complexity to merger analysis. It also places a premium on getting outcomes right. If horizontal mergers produced only harms but no benefits,³³¹ then some overdeterrence might not be a problem. But

326 See De Loecker et al., *supra* note 71, at 565 (“[T]he rise in markups naturally implies a decrease in the labor share.”); see also C. Scott Hemphill & Nancy L. Rose, *Mergers That Harm Sellers*, 127 YALE L.J. 2078, 2087 (2018) (noting that reduced product output and reduced demand for labor often travel in tandem).

327 Hemphill & Rose, *supra* note 326, at 2091–92.

328 *Id.* at 2091; see also Laura Alexander & Steven C. Salop, *Antitrust Worker Protections: The Rule of Reason Does Not Allow Counting of Out-of-Market Benefits*, 90 U. CHI. L. REV. 273, 278 (2023); Carl Shapiro, *Antitrust: What Went Wrong and How to Fix It*, 35 ANTITRUST 33, 34 (2021).

329 See 2023 MERGER GUIDELINES, *supra* note 5, § 2.10.

330 See De Loecker et al., *supra* note 71, at 611 (“An increase in markups implies a decrease in aggregate output produced, whenever demand is not perfectly inelastic. Lower output produced then implies lower demand for labor. This results in both lower labor force participation and lower wages. Even if supply is perfectly elastic, real wages decrease with market power because the price of the output goods has increased.”); see also Hovenkamp, *supra* note 27, at 70–71.

331 See, e.g., Darren Bush, Mark Glick, Pavitra Govindan & Gabriel A. Lozada, *Although the New Merger Guidelines Should Be Applauded, There Is Still Room for Improvement*, SLING (Aug. 9, 2023), <https://www.thesling.org/although-the-new-merger-guidelines-should-be>

that is not the case. A merger policy that is too tolerant will permit the creation of more monopoly, with its resulting harms to both consumers and labor. However, an overly aggressive merger policy that condemns output-increasing mergers can do the same thing. Further, condemning a merger without due consideration of cost reductions or product improvements will harm workers as well as consumers. Whether *Brown Shoe* was right or wrong when it declared that merger enforcement might occasionally result in higher prices, it did not acknowledge that labor would be harmed as well as consumers.³³²

For naked practices such as cartels some overenforcement can be a good thing. That is not the case for merger enforcement, whose effects lie on an inverted “U.”³³³ Either too little or too much can result in both consumer and worker harm. For that reason the Supreme Court’s insistence on a “probability” standard states the rule correctly.³³⁴ In merger cases a court is acting under uncertainty, and most often is evaluating mergers that have not yet occurred. What it needs to know is whether more likely than not the merger will result in higher prices, reduced output, or restrained innovation.³³⁵

One obstacle to effective merger policy is the law’s “single market” rule, which prohibits netting out competitive losses and gains that a merger might create in different markets.³³⁶ Divided outcomes in different markets are increasingly likely as merger participants have a relationship that is more complex than merger of two single-product firms who make exactly the same thing in the same place. By forbidding offsets, the “single market” rule discriminates against mergers that are challenged as horizontal, but that have significant complementary elements.

Imagine a case such as *Winslow* in which the merging firms each made one of the complementary machines that was required for shoe manufacturing, but two of them made competing heeling machines.³³⁷ In that case the entire merger could be condemned because it lessened heeling machine competition, even though overall social benefits far exceeded social costs. Where it applies, the single market rule forbids netting out of gains and losses even when gains far outweigh losses.

applauded-there-is-still-room-for-improvement/ [https://perma.cc/RMV2-ZNSM] (making the argument that merger efficiencies are rare to nonexistent).

332 See *Brown Shoe Co. v. United States*, 370 U.S. 294, 344 (1962); see also *supra* note 277 and accompanying text.

333 See Hovenkamp, *supra* note 324, at 527–29.

334 See *supra* note 35 and accompanying text.

335 Hovenkamp, *supra* note 27, at 48.

336 *Id.* at 70.

337 See *supra* notes 84–88 and accompanying text.

Nevertheless, that outcome seems to be consistent with both the statutory language and the legislative history of the 1950 merger law amendments. The statute condemns a merger that poses the requisite threat to competition “in any line of commerce” and “in any section of the country.”³³⁸ Further, the Senate Report stated that the statute was “intended [to prohibit] acquisitions . . . if they have the specified effect in any line of commerce, whether or not that line of commerce is a large part of the business of any of the corporations involved in the acquisition.”³³⁹ Theoretically a merger could provide significant benefits across the entire United States while causing harm in one small town. If that problem cannot be fixed, the entire merger can be condemned on that basis.

The single market rule is not particularly troublesome for people who believe that mergers never produce competitive benefits or that merger policy should be indifferent to them. However, the rule interferes with any merger policy that is considered to be part of a general economic policy of encouraging more competitive markets, thus benefiting consumers and labor with higher output and lower prices.

Labor itself is subject to the single market rule. A merger that limits jobs in one small market could be condemned even if it provides significant employment expansion in others. For example, if the economic analysis of the Kroger/Albertson’s merger is correct that it would have increased output in several markets but decreased it in some as well, overall benefits to labor might exceed the harms.³⁴⁰ But harm in just one place could warrant condemnation of the merger.

In the Supreme Court, the single market rule originated in the *Philadelphia Bank* decision in 1963.³⁴¹ At the time most banks were small independent businesses with a single outlet.³⁴² Some banks had branches, but even most of these operated within a single state.³⁴³ The merging partners, PNB and Girard, were the second and third largest commercial banks operating in greater Philadelphia.³⁴⁴ Under then-

338 15 U.S.C. § 18 (2018).

339 S. REP. NO. 81-1775, at 5 (1950); *see also* H.R. REP. NO. 81-1191, at 8 (1949).

340 *See supra* notes 157–63 and accompanying text. On Kroger’s offer of a fix, *see* Jaewon Kang & Leah Nylen, *Kroger, Albertsons Unveil Stores to Be Divested Ahead of Trial*, BLOOMBERG (July 9, 2024, 1:49 PM EDT), <https://www.bloomberg.com/news/articles/2024-07-09/kroger-kr-albertsons-aci-release-list-of-divestiture-package> [<https://perma.cc/2LL3-JMJG>].

341 *See* *United States v. Phila. Nat’l Bank*, 374 U.S. 321, 370 (1963). It was anticipated by an earlier district court decision. *See* *United States v. Bethlehem Steel Corp.*, 168 F. Supp. 576, 618 (S.D.N.Y. 1958) (ruling competitive harms in one region could not be offset by lower costs and other competitive benefits in a different region).

342 *Phila. Nat’l Bank*, 374 U.S. at 325.

343 *Id.*

344 *Id.* at 330.

existing Pennsylvania law branching was permitted only to contiguous counties, and each of the firms had branches in a four-county area surrounding Philadelphia.³⁴⁵ The postmerger firm would have roughly 35% of the banking business in that area, depending on how it was measured.³⁴⁶ This supported the Court's conclusion that the merger controlled "at least 30%" of the banking business in the relevant market.³⁴⁷

This 30% presumption did not appear in the 2010 Horizontal Merger Guidelines, although it does in the 2023 Guidelines.³⁴⁸ It is modified, however, by triggering review at a Δ HHI of at least 100, which is far more aggressive than the actual facts of *Philadelphia Bank*, where the Δ HHI exceeded 650.³⁴⁹ Nevertheless, without specifying the amount the Court did require a "significant increase in the concentration of firms in that market."³⁵⁰

One of the defenses offered for the Philadelphia banks merger was that the new, larger bank would be able to compete more effectively with New York banks for very large loans.³⁵¹ The Court wrote:

We reject this application of the concept of "countervailing power." If anticompetitive effects in one market could be justified by pro-competitive consequences in another, the logical upshot would be that every firm in an industry could, without violating § 7, embark on a series of mergers that would make it in the end as large as the industry leader.³⁵²

Relatedly, the banks also argued that the merger would serve to bring more business into the area and "stimulate its economic development."³⁵³ The Court responded by noting that "a merger the effect of which 'may be substantially to lessen competition' is not saved because, on some ultimate reckoning of social or economic debits and credits, it may be deemed beneficial. A value choice of such magnitude is

345 *Id.* at 331.

346 *See id.* at 331 (observing that the combined banks had roughly 36% of bank assets in the four-county area, 36% of deposits, and 34% of loans).

347 *Id.* at 364.

348 *See* 2023 MERGER GUIDELINES, *supra* note 5, § 2.1.

349 *Id.*; *see also supra* notes 23–24 and accompanying text.

350 *Phila. Nat'l Bank*, 374 U.S. at 363 ("[W]e think that a merger which produces a firm controlling an undue percentage share of the relevant market, and results in a significant increase in the concentration of firms in that market, is so inherently likely to lessen competition substantially that it must be enjoined in the absence of evidence clearly showing that the merger is not likely to have such anticompetitive effects." (citing *United States v. Koppers Co.*, 202 F. Supp. 437 (W.D. Pa. 1962))).

351 *Id.* at 370.

352 *Id.* (citing *Kiefer-Stewart Co. v. Joseph E. Seagram & Sons, Inc.*, 340 U.S. 211 (1951), *overruled by Copperweld Corp. v. Indep. Tube Corp.*, 467 U.S. 752 (1984)).

353 *Id.* at 371.

beyond the ordinary limits of judicial competence.”³⁵⁴ Since then, the single market rule has appeared in the Merger Guidelines. Just as the 2023 Merger Guidelines, the 2010 Horizontal Merger Guidelines stated that those defending a merger must show that it “is not likely to be anticompetitive in any relevant market.”³⁵⁵

One important advantage of the single market rule is administrative. Assessing a merger under the single market rule requires an *ordinal* assessment of competitive harm in a single market; that is, the harm need not be quantified, although its predicted direction must be established. If a merger tends to reduce output and raise prices in one market, that is sufficient for condemnation. This approach is important when measurement tools are sufficiently crude that they cannot estimate price or output effects with tolerable accuracy.

As the HHI is used to evaluate conventional horizontal mergers, it creates presumptions that a concentration level and a Δ HHI of a certain magnitude will result in a price increase. As one group of economists recently concluded, “[A]gencies have at best a noisy estimate of the impact of a merger at the time of making a decision.”³⁵⁶ The data on consummated markets suggests two things: first that this approach is fundamentally correct, but second that it masks a great deal of heterogeneity in actual results as measured by price changes. In fact, a great many mergers even in concentrated markets lead to lower prices.³⁵⁷ Looking at two mergers with similar HHI numbers, measured price effects can be very different. Although the evidence for why has not been gathered, a likely explanation is differing amounts of product complementarity.

Mergers of complements tend to pull prices down, while those of competitors in highly concentrated markets tend to push them up. If a merger nominally characterized as horizontal is in fact dominated by complementary relationships between the merging firms, such as the *Columbia Steel* case discussed above, then downward pressure on prices is likely to exceed the upward pressure.³⁵⁸ In less extreme cases the balance will be closer.

Suppose the rule were that we need to trade off gains and losses in the different markets where the merging firms operate. Now we have moved from ordinal to cardinal measurement. At least in

354 *Id.*

355 2010 HORIZONTAL MERGER GUIDELINES, *supra* note 10, § 10.

356 Bhattacharya et al., *supra* note 25, at 3.

357 *See id.* at 2 (roughly equal numbers of price increases and price decreases in large study of mergers in highly concentrated retail markets, although increases were higher); Stöhr, *supra* note 25, at 164 (reporting roughly one third of mergers in highly concentrated markets were followed by price decreases).

358 *See supra* notes 145–51 and accompanying text.

relatively close cases we would have to quantify the gains that result in some markets and offset these against the predicted losses in other markets. That would be a monumentally more difficult task. There might be some de minimis cases in which we tolerate very small losses in one market in favor of obviously larger benefits in other markets,³⁵⁹ although the district court in the *JetBlue* merger decision appeared not to think so.³⁶⁰ On the other hand, the problem in the *Columbia Steel* decision does not seem to be all that difficult. There, the potential for price increases was limited to, at most, 2% of the postmerger market.³⁶¹ To that extent benefits far outweighed harms.

The alternative approach that has evolved seeks to avoid such balancing by requiring a “fix” before the merger can be approved. For example, if a merger is competitively beneficial in five markets but harmful in a sixth, the firms might be required to transfer a production facility in the sixth market to a nonmerging party as a condition for agency approval. Alternatively, they might need to take equivalent steps to ensure that competition in that market is not reduced. If an airline merger promises substantial gains across the country but price increases on a few city-pair routes where both carriers operate, one solution is for one of the firms to transfer those routes to a third-party carrier. A great deal of early-stage merger litigation involves determining the appropriate “fix” for a merger of this sort.³⁶²

Such fixes are not always practical, particularly when certain elements of a firm’s output cannot readily be segregated, or when there is no good third party to whom a productive asset can be transferred. For example, a merger fix attempted by the creation of a new rental car brand failed when the new brand very quickly went bankrupt.³⁶³ In cases where firms make multiple noncompeting products or offer noncompeting services in the same facility, a fix requiring the removal of one might not be possible.³⁶⁴ For example, a merger of two hospitals might threaten competition for oncology services, in which one has a unique and dominant position. But there may not be a good way of transferring an integrated specialty from a hospital to a third-party buyer. In *Kroger* the court found that C&S Wholesale Groceries, the

359 Cf. John M. Yun, *Reevaluating Out of Market Efficiencies in Antitrust*, 54 ARIZ. ST. L.J. 1261 (2022) (proposing a mechanism for considering both harms and benefits).

360 See *supra* notes 138–44 and accompanying text.

361 See *supra* note 149 and accompanying text.

362 See Steven C. Salop & Jennifer E. Sturiale, *Fixing “Litigating the Fix,”* 85 ANTITRUST L.J. 619, 628 (2024).

363 See Brent Kendall & Jacqueline Palank, *How the FTC’s Hertz Antitrust Fix Went Flat*, WALL ST. J. (Dec. 8, 2013, 8:03 PM ET), <https://www.wsj.com/articles/how-the-ftc8217s-hertz-antitrust-fix-went-flat-1386547951> [<https://perma.cc/6V7B-RTZ5>].

364 On proposed and actual fixes, see Logan Billman & Steven C. Salop, *Merger Enforcement Statistics: 2001–2020*, 85 ANTITRUST L.J. 1, 4–5 (2023).

firm to whom the proposed assets would be spun off, would be operating at such a disadvantage as to question its viability.³⁶⁵

Unless a fix succeeds, the single market rule places a heavy thumb on the scales favoring condemnation of the merger, even if it is beneficial on balance. That is apparently what happened in the *Jet Blue* case.³⁶⁶

Complementarity among merging pairs is not only very common, it is also immensely variable and difficult to capture with any general formula such as the HHI. That suggests that merger authorities should be more willing to negotiate rather than litigate, which was inconsistent with stated Biden administration policy.³⁶⁷ The acceptable fixes must be designed to deal with complementarities, however, and not merely with creating artificial incentives for preserving competition that are in conflict with ordinary economic doctrine about business firm behavior. For example, a proposed fix that the two merging parties will continue to bid against one another is not acceptable.³⁶⁸ Generally speaking, an acceptable fix must be structural, in the sense that it prevents the feared increase in concentration in the problem market. However, not every merger provides such opportunities. For two airlines to transfer some routes to a third, well-established carrier is relatively easy compared to requiring one to transfer a more integral asset, realign its production process, or transfer production to an inexperienced or deficient third party.

One economically beneficial improvement would be to permit mergers in which gains clearly exceed losses, or where losses are de minimis. Of course, even that could lead to litigation over how far out of balance the offsetting effects must be. Further, as noted earlier, it is very likely inconsistent with the text of the Clayton Act.³⁶⁹

365 *FTC v. Kroger Co.*, No. 3:24-cv-00347, 2024 WL 5053016, at *27–30 (D. Or. Dec. 10, 2024) (“The structure of the divestiture package . . . creates many risks for C&S that could make it difficult to compete. It is difficult to see how certain of C&S’ plans, such as re-bannering about half the stores and introducing new private label items, which is effectively the same as opening a new, unfamiliar grocery store in the eyes of consumers, could maintain the current level of competition provided by stores with familiar banners and products.” *Id.* at *28.).

366 *See United States v. JetBlue Airways Corp.*, 712 F. Supp. 3d 109, 161, 164 (D. Mass. 2024); *see also supra* notes 133–44 and accompanying text.

367 *E.g.*, Jonathan Kanter, Assistant Att’y Gen., Opening Remarks at 2022 Spring Enforcers Summit (Apr. 4, 2022), <https://www.justice.gov/opa/speech/assistant-attorney-general-jonathan-kanter-delivers-opening-remarks-2022-spring-enforcers> [https://perma.cc/W3VP-GZ7P]; *see Salop & Sturiale, supra* note 362, at 634–35.

368 *E.g.*, *United States v. Bertelsmann SE & Co. KGAA*, 646 F. Supp. 3d 1, 50–51 (D.D.C. 2022) (rejecting a proposed fix of an internal bidding process that would require the firms to compete with one another for authors after the merger); *see Salop & Sturiale, supra* note 362, at 657–60.

369 *See supra* notes 267–69 and accompanying text.

VIII. MERGER COMPLEMENTS AND INNOVATION

The relationship between market structure and innovation has been studied a great deal. Much of the literature has focused on a general issue disputed by Joseph Schumpeter³⁷⁰ and Kenneth Arrow³⁷¹ concerning whether monopoly or competition is more conducive to innovation. Schumpeter made the case for monopoly, while Arrow did so for competition.³⁷²

One thing that emerged from this literature is a rough consensus that the relationship between market structure and innovation is an inverted “U,” or \cap , with maximum innovation occurring somewhere in the middle, although generally leaning toward the less concentrated side of the market.³⁷³ On the one side, pure monopoly is not particularly conducive to high innovation because the monopolist has no competitors to worry about and its existing technology creates path dependence.³⁷⁴ As a result, it tends to innovate incrementally, staying within familiar paths. At the other extreme, market structures approaching perfect competition are not very conducive to innovation either because they do not generate enough surplus. Firms that are pricing at close to marginal cost do not have the resources to engage in significant innovation.

Firms in moderately concentrated, product-differentiated markets tend to be more aggressive innovators. First, they have the resources to do it. Second, they must always be looking over their shoulders lest they lose out to a rival. Path dependence counts for less if their entire technology is at risk of being displaced. For example, a relatively small number of highly innovative firms, including most of the big tech platforms and some others, are competing intensely in the development of AI tools.³⁷⁵

While there is considerable empirical support for the \cap , it has not been a very helpful device for linking specific market concentration

370 See, e.g., JOSEPH A. SCHUMPETER, *CAPITALISM, SOCIALISM AND DEMOCRACY* 83 (5th ed. 1976).

371 See, e.g., Kenneth J. Arrow, *Economic Welfare and the Allocation of Resources for Invention*, in NAT'L BUREAU OF ECON. RSCH., *THE RATE AND DIRECTION OF INVENTIVE ACTIVITY: ECONOMIC AND SOCIAL FACTORS* 609, 609 (1962).

372 See Jonathan B. Baker, *Beyond Schumpeter vs. Arrow: How Antitrust Fosters Innovation*, 74 *ANTITRUST L.J.* 575, 575 (2007).

373 See CHRISTINA BOHANNAN & HERBERT HOVENKAMP, *CREATION WITHOUT RESTRAINT: PROMOTING LIBERTY AND RIVALRY IN INNOVATION* 8–11 (2012); cf. RICHARD J. GILBERT, *INNOVATION MATTERS: COMPETITION POLICY FOR THE HIGH-TECHNOLOGY ECONOMY* 112–18 (2020).

374 See BOHANNAN & HOVENKAMP, *supra* note 373, at 10.

375 See Team Stash, *15 Largest AI Companies in 2024*, STASH: INVESTING (Aug. 8, 2024), <https://www.stash.com/learn/top-ai-companies/> [https://perma.cc/4VQW-P4VQ].

levels to harm to innovation. Innovation is not as well behaved as pricing is. Further, unlike the concentration/price relationship, which is assumed to move in a continuous although not linear direction, the innovation/structure relationship rises until concentration reaches a certain level and then falls. As a result, it is much more difficult to come up with a general index such as the HHI that relates innovation levels to overall market structures in a useful way.³⁷⁶

Most evaluations of mergers for impact on innovation take an approach that somewhat resembles “unilateral effects” analysis. It proceeds by examining the research activities or capabilities of the merging firms themselves.³⁷⁷ Here it is possible to draw firmer generalizations. First, if the two merging firms are each innovating in the same area and working on similar projects, the case for competitive harm is stronger.³⁷⁸ The feared danger is that the competitive race will end, or at least that innovation incentives will be reduced. So, for example, if both BMW and much larger Toyota had been doing exploratory research into the development of antilock brakes, their merger could be competitively harmful. It could significantly reduce competitive incentives to innovate and also narrow the range of likely innovation outcomes.³⁷⁹

By contrast, suppose that at the time of the merger BMW was actively engaged in an antilock brake research project while Toyota was not, but Toyota is a prospective user. In that case the benefits to the merger could be significant. The technology, once developed, is non-rivalrous and could be spread across the output of both firms, creating a significant spillover benefit. To be sure, BMW might later license its technology to Toyota in any event, and then both would have it. But that is not a foregone conclusion. Whether BMW licenses depends on what result will maximize its own profits.

To generalize, mergers tend to have harmful effects on innovation when they eliminate competitors who are both engaged in the same research effort.³⁸⁰ They tend to have beneficial effects when only one

376 See Philippe Aghion, Nick Bloom, Richard Blundell, Rachel Griffith & Peter Howitt, *Competition and Innovation: An Inverted-U Relationship*, 120 Q.J. ECON. 701, 701–08 (2005) (finding strong evidence of inverted-U relationship, as measured by examining the number of patents issued at various concentration levels and across industries). For a thorough study of innovation rates as correlated with the HHI, finding correlations but considerable heterogeneity, see Marcia Millon Cornett, Otgontsetseg Erhemjams & Hassan Tehranian, *Competitive Environment and Innovation Intensity*, 41 GLOB. FIN. J. 44 (2019).

377 Bruno Jullien & Yassine Lefouili, *Horizontal Mergers and Innovation*, 14 J. COMPETITION L. & ECON. 364, 371–73 (2018).

378 *Id.* at 365.

379 See GILBERT, *supra* note 373, at 77–105.

380 For data tending to confirm this, see Alice Bonaimé & Ye (Emma) Wang, *Mergers, Product Prices, and Innovation: Evidence from the Pharmaceutical Industry*, 79 J. FIN. 2195 (2024),

is innovating but the innovation's beneficial effects can be distributed over the output of both.³⁸¹ In that case they are behaving as complements, more specifically as potential licensor and licensee.

One alternative that can sometimes address the problem of complements and merger efficiencies is the nonexclusive license, which can be a better competitive outcome than a merger.³⁸² In appropriate circumstances it can enable a firm to retain the value of merger with a complement while causing no competitive harm. For example, if Toyota really wants access to antilock brake technology it need not acquire BMW. Rather it need obtain only a nonexclusive license to the product, and this may operate as a less restrictive alternative, or as a condition that enables the government to show that a claimed efficiency gain is not merger specific. Toyota and BMW would continue to compete in other aspects of their business.

IX. LARGE PLATFORM ACQUISITIONS OF SMALL FIRMS

The five biggest tech platforms (Alphabet, Amazon, Apple, Meta, and Microsoft) have made hundreds of acquisitions of smaller firms, including startups.³⁸³ Many involve firms with very small market shares that would not trip any trigger in either the 2010 or 2023 Merger Guidelines. Harm to competition depends on the relationship between the merging firms. On the one hand is a broad concern that these acquisitions prevent potential competition from ripening into actual competition, or that they restrain innovation.³⁸⁴ For example, in ongoing litigation the FTC alleges that Facebook acquired Instagram in order to prevent it from becoming a significant competitor.³⁸⁵

and see also Nicolas Petit, *Innovation Competition, Unilateral Effects, and Merger Policy*, 82 ANTITRUST L.J. 873 (2019).

381 Jullien & Lefouili, *supra* note 377, at 376.

382 On nonexclusive licenses as an alternative remedy, see Kevin A. Bryan & Erik Hovenkamp, *Antitrust Limits on Startup Acquisitions*, 56 REV. INDUS. ORG. 615, 617 (2020) [hereinafter Bryan & Hovenkamp, *Antitrust Limits on Startup Acquisitions*], and Kevin A. Bryan & Erik Hovenkamp, *Startup Acquisitions, Error Costs, and Antitrust Policy*, 87 U. CHI. L. REV. 331, 354 (2020).

383 Wikipedia maintains updated, sortable lists of these acquisitions under titles such as "List of Mergers and Acquisitions by Amazon," etc. See, e.g., *List of Mergers and Acquisitions by Amazon*, WIKIPEDIA, https://en.wikipedia.org/wiki/List_of_mergers_and_acquisitions_by_Amazon [<https://perma.cc/HME8-JKKG>] (last visited Jan. 28, 2025) (listing 116 acquisitions by Amazon, the largest being Whole Foods).

384 See Mark A. Lemley & Andrew McCreary, *Exit Strategy*, 101 B.U. L. REV. 1, 101 (2021); Mark A. Lemley & Matthew T. Wansley, *Coopting Disruption*, 105 B.U. L. REV. 457, 460 (2025).

385 Substitute Amended Complaint at 26–34, *FTC v. Facebook, Inc.*, 581 F. Supp. 3d 34 (D.D.C. 2022) (No. 1:20-cv-03590), Dkt. No. 82. See generally Herbert Hovenkamp,

The court has denied summary judgment on these claims, and at this writing it appears that they will be going to trial.³⁸⁶

On the other hand, many of these are acquisitions of complements. To take one example, in 2022 Alphabet acquired BreezoMeter, an Israeli firm that had developed technology for mapping air quality and pollen.³⁸⁷ The acquisition allowed Alphabet to incorporate air quality information into Google Maps.³⁸⁸ Looking over these lists, it appears that a significant number of firms acquired by the dominant platforms are complements rather than substitutes. Some of them may also be potential competitors, and both possibilities would then need to be assessed under a “probability” test.³⁸⁹

If the only reason for such an acquisition is to remove a potential competitor to an established monopoly, then the law provides ample reason for a challenge.³⁹⁰ A merger that does nothing more than protect a monopoly in its dominant market is challengeable.³⁹¹ “Monopoly,” of course, must be defined by relation to a particular product, not to the size of the firm. For example Amazon’s acquisition of Whole Foods was permitted because, while Amazon is a very large firm, its market share of groceries was less than 2%.³⁹² Alternatively, if the acquisition is of nothing more than a complement, with no realistic prospect that the small firm would emerge as a substantial competitor, then the acquisition is unlikely to be anticompetitive.

There might be situations where innovation by an independent firm would be more disruptive, or more likely to break out into something truly remarkable.³⁹³ Without disputing that, evaluating outcomes in any particular case is very difficult unless we have some other fairly particular information. This is in fact an enduring problem with innovation—the problem that “anything can happen.” But even the

Antitrust and Platform Monopoly, 130 YALE L.J. 1952, 2043–44 (2021); Bryan & Hovenkamp, *Antitrust Limits on Startup Acquisitions*, *supra* note 382, at 623–29.

386 See *FTC v. Meta Platforms, Inc.*, 775 F. Supp. 3d 16, 48 (D.D.C. 2024).

387 See Elihay Vidal, *Google Acquires Israeli Climatech Startup BreezoMeter for over \$200 Million*, CTECH: STARTUPS (Sept. 20, 2022, 8:24 PM), <https://www.calcalistech.com/ctech-news/article/sycbrdpbi> [<https://perma.cc/BC7Y-2YFA>].

388 See Bradley Wilson, Mariah Pope, David Melecio-Vazquez, Ho Hsieh, Maximilian Alfaro, Evelyn Shu, Jeremy Porter & Edward J. Kearns, *Climate Adjusted Projections of the Distribution and Frequency of Poor Air Quality Days for the Contiguous United States*, 12 FRONTIERS EARTH SCI., Mar. 27, 2024, at 1, 2.

389 See *supra* note 35 and accompanying text.

390 As the court made clear in *Meta Platforms*, 775 F. Supp. 3d at 55.

391 See AREEDA, HOVENKAMP, & HOVENKAMP, *supra* note 6, ¶¶ 911–912.

392 Nick Wingfield, *Amazon-Whole Foods Deal Clears Last Two Major Hurdles*, N.Y. TIMES (Aug. 23, 2017), <https://www.nytimes.com/2017/08/23/technology/amazon-whole-foods-deal-clears-last-two-major-hurdles.html> [<https://perma.cc/NEW7-446D>].

393 See Lemley & Wansley, *supra* note 384, at 5–7 (arguing that such acquisitions can prevent more disruptive innovations in the future).

liberal “probability” standard declared in section 7 of the Clayton Act requires more than that.

Nevertheless, one important question is when we should give up the immediate gains that can accrue from acquisition of a complement simply on the possibility of a blockbuster event down the road. In the case of BreezoMeter, it seems intuitively clear that the immediate gains from incorporating its technology into a widely used mapping program are significant. Further, while it is subject to proof, these gains very likely outweigh any probability that an independent BreezoMeter would develop into the next Google, or even the next Google Maps. Those are questions of fact.

To return to a point made earlier, the availability of nonexclusive licenses should play a bigger role than they do.³⁹⁴ The thing that makes these particular acquired firms valuable is rarely their buildings or machinery, but rather their intellectual property. For this, a nonexclusive license goes a long way toward providing the best of both worlds. It permits the acquiring platform to take full advantage of the technology being acquired, but not to limit the ability of the smaller firm to continue to deploy its technology independently.

To be sure, the price of nonexclusive licenses will be lower than that of outright acquisition of a firm. For any acquisition of complements the value to the acquiring firm is both its integration value and its exclusion value. A nonexclusive license requirement says in effect that the acquiring firm is entitled to have the integration value but not the exclusion value, at least in those instances where the latter serves as a limitation on competition. For example, Facebook allegedly acquired WhatsApp in order to take advantage of mobile messaging technology that Facebook lacked.³⁹⁵ This made WhatsApp both a valuable acquisition capable of improving Facebook’s own offerings, but also a competitive threat. A nonexclusive license to WhatsApp’s technology would have permitted Facebook to improve its own product, but not to exclude others. That rule is no different in principle than the one applied in the general run of mergers. A firm is free to acquire the productive assets of another firm, but not in ways that unreasonably threaten competition.³⁹⁶

394 See *supra* Part VIII.

395 Substitute Amended Complaint, *supra* note 385, at 19–20.

396 See AREEDA, HOVENKAMP, & HOVENKAMP, *supra* note 6, ¶ 907.

X. MERGERS OF NETWORKS AND ECOSYSTEMS

A. *Why Networks and Ecosystems are Distinctive*

Networks and ecosystems are a relative novelty in merger law. In a welcome addition, the 2023 Merger Guidelines are the first to discuss multisided networks in Guideline 9³⁹⁷ and ecosystems in Guideline 6 on mergers that entrench a dominant position.³⁹⁸ The Guidelines are very thin on economic analysis or useful examples in these novel areas. They also paint an excessively negative picture, understating their benefits.

An important property of networks is that they are subject to network effects, or economies of scale in consumption. As they become larger, they are typically more valuable to users.³⁹⁹ Positive direct network effects refer to increased value that accrues as a network becomes larger. Indirect network effects refer to the fact that a network may become more valuable to people on one side as the number of people on the other side grows.⁴⁰⁰ For example, a dating site such as Match.com is more valuable to seekers when there are a larger number of sought, and vice versa. As a result, all else equal, a larger network is more valuable to participants on both sides than a smaller network. Product differentiation and IP rights offset this and serve to explain why we don't have just one large dating site for everyone.⁴⁰¹ By the same token, firms' inability to differentiate successfully very likely explains why some networks, such as Google Search, are virtual monopolies.⁴⁰²

A multisided network could be a platform like American Express or Uber, where the firm acts as an intermediary between two sides (merchants and customers, or drivers and riders).⁴⁰³ Relatedly, an ecosystem is a set of operational complements, typically controlled by a single firm.⁴⁰⁴ While the Guidelines provide no examples, systems such

397 See 2023 MERGER GUIDELINES, *supra* note 5, § 2.9.

398 See *id.* § 2.6.

399 See Herbert Hovenkamp, *How IP Rights Create Competition in E-commerce*, NETWORK L. REV. (Oct. 18, 2024), <https://www.networklawreview.org/ip-rights-competition> [<https://perma.cc/VE5B-L3GS>].

400 *Id.*

401 *Id.*

402 See Hovenkamp, *supra* note 385, at 1998–2000.

403 2023 MERGER GUIDELINES, *supra* note 5, § 2.9.

404 Ecosystem competition is defined by the 2023 Merger Guidelines: “[E]cosystem competition refers to a situation where an incumbent firm that offers a wide array of products and services may be partially constrained by other combinations of products and services from one or more providers, even if the business model of those competing services is different.” *Id.* at § 2.6.A.

as Apple's combination of operating system, devices, and app stores is one example; or Microsoft's array of Windows and the multiple applications that go into Microsoft Office. These applications are designed to work well with one another, but not as well or in some cases not at all with rival applications from outside the ecosystem. The 2023 Guidelines say nothing about how these issues will be addressed. In any event, within an ecosystem they operate mainly as complements, although two different ecosystems can compete with one another as differentiated products.

The principal thing that makes networks valuable is their structure. This should make enforcers particularly cautious about efforts to remedy competition problems by altering structure, and also cautious about segregating complements. As the benefits of networks are larger, the costs of forced network breakups or injunctions against mergers are larger as well.⁴⁰⁵

B. Networks and Merger Efficiencies

The likelihood of higher quality or lower costs from network mergers is much greater than it is for traditional horizontal mergers.⁴⁰⁶ When two networks merge, one strong result can be the extension of both direct and indirect network effects. For example, a merger of two digital periodicals or dating sites could yield more users on each side, making the network more valuable to everyone. This assumes, of course, that after the merger the networks are fused into one, which does not always happen. For example, Facebook acquired Instagram in 2012 but has let it stand as a separate network with its own membership.⁴⁰⁷ Match Group, Inc. owns several dating sites, including Tinder, Hinge, OkCupid, Plenty of Fish, and Azar.⁴⁰⁸ However, it operates them as distinct but differentiated networks.⁴⁰⁹ There could be advantages to multisite management, as there are for any firm with multiple plants. But holding them separate does not create the positive network effects that consolidation would.

405 See Herbert Hovenkamp, *Structural Antitrust Relief Against Digital Platforms*, 7 J.L. & INNOVATION 57, 76–79 (2024).

406 See Chen, *supra* note 144, at 48–49, on the significant gains from the mergers of rail networks.

407 Dara-Abasi Ita, *Instagram: What It Is, Its History, and How the Popular App Works*, *Investopedia: Company Profiles* (May 5, 2025), <https://www.investopedia.com/articles/investing/102615/story-instagram-rise-1-photo0sharing-app.asp> [<https://perma.cc/39NZ-SLQC>].

408 See *Match Group Inc.*, REUTERS, <https://www.reuters.com/markets/companies/MTCH.O/> [<https://perma.cc/M9DW-9SLL>] (last visited Jan. 14, 2025).

409 *Id.*

If two networks do fuse into one, however, the balance between harmful and beneficial effects can be significantly more favorable than it is for old economy mergers. Consider an extreme case that would almost certainly be challenged under existing merger law. Suppose that Uber and Lyft, two prominent ride-hailing apps, should merge and create a single “UberLyft” app, aggregating everything the previously independent firms offered onto a single network. On the one hand, the merger would eliminate competition between Uber and Lyft, and this could cause substantial harm depending on the scope of the market. They would no longer be competing against one another, but they still would compete against other ride hailing companies, cab companies, and perhaps other forms of public transportation. In many cities this would very likely lead to slam dunk condemnation if the market was defined as hailed taxi rides. For example, Uber and Lyft’s combined market share in New York appears to be about 85%.⁴¹⁰

But that is not the entire story. The result of this merger would be more drivers operating on the same network, leading to greater availability and shorter wait times. Drivers would sign up in greater numbers because there would be more potential riders. That in turn would lead to more participation by riders. How large a market share should provide a tipping point in such situations is hard to say. It may depend on the size of the market. For example, New York City might profit less from the aggregation of Uber and Lyft than would a smaller community such as Iowa City or Ithaca, where each individual network is small. But merger economies resulting in prices and terms that are at least as favorable to the participants on both sides could result at significantly higher market shares than for conventional mergers. The structural indicators contained in the merger guidelines are based on old economy firms. This area is largely empirically unexplored, and it awaits future studies of postmerger performance.

A merger of two digital periodicals would not be as close as the hypothetical Uber/Lyft merger. For example, blending of two popular cooking magazines, such as *Bon Appetit* and *Cooking Light*, could yield more advertisers and subscribers, increasing user value for that platform. That would depend significantly on whether these two magazines are a good fit for one another, but the merging firms should have every incentive to make it so. In distinction from the Uber/Lyft example, in this case cooking magazines and their alternatives are numerous. As a result, the benefits to such a merger could outweigh any harms, even if market share numbers were higher than those

410 *Taxi and Ridehailing Usage in New York City*, TODD W. SCHNEIDER BLOG, <https://toddwshneider.com/dashboards/nyc-taxi-ridehailing-uber-lyft-data/> [https://perma.cc/HF4F-6FRG] (last visited Oct. 4, 2025) (tracking ride shares among Uber, Lyft, and taxis).

expressed in the 2023 Merger Guidelines. Once again, the gains would depend on the blending of the two titles into a single network. At this writing, Capital One, a large issuer of Visa credit cards, has proposed to acquire Discover, the issuer of a separate card.⁴¹¹ While offering conclusions is premature, it could make a big difference if the postmerger firm was intending to merge the networks themselves or simply hold them separate.⁴¹²

C. Ecosystems and Foreclosure

Ecosystems are groups of complements that function together. As a result, a merger involving an ecosystem raises some of the same issues as network mergers do generally. They are not a novelty in American law. Historically, U.S. antitrust and patent law confronted ecosystems many times, although the cases never used that word.⁴¹³ The array of complementary machines in the *Winslow* merger case was an ecosystem.⁴¹⁴

The term “ecosystem” has recently become more popular, although most of the antitrust decisions do not involve mergers. In *Epic Games* the district court referred to Apple’s system, “including its devices and underlying software,” as an “ecosystem,”⁴¹⁵ as does the

411 See, e.g., News Release, Off. of the Comptroller of the Currency & Fed. Rsv. Bd., Agencies Announce Public Meeting on Proposed Acquisition by Capital One of Discover; Public Comment Period Extended (May 14, 2024), <https://www.occ.gov/news-issuances/news-releases/2024/nr-ia-2024-50.html> [<https://perma.cc/SG9Y-5398>].

412 At least some of the press writing assumes that they will be integrated. See, e.g., Ivana Pino, *How Capital One’s Acquisition of Discover Could Affect You*, YAHOO!FINANCE (Mar. 26, 2024), <https://finance.yahoo.com/personal-finance/capital-one-discover-merger-210236042.html> [<https://perma.cc/S7DT-6Z4F>].

413 See generally, e.g., *Leeds & Catlin Co. v. Victor Talking Mach. Co.*, 213 U.S. 325 (1909) (phonograph and wax discs), *overruled by* *Mercoid Corp. v. Mid-Continent Inv. Co.*, 320 U.S. 661 (1944); *Motion Picture Pats. Co. v. Universal Film Mfg. Co.*, 243 U.S. 502 (1917) (perforated film and projectors); *Int’l Bus. Machs. Corp. v. United States*, 298 U.S. 131 (1936) (tabulating machines and paper data cards); *Mercoid Corp. v. Minneapolis-Honeywell Regul. Co.*, 320 U.S. 680 (1944) (combination of thermostat, switch, and coal auger, enabling a thermostatically controlled coal furnace); *Berkey Photo, Inc. v. Eastman Kodak Co.*, 603 F.2d 263 (2d Cir. 1979) (camera, film, and photo processing); *Wilson v. Simpson*, 50 U.S. (9 How.) 109 (1850) (wood planing machine plus cutting blades); *Heyer v. Duplicator Mfg. Co.*, 263 U.S. 100 (1923) (early copy machine plus gelatin bands which acted as stencils).

414 See *supra* Section III.A.

415 *Epic Games, Inc. v. Apple Inc.*, 559 F. Supp. 3d 898, 923 (N.D. Cal. 2021), *aff’d in part, rev’d in part*, 67 F.4th 946 (9th Cir. 2023), *cert. denied*, 144 S. Ct. 682 (2024) (mem.); see also *fuboTV Inc. v. Walt Disney Co.*, 745 F. Supp. 3d 109 (S.D.N.Y. 2024) (referring to the collection of firms supplying pay TV as an ecosystem), *appeal dismissed per stipulation*, No. 24-2210, 2025 WL 523263 (2d Cir. Jan. 8, 2025).

government's 2024 antitrust complaint against Apple.⁴¹⁶ The *Google Search* decision on Sherman Act liability repeatedly referred to Android and the array of producers of Android devices as an ecosystem.⁴¹⁷ One decision has referred to a credit card payment system as an "ecosystem[]," although mainly to discard the concept as irrelevant.⁴¹⁸ The *Meta Platforms* decision referred to a collection of virtual reality products as an ecosystem.⁴¹⁹ That appears to be the only reference at this time in a merger case. It is also not clear how the presence of an "ecosystem" was relevant to the outcome. The court concluded mainly that there was a relevant market of "dedicated" virtual fitness apps, and that this market was highly concentrated.⁴²⁰ However, it went on to hold that the FTC had not established its case under the potential competition doctrine.⁴²¹

While the 2023 Merger Guidelines mention mergers involving ecosystems, they fail to offer anything very useful on how the presence of an ecosystem will be relevant to a merger. One possibility is the acquisition of a product that competes with one component in the ecosystem. For example, Microsoft might acquire a note-taking program that functions in Microsoft Office as OneNote does, thereby eliminating it as a rival. One impact of ecosystem attribution in such a case might be to narrow the market—in this case to note-taking programs that work well with Microsoft Office. At this writing, such a prosecution lies in the future, but it might serve to justify a narrower market for note-taking apps that have certain compatibility features with Microsoft Office.⁴²²

In any event, the antitrust concern is foreclosure, which will occur if rivals are excluded from the *market*, not merely from the firm's own particular ecosystem.⁴²³ Foreclosure could be a threat only with

416 Complaint at 6–7, *United States v. Apple Inc.*, No. 2:24-cv-04055 (D.N.J. Mar. 21, 2024).

417 See *United States v. Google LLC*, 747 F. Supp. 3d 1 (D.D.C. 2024).

418 *In re Payment Card Interchange Fee & Merch. Disc. Antitrust Litig.*, 638 F. Supp. 3d 227, 291 (E.D.N.Y. 2022); see also *juboTV*, 745 F. Supp. 3d 109 (referring to pay TV packaging of channels as an ecosystem).

419 *FTC v. Meta Platforms Inc.*, 654 F. Supp. 3d 892, 913 (N.D. Cal. 2023).

420 *Id.* at 913, 922.

421 *Id.* at 941.

422 *Cf.* *United States v. Microsoft Corp.*, 84 F. Supp. 2d 9, 14 (D.D.C. 1999) (establishing the relevant market for operating systems compatible with Intel-based computers); *Static Control Components, Inc. v. Lexmark Int'l, Inc.*, 487 F. Supp. 2d 861, 875–84 (E.D. Ky. 2007) (alleging the relevant market to be toner cartridges that are compatible with Lexmark printers).

423 At this writing, the European Union has accused Microsoft of bundling Teams, a conferencing and collaboration application, into Microsoft Office. See European Commission Press Release IP/24/3446, Commission Sends Statement of Objections to Microsoft

market-dominating ecosystems, perhaps Apple or Microsoft. Other products, such as Corel's WordPerfect Office Suite,⁴²⁴ with a market share of about 2%, are unlikely to present the same problem.⁴²⁵

Another possibility is that a firm uses an acquisition to create an additional element in its ecosystem. For example, suppose that Microsoft Office, not currently having an integrated note-taking application, acquires an independent firm and incorporates it into Microsoft Office as OneNote. That would be a strict merger of complements and would increase the value of Office. It might conceivably cause competitive harm as well; for example, if there were two or three different note-taking apps and Microsoft acquired one of them and subsequently favored it. At this time these issues are hypothetical but hardly fanciful.

Mergers involving two-sided platforms or ecosystems should be unlawful when they threaten higher prices or lower market output, or restraints on innovation. That should be the underlying goal, and the guidelines should provide metrics for applying it, as well as indicating approval of acquisitions that unite complements without causing unreasonable foreclosure. The present Guidelines do not even articulate the goal.

XI. COMPLEMENTS AND THE 2023 MERGER GUIDELINES

The 2023 Merger Guidelines did antitrust policy a service by presenting a number of new situations and structures that can be important to the evaluation of mergers. Nevertheless, the Guidelines should have presented them in a more balanced fashion, pointing out benefits as well as harms, and providing more specific benchmarks stating how the agencies might approach them.

Further, their interest should be as much in facilitating beneficial mergers as it is in challenging harmful ones. They should also have indicated that the structural criteria applied to traditional firms do not work for many mergers involving networks or ecosystems. Assuming similar market shares or structures, a merger of these is likely to produce greater benefits and fewer net harms.⁴²⁶

Over Possibly Abusive Tying Practices Regarding Teams (June 25, 2024). Microsoft already owns Teams, so this is a bundling case, not a merger.

424 See WORDPERFECT, <https://www.wordperfect.com/en/> [<https://perma.cc/W6W7-BU3Y>] (last visited Feb. 11, 2025).

425 On WordPerfect's market share as of July 2024, see *WordPerfect*, 6SENSE: TECHNOGRAPHICS, <https://6sense.com/tech/office-suites/wordperfect-market-share> [<https://perma.cc/D6JD-9NNL>] (last visited Jan. 31, 2025).

426 See *supra* Part X.

The 2023 Merger Guidelines discuss mergers of complements in reference to several situations, although they do not always use that term. Guideline 5 speaks of mergers that limit access to things that “rivals use to compete.”⁴²⁷ That is partly a reference to vertical mergers threatening foreclosure, although it is not limited to them.⁴²⁸ Guideline 6’s reference to mergers that entrench or extend a dominant position addresses mainly mergers of complements.⁴²⁹ Guideline 9’s discussion of mergers on two-sided networks will often involve mergers of complements.⁴³⁰ The Guidelines do not unpack the variety of organizational and structural issues that mergers involving networks will produce.

The principal harm to competition from placing complementary features within a single firm is competitor foreclosure or raising of rivals’ costs. For example, in a traditional vertical merger case such as *Fruehauf*, the fear was that a truck trailer manufacturer that produced its own wheels and brakes might be in a position to deny them to rival manufacturers.⁴³¹ Offsetting this, of course, would be reduced costs or product improvement that might result from internal production of specialized products such as truck wheels and brakes. In *Allis-Chalmers*, the fear was that unified production of a steel mill with its electrical hookup would disadvantage firms that made one or the other but not both.⁴³² The offsetting benefit was that it enabled the defendant to offer a complete working steel mill, without requiring purchasers to negotiate with and coordinate two different suppliers.⁴³³

If these mergers produced cost savings or product improvements, they could harm rivals unable to match them. However, if they did not produce any savings, then rivals who competed with them would not be disadvantaged unless the foreclosure level was very high. For example, if the world contained a single source of bauxite, an ingredient in aluminum, then an aluminum maker’s acquisition of that source could injure rivals even if it did not reduce costs. They would no longer have access to bauxite. Relatedly, if multiple producers of bauxite have different costs or attractions for aluminum producers, then acquisition of

427 2023 MERGER GUIDELINES, *supra* note 5, § 2.5.C.

428 *See id.* § 2.5.

429 *See id.* § 2.6.

430 *See id.* § 2.9.

431 *Fruehauf Corp. v. FTC*, 603 F.2d 345, 354, 361 (2d Cir. 1979) (rejecting FTC’s challenge).

432 *Allis-Chalmers Mfg. Co. v. White Consol. Indus., Inc.*, 414 F.2d 506, 517–19 (3d Cir. 1969).

433 *See id.* at 514.

the most efficient ones could relegate rivals to less desirable sources, thus raising their costs.⁴³⁴

What the Guidelines lack is a meaningful set of benchmarks for trading off the benefits of mergers of complements, which can be considerable, against competitive harms. A foreclosure trigger of 50% might be a defensible minimum⁴³⁵ when the facts indicate that the merger promises very small savings in cost or a minor quality improvement. In other cases, however, the benefits could be much greater.

CONCLUSION: RULES FOR MERGERS

The current structure of merger law is a barrier to proper competitive analysis. The category of “potential competition” mergers has largely ceased to be relevant.⁴³⁶ The category of “vertical mergers” is too narrow because it omits other mergers of complements which are economically similar. The group of mergers we now refer to as “horizontal” contains major complementary components, and in some of them complementary relationships dominate competitive ones. Extensive complementarity weakens the usefulness of horizontal aggregating tools such as the HHI to assess them.

Any classification of mergers for antitrust analysis should group them by the way that they cause competitive harm or promise economic benefits. One well-established distinction in antitrust law generally is between “collusion” harms and “foreclosure” harms. That approach could provide a way of classifying them that is economically coherent. Mergers should be placed into two broad categories. First are those where the principal threat is an immediate postmerger price increase resulting from market-wide collusion or collusion-like behavior. In addition are “unilateral effects” mergers, where the parties will be able to impose a unilateral price increase, leaving other market prices largely unaffected. Horizontal mergers that do not involve a significant amount of complementarity should be placed into one or the other of these groups, as should most mergers that were previously classified as potential competition mergers. When markets are defined under the now dominant hypothetical monopolist test, it is unlikely

434 See *United States v. Dentsply Int'l, Inc.*, 399 F.3d 181, 191–92 (3d Cir. 2005) (noting that exclusive dealing imposed on dealers relegated rivals to more costly and less effective distribution channels); *United States v. Microsoft Corp.*, 253 F.3d 34, 70–71 (D.C. Cir. 2001) (ruling that Microsoft's actions foreclosed Netscape's access to the most efficient distribution channels); *United States v. Am. Can Co.*, 230 F. 859, 881–82 (D. Md. 1916) (disputing an early trust case under section 2, similar to *Microsoft*); see also AREEDA & HOVENKAMP, ANTITRUST LAW: AN ANALYSIS OF ANTITRUST PRINCIPLES AND THEIR APPLICATION ¶ 900 (4th ed. 2016) ¶ 1804 (noting that exclusive dealing can raise rivals' costs).

435 See 2023 MERGER GUIDELINES, *supra* note 5, § 2.5.A.2, at 16 n.30.

436 See *supra* Section III.D.

that many mergers will remain independently challengeable on potential competition grounds.⁴³⁷

A second class of mergers should be those where the principal harm is foreclosure, or market exclusion, which includes mergers that unreasonably raise the costs of rivals. The injury here is not primarily from eliminating competition between the merging firms, but rather between the postmerger firm and other competitors. These are described in the 2023 Merger Guidelines as mergers that “limit access to a product [or] service . . . that its rivals may use to compete.”⁴³⁸ That classification covers all conventional vertical mergers, plus all mergers where the primary competition-affecting relationship between the parties is as producers of complements and the fear is anticompetitive exclusion. The 2010 Horizontal Merger Guidelines did not address this category at all, although they did mention the possibility that a merger might create a firm capable of engaging in anticompetitive exclusionary conduct.⁴³⁹

These two categories, which might be called “collusive” and “exclusionary,” cover the full range of competitive harms that mergers might threaten. The one thing they have in common is that the harm, when it occurs, is evidenced by higher prices (or suppressed prices or wages in supply markets), reduced market output, or a reduction in innovation. The principal victims are consumers and labor or other suppliers, all of whom are injured by lower output and higher prices in the product market.

Acquisitions on or involving two-sided markets pose some complexities in analysis, but the underlying questions remain the same. They can cause harm under either collusion or foreclosure theories, but ultimately, they must threaten the same types of competitive harm as other mergers.

Some mergers might impose significant risks of one type of harm but not of the other. Others may pose risks of both collusive and exclusionary harms. Then they must be evaluated separately, although that can be done in separate counts of a single antitrust complaint. Historically, when mergers involved both competitor and vertical (complementary) relationships, the courts assessed them independently.⁴⁴⁰

437 See discussion *supra* text accompanying notes 195–97.

438 2023 MERGER GUIDELINES, *supra* note 5, § 2.5 (Guideline 5).

439 See 2010 HORIZONTAL MERGER GUIDELINES, *supra* note 10, §§ 1, 2.2.3.

440 See, e.g., *Brown Shoe Co. v United States*, 370 U.S. 294, 323–34 (1962) (discussing vertical aspects); *id.* at 334–46 (discussing horizontal aspects); *United States v. Columbia Steel Co.*, 334 U.S. 495, 525–27 (1948) (vertical aspects); *id.* at 527–31 (defining horizontal aspects as “competitors,” *id.* at 527).

Firms' competitive and complementary relationships may sometimes point in different directions, as they did in the *JetBlue* case.⁴⁴¹ When that happens, the "single market" rule can be an obstacle to rational merger law. This is where voluntary divestitures and negotiated settlements can play an important role, by eliminating the threats and preserving the value. Courts should also consider relaxing the single market rule in cases where there is no reasonable doubt that benefits outweigh harms, as was very likely true in the *JetBlue* decision.

New technology is making the universe of mergers more complex. That is particularly true in areas involving innovation and networks. One cannot dodge the market complexities that must be faced. However, an important first step is for enforcers to keep their eyes on the ball by asking whether an acquisition is likely to result in higher prices, lower output, reduced innovation, or equivalent harm to labor or another input. One deficiency of the 2023 Merger Guidelines is that they fail to articulate this well-established goal. Without an agreed-upon target, merger policy becomes excessively complex and indeterminate.

With these considerations in mind, here are a few recommendations:

First, the starting enforcement position on mergers should be that overly harsh merger rules can be as costly as excessively lenient ones. This is not categorically a situation in which the cost of false positives exceeds that of false negatives, or vice versa. This places a premium on getting the price/output calculus right, but in an area where prediction tools are extremely crude. On this point, the *Brown Shoe* decision's "probability" metric was correct. While this paper has not focused on merger remedies,⁴⁴² the same constraints apply to them. Remedies that prevent firms from obtaining scale or scope economies involving complements will be socially costly, as will those that prevent networks or ecosystems from growing to their optimal size or shape.

Second, the target for all merger enforcement policy should be mergers that facilitate the exercise of market power, resulting in higher prices (or suppressed supply prices or wages), lower output, or reduced innovation. Merger law is complicated enough without having to add in poorly defined factors such as "more attractive features."⁴⁴³ While few dispute that competition occurs along many avenues, assessing effects becomes unrealistically complex when no one collects useful data or there is not even a suitable metric for consistent evaluation. Today the USA sees 16,000 to 25,000 mergers in a typical

441 See *supra* notes 133–44 and accompanying text.

442 On remedies, see HERBERT HOVENKAMP, *TECH MONOPOLY* 135–79 (2024).

443 2023 MERGER GUIDELINES, *supra* note 5, § 2.2.

year.⁴⁴⁴ Roughly 3,000 of these are reportable.⁴⁴⁵ Of these, roughly forty to sixty go to a second request,⁴⁴⁶ and most of these are abandoned or challenged.⁴⁴⁷ This places an enormous burden on the enforcement agencies and makes manageable metrics essential.

Third, the core of merger enforcement policy should remain horizontal mergers in which concentration is high and the amount of product complementarity is relatively small. The concentration standards articulated in the 2023 Guidelines are a good effort, but these standards must be continuously retested and revised.

Fourth, vertical mergers should be grouped with all other mergers of complements and placed under a single mode of analysis in which market foreclosure or unreasonable raising of rivals' costs is the principal concern. For these, elimination of double marginalization (EDM) should be a defense, but its elements must be proven, including a showing that EDM cannot readily be achieved otherwise than through the merger. The plaintiff's (government's) proof must warrant a bottom-line finding that in all probability the merger will result in higher prices or reduced output or innovation.

Fifth, the category of potential competition mergers should either be eliminated or else reserved for an extremely small set of instances in which a firm is very likely not "in the market" under the hypothetical monopolist test (HMT) for market definition but should nevertheless be treated as a potential competitor. If data for applying the HMT are not available, it must nevertheless be determined that a supposed potential entrant does not face significant sunk costs or other limitations that make its market entry unlikely.

Sixth, in cases involving horizontal mergers with significant product complementarity, the single market rule must be relaxed if the balance between positive and negative effects is strongly positive, and "fixes" are not available. Relaxation of this nature does not necessarily require the tribunal to quantify and balance gains and losses. It does, however, have to be convinced that likely gains are substantially greater than likely losses. Such balancing may conflict with the statutory prescription that a merger is unlawful if it threatens to harm competition

444 *United States—M&A Statistics*, INST. FOR MERGERS, ACQUISITION & ALLS., <https://imaa-institute.org/mergers-and-acquisitions-statistics/united-states-ma-statistics/> [<https://perma.cc/A9XG-EHXE>] (last visited Feb. 11, 2025).

445 *See, e.g.*, Press Release, Fed Trade Comm'n, FTC, DOJ Issue Fiscal Year 2022 Hart-Scott-Rodino Notification Report (Dec. 21, 2023), <https://www.ftc.gov/news-events/news/press-releases/2023/12/ftc-doj-issue-fiscal-year-2022-hart-scott-rodino-notification-report> [<https://perma.cc/67SC-QWGR>] (3,152 reported transactions in 2022).

446 *Id.* (forty-seven second requests by both agencies in 2022).

447 *See id.*

in “any line of commerce” or in “any section of the country”—at least in cases where the gains and losses accrue in different markets.

Seventh, efficiencies sufficient to defend a merger become more readily available as the degree of product complementarity is greater: they are greatest for vertical mergers or mergers of obvious complementary products, but also for more traditional mergers with a significant complementary component.