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THE PROBATIVE SYNERGY OF PLUS FACTORS IN PRICE-FIXING LITIGATION

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ABSTRACT—Private plaintiffs alleging that defendants conspired to fix prices in violation of antitrust law must usually prove their claims through circumstantial evidence, generally in the form of “plus factors”—evidence indicating that the defendants’ parallel conduct was caused by collusion, not by independent decision-making. Supreme Court precedent requires fact finders to examine antitrust plaintiffs’ evidence holistically. With increasing frequency, however, federal courts in price-fixing cases improperly isolate each piece of circumstantial evidence presented by the plaintiff and then deprive it of all probative value because that single piece of evidence is insufficient, standing alone, to prove a price-fixing conspiracy. As a result, federal courts routinely grant summary judgment to price-fixing defendants even when plaintiffs have proffered more than enough evidence to prove their case.

This Article develops a typology of plus factors. Using antitrust case law, empirical research, and economic theory, this Article categorizes dozens of plus factors and explains the probative value of individual plus factors, as well as their interrelationships with each other. Plus factors may fall into one of several categories, such as Cartel Susceptibility, Cartel Formation, Cartel Management, Cartel Enforcement, and Cartel Markers. The Article then introduces and develops the concept of probative synergy, which describes how the probative value of each individual plus factor increases as additional plus factors are introduced into the equation.

Despite the longstanding rule that courts should not compartmentalize an antitrust plaintiff’s evidence of conspiracy, courts often inappropriately isolate individual plus factors and incorrectly suggest that if a plus factor does not by itself prove collusion, then it is not a plus factor at all. This approach miscomprehends the entire structure of factor tests in legal analysis. Using a series of case studies, the Article examines the causes and consequences of judges improperly compartmentalizing circumstantial evidence in price-fixing litigation. The Article concludes by showing that the failure to appreciate the probative synergy of plus factors has led courts to make it effectively impossible to prove collusion through circumstantial evidence in price-fixing cases.

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INTRODUCTION

Because price fixing is an inherently clandestine crime, antitrust plaintiffs can rarely produce the proverbial smoking gun to prove that parallel price increases are the product of competitor collusion. Price-fixing conspiracies are complicated puzzles with many pieces. A court cannot discern the full picture if the pieces are observed one at a time, unconnected to their adjoining pieces. Yet despite the fact that a consensus exists that price-fixing cartels are intrinsically bad,¹ federal courts routinely disaggregate all the pieces of circumstantial evidence of competitor collusion

¹ See William E. Kovacic, Robert C. Marshall, Leslie M. Marx & Halbert L. White, *Plus Factors and Agreement in Antitrust Law*, 110 MICH. L. REV. 393, 398 (2011).

in a way that creates almost insurmountable burdens for private plaintiffs seeking to prove price-fixing claims. This Article explains how.

The Supreme Court long ago recognized that antitrust cases are complex and that fact finders need to examine all of an antitrust plaintiff's evidence in context. In *Continental Ore Co. v. Union Carbide & Carbon Corp.*,² a unanimous Court famously pronounced that antitrust “plaintiffs should be given the full benefit of their proof without tightly compartmentalizing the various factual components and wiping the slate clean after scrutiny of each. ‘. . . [T]he character and effect of a conspiracy are not to be judged by dismembering it and viewing its separate parts, but only by looking at it as a whole.’”³ The *Continental Ore* rule instructs federal judges not to evaluate individual pieces of evidence in isolation from the surrounding evidence.

The Court's rule, though uncontroversial, is regularly ignored. With increasing frequency, lower federal courts in price-fixing cases improperly isolate each piece of circumstantial evidence presented by the plaintiff and then deny it all probative value because that single piece of evidence is insufficient, by itself, to prove a price-fixing conspiracy. Even when courts give lip service to their obligation to consider antitrust plaintiffs' circumstantial evidence holistically, they routinely segregate the evidence and fail to “look[] at it as a whole” as commanded by *Continental Ore*. As a result, federal courts routinely grant summary judgment to price-fixing defendants, even when plaintiffs have proffered more than enough evidence to prove their case.

Part I reviews the relevant substantive antitrust law. The foundation of any price-fixing claim is evidence of an agreement among competitors. Direct evidence of a collusive agreement is rarely available because price fixers go to great lengths to conceal their collusion.⁴ Given that, antitrust law has long allowed plaintiffs to prove an agreement through circumstantial evidence. The circumstantial case to prove a price-fixing agreement generally entails the plaintiff showing that the defendants engaged in parallel conduct and that certain “plus factors” are present. Antitrust law uses the label “plus factors” to describe evidence that tends to show that the defendants' parallel conduct was caused by collusion rather than independent decision-making.

Part II develops a typology of plus factors. Using antitrust case law, empirical research, and economic theory, this Part categorizes dozens of plus

² 370 U.S. 690 (1962).

³ *Id.* at 699 (quoting *United States v. Patten*, 226 U.S. 525, 544 (1913)).

⁴ Christopher R. Leslie, *How to Hide a Price-Fixing Conspiracy: Denial, Deception, and Destruction of Evidence*, 2020–2021 U. ILL. L. REV. (forthcoming 2021) (on file with author).

factors and explains the significance of individual plus factors and their relationships with each other. The first category of plus factors addresses “Cartel Susceptibility,” which asks whether a particular market lends itself to cartel activity. This analysis turns on factors such as market structure, including market concentration, barriers to entry, and product homogeneity. The next category of plus factors relates to “Cartel Formation,” including whether there was an invitation to collude, a motive to do so, an opportunity to conspire, and evidence of intercompetitor communications. Opportunity and communications also belong to the third category of plus factors: “Cartel Management.” Price-fixing conspiracies require ongoing maintenance, and several plus factors—intercompetitor exchange of price information, price signaling, and possession of a competitor’s price-related documents—recognize this. Most cartels develop enforcement systems to deter and penalize cheating among cartel members. These systems form the fourth category of plus factors, “Cartel Enforcement,” which includes cartel monitoring devices (such as sharing sales data) and cartel punishments (such as side payments and other intercompetitor transactions). A fifth category of plus factors is “Cartel Markers,” which describes conduct that commonly indicates price collusion. A sixth category of plus factors can be categorized as “Suspicious Statements” by defendants, such as inculpatory statements made during the course of the alleged conspiracy or pretextual statements intended to provide a defense. Finally, there are a few “Multipurpose Plus Factors” that are impossible to pigeonhole into just one category because they perform multiple functions for cartel managers. Part II concludes by explaining the importance of having a plus-factor typology.

Part III introduces and develops the concept of probative synergy, which describes how the probative value of each individual plus factor increases as additional plus factors are introduced into consideration. The Supreme Court in *Continental Ore* established that plus factors should not be viewed in isolation. Some plus factors—which might not seem particularly probative of a price-fixing conspiracy on their own—may become considerably more important when accompanied by certain other plus factors. Harnessing the insights from the plus-factor typology, this Part explains the legal significance of plaintiffs presenting evidence of plus factors across a range of categories. Understanding probative synergy should dissuade judges from isolating evidence and, consequently, improperly dismissing price-fixing claims or granting summary judgment to defendants as a result of viewing such evidence in isolation.

Part IV explains how, despite the long-held rule that courts should not compartmentalize an antitrust plaintiff’s evidence of conspiracy, courts often inappropriately isolate individual plus factors and incorrectly suggest that if

a plus factor does not *by itself* prove collusion, then it is not a plus factor at all. This approach completely miscomprehends the entire structure of factor tests in legal analysis. Even when courts are correct to conclude that an individual plus factor is insufficient on its own to prove an agreement, they are wrong to then assert that the plus factor has no legal significance. After discussing evidence of several—sometimes over a dozen—plus factors in isolation, courts often then neglect to analyze the plaintiff’s evidence holistically. Using a series of case studies, this Part examines the causes and consequences of judges improperly compartmentalizing circumstantial evidence in price-fixing litigation.

This Article concludes by showing that the judicial failure to appreciate the probative synergy of plus factors has made it effectively impossible to prove collusion through circumstantial evidence in many cases. This undermines deterrence of price fixing and destabilizes this cornerstone of American antitrust law.

I. THE ROLE OF PLUS FACTORS IN PRICE-FIXING LITIGATION

Section 1 of the Sherman Act condemns conspiracies in restraint of trade.⁵ To prove a violation, antitrust plaintiffs must show (1) an agreement that (2) unreasonably restrains trade and (3) inflicts antitrust injury on the plaintiff. Conspiracies among business rivals to fix price, called horizontal price-fixing agreements in antitrust parlance, are *per se* illegal, meaning that, as a matter of law, such an agreement unreasonably restrains trade. Thus, if the injured plaintiff proves an agreement and an antitrust injury, antitrust liability automatically attaches.

Although plaintiffs can easily prove a price-fixing claim if they have direct evidence of an agreement among competitors, such evidence is rarely available.⁶ But plaintiffs do not need direct evidence.⁷ Antitrust law allows plaintiffs to use circumstantial evidence to prove collusion.⁸ Most private

⁵ 15 U.S.C. § 1.

⁶ Christopher R. Leslie, *The Decline and Fall of Circumstantial Evidence in Antitrust Law*, 69 AM. U. L. REV. 1713, 1723 (2020).

⁷ *Id.* at 1724; *In re Graphics Processing Units Antitrust Litig.*, 540 F. Supp. 2d 1085, 1096 (N.D. Cal. 2007) (“[D]irect allegations of conspiracy are not always possible given the secret nature of conspiracies. Nor are direct allegations necessary.”).

⁸ *In re Text Messaging Antitrust Litig.*, 630 F.3d 622, 629 (7th Cir. 2010) (“Direct evidence of conspiracy is not a *sine qua non*, however. Circumstantial evidence can establish an antitrust conspiracy.”); *Toledo Mack Sales & Serv., Inc. v. Mack Trucks, Inc.*, 530 F.3d 204, 219 (3d Cir. 2008) (“[W]hile direct evidence, the proverbial ‘smoking-gun,’ is generally the most compelling means by which a plaintiff can make out his or her claim, it is also frequently difficult for antitrust plaintiffs to come by. Thus, plaintiffs have been permitted to rely solely on circumstantial evidence (and the

plaintiffs rely on circumstantial evidence to prove their cases.⁹ Courts have developed a two-step method for proving price-fixing agreements through circumstantial evidence. First, the plaintiff shows that the defendants engaged in similar conduct, referred to as “conscious parallelism.” The Supreme Court has defined “conscious parallelism” as “the process, not in itself unlawful, by which firms in a concentrated market might in effect share monopoly power, setting their prices at a profit-maximizing, supracompetitive level by recognizing their shared economic interests and their interdependence with respect to price and output decisions.”¹⁰

Conscious parallelism is, by itself, insufficient to prove an agreement.¹¹ Second, plaintiffs present plus factors,¹² which constitute circumstantial evidence that indicates that the defendants colluded.¹³ These factors, “when viewed in conjunction with the parallel acts, can serve to allow a fact finder to infer a conspiracy.”¹⁴ Plus factors can “establish that the defendants were not engaging merely in oligopolistic price maintenance or price leadership

reasonable inferences that may be drawn therefrom) to prove a conspiracy.” (quoting *Rossi v. Standard Roofing, Inc.*, 156 F.3d 452, 465 (3d Cir. 1998)); *Gen. Chems., Inc. v. Exxon Chem. Co.*, 625 F.2d 1231, 1233 (5th Cir. 1980) (“Even a successful antitrust plaintiff will seldom be able to offer a direct evidence of a conspiracy and such evidence is not a requirement.”); *City of Rockford v. Mallinckrodt ARD, Inc.*, 360 F. Supp. 3d 730, 749 (N.D. Ill. 2019) (“[C]ircumstantial evidence is the lifeblood of antitrust law’ because direct evidence will rarely be available to prove the existence of a price-fixing conspiracy.” (quoting *United States v. Falstaff Brewing Corp.*, 410 U.S. 526, 534 n.13 (1973))); *United States v. Apple Inc.*, 952 F. Supp. 2d 638, 689 (S.D.N.Y. 2013) (“Because unlawful conspiracies tend to form in secret, however, proof of a conspiracy will rarely consist of explicit agreements.”), *aff’d*, 791 F.3d 290 (2d Cir. 2015).

⁹ See *ES Dev., Inc. v. RWM Enters., Inc.*, 939 F.2d 547, 553–54 (8th Cir. 1991).

¹⁰ *Brooke Grp. Ltd. v. Brown & Williamson Tobacco Corp.*, 509 U.S. 209, 227 (1993).

¹¹ See, e.g., *In re Chocolate Confectionary Antitrust Litig.*, 801 F.3d 383, 398 (3d Cir. 2015) (“Accordingly, evidence of conscious parallelism cannot alone create a reasonable inference of a conspiracy. To move the ball across the goal line, a plaintiff must also show that certain plus factors are present.” (citation omitted)).

¹² *In re Baby Food Antitrust Litig.*, 166 F.3d 112, 122 (3d Cir. 1999) (“Because the evidence of conscious parallelism is circumstantial in nature, courts are concerned that they do not punish unilateral, independent conduct of competitors. They therefore require that evidence of a defendant’s parallel pricing be supplemented with ‘plus factors.’” (citation omitted)); *Todorov v. DCH Healthcare Auth.*, 921 F.2d 1438, 1456 n.30 (11th Cir. 1991) (“[A]n agreement is properly inferred from conscious parallelism only when ‘plus factors’ exist.”).

¹³ Plus factors are not the only form of circumstantial evidence. For example, expert testimony can also constitute circumstantial evidence that is not strictly a plus factor but often involves cartel experts explaining how particular facts are indicative of price fixing. See, e.g., *In re Urethane Antitrust Litig.*, 768 F.3d 1245, 1264 (10th Cir. 2014) (providing examples of plaintiffs providing expert testimony as evidence); John E. Lopatka, *Economic Expert Evidence: The Understandable and the “Huh?”*, 61 ANTITRUST BULL. 434, 439 (2016) (“An expert can testify as to the significance of conditions conducive to collusion as well as the presence of those conditions and tip-offs of collusion in a particular case.”).

¹⁴ *Apex Oil Co. v. DiMauro*, 822 F.2d 246, 253 (2d Cir. 1987).

but rather in a collusive agreement to fix prices or otherwise restrain trade.”¹⁵ Each plus factor is a piece of circumstantial evidence. No court has created a comprehensive list of plus factors,¹⁶ and although there is no minimum or threshold number of plus factors that an antitrust plaintiff must present,¹⁷ most plaintiffs try to plead as many as the evidence supports.

Most importantly for our purposes, in evaluating whether plus factors establish an agreement among the defendants, the plus factors presented should not be evaluated in isolation; rather, the fact finder must analyze the plus factors holistically, as a group, and in relation to each other.¹⁸ In the context of the defendants’ motions for summary judgment in price-fixing cases, “a court ‘should not tightly compartmentalize the evidence put forward by the nonmovant, but instead should analyze it as a whole to see if it supports an inference of concerted action.’”¹⁹ As noted in the Introduction, the Supreme Court memorably opined in *Continental Ore Co. v. Union Carbide & Carbon Corp.* that judges and juries should not compartmentalize or dismember an antitrust plaintiff’s proffer of proof but should instead look at the evidence “as a whole.”²⁰ All circuits recognize this foundational rule of antitrust law.²¹

The issue in evaluating a plaintiff’s case is not whether any individual plus factor on its own creates an inference that defendants colluded but whether the totality of plus factors, taken as a whole, would allow a

¹⁵ *Capitol Body Shop, Inc. v. State Farm Mut. Auto. Ins. Co.*, 163 F. Supp. 3d 1229, 1234 (M.D. Fla. 2016) (citing *City of Tuscaloosa v. Harcros Chems., Inc.*, 158 F.3d 548, 571 (11th Cir. 1998)); see also *In re Baby Food*, 166 F.3d at 122 (“[Plus factors] show that the allegedly wrongful conduct of the defense was conscious and not the result of independent business decisions of the competitors.”).

¹⁶ *In re Flat Glass Antitrust Litig.*, 385 F.3d 350, 360 (3d Cir. 2004) (citing *In re Baby Food*, 166 F.3d at 122).

¹⁷ See *Valspar Corp. v. E.I. Du Pont De Nemours & Co.*, 873 F.3d 185, 207 (3d Cir. 2017) (Stengel, J., dissenting) (first citing *In re Flat Glass*, 385 F.3d at 361 n.12; and then *Petruzzi’s IGA Supermarkets, Inc. v. Darling-Delaware*, 998 F.2d 1224, 1242 (3d Cir. 1993)).

¹⁸ *In re Domestic Airline Travel Antitrust Litig.*, 221 F. Supp. 3d 46, 58 (D.D.C. 2016) (“‘Plus factors’ must be evaluated holistically.” (citing *SD3, LLC v. Black & Decker Inc.*, 801 F.3d 412, 424 (4th Cir. 2015))); *In re Currency Conversion Fee Antitrust Litig.*, 773 F. Supp. 2d 351, 370 (S.D.N.Y. 2011) (“Plaintiffs’ conspiracy allegations must be examined holistically.”).

¹⁹ *In re Flat Glass*, 385 F.3d at 357 (quoting *Petruzzi’s*, 998 F.2d at 1230).

²⁰ 370 U.S. 690, 699 (1962) (quoting *Am. Tobacco Co. v. United States*, 147 F.2d 93, 106 (6th Cir. 1944)).

²¹ See, e.g., *Erie County v. Morton Salt, Inc.*, 702 F.3d 860, 870 (6th Cir. 2012) (“We must consider these factors together, not in isolation, to determine whether they give rise to a plausible inference of conspiracy.”); JOHN J. MILES, *HEALTH CARE AND ANTITRUST LAW* § 2A:6 (2020) (collecting dozens of other cases).

reasonable jury to infer collusion.²² By their very nature, price-fixing conspiracies involve many moving parts that “cannot be compartmentalized and considered in isolation ‘as if they were separate lawsuits, thereby overlooking the conspiracy claim itself.’”²³ As one court explained, “Pieces of a puzzle viewed separately form unintelligible, irregular shapes, but considered together reveal a discernible image.”²⁴ Thus, it is important to examine circumstantial evidence of price fixing holistically because “while each of these factors taken in isolation does not necessarily provide a basis alone for inferring an agreement or conspiracy, in combination, these factors, taken together and ‘on the ground,’ may support a reasonable inference that an agreement or conspiracy existed.”²⁵ While it is easy (and noncontroversial) to implore judges and juries to look at a plaintiff’s evidence as a whole, this task is easier said than done unless they understand *why* particular plus factors are evidence of collusion and *how* these plus factors interact with each other. Part II begins to answer these questions by laying out a typology of plus factors.

II. A TYPOLOGY OF PLUS FACTORS

Plus factors are probative of collusion because they demonstrate—or are relevant to—various aspects of the price-fixing process. One cannot fully appreciate plus factors without understanding how price-fixing conspiracies form and operate. This Part explores the mechanics of price fixing and explains why various plus factors represent evidence of conspiracy. Each plus factor serves a function or purpose in the price fixers’ scheme to replace competition with collusion. Although examples of plus factors abound in

²² *Evergreen Partnering Grp., Inc. v. Pactiv Corp.*, 720 F.3d 33, 47 (1st Cir. 2013) (“While each of [plaintiff’s] allegations of circumstantial [evidence of] agreement standing alone may not be sufficient to imply agreement, taken together, they provide a sufficient basis to plausibly contextualize the agreement necessary for pleading a § 1 claim.”); *Rossi v. Standard Roofing, Inc.*, 156 F.3d 452, 466 (3d Cir. 1998) (“[W]hen examining the sufficiency of what the plaintiff has adduced, [courts] are not to ‘tightly compartmentalize the evidence,’ but rather [courts] must evaluate it as a whole to see if it supports an inference of concerted action.” (quoting *Petruzzi’s*, 998 F.2d at 1230)); *In re Processed Egg Prods. Antitrust Litig.*, 902 F. Supp. 2d 704, 710 (E.D. Pa. 2012) (“In evaluating an allegation that a defendant agreed to an alleged conspiracy, a court should not ‘compartmentalize’ the conspiracy. The ‘character and effect of [the] conspiracy are not to be judged by dismembering it and viewing its separate parts, but only by looking at it as a whole.’” (quoting *Cont’l Ore*, 370 U.S. at 699)).

²³ *Jung v. Ass’n of Am. Med. Colls.*, 300 F. Supp. 2d 119, 155 (D.D.C. 2004) (quoting *In re Fine Paper Antitrust Litig.*, 685 F.2d 810, 822 (3d Cir. 1982)).

²⁴ *Six W. Retail Acquisition, Inc. v. Sony Theatre Mgmt. Corp.*, No. 97 CIV. 5499(DNE), 2000 WL 264295, at *24 (S.D.N.Y. Mar. 9, 2000).

²⁵ *In re Med. X-Ray Film Antitrust Litig.*, 946 F. Supp. 209, 218 (E.D.N.Y. 1996).

both antitrust case law and scholarship,²⁶ no court or scholar has laid out the universe of recognized plus factors and described why they indicate that collusion has occurred and how they relate to each other.²⁷ This Part fills that lacuna by placing plus factors in a comprehensive framework.

This typology places court-recognized plus factors in the following categories: Cartel Susceptibility; Cartel Formation; Cartel Management; Cartel Enforcement; Cartel Markers; Suspicious Statements and Silences; and, finally, Multipurpose Plus Factors. This Part also notes some plus factors that fall outside the typology. Having an appropriate typology serves the Supreme Court's edict in *Continental Ore* that an antitrust plaintiff's evidence should be analyzed holistically. Each plus factor provides context for analyzing the remaining plus factors. Judges and juries, however, cannot fully appreciate the contextual significance of a plaintiff's proffered plus factors without knowing why each of these plus factors is probative of collusion. By exploring the significance of individual plus factors and the functional relationships among them, this Part provides the necessary background for appreciating the critical mistakes that courts make when conducting plus-factor analysis, which are explored in Part IV.

Across this typology, trust is a common theme. Many of the plus factors involve attempts to create trust—or efforts to compensate for a lack of trust—among market competitors who are also coconspirators in a price-fixing cartel. Because every firm in a cartel can increase its short-term profits by cheating on the cartel agreement and selling more than its cartel allotment, most price-fixing conspiracies require a certain level of trust among the cartel partners that their coconspirators will not cheat.²⁸ Trust can convert a short-term conspiracy into a long-term cartel.²⁹ Absent mutual trust, firms may rationally conclude that the expected benefits of participating in a conspiracy do not adequately compensate for the considerable costs, including potential antitrust liability. The most successful cartels are those that establish a sufficient modicum of trust among the member firms so that

²⁶ See RICHARD A. POSNER, *ANTITRUST LAW* 55–93 (2d ed. 2001) (listing several plus factors).

²⁷ See William E. Kovacic, *Antitrust Policy and Horizontal Collusion in the 21st Century*, 9 *LOY. CONSUMER L. REV.* 97, 103 (1997) (noting that “courts have failed to establish an analytical framework that explains why specific plus factors have stronger or weaker evidentiary value or presents a hierarchy of such factors”).

²⁸ See Christopher R. Leslie, *Trust, Distrust, and Antitrust*, 82 *TEX. L. REV.* 515, 546–62 (2004).

²⁹ See Margaret C. Levenstein & Valerie Y. Suslow, *Studies of Cartel Stability: A Comparison of Methodological Approaches*, in *HOW CARTELS ENDURE AND HOW THEY FAIL: STUDIES OF INDUSTRIAL COLLUSION* 9, 42 (Peter Z. Grossman ed., 2004) (“The expectations that participants have about competitors’ propensity to cooperate can make all the difference in whether collusion is successful or not.”).

they will not cheat on the agreement by charging less than the agreed-upon price and will not expose the cartel to antitrust authorities in exchange for leniency in criminal prosecution.³⁰ Because trust among business rivals is not the default mode, price fixers must work to cultivate trust, sometimes starting small and growing the cartel as trust allows. As discussed below, many plus factors acknowledge this fact.

The typology represented in this Part constructs several distinct categories, each of which describes why a particular plus factor is probative of price fixing. Some individual plus factors can reside in more than one category. Similarly, a single piece of evidence can establish multiple plus factors, including plus factors across different categories within this typology. Most notably, interfirm communications are relevant to Cartel Formation, Cartel Management, and Cartel Enforcement. Thus, the fact that a particular plus factor is discussed in one category of the typology does not mean that it is irrelevant to other categories.

A. *Cartel Susceptibility*

Several plus factors relate to whether a market has characteristics that render it more susceptible to cartelization, including market concentration, high entry barriers, inelastic demand, an absence of substitutes, and markets with homogenous products. Even before firms in a particular market have engaged in any anticompetitive conduct, the structure of that market may encourage price-fixing efforts.³¹ Market structure is an umbrella term that includes many separate variables, such as market concentration and the presence of barriers to entry.

Market concentration is an important factor to examine because markets with fewer firms are more susceptible to cartelization—a smaller group of competitors is better able to solve the coordination and trust problems that can prevent cartel formation or destabilize an existing cartel.³² A smaller number of negotiators makes it easier for the conspirators to agree on a cartel price, to allocate market shares, to conceal their collusion, to develop enforcement mechanisms, and to detect and punish cheaters.³³ Empirically,

³⁰ See Christopher R. Leslie, *Antitrust Amnesty, Game Theory, and Cartel Stability*, 31 J. CORP. L. 453, 462–65 (2006).

³¹ George A. Hay, *Horizontal Agreements: Concept and Proof*, 51 ANTITRUST BULL. 877, 885 (2006).

³² Leslie, *supra* note 28, at 564–65.

³³ See Kai Hüschelrath & Jürgen Weigand, *Fighting Hard Core Cartels*, in THE INTERNATIONAL HANDBOOK OF COMPETITION 307, 325–26 (Manfred Neumann & Jürgen Weigand eds., 2d ed. 2013) (“[B]ecause negotiations (and the subsequent monitoring) among ten parties is typically more complex and expensive than negotiations among only three parties . . . , ceteris paribus, a cartel in the three-firm

concentrated markets are more prone to price fixing,³⁴ and, thus, market concentration is a plus factor.³⁵

A market with high barriers to entry is also more conducive to collusion. To maximize long-term profits, the cartel-fixed price must be sufficiently high to warrant participating in a criminal conspiracy (and, thus, risking criminal sanctions as well as treble damages) but not so high as to lure new competitors into the market. When a market is protected by high barriers to entry, conspirators are better able to fix a high price with less worry that new firms will come into the market and bid the price down. In contrast, firms may not bother to conspire to fix prices if interlopers cannot be excluded from the market. Thus, high barriers to entry are often correlated with price-fixing activity and constitute a plus factor.³⁶

Demand elasticity affects whether price fixing is likely to be profitable. When demand is inelastic, a seller with market power can charge a higher price without losing significant sales. This market characteristic encourages collusion because rivals can collectively raise price profitably.³⁷ Judges have recognized inelastic demand as a plus factor.³⁸

market is more likely than in a ten-firm market.”); George A. Hay & Daniel Kelley, *An Empirical Survey of Price Fixing Conspiracies*, 17 J.L. & ECON. 13, 24 (1974) (“The results of the present study . . . suggest that the low cost of planning and enforcing a conspiracy and the smaller likelihood of being caught in concentrated markets[] are equally if not more significant factors in stimulating conspiracy.”); *In re Text Messaging Antitrust Litig.*, 630 F.3d 622, 628 (7th Cir. 2010) (noting that because “the four defendants sell 90 percent” of the market, “it would not be difficult for such a small group to agree on prices and to be able to detect ‘cheating’”); *In re High Fructose Corn Syrup Antitrust Litig.*, 295 F.3d 651, 656 (7th Cir. 2002) (stating that concentrated markets are amenable to concealing collusion).

³⁴ Arthur G. Fraas & Douglas F. Greer, *Market Structure and Price Collusion: An Empirical Analysis*, 26 J. INDUS. ECON. 21, 23 (1977); Hay & Kelley, *supra* note 33, at 21; Richard A. Posner, *A Statistical Study of Antitrust Enforcement*, 13 J.L. & ECON. 365, 399 (1970); *cf.* Margaret C. Levenstein & Valerie Y. Suslow, *What Determines Cartel Success?*, 44 J. ECON. LITERATURE 43, 58 (2006) (“There is no simple relationship between industry concentration and the likelihood of collusion. Most cartels in our case study sample were in relatively concentrated industries . . .”).

³⁵ *Todd v. Exxon Corp.*, 275 F.3d 191, 208 (2d Cir. 2001) (“Generally speaking, the possibility of anticompetitive collusive practices is most realistic in concentrated industries.”); *In re Blood Reagents Antitrust Litig.*, 266 F. Supp. 3d 750, 772 (E.D. Pa. 2017).

³⁶ *In re Blood Reagents*, 266 F. Supp. 3d at 772 (“High barriers to entry also make an industry more conducive to collusion.” (citing *In re Publ’n Paper Antitrust Litig.*, 690 F.3d 51, 65 (2d Cir. 2012))).

³⁷ *Stanislaus Food Prods. Co. v. USS–POSCO Indus.*, 782 F. Supp. 2d 1059, 1076–77 (E.D. Cal. 2011) (“The structure of the Relevant Market makes collusion plausible, collusion is possible because of the concentrated supply controlled by defendants, the inelastic demand for tin mill products would force customers to purchase from defendants.”).

³⁸ *Id.*; *In re Blood Reagents Antitrust Litig.*, 756 F. Supp. 2d 623, 631 (E.D. Pa. 2010); *United States v. Alcoa, Inc.*, No. CIV. A.2000–954(RMU.), 2001 WL 1335698, at *12 (D.D.C. June 21, 2001) (describing inelastic demand as conducive to collusion); *Blomkest Fertilizer, Inc. v. Potash Corp. of Saskatchewan*, 203 F.3d 1028, 1039, 1044 (8th Cir. 2000) (Gibson, J., dissenting).

The availability of reasonably interchangeable substitutes also affects the likelihood of price fixing. Because consumers are less likely to pay an inflated cartel price if they can easily switch to a lower-priced substitute for the cartelized product, an absence of substitutes is also a plus factor.³⁹

Finally, markets with homogeneous products are more susceptible to cartelization.⁴⁰ When products in a market are homogeneous, it is easier for coconspirators to fix a single price, especially if the coconspirators have similar cost structures. If products are similar but heterogeneous, producers are less likely to share a common profit-maximizing price.⁴¹ And when products are of varying quality, nonprice competition can supplant price competition and render attempts at cartelization unsustainable.⁴² In contrast, a standardized product facilitates price fixing by making coordination more straightforward⁴³ and enabling price fixers to more easily detect cheating on the cartel agreement.⁴⁴ Consequently, courts recognize product homogeneity as a plus factor.⁴⁵

³⁹ *In re High Fructose Corn Syrup Antitrust Litig.*, 295 F.3d 651, 657 (7th Cir. 2002) (finding that because there were “no close substitutes for” the cartelized product, “[a]n attempt to raise price above cost would not be likely to come to grief by causing a hemorrhage of business to sellers in other markets”).

⁴⁰ *See Milk & Ice Cream Can Inst. v. FTC*, 152 F.2d 478, 482 (7th Cir. 1946) (“[I]t was easier to reach the goal of uniform prices on a standard product than on one which was not.”); *In re Titanium Dioxide Antitrust Litig.*, 959 F. Supp. 2d 799, 822 (D. Md. 2013) (“Indicators that a market is conducive to collusion include the homogeneous and highly standardized, or commodity-like nature, of the product; a concentrated market dominated by a few sellers; high barriers to new players’ entry, such as high investment or fixed costs; and excess production capacity.”).

⁴¹ Joseph J. Simons, *Fixing Price with Your Victim: Efficiency and Collusion with Competitor-Based Formula Pricing Clauses*, 17 HOFSTRA L. REV. 599, 628 n.167 (1989); *see also* Peter Asch & Joseph J. Seneca, *Characteristics of Collusive Firms*, 23 J. INDUS. ECON. 223, 224 (1975) (“[I]n a standardized product market, coordinated pricing will clearly involve identical or near-identical levels For this reason, there is some expectation that collusion will occur with relative frequency in homogenous product markets.”). Firms selling higher-quality goods probably have a higher profit-maximizing price, and firms selling lower-quality goods will not want to charge the exact same price as their rivals selling higher-quality goods because if the prices are identical, rational consumers will purchase the higher-quality good.

⁴² Fraas & Greer, *supra* note 34, at 38 (“In the absence of standardized (homogeneous) products, a price fixing agreement may be difficult to maintain because competition could then center on nonprice matters.”).

⁴³ *In re High Fructose Corn Syrup*, 295 F.3d at 656–57 (“[When] the product . . . is highly standardized[,] . . . [t]his is another reason why a successful conspiracy would not require such frequent communications as to make prompt detection likely.”).

⁴⁴ MARK JEPHCOTT, *LAW OF CARTELS* 13 (2d ed. 2011) (“The nature of the products also affects the ease with which cheating can be detected. When products are homogeneous, not only is it easier for firms to agree on the appropriate cartel price but detection is easier.”).

⁴⁵ *See, e.g., In re High Fructose Corn Syrup*, 295 F.3d at 656–57 (noting that the product was “highly standardized,” which facilitated price collusion); *In re Titanium Dioxide*, 959 F. Supp. 2d at 822 (“Indicators that a market is conducive to collusion include the homogeneous and highly standardized, or commodity-like nature, of the product”).

For all of these reasons, a market structure conducive to collusion constitutes circumstantial evidence to support a price-fixing claim.⁴⁶ Market structure, however, is not a single plus factor but rather a set of separate plus factors, including market concentration, entry barriers, inelastic demand, absence of substitutes, and product homogeneity. While each individual component of market structure operates as a plus factor, the presence of a combination of these market characteristics is particularly probative⁴⁷ because a market with more than one of these features is even more susceptible to collusion.

B. Cartel Formation

Every conspiracy has an origin story. Understanding a conspiracy's beginnings can help make sense of the many seemingly unrelated anecdotal pieces of circumstantial evidence that, when viewed collectively, demonstrate how and why the conspirators combined to violate the law. Plus factors within the cartel-formation category include invitations to collude and other communication among defendants. In the context of price-fixing conspiracies, collusion often evolves either from a group of competitors (sometimes meeting for ostensibly legal reasons) extemporaneously agreeing to collude or from a single firm acting as a ringleader and proposing to one or more of its rivals that they cease competing against each other.

The first type of origin story entails impromptu collusion and exemplifies Adam Smith's oft-repeated insight that "[p]eople of the same trade seldom meet together, even for merriment and diversion, but the conversation ends in a conspiracy against the public, or in some contrivance to raise prices."⁴⁸ Although Smith overstated the seeming inevitability of

⁴⁶ *In re Text Messaging Antitrust Litig.*, 630 F.3d 622, 627–28 (7th Cir. 2010) (“Parallel behavior of a sort anomalous in a competitive market is thus a symptom of price fixing, though standing alone it is not proof of it; and an industry structure that facilitates collusion constitutes supporting evidence of collusion.”).

⁴⁷ *See In re Blood Reagents Antitrust Litig.*, 756 F. Supp. 2d 623, 631 (E.D. Pa. 2010) (“The salient features of the blood reagents market—described in the Complaint as one that is highly concentrated, contains high barriers to entry, has inelastic demand, lacks reasonable substitutes, and is based on a standardized product—are each conducive to transforming that motive into action.”); *Blomkest Fertilizer, Inc. v. Potash Corp. of Saskatchewan*, 203 F.3d 1028, 1044 (8th Cir. 2000) (Gibson, J., dissenting); *see also Hay*, *supra* note 31, at 885 (“Specific factors would include the degree of market concentration, the ease of entry, the homogeneity of the product, transparency of prices, and the presence or absence of large buyers.”); *Hay & Kelley*, *supra* note 33, at 26–27 (“A brief summary of our empirical results would be that conspiracy among competitors may arise in any number of situations but it is most likely to occur and endure when numbers are small, concentration is high and the product is homogeneous.”).

⁴⁸ ADAM SMITH, AN INQUIRY INTO THE NATURE AND CAUSES OF THE WEALTH OF NATIONS 55 (Robert Maynard Hutchins ed., Encyclopedia Britannica 1952) (1776).

price-fixing conspiracies springing forth from competitor get-togethers,⁴⁹ his observation is not without foundation. Many illegal cartels have, in fact, spontaneously commenced and grown from innocent encounters among rivals, such as trade-association meetings or social functions.⁵⁰

An alternative starting point for price-fixing conspiracies involves what is generally referred to in antitrust law as an “invitation to collude.” Several antitrust opinions have treated an invitation to collude as an important plus factor.⁵¹ The Federal Trade Commission (FTC) has defined an invitation to collude as “an improper communication from a firm to an actual or potential competitor that the firm is ready and willing to coordinate on price or output or other important terms of competition.”⁵² Perhaps the most notorious invitation to collude in antitrust jurisprudence involved Robert L. Crandall, the president of American Airlines, attempting to fix ticket prices on certain air routes by telephoning Howard Putnam, the president of Braniff Airlines, and saying, “I have a suggestion for you. Raise your goddamn fares twenty percent. I’ll raise mine the next morning . . . You’ll make more money and I will too.”⁵³ This invitation to collude did not result in Section 1 litigation because, far from accepting Crandall’s invitation and fixing prices, Putnam recorded the telephone call and shared it with the government, which sued American Airlines for illegal attempted monopolization under Section 2 of the Sherman Act.⁵⁴ Most invitees, though, are not as proactive as Putnam. Thus, when such invitations precede parallel price increases, courts observe that “[o]ne of the strongest circumstantial indicators of a conspiracy is the existence of a common invitation or request to join into a concerted plan of action.”⁵⁵ An invitation to collude is an important plus factor because it is

⁴⁹ See *United States v. Taubman*, 297 F.3d 161, 166 (2d Cir. 2002).

⁵⁰ See, e.g., JOHN M. CONNOR, *GLOBAL PRICE FIXING* 141 (2d ed. 2008) (noting how social visits were used to start the international citric acid price-fixing conspiracy); JOHN G. FULLER, *THE GENTLEMEN CONSPIRATORS: THE STORY OF THE PRICE-FIXERS IN THE ELECTRICAL INDUSTRY* 136 (1962); Walter Adams, *The Steel Industry*, in *THE STRUCTURE OF AMERICAN INDUSTRY: SOME CASE STUDIES* 148, 150–51 (Walter Adams ed., 1954) (recounting how Judge Gary, president of U.S. Steel, stabilized industry prices by hosting his famous “Gary dinners” to which he invited his rivals and discussed pricing).

⁵¹ See *In re Delta/Airtran Baggage Fee Antitrust Litig.*, 245 F. Supp. 3d 1343, 1372 (N.D. Ga. 2017) (“Numerous cases have recognized that an invitation to collude can serve as evidence of a conspiracy.”), *aff’d sub nom. Siegel v. Delta Air Lines, Inc.*, 714 F. App’x 986 (11th Cir. 2018); *Gainesville Utils. Dep’t v. Fla. Power & Light Co.*, 573 F.2d 292, 300–01 (5th Cir. 1978); *Fishman v. Wirtz*, Nos. 74 C 2814 & 78 C 3621, 1981 WL 2153, at *59 (N.D. Ill. Oct. 28, 1981) (“One of the strongest circumstantial indicators of a conspiracy is the existence of a common invitation or request to join into a concerted plan of action.”).

⁵² *In re Fortiline, LLC*, No. 151-0000, 2016 WL 4379041, at *11 (F.T.C. Aug. 9, 2016).

⁵³ *United States v. Am. Airlines, Inc.*, 743 F.2d 1114, 1116 (5th Cir. 1984).

⁵⁴ *Id.*

⁵⁵ *Fishman*, 1981 WL 2153, at *59.

half of the element of “agreement.” The solicitation “shows conspiratorial state of mind on the part of the solicitor and may also indicate that the solicitor was acting upon an earlier agreement.”⁵⁶ The invitation to collude is, thus, powerful circumstantial evidence even without direct proof of acceptance of the invitation.⁵⁷

Both of these paths to conspiracy—group creation and individual initiative—generally involve the two elements common to most criminal activity: motive and opportunity. In the context of antitrust conspiracies, motive to collude is a plus factor.⁵⁸ Motive evidence is important because it shows why these particular defendants would seek to replace competition with collusion, and it demonstrates the plausibility of the plaintiffs’ claims that these defendants engaged in price fixing.⁵⁹

Showing that the defendants had the opportunity to conspire is also an important plus factor.⁶⁰ Communication among defendants is a well-recognized plus factor related to the opportunity to conspire.⁶¹ Evidence of interfirm messages and conversations can be powerful circumstantial evidence of collusion because cartel members generally must communicate with each other in order to negotiate the cartel agreement and all of its details. This often involves much more than setting a single price. Many cartels must fix multiple prices on multiple products, as well as reach accords on production levels, currency exchange rates, market allocation, and cartel-

⁵⁶ *Blomkest Fertilizer, Inc. v. Potash Corp. of Saskatchewan*, 203 F.3d 1028, 1045 (8th Cir. 2000) (Gibson, J., dissenting).

⁵⁷ *Id.* (“Besides serving as direct evidence of a particular agreement, a solicitation might be circumstantial evidence of an ongoing conspiracy. Although no favorable response to the solicitation is shown, the solicitation itself might be the product of a prior agreement.” (quoting 6 PHILLIP E. AREEDA, *ANTITRUST LAW* § 1419c (1986)); see also LOUIS KAPLOW, *COMPETITION POLICY AND PRICE FIXING* 78 (2013).

⁵⁸ *Burtch v. Milberg Factors, Inc.*, 662 F.3d 212, 227 (3d Cir. 2011) (describing “evidence that the defendant had a motive to enter into a price fixing conspiracy” as a plus factor (citation omitted)); *Mitchael v. Intracorp, Inc.*, 179 F.3d 847, 859 (10th Cir. 1999) (noting that “motivation to enter into an agreement requiring parallel behavior” is a plus factor (citation omitted)).

⁵⁹ See *Fleischman v. Albany Med. Ctr.*, 728 F. Supp. 2d 130, 159 (N.D.N.Y. 2010) (“A conspiracy may be economically plausible if the defendants had a motive to engage in the conspiracy.”).

⁶⁰ See, e.g., *Re/Max Int’l, Inc. v. Realty One, Inc.*, 173 F.3d 995, 1009 (6th Cir. 1999) (finding that, in combination with other factors, opportunity to conspire supports a finding of conspiracy); *In re Disposable Contact Lens Antitrust*, 215 F. Supp. 3d 1272, 1297 (M.D. Fla. 2016) (noting that evidence of opportunities for communication and exchange of information “indisputably facilitates and supports an inference of an agreement”).

⁶¹ *Blomkest*, 203 F.3d at 1033 (“Courts have held that a high level of communications among competitors can constitute a plus factor which, when combined with parallel behavior, supports an inference of conspiracy.”); *In re Polyurethane Foam Antitrust Litig.*, 152 F. Supp. 3d 968, 983 (N.D. Ohio 2015) (“Evidence of communications between competitors can serve as circumstantial evidence of price-fixing.”).

enforcement mechanisms (including auditing procedures, penalties for cheating, and dispute-resolution systems).⁶² Making these decisions generally entails intercompetitor discussions to establish the cartel operations.⁶³

Furthermore, communication helps build trust among competitors,⁶⁴ which is critical to both Cartel Formation and Cartel Management.⁶⁵ The greater the number and duration of communications, the more that trust can be created.⁶⁶ This is true in general, but particularly with respect to price-fixing conspiracies. Professor Salil Mehra has explained that “experimental economists have found that face-to-face communication of promises in cartel simulation games, even where such promises are unenforceable, helps human players build the trust they need to cooperate in maintaining a cartel.”⁶⁷ In short, intercompetitor communications are an important plus factor because they can indicate communication on cartel issues.

C. Cartel Management

After a cartel is formed, it must be managed. Fixed prices often require renegotiation in light of changing consumer demand, foreign exchange rates, and other unanticipated circumstances.⁶⁸ Consequently, many cartels are ongoing conspiracies, and managing the conspiracy may entail several specific types of communications and interactions. This Section describes three such interactions—exchanges of price information, price signaling, and possession of a competitor’s price-related documents—which are all separate plus factors for inferring collusion.

⁶² See Herbert Hovenkamp & Christopher R. Leslie, *The Firm as Cartel Manager*, 64 VAND. L. REV. 813, 827, 831, 834–36 (2011).

⁶³ Christopher R. Leslie, *Balancing the Conspiracy’s Books: Inter-Competitor Sales and Price-Fixing Cartels*, 96 WASH. U. L. REV. 1, 38–39 (2018).

⁶⁴ Leslie, *supra* note 28, at 538–39.

⁶⁵ See sources cited *supra* notes 28–30.

⁶⁶ Leslie, *supra* note 28, at 538–39 (“Communication seems to have a linear relationship with trust. The more time that subjects have to communicate, the greater their cooperation; the more communications that are exchanged, the greater the cooperation.”).

⁶⁷ Salil K. Mehra, *Antitrust and the Robo-Seller: Competition in the Time of Algorithms*, 100 MINN. L. REV. 1323, 1356–57 (2016).

⁶⁸ See Hovenkamp & Leslie, *supra* note 62, at 833.

1. Exchange of Price Information

Intercompetitor exchanges of price information are more probative of conspiracy than mere intercompetitor communications in general.⁶⁹ Exchanging price information is potentially anticompetitive because it often leads to uniform prices being charged by those competitors who are sharing price information.⁷⁰ Information exchanges facilitate price coordination⁷¹ and help cartel members monitor each other's pricing to ensure that nobody is cheating by charging less than the cartel-fixed price.⁷² Empirically, firms in price-fixing cartels often share their pricing information with each other.⁷³ Consequently, exchanging price information is a plus factor.⁷⁴

2. Price Signaling

Price signaling describes generally public communications by a firm designed to indicate to its competitors its present or future pricing intentions. Although the label "fixed prices" implies inflexibility, cartel-fixed prices

⁶⁹ Indeed, in some circumstances, the exchange of price information can itself violate the Sherman Act. *See Todd v. Exxon Corp.*, 275 F.3d 191, 198–99 (2d Cir. 2001) (explaining how such agreements can violate the rule of reason).

⁷⁰ *United States v. Container Corp. of Am.*, 393 U.S. 333, 337 (1969) ("The exchange of price data tends toward price uniformity.").

⁷¹ *Blomkest Fertilizer, Inc. v. Potash Corp. of Saskatchewan*, 203 F.3d 1028, 1047 (8th Cir. 2000) (Gibson, J., dissenting) ("The price communications in this case are more like those in *In re Coordinated Pretrial Proceedings*, 906 F.2d at 448, which served 'little purpose' other than facilitating price coordination.").

⁷² ABA SECTION OF ANTITRUST L., ANTITRUST HEALTH CARE HANDBOOK 174 (4th ed. 2010) ("Exchanges of price information . . . facilitate[] the competitors' detecting others 'cheating' on their tacit agreement."); *see infra* notes 98–101 and accompanying text (discussing price verification as form of cartel monitoring); *Blomkest*, 203 F.3d at 1047 (Gibson, J., dissenting) ("[I]f there were a cartel, it would be crucial for the cartel members to cooperate in telling each other about actual prices charged in order to prevent the sort of widespread discounting that would eventually sink the cartel."); *see also* *United States v. U.S. Gypsum Co.*, 438 U.S. 422, 456 (1978) ("Price concessions by oligopolists generally yield competitive advantages only if secrecy can be maintained; when the terms of the concession are made publicly known, other competitors are likely to follow and any advantage to the initiator is lost in the process.").

⁷³ *See, e.g., In re Plywood Antitrust Litig.*, 655 F.2d 627, 633 (5th Cir. 1981) (describing conspirators sharing information on delivery charges); *see also* Leslie, *supra* note 28, at 575 (noting the sharing of price information in cartels for corrugated containers, wool, cement, and sugar, among others).

⁷⁴ *In re Coordinated Pretrial Proc. in Petroleum Prods. Antitrust Litig.*, 906 F.2d 432, 452 (9th Cir. 1990); *United States v. Apple Inc.*, 952 F. Supp. 2d 638, 690 (S.D.N.Y. 2013) ("Plus factors commonly considered by courts include . . . information sharing." (citing *Todd*, 275 F.3d at 198)); *In re Tyson Foods, Inc. Sec. Litig.*, 275 F. Supp. 3d 970, 995 (W.D. Ark. 2017) ("To be sure, [t]he broadcasting of sensitive business information . . . is . . . circumstantial evidence of a conspiracy among competitors . . ." (internal quotation marks omitted)); *In re Disposable Contact Lens Antitrust*, 215 F. Supp. 3d 1272, 1297 (M.D. Fla. 2016) (noting that intercompetitor "information exchange . . . indisputably facilitates and supports an inference of an agreement" (citation omitted)); *see also* KAPLOW, *supra* note 57, at 81 (discussing how the Supreme Court in *United States v. Container Corp. of Am.*, 393 U.S. 333, 335 (1969), treated intercompetitor price exchanges as evidence of illegal collusion).

often fluctuate. These movements, however, are manipulated by the price fixers themselves. Prices may need to respond to external stimuli, such as changes in demand or the costs of inputs. Or the fixed price may increase when cartel ringleaders believe that the market can bear a higher price that will increase cartel profits. Alternatively, the price may need to be adjusted downward in response to government scrutiny or consumer pressure, or in order to punish a new market entrant or renegade cartel member.⁷⁵

Managing these price variations is important for cartel stability. Miscommunications must be avoided. Any downward movement in price by one cartel member could be misinterpreted by other cartel members as their partners cheating on the cartel, which could result in a tit-for-tat response of lowered prices that creates a chain reaction of reactive price decreases until the cartel dissolves into competition once again.⁷⁶ Conversely, if a cartel member raises prices in anticipation of its coconspirators following suit and the coconspirators do not actually raise their prices, that could lead to feelings of distrust, which destabilize cartels.

Price signaling addresses coordination problems common to cartels.⁷⁷ Depending on the size of the cartel, it can be difficult to have all of the cartel members gathered in the same physical space (or on the same conference call) at the same time. The public announcements of pricing plans solve this problem because cartel members can adjust price without having to meet in person or to create an evidentiary trail of exchanged emails or telephone calls. Because some courts treat intercompetitor communications as an important plus factor for inferring a conspiracy, a cartel is better off if it can substantially limit the number of conversations and the amount of two-way communications between coconspirators.⁷⁸ Furthermore, price signaling may allow colluding firms to jostle and adjust the market price in a manner that precludes consumers from being able to take advantage of temporary deviations from the cartel price.⁷⁹

Empirically, cartels use seemingly independent price announcements to coordinate their collusive price-fixing activities.⁸⁰ In their study of cartel

⁷⁵ Leslie, *supra* note 28, at 618–20 (discussing price wars initiated by cartels).

⁷⁶ *Id.* at 526.

⁷⁷ See William H. Page, *Communication and Concerted Action*, 38 LOY. U. CHI. L.J. 405, 441 (2007).

⁷⁸ See *infra* note 159 (noting that the number of communications is a plus factor).

⁷⁹ David Genesove & Wallace P. Mullin, *Rules, Communication, and Collusion: Narrative Evidence from the Sugar Institute Case*, 91 AM. ECON. REV. 379, 388 (2001).

⁸⁰ ROBERT C. MARSHALL & LESLIE M. MARX, THE ECONOMICS OF COLLUSION: CARTELS AND BIDDING RINGS 114–15 (2012); see also Robert C. Marshall, Leslie M. Marx & Matthew E. Raiff, *Cartel Price Announcements: The Vitamins Industry*, 26 INT'L J. INDUS. ORG. 762, 762 (2008) (“As another example, in the Rubber Chemicals Cartel, one of the components of the conspiracy was ‘issuing price

price announcements in the vitamins industry, Professors Marshall, Marx, and Raiff noted that price-fixing “[c]artels commonly coordinate public price announcements by the member firms.”⁸¹ Cartels in the markets for “sorbates, monochloroacetic acid and organic peroxides, polyester staple, high pressure laminates, amino acids, carbonless paper, cartonboard, and graphite electrodes” all employed price signaling as part of their cartel operations.⁸²

Courts recognize price signaling as a plus factor.⁸³ Such price signaling can take several forms, from sharing price lists to making advance price announcements, often weeks before a price increase is to take effect.⁸⁴ The substance of the price announcements affects their probative value as evidence of collusion. For example, while it may make sense for a firm to independently make public announcements about current price lists, “a statement as to a series or pattern of expected price increases, the pre-announcement of a price increase to occur in the future, or a public pledge to cease offering discounts, might, in appropriate circumstances, be construed as an assurance or commitment” to one’s coconspirators.⁸⁵ Such preannouncements of price changes are classic cartel conduct.⁸⁶

announcements and price quotations in accordance with the agreements reached.” (quoting Press Release, Dep’t of Just., Crompton Corporation Agrees to Plead Guilty for Participating in Rubber Chemicals Cartel (Mar. 15, 2004), http://www.usdoj.gov/opa/pr/2004/March/04_at_160.htm [<https://perma.cc/UN5U-PA57>]); Craig A. Gallet & John R. Schroeter, *The Effects of the Business Cycle on Oligopoly Coordination: Evidence from the U.S. Rayon Industry*, 10 REV. INDUS. ORG. 181, 189 (1995) (discussing price fixing in the rayon industry).

⁸¹ Marshall et al., *supra* note 80, at 762 (“For example, international cartels in the vitamins industry coordinated announcements of price increases, including the designation of which company would lead the price increase.”).

⁸² MARSHALL & MARX, *supra* note 80, at 115.

⁸³ *In re Coordinated Pretrial Proc. in Petroleum Prods. Antitrust Litig.*, 906 F.2d 432, 446–47 (9th Cir. 1990); *In re Titanium Dioxide Antitrust Litig.*, 959 F. Supp. 2d 799, 828 (D. Md. 2013) (“Frequent price increase announcements could have served as ‘signals,’ making further exchange of actual price information superfluous.”); *see also In re Broiler Chicken Antitrust Litig.*, 290 F. Supp. 3d 772, 788 (N.D. Ill. 2017) (“Defendants’ public statements of intent to cut production are indicative of an agreement considering the commodity nature of Broilers.”).

⁸⁴ The dynamics of price announcements as a cartel-facilitating device may be changing as computer algorithms can shorten the timing of advance price announcements from weeks to seconds. Ariel Ezrachi & Maurice E. Stucke, *Artificial Intelligence & Collusion: When Computers Inhibit Competition*, 2017 U. ILL. L. REV. 1775, 1792.

⁸⁵ Michael D. Blechman, *Conscious Parallelism, Signalling and Facilitating Devices: The Problem of Tacit Collusion Under the Antitrust Laws*, 24 N.Y.L. SCH. L. REV. 881, 902 (1979); *see also* KAPLOW, *supra* note 57, at 277 (describing the advantages to cartel member firms of advance price announcements relative to unilateral price cuts, including avoiding alienating customers and being perceived by other cartel members as defecting).

⁸⁶ Genesove & Mullin, *supra* note 79, at 388 (“Prior notification of impending actions was an integral part of the Sugar Institute mechanism. Institute rules required a firm to notify other members before selling damaged sugar, introducing new private brands, and changing any terms of trade.”).

3. *Possession of a Competitor's Price-Related Documents*

Price-fixing conspiracies vary significantly in the level of detail necessary to fix the market price. Many cartel agreements are extremely complicated, such as those involving multiple product categories.⁸⁷ To keep track of the various prices fixed across a multitude of products, cartel members sometimes exchange their price lists and other pricing documents.⁸⁸ Firms are often in possession of a rival's price sheets precisely because that rival shared it with its competitors as part of a price-fixing conspiracy.⁸⁹ Sharing confidential information beyond pricing is also a way to build trust among coconspirators.⁹⁰ For example, Archer Daniels Midland (ADM) sought to create trust among the members of the international lysine cartel by sharing its proprietary data regarding production technologies, manufacturing costs, lysine production capacity, relevant employees, and planned pilot programs.⁹¹ For these reasons, a firm's possession of its rival's pricing policies, plans, records, and other confidential information is often symptomatic of an underlying agreement among competitors to coordinate prices.

Because having copies of a rival's confidential pricing plans is inherently suspicious, possession of a competitor's documents is a plus factor that can help finders infer an agreement to fix prices.⁹² In particular, the possession of rivals' price lists before they are public can be evidence of collusion.⁹³ Courts have reasoned that the sharing of cost and

⁸⁷ See, e.g., Hovenkamp & Leslie, *supra* note 62, at 827–28 (discussing how some cartels needed to negotiate and fix several price schedules when multiple product categories were involved).

⁸⁸ See, e.g., CONNOR, *supra* note 50, at 281 (discussing the vitamins cartel).

⁸⁹ See, e.g., *United States v. Therm-All, Inc.*, 373 F.3d 625, 630 (5th Cir. 2004) (exemplifying a conspiracy case where a conspirator possessed its coconspirator-rival's price sheets).

⁹⁰ Leslie, *supra* note 28, at 572.

⁹¹ CONNOR, *supra* note 50, at 222–23; *see id.* at 213 (noting that all the technical data ADM shared with its rivals must have raised the level of trust: “[a]t the cartel’s first major meeting, ADM attempted to create trust by giving its best estimates of lysine capacities”).

⁹² See, e.g., *In re Flat Glass Antitrust Litig.*, 385 F.3d 350, 368–69 (3d Cir. 2004) (treating “competitors’ possession of each others’ price increase announcements” as a plus factor); *see also* *Kleen Prods. LLC v. Georgia-Pac. LLC*, 910 F.3d 927, 936 (7th Cir. 2018) (“[F]oreknowledge of price increases may be persuasive evidence that an agreement was afoot.”); *Gelboim v. Bank of Am. Corp.*, 823 F.3d 759, 782 (2d Cir. 2016) (treating defendant’s “knowledge of other banks’ confidential individual submissions in advance” as circumstantial evidence of conspiracy); *In re Interior Molded Doors Antitrust Litig.*, No. 3:18-cv-00718-JAG, 2019 WL 4478734, at *6 (E.D. Va. Sept. 18, 2019) (noting that “alleged advanced knowledge of [rival’s] price increases is precisely the sort of circumstantial or contextual evidence that creates a plausible inference of a conspiracy”).

⁹³ *See In re Bulk Popcorn Antitrust Litig.*, 783 F. Supp. 1194, 1196 (D. Minn. 1991).

other proprietary data is also a plus factor because it makes “no economic sense” for rivals to exchange such sensitive data unless they are colluding.⁹⁴

*D. Cartel Enforcement*⁹⁵

In addition to managing any fluctuations in the collusive prices, conspirators often create enforcement mechanisms to address the risk that some cartel members may try to maximize their short-term profits by selling more than their cartel allotment. Even after agreeing to enter a price-fixing conspiracy, most firms would be better off in the short term if they cheated on the cartel agreement by charging a lower-than-cartel price and selling more than their cartel allotment. An effective enforcement system generally entails two components: monitoring for compliance and penalizing cheaters. A cartel’s efforts to monitor and penalize cartel violations may reveal several possible plus factors, including price-verification schemes, intercompetitor exchanges of sales data, side payments, and intercompetitor buybacks.⁹⁶

Price-fixing cartels pursue several methods to monitor compliance. For example, cartels are known to employ third-party auditors, independent cartel administrators, and even spies.⁹⁷ Most forms of cartel monitoring necessarily involve conspirators exchanging price and sales data. Some price exchanges involve price verification—the practice of a seller reporting to its competitors the details of completed transactions with specific customers.⁹⁸ This subset of price exchanges raises unique anticompetitive risks. Whereas presale exchanges of price information could be used to set the price for a specific upcoming sale, postsale price verifications are more likely to be used as a monitoring device because they reveal to a firm’s cartel partners its actual prices, which a firm in a competitive market would wish to keep

⁹⁴ See *In re High Pressure Laminates Antitrust Litig.*, No. 00 MDL 1368(CLB), 2006 WL 1317023, at *2 (S.D.N.Y. May 15, 2006).

⁹⁵ In some ways, Cartel Enforcement is a subset of Cartel Management. Both of these aspects of cartel maintenance generally involve intercompetitor communications and other activity that occurs after cartel formation. While it is possible to include Cartel Enforcement in the previous discussion of Cartel Management, this typology treats Cartel Enforcement as a separate category to highlight some of the plus factors that are unique to this aspect of a price-fixing conspiracy.

⁹⁶ *In re Urethane Antitrust Litig.*, 768 F.3d 1245, 1265 (10th Cir. 2014) (treating monitoring and discipline as plus factors).

⁹⁷ Leslie, *supra* note 28, at 612–15.

⁹⁸ *United States v. Container Corp. of Am.*, 393 U.S. 333, 335 (1969); *In re Coordinated Pretrial Proc. in Petroleum Prods. Antitrust Litig.*, 906 F.2d 432, 450 (9th Cir. 1990); see also CHRISTOPHER HARDING & JENNIFER EDWARDS, *CARTEL CRIMINALITY: THE MYTHOLOGY AND PATHOLOGY OF BUSINESS COLLUSION* 159–60 (2015) (explaining the lysine cartel’s use of price verification); *id.* at 179 (noting the LCD panels cartel’s use of price verification).

secret.⁹⁹ Price-verification schemes are evidence of conspiracy because such conduct makes little sense absent collusion.¹⁰⁰ The logical reason that rivals would reciprocally report their actual sales prices is to monitor each other's pricing pursuant to a conspiracy.¹⁰¹ Thus, some courts recognize that price-verification schemes are a plus factor for demonstrating an underlying price-fixing conspiracy.¹⁰²

The exchange of sales data among competitors can also help stabilize a cartel agreement for much the same reason that sharing price information strengthens cartels. Sharing sales data provides a monitoring device for cartel managers to detect cheating by members who sell more than their cartel quota.¹⁰³ Empirically, cartels share sales data in order to monitor cartel compliance¹⁰⁴ and to help determine future cartel allotments.¹⁰⁵ Consequently, intercompetitor exchanges of sales data represent an important plus factor for inferring collusion.¹⁰⁶

In addition to detecting deviations from the cartel agreement, many cartel managers also develop mechanisms to punish cheaters or provide adjustments to remedy innocent deviations from the conspirators' agreed-upon allotments. The most direct means for a cartel member that sells more

⁹⁹ *United States v. U.S. Gypsum Co.*, 438 U.S. 422, 456 (1978) (“Thus, if one seller offers a price concession for the purpose of winning over one of his competitor’s customers, it is unlikely that the same seller will freely inform its competitor of the details of the concession so that it can be promptly matched and diffused.”).

¹⁰⁰ *Blomkest Fertilizer, Inc. v. Potash Corp. of Saskatchewan*, 203 F.3d 1028, 1047 (8th Cir. 2000) (Gibson, J., dissenting) (“[C]onfessing price-cutting to competitors makes no economic sense for independent actors, but makes perfect economic sense for cartel members.”).

¹⁰¹ *Id.* at 1046–47 (“[I]f there were a cartel, it would be crucial for the cartel members to cooperate in telling each other about actual prices charged in order to prevent the sort of widespread discounting that would eventually sink the cartel.”).

¹⁰² *See Penne v. Greater Minneapolis Area Bd. of Realtors*, 604 F.2d 1143, 1148–49 (8th Cir. 1979).

¹⁰³ *CONNOR*, *supra* note 50, at 294–95 (discussing the vitamin B2 cartel).

¹⁰⁴ *Id.* at 315 (noting that in the choline chloride cartel, “[c]hecking prices on transactions was not feasible, so the major technique for detecting cheating was for the members to share their internal sales records with each other at the quarterly meetings”); *id.* at 152 (noting that the citric acid cartel exchanged sales data to “confirm adherence to the [market] share agreements”); Kovacic et al., *supra* note 1, at 424 (“The conveyance of firm-specific production and sales information is important for monitoring compliance with many cartel agreements.”).

¹⁰⁵ MARCO BERTILORENZI, *THE INTERNATIONAL ALUMINIUM CARTEL, 1886–1978: THE BUSINESS AND POLITICS OF A COOPERATIVE INDUSTRIAL INSTITUTION* 136–37 (2016).

¹⁰⁶ *Todd v. Exxon Corp.*, 275 F.3d 191, 198 (2d Cir. 2001) (“[A] horizontal price-fixing agreement may be inferred on the basis of conscious parallelism, when such interdependent conduct is accompanied by circumstantial evidence and plus factors such as defendants’ use of facilitating practices. Information exchange is an example of a facilitating practice that can help support an inference of a price-fixing agreement.” (citations omitted)); *In re Currency Conversion Fee Antitrust Litig.*, 773 F. Supp. 2d 351, 368–69 (S.D.N.Y. 2011); *see also In re TFT–LCD (Flat Panel) Antitrust Litig.*, No. C 09-5840 SI, 2012 WL 4808425, at *1 (N.D. Cal. Oct. 9, 2012) (treating the exchange of supply information as a plus factor).

than its cartel allotment to compensate its underselling cartel partner is requiring the overseller to pay money to the underseller.¹⁰⁷ Major cartels in aluminum, steel, cement, and graphic electrodes, for example, have all employed this method of enforcing their cartel.¹⁰⁸ Such side payments, however, have the major downsides of being readily observed and strongly suggestive of collusion.¹⁰⁹ To avoid the obviousness of one-way money transmissions, many price-fixing conspiracies balance their cartel books through intercompetitor sales, also called buybacks, in which a competitor (who sold more than its cartel allotment) purchases products from its rival (who sold less than its cartel allotment) even when the purchaser does not need the product or could produce that same product more efficiently itself.¹¹⁰ Many courts have recognized that such buybacks represent a plus factor because such transactions are inherently suspicious and oftentimes are more consistent with collusion than competition.¹¹¹

E. Cartel Markers

Some plus factors focus on the defendants' market behavior, including the timing and synchronicity of their market conduct. These plus factors are best described as Cartel Markers, which are probative of collusion because their existence is consistent with underlying price fixing but generally

¹⁰⁷ Leslie, *supra* note 63, at 12–13.

¹⁰⁸ *Id.* at 13.

¹⁰⁹ Margaret C. Levenstein & Valerie Y. Suslow, *Breaking Up Is Hard to Do: Determinants of Cartel Duration*, 54 J.L. & ECON. 455, 476 (2011) (“However, side payments leave a paper trail that increases the likelihood of antitrust prosecution.”); Louis Kaplow, *An Economic Approach to Price Fixing*, 77 ANTITRUST L.J. 343, 394 (2011) (“Side payments are widely accepted as evidence of coordinated oligopolistic price elevation, for why else would a competitor make a payment to a rival for no consideration.”); Jonathan B. Baker, *Mavericks, Mergers, and Exclusion: Proving Coordinated Competitive Effects Under the Antitrust Laws*, 77 N.Y.U. L. REV. 135, 164 (2002) (noting that side payments may “be difficult to negotiate and impossible to enforce given the risk that a prosecutor and court would infer an unlawful (even criminal) agreement to fix price”).

¹¹⁰ See, e.g., *In re High Fructose Corn Syrup Antitrust Litig.*, 295 F.3d 651, 659 (7th Cir. 2002) (“There is evidence that defendants bought HFCS from one another even when the defendant doing the buying could have produced the amount bought at a lower cost than the purchase price.”).

¹¹¹ See, e.g., *id.*; *In re Ethylene Propylene Diene Monomer (EPDM) Antitrust Litig.*, 681 F. Supp. 2d 141, 168 (D. Conn. 2009) (noting that without collusion, buybacks would be against the defendants' self-interest); *In re Linerboard Antitrust Litig.*, 296 F. Supp. 2d 568, 579 (E.D. Pa. 2003) (listing sales between defendants as an indicator of collusion); *In re High Fructose Corn Syrup Antitrust Litig.*, 261 F. Supp. 2d 1017, 1024 (C.D. Ill. 2003) (finding that the plaintiff's proof, which included evidence of buybacks, was enough to survive the defendant's motion for summary judgment). *But see* *Valspar Corp. v. E.I. Du Pont De Nemours & Co.*, 873 F.3d 185, 202 (3d Cir. 2017) (holding that the plaintiff's proof, which included evidence of buybacks, was not enough to survive the defendant's motion for summary judgment). For an explanation of why *Valspar's* analysis of intercompetitor sales is deeply flawed, see Leslie, *supra* note 63, at 27–30.

incongruous with a competitive market. Courts consider several cartel markers as probative of collusion, including the number and timing of price increases, parallel price increases during periods of declining costs, maintenance of excess capacity during periods of rising prices, artificial standardization, major changes in business practices, and the stability of market shares among rivals. The first step in the traditional approach to proving price fixing through circumstantial evidence is showing conscious parallelism.¹¹² Although conscious parallelism is not itself a plus factor, several circumstances surrounding the defendants' parallel conduct can constitute plus factors.

Some of these circumstances surrounding the defendants' parallel price increases involve the number or timing of such price hikes. For example, a large number of parallel price increases may be evidence of collusion.¹¹³ Furthermore, when rivals' price increases are close in time to each other, this may constitute "strong circumstantial evidence of an illegal agreement."¹¹⁴ The probative value of the opportunity-to-conspire plus factor, discussed above, increases when intercompetitor meetings are "followed shortly thereafter by parallel behavior that goes beyond what would be expected absent an agreement."¹¹⁵ Similarly, when parallel price increases result in

¹¹² See *supra* notes 25–27 and accompanying text.

¹¹³ *In re Titanium Dioxide Antitrust Litig.*, 959 F. Supp. 2d 799, 825 (D. Md. 2013) ("The sheer number of parallel price increases, when coupled with the other evidence in this case, could lead a jury to reasonably infer a conspiracy."); *In re Se. Milk Antitrust Litig.*, 555 F. Supp. 2d 934, 944 (E.D. Tenn. 2008) ("It seems . . . only logical that the more individual instances of parallel conduct alleged by the plaintiffs, the stronger the inference that can be drawn from those acts of parallel conduct to support an illegal conspiracy and the less likely it is that these parallel acts occurred unilaterally without any conspiracy or agreement.").

¹¹⁴ *In re Ethylene Propylene Diene Monomer (EPDM)*, 681 F. Supp. 2d at 166 ("It is undisputed that the six lockstep price increases are strong circumstantial evidence of an illegal agreement to raise and/or maintain . . . prices."); *Anderson News, L.L.C. v. Am. Media, Inc.*, 899 F.3d 87, 104 (2d Cir. 2018) ("One powerful form of circumstantial evidence is parallel action—proof that defendants took identical actions within a time period suggestive of prearrangement."); *In re Urethane Antitrust Litig.*, 768 F.3d 1245, 1265 (10th Cir. 2014) ("[C]ontacts frequently occurred within days of a lockstep price-increase announcement. This proximity suggested that the price-increase announcements had been coordinated." (citation omitted)); *Tichy v. Hyatt Hotels Corp.*, 376 F. Supp. 3d 821, 840–41 (N.D. Ill. 2019) (collecting cases); *In re Blood Reagents Antitrust Litig.*, 266 F. Supp. 3d 750, 778 (E.D. Pa. 2017) ("The nature of the pricing information transfer and the close temporal link between the transfer and announcement of the 2001 price increases raise an inference of conspiracy."); *In re Domestic Drywall Antitrust Litig.*, 163 F. Supp. 3d 175, 197 (E.D. Pa. 2016) ("[O]pportunities to conspire may be probative of a conspiracy when meetings of Defendants are closely followed in time by suspicious actions or records.").

¹¹⁵ *Stop & Shop Supermarket Co. v. Blue Cross & Blue Shield of R.I.*, 239 F. Supp. 2d 180, 187 (D.R.I. 2003); *In re Broiler Chicken Antitrust Litig.*, 290 F. Supp. 3d 772, 800 (N.D. Ill. 2017) ("[W]here Plaintiffs' have alleged suspicious timing of important industry conferences in January 2008 and 2011, followed by unusual producer actions and market movements, those meetings plausibly help to fill-out the picture of Defendants' alleged conspiratorial agreement."); *In re Domestic Drywall*, 163 F. Supp. 3d

extraordinarily high profits, courts have found that extreme profitability may be evidence of collusion.¹¹⁶

The market conditions in which parallel price increases occur are also important. Just as an increase in input costs can cause all firms to increase their prices in order to cover their higher expenses, a decrease in input costs should cause market prices for the finished product to also decline. So when prices across firms increase uniformly despite declining costs, this parallelism cannot be explained by the functioning of a competitive market.¹¹⁷ Thus, parallel price increases when costs are declining are a plus factor.¹¹⁸ Similarly, if the defendants are raising prices despite decreasing market demand for their products, those price hikes are more consistent with collusion than competition and are, thus, a plus factor.¹¹⁹

at 197 (“[O]pportunities to conspire may be probative of a conspiracy when meetings of Defendants are closely followed in time by suspicious actions or records.”); *In re Urethane Antitrust Litig.*, 913 F. Supp. 2d 1145, 1156 (D. Kan. 2012) (“Many . . . [intercompetitor] communications were by telephone calls placed after normal business hours and on weekends, including near the times of price increase announcements.”).

¹¹⁶ See *City of Tuscaloosa v. Harcros Chems., Inc.*, 158 F.3d 548, 572–73 (11th Cir. 1998); *Estate of Le Baron v. Rohm & Haas Co.*, 441 F.2d 575, 578 (9th Cir. 1971) (“[E]vidence of high profit margins is probative of the existence of a conspiracy.” (first citing *Am. Tobacco Co. v. United States*, 328 U.S. 781 (1946); and then citing *Baush Mach. Tool Co. v. Aluminum Co. of Am.*, 63 F.2d 778 (2d Cir. 1933))).

¹¹⁷ *In re Flat Glass Antitrust Litig.*, 385 F.3d 350, 358 (3d Cir. 2004) (“[A]bsent increases in marginal cost or demand, raising prices generally does not approximate—and cannot be mistaken as—competitive conduct.”); see also KAPLOW, *supra* note 57, at 257–58 (“Certain pricing patterns, such as sharp price increases unrelated to cost shocks . . . may be indicative of oligopolistic coordination rather than competitive behavior.”). Of course, if the defendants can prove a noncollusive reason for the parallel price increases, such as new regulatory burdens, that would diminish the probative value of this plus factor.

¹¹⁸ See *In re Text Messaging Antitrust Litig.*, 630 F.3d 622, 628 (7th Cir. 2010) (“The complaint also alleges that in the face of steeply falling costs, the defendants increased their prices. This is anomalous behavior because falling costs increase a seller’s profit margin at the existing price, motivating him, in the absence of agreement, to reduce his price slightly in order to take business from his competitors, and certainly not to increase his price.”); *Starr v. Sony BMG Music Ent.*, 592 F.3d 314, 323 (2d Cir. 2010) (finding a plus factor because defendants had not decreased prices despite “dramatic cost reductions”); *Le Baron*, 441 F.2d at 578 (“In *American Tobacco Co.*, it was recognized that if competitors raise their prices during a period of declining costs and reap large profits as a result, and then reduce prices only when competition from others makes itself felt, that constituted probative evidence of a price-fixing conspiracy.” (citing *Am. Tobacco Co.*, 328 U.S. at 804–06)); *City of Moundridge v. Exxon Mobil Corp.*, 429 F. Supp. 2d 117, 134 (D.D.C. 2006) (discussing *American Tobacco Co.*).

Because it generally entails rivals charging prices higher than costs to some consumers, persistent price discrimination may be evidence of collusion. *In re High Fructose Corn Syrup Antitrust Litig.*, 295 F.3d 651, 658 (7th Cir. 2002) (“Market-wide price discrimination is a symptom of price fixing when, as in this case, the product sold by the market is uniform.” (citing *In re Brand Name Prescription Drugs Antitrust Litig.*, 288 F.3d 1028, 1030–31 (7th Cir. 2002))).

¹¹⁹ See *In re Flat Glass*, 385 F.3d at 361 (finding a plus factor because “reduced demand and excess supply are economic conditions that favor price cuts, rather than price increases”); *In re Domestic Drywall*, 163 F. Supp. 3d at 190 (“For example, evidence that prices were raised despite no rise in demand

Relatedly, if two or more defendants are uniformly raising prices while simultaneously maintaining excess capacity or inventory on hand, that is evidence of collusion.¹²⁰ Instead of raising prices, a firm with surplus inventory in a competitive market would normally reduce its price in an effort to move its unsold goods. Similarly, if a firm has excess capacity, a rational firm would utilize its productive assets to grow its market share. A firm's decision to preserve the stability of all firms' market shares instead of increasing its own market share by using its available capacity to increase sales speaks to a preference for group wealth over its individual profitability. That is neither the conduct nor value judgment of a competitor and therefore constitutes a plus factor that is probative of a price-fixing agreement.¹²¹

Another Cartel Marker factor involves efforts taken by firms to make their industry more susceptible to price collusion. As noted previously, product homogeneity is a plus factor indicating Cartel Susceptibility. Some products, such as some minerals, are naturally homogeneous. In other markets, products are uniform because they are standardized in order to facilitate interoperability, which is efficient and ultimately serves consumer interests.¹²² If a product is standardized for legitimate reasons in a competitive market, then uniform prices may be less suspicious.¹²³ In

or costs might indicate defendants are acting contrary to their interests.” (citing *In re Flat Glass*, 385 F.3d at 359)).

¹²⁰ See *In re High Fructose Corn Syrup*, 295 F.3d at 657 (“And the defendants had a lot of excess capacity, a condition that makes price competition more than usually risky and collusion more than usually attractive.”); *In re Pressure Sensitive Labelstock Antitrust Litig.*, 566 F. Supp. 2d 363, 372 (M.D. Pa. 2008) (“The allegations of observed conduct—actual forbearance from competition for customers, parallel price increases, and excess production capacity—are placed among other factual allegations that plausibly suggest a preceding agreement.”); see also F.M. SCHERER & DAVID ROSS, *INDUSTRIAL MARKET STRUCTURE AND ECONOMIC PERFORMANCE* 674 (3d ed. 1990) (“Price-fixing agreements . . . can also stimulate the wasteful accumulation of excess capacity.”).

¹²¹ Excess capacity may also be evidence of collusion because the maintenance of excess capacity serves as an enforcement mechanism and a visible threat against cheating by other members of the cartel.

¹²² Christopher R. Leslie, *The DOJ's Defense of Deception: Antitrust Law's Role in Protecting the Standard-Setting Process*, 98 OR. L. REV. 379, 384–87 (2020).

¹²³ See *FTC v. Cement Inst.*, 333 U.S. 683, 715 (1948) (“[The FTC] decided that even though competition might tend to drive the price of standardized products to a uniform level, such a tendency alone could not account for the almost perfect identity in prices, discounts, and cement containers which had prevailed for so long a time in the cement industry.”); *Indep. Iron Works, Inc. v. U.S. Steel Corp.*, 322 F.2d 656, 665 (9th Cir. 1963) (“Similarity of prices in the sale of standardized products such as the types of steel involved in this suit will not alone make out a prima facie case of collusive price fixing in violation of the Sherman Act, the reason being that competition will ordinarily cause one producer to charge about the same price that is charged by any other.” (first citing *United States v. Int'l Harvester Co.*, 274 U.S. 693, 708–09 (1927); and then citing *Cement Mfrs. Protective Ass'n v. United States*, 268 U.S. 588 (1925))); *Weit v. Cont'l Ill. Nat'l Bank & Tr. Co.*, 641 F.2d 457, 463 (7th Cir. 1981) (“Courts have noted that parallel pricing or conduct lacks probative significance when the product in question is standardized or fungible.”).

contrast, artificial standardization exists when firms standardize their products without a legitimate business justification; this is more probative of price fixing because it serves no pro-consumer purpose and can be used to strengthen an underlying price-fixing conspiracy.¹²⁴ Courts thus distinguish between legitimate and artificial standardization¹²⁵ and have long treated the latter as evidence of an underlying agreement to restrain competition¹²⁶ and, therefore, as a plus factor.¹²⁷

Major changes in business practices are also circumstantial evidence of collusion, which can be categorized as a form of Cartel Marker. In the 1930s, the Supreme Court in *Interstate Circuit, Inc. v. United States*¹²⁸ famously recognized “a radical departure from the previous business practices of the industry” as powerful circumstantial evidence supporting an inference of a horizontal agreement to restrain trade.¹²⁹ For example, the defendant movie studios in *Interstate Circuit* all simultaneously changed their policies regarding double features.¹³⁰ A radical change in business practices is now a well-established plus factor.¹³¹

¹²⁴ See KAPLOW, *supra* note 57, at 282–83 (“[S]tandardization facilitates coordination.”).

¹²⁵ See, e.g., *Milk & Ice Cream Can Inst. v. FTC*, 152 F.2d 478, 482 (7th Cir. 1946) (“We think it is true that they were standardized in the instant situation, but this was the result of the activities of the Institute and its members.”).

¹²⁶ See *id.* (noting that efforts on the part of the petitioner to standardize products supported finding that the petitioner’s “activities were the result of an agreement”).

¹²⁷ See *E.I. du Pont de Nemours & Co. v. FTC*, 729 F.2d 128, 143 (2d Cir. 1984); *C-O-Two Fire Equip. Co. v. United States*, 197 F.2d 489, 493 (9th Cir. 1952); see also *Simons*, *supra* note 41, at 628 n.167 (“[A]rtificial standardization may indicate an attempt to form cartels.”).

¹²⁸ 306 U.S. 208 (1939).

¹²⁹ *Id.* at 222.

¹³⁰ *Id.* at 217 (noting that defendants agreed that so-called “A” films “shall never be exhibited in conjunction with another feature picture under the so-called policy of double features”).

¹³¹ See, e.g., *United States v. Apple Inc.*, 952 F. Supp. 2d 638, 690 (S.D.N.Y. 2013) (“An abrupt shift from defendants’ past behavior and near-unanimity of action by several defendants may also strengthen the inference.”); *In re Graphics Processing Units Antitrust Litig.*, 540 F. Supp. 2d 1085, 1096 (N.D. Cal. 2007) (“[P]laintiffs’ allegations show that there was a marked change in defendants’ behavior in the market around the time the conspiracy allegedly started. . . . [I]f true, [this] would make an antitrust conspiracy plausible.”). In its largely pro-defendant *Twombly* decision, the Supreme Court recognized that “complex and historically unprecedented changes in pricing structure made at the very same time by multiple competitors, and made for no other discernible reasons, would support a plausible inference of conspiracy.” *Bell Atl. Corp. v. Twombly*, 550 U.S. 544, 556 n.4 (2007) (internal quotation marks omitted). Although the *Twombly* Court was recognizing this principle as mutually conceded by the parties in the case, subsequent courts have embraced this language as a rule of law. See, e.g., *In re Musical Instruments & Equip. Antitrust Litig.*, 798 F.3d 1186, 1195 (9th Cir. 2015) (citing the rule from *Twombly* but finding the behavior to be parallel conduct); *In re Text Messaging Antitrust Litig.*, 630 F.3d 622, 628 (7th Cir. 2010) (noting the language as an example of “parallel plus” behavior); *Kleen Prods. LLC v. Int’l Paper*, 276 F. Supp. 3d 811, 826 (N.D. Ill. 2017) (citing the rule from *Twombly* but finding there to be a lack of evidence for the unprecedented change in behavior), *aff’d sub nom.* *Kleen Prods. LLC v. Georgia-*

A final Cartel Marker is the stability of relative market shares among the rival firms in a particular market. Stable market shares may indicate collusion because firms in truly competitive markets try to increase their market share.¹³² In contrast, cartel members frequently fix production quotas¹³³ and negotiate their relative market shares as part of their price-fixing conspiracy.¹³⁴ Allocating market shares in conjunction with fixing prices gives members more certainty about their expected cartel profits and reduces cartel members' incentives to cheat on the cartel by reducing price because even if the cheater gets more sales by charging less than the cartel price, it will still have to compensate its cartel partners for selling more than its cartel allotment.¹³⁵ Empirically, many historical cartels have fixed and allocated market shares as part of their price-fixing operations.¹³⁶ Because cartels use market allocation as a mechanism to distribute profits and reduce the risk of cheating, stable market shares are an indicator of cartelization.¹³⁷ Consequently, courts have recognized that stable market shares represent a plus factor.¹³⁸

Pac. LLC, 910 F.3d 927 (7th Cir. 2018); *Haley Paint Co. v. E.I. Dupont De Nemours & Co.*, 804 F. Supp. 2d 419, 425 n.4 (D. Md. 2011) (noting the language as an example of "parallel plus" behavior).

¹³² See *Valspar Corp. v. E.I. Du Pont De Nemours & Co.*, 873 F.3d 185, 210 (3d Cir. 2017) (Stengel, J., dissenting).

¹³³ ERVIN HEXNER, *INTERNATIONAL CARTELS* 76 (1945).

¹³⁴ Leslie, *supra* note 28, at 556.

¹³⁵ MARSHALL & MARX, *supra* note 80, at 121–22 (discussing "the role of a market share allocation in deterring secret deviations"); Leslie, *supra* note 63, at 12.

¹³⁶ See HEXNER, *supra* note 133, at 77 ("Many cartel agreements are based on determined marketing shares of participants."); see also Joel M. Podolny & Fiona M. Scott Morton, *Social Status, Entry and Predation: The Case of British Shipping Cartels 1879–1929*, 47 J. INDUS. ECON. 41, 51 (1999) (noting how British shipping cartels would "allocate market shares of specific types of goods"); JOHN E. STEALEY III, *THE ANTEBELLUM KANAWHA SALT BUSINESS AND WESTERN MARKETS* 84 (1993) (discussing the Kanawha salt cartel).

¹³⁷ CONNOR, *supra* note 50, at 29 ("Faithful members of a cartel can use changes in market shares as indicators of cheating more easily than trying to verify allegations of price discounts to particular buyers."); Kovacic et al., *supra* note 1, at 413 ("If an effective cartel uses a market share allocation scheme, then we will observe fixed relative market shares among those firms.").

¹³⁸ See, e.g., *White v. R.M. Packer Co.*, 635 F.3d 571, 581–82 (1st Cir. 2011) (treating "stable market" as a plus factor); *In re High Fructose Corn Syrup Antitrust Litig.*, 295 F.3d 651, 659 (7th Cir. 2002) ("[T]he market shares of the defendants changed very little during the period of the alleged conspiracy, which is just what one would expect of a group of sellers who are all charging the same prices for a uniform product and trying to keep everyone happy by maintaining the relative sales positions of the group's members."); *In re Dairy Farmers of Am., Inc. Cheese Antitrust Litig.*, No. 9 CR 3690, 2013 WL 212908, at *5 (N.D. Ill. 2013) ("Unusual and sustained pricing stability is not expected in a competitive market and, as a 'plus factor,' can indicate collusion." (citing *In re TFT–LCD (Flat Panel) Antitrust Litig.*, 586 F. Supp. 2d 1109, 1115–16 (N.D. Cal. 2008))); *Valspar Corp. v. E.I. Du Pont De Nemours & Co.*, 873 F.3d 185, 210 (3d Cir. 2017) (Stengel, J., dissenting) ("Market share stability is a well-recognized symptom of collusive and concerted action in antitrust cases."); see also *City of*

Even when a cartel agreement does not specifically fix each member's market share, "[c]ooperative social norms generally prevent competitors from engaging in destructive acts in order to gain market share."¹³⁹ The Seventh Circuit has explained that stable market shares are circumstantial evidence of an underlying price-fixing agreement because "inflexibility of the market leaders' market shares over time[] suggest[s] a possible agreement among them not to alter prices, since such an alteration would tend to cause market shares to change."¹⁴⁰ When market shares that used to vary become stabilized, that may indicate that a price-fixing conspiracy has taken root.¹⁴¹ Because firms often maintain their relative market shares by declining sales after they have reached their cartel quota, it is suspicious when a firm foregoes a profitable sale—and this behavior constitutes a plus factor.¹⁴²

Several of these Cartel Markers may operate in tandem to create a stronger basis for inferring collusion. For example, in a market with uniform price increases, the stability of market shares over time is even more suspicious when demand is decreasing or excess capacity is maintained, because these events would usually cause a readjustment of relative market shares in a competitive market.¹⁴³ When market fluctuations result in decreased demand but price continues to rise uniformly and market shares among defendants remain steady, nonmarket forces may be playing a role in setting the price.¹⁴⁴ The most likely nonmarket force is often collusion.

F. Suspicious Statements and Silences

Not all plus factors in price-fixing cases concern cartel mechanics and market behavior. One potentially potent form of circumstantial evidence

Tuscaloosa v. Harcros Chems., Inc., 158 F.3d 548, 570–72 (11th Cir. 1998) (treating high incumbency rate on contracts as a plus factor).

¹³⁹ Leslie, *supra* note 28, at 586.

¹⁴⁰ *In re Text Messaging Antitrust Litig.*, 782 F.3d 867, 876 (7th Cir. 2015).

¹⁴¹ *In re High Fructose Corn Syrup*, 295 F.3d at 659–60 ("If . . . the gyrations [of market shares] moderated during the period of the alleged conspiracy, this would be evidence for the plaintiffs."); *see also* KAPLOW, *supra* note 57, at 264–65 (noting "[t]he reasonably familiar point . . . that coordinated oligopoly prices, and perhaps also market shares, tend to be stickier over time than those of competitors").

¹⁴² *See, e.g.*, *Dimidowich v. Bell & Howell*, 803 F.2d 1473, 1479–80 (9th Cir. 1986) (finding that a refusal to enter into profitable sales can "support an inference of concerted action"); *see also* CONNOR, *supra* note 50, at 321 (noting how the vitamin cartel was exposed because vitamin buyers reported suppliers refusing to give price quotes).

¹⁴³ *See* MARSHALL & MARX, *supra* note 80, at 228–29 ("[M]arket share, geographic, and/or customer stability in conjunction with excess capacity in the industry and prices and profits that are relatively high and increasing constitute a constellation of factors that are jointly a super-plus factor.").

¹⁴⁴ *Id.*; *see infra* Part III.

involves price-fixing defendants' statements during the period of the alleged conspiracy and when the defendants were accused of illegal collusion.¹⁴⁵ In many cases, plaintiffs present evidence in the form of incriminating emails authored by the alleged price fixers or people with inside knowledge of collusion.¹⁴⁶ These messages often contain language that seems to acknowledge participation in price fixing but may nonetheless require a degree of interpretation that leads courts to categorize the emails as circumstantial evidence rather than direct evidence.¹⁴⁷ For example, in *In re Flat Glass Antitrust Litigation*,¹⁴⁸ the plaintiffs introduced several incriminating emails discussing industry price increases as well as a letter from one executive who memorialized his meeting with a competitor at a trade fair, noting that the latter "assured me that they were fully supportive of the price increase proposition."¹⁴⁹ Even when these emails fall short of direct evidence, they remain strong circumstantial evidence of concerted action.

Complaints about a rival's price-cutting activity also constitute a plus factor related to suspicious communications.¹⁵⁰ In a competitive market, firms do not complain to their rivals about price cuts and beseech them to raise prices; rather, they meet the competitive price or find a way to engage in nonprice competition by improving their customer service or product quality. Consequently, it is a plus factor for a firm to apologize to its rivals

¹⁴⁵ *In re High Fructose Corn Syrup*, 295 F.3d at 662 (noting statement from one price-fixing defendant that "[w]e have an understanding within the industry not to undercut each other's prices" served as evidence of "an explicit agreement to fix prices").

¹⁴⁶ *See, e.g., Valspar Corp. v. E.I. Du Pont De Nemours & Co.*, 873 F.3d 185, 208 (3d Cir. 2017) (Stengel, J., dissenting) (noting that an email from one price-fixing defendant "recognized that 'all are still acting in a disciplined manner, respecting each other's market positions and share and holding price.'"); *In re Text Messaging Antitrust Litig.*, 782 F.3d 867, 873 (7th Cir. 2015) (discussing an email in which defendant's employee described industry price increases as collusive); *cf. In re Wholesale Grocery Prods. Antitrust Litig.*, 752 F.3d 728, 734 (8th Cir. 2014) (discussing incriminating emails in a market division conspiracy case).

¹⁴⁷ In some instances, these judicial characterizations are suspect. *See* Christopher R. Leslie, *Rationality Analysis in Antitrust*, 158 U. PA. L. REV. 261, 316–18 (2010) (discussing *In re Baby Food*).

¹⁴⁸ 385 F.3d 350, 364–65 (3d Cir. 2004).

¹⁴⁹ *Id.* at 366.

¹⁵⁰ *See, e.g., In re Polyurethane Foam Antitrust Litig.*, 152 F. Supp. 3d 968, 985, 994–95 (N.D. Ohio 2015); PHILLIP E. AREEDA & HERBERT HOVENKAMP, *ANTITRUST LAW: AN ANALYSIS OF ANTITRUST PRINCIPLES AND THEIR APPLICATION* 126 (4th ed. 2017) (noting that intercompetitor "complaints, apologies, and express solicitations are all highly suspicious"); *see also id.* at 122–23 ("[W]hen a competitor merely complains to its rival about the latter's 'low price' . . . the 'objective' meaning of such a statement to the reasonable observer seems clear: the only business rationale for complaining is to induce a higher price.").

for reducing price or taking sales¹⁵¹ or for an executive to berate a subordinate for attempting to take business away from a competitor.¹⁵² Such conduct makes little sense unless the competitors are colluding.¹⁵³

Another type of Suspicious Statement that verges on acknowledgement of wrongdoing is the assertion of pretextual explanations for parallel behavior or other cartel-related conduct.¹⁵⁴ When defendants lie about why they raised price at the same time, this is circumstantial evidence of collusion because law-abiding firms have no reason to lie.¹⁵⁵ As one district court recently explained, “Evidence of pretextual explanations for price increases or output restrictions, ‘if believed by a jury, would disprove the likelihood of independent action’ by an alleged conspirator.”¹⁵⁶

The flip side of suspicious statements is suspicious silences. These, too, can be a plus factor. The Supreme Court has recognized that defendants’ failure to offer any explanation for their parallel conduct is itself circumstantial evidence of collusion.¹⁵⁷ Likewise, a refusal to answer

¹⁵¹ See, e.g., *Blomkest Fertilizer, Inc. v. Potash Corp. of Saskatchewan*, 203 F.3d 1028, 1045 (8th Cir. 2000) (Gibson, J., dissenting) (noting how an employee of one price-fixing defendant “took advantage of a trade meeting to apologize to [a rival firm’s vice president] about a low bid [the employee’s firm] had made by mistake”).

¹⁵² See, e.g., *In re Urethane Antitrust Litig.*, 913 F. Supp. 2d 1145, 1156 (D. Kan. 2012) (noting how executive “of Bayer berated subordinates about their attempt to take some business away from their competitor BASF”).

¹⁵³ See CONNOR, *supra* note 50, at 293 (noting complaints among coconspirators in the vitamin B2 cartel).

¹⁵⁴ See, e.g., *Rossi v. Standard Roofing, Inc.*, 156 F.3d 452, 478–79 (3d Cir. 1998) (finding that pretextual explanations supported an inference that the defendant was acting in concert with its competitors to boycott the plaintiff); *JTC Petroleum Co. v. Piasa Motor Fuels, Inc.*, 190 F.3d 775, 779 (7th Cir. 1999) (concluding that the defendant’s refusal to sell to the plaintiff on the grounds of the plaintiff’s credit risk was pretextual since the plaintiff offered to pay in cash); *Bolt v. Halifax Hosp. Med. Ctr.*, 891 F.2d 810, 821 (11th Cir. 1990) (holding that a hospital’s reasons for terminating a physician could be pretextual if “no reasonable medical practitioner, considering the same set of facts, could have reached those conclusions”); *White v. R.M. Packer Co.*, 635 F.3d 571, 585 (1st Cir. 2011) (“[S]uch pretext, standing alone[,] is not sufficient to show joint action, but can only strengthen an inference of joint action that is otherwise in evidence.” (internal quotation marks omitted)); *In re Urethane*, 913 F. Supp. 2d at 1163–64 (finding that the pretextual statements concerning the defendants’ decision to increase the price of its products “goes beyond mere silence or nondisclosure”).

¹⁵⁵ See Leslie, *supra* note 4 (manuscript at 26) (discussing how price-fixing conspirators lie about the reasons for their price hikes in an effort to conceal their illegal collusion).

¹⁵⁶ *In re Blood Reagents Antitrust Litig.*, 266 F. Supp. 3d 750, 774 (E.D. Pa. 2017) (quoting *Fragale & Sons Beverage Co. v. Dill*, 760 F.2d 469, 474 (3d Cir. 1985)).

¹⁵⁷ *Interstate Cir. Inc. v. United States*, 306 U.S. 208, 225–26 (1939) (“The failure under the circumstances to call as witnesses those officers . . . [to explain] whether they had acted in pursuance of agreement is itself persuasive that their testimony, if given, would have been unfavorable to appellants.”); see also *Merck-Medco Managed Care, LLC v. Rite Aid Corp.*, No. 98-2847, 1999 WL 691840, at *14 (4th Cir. 1999) (explaining that “forgotten” conversations about important subjects constitute evidence of conspiracy); *In re Commodity Exch., Inc., Gold Futures & Options Trading Litig.*, 328 F. Supp. 3d

questions about one's suspicious conduct may constitute a plus factor.¹⁵⁸ Competitors not engaging in collusion can generally explain why they raised prices or undertook other seemingly irregular conduct. The refusal or inability to do so is suspect.

Finally, related to pretextual explanations and refusals to answer questions, the efforts that price-fixing defendants take to conceal their communications and other interactions with their competitors are a separate plus factor.¹⁵⁹ Price-fixing conspirators traditionally employ a wide variety of concealment tactics, including using false names, code words, secret meetings, and falsified documents.¹⁶⁰ Executives with nothing to hide likely would not take extreme measures to conceal their communications and relationships.¹⁶¹

This category's plus factors are particularly probative because they come close to defendants acknowledging that they are doing something nefarious. Even when these communications, acts of deception, and concealments fall short of an outright admission of price fixing, they make little sense in the absence of collusion and, thus, constitute important plus factors, supporting an inference of collusion.

217, 228 (S.D.N.Y. 2018) (“Information sharing among competitors without a legitimate purpose is also good evidence of a conspiracy.”); *Cason–Merenda v. Detroit Med. Ctr.*, 862 F. Supp. 2d 603, 631 (E.D. Mich. 2012) (“Certainly, it is telling that when Plaintiffs and their counsel invited various employees of the Defendant hospitals to suggest a pro-competitive justification for their exchange of information with their counterparts at other Detroit-area hospitals, none was able to do so.”); PHILLIP E. AREEDA & HERBERT HOVENKAMP, *ANTITRUST LAW: AN ANALYSIS OF ANTITRUST PRINCIPLES AND THEIR APPLICATION* 109 (2d ed. 2003) (“Because contacts among competitors present a definite danger to competition, it is reasonable as a policy matter to require the companies that are meeting to explain their actions. When an innocent explanation is not forthcoming or is not plausible, the suspicion arises that the contact was made in furtherance of a conspiracy to suppress competition.”); *Kovacic et al.*, *supra* note 1, at 406 (explaining that “[t]he absence of a plausible, legitimate business rationale for suspicious conduct (such as certain communications with rivals) or the presentation of contrived rationales for certain conduct” is a plus factor).

¹⁵⁸ See *In re High Fructose Corn Syrup Antitrust Litig.*, 295 F.3d 651, 663 (7th Cir. 2002).

¹⁵⁹ See *In re Urethane Antitrust Litig.*, 768 F.3d 1245, 1264–65 (10th Cir. 2014) (discussing “unusual steps” to conceal conversations with competitors such as using “pay telephones instead of calling from [the] office” and using “a prepaid phone card” as well as meeting “with competitors at off-site locations, such as coffee shops or hotels”); *In re Blood Reagents*, 266 F. Supp. 3d at 777 (“[Defendant’s] efforts to conceal [an intercompetitor meeting] . . . raises an inference of conspiracy.”); *In re Ethylene Propylene Diene Monomer (EPDM) Antitrust Litig.*, 681 F. Supp. 2d 141, 176 (D. Conn. 2009) (“Here, the plaintiffs’ evidence of the frequent and friendly communications between the defendants and the secrecy of their meetings is sufficient to allow a reasonable jury to infer that the defendants participated in an unlawful price-fixing conspiracy.”).

¹⁶⁰ Leslie, *supra* note 4 (manuscript at 8–12, 52).

¹⁶¹ See *In re Urethane*, 768 F.3d at 1264–65.

G. Multipurpose Plus Factors

Some plus factors transcend easy classification because they fall into several of the above categories. For example, as discussed previously, intercompetitor communications are relevant to Cartel Formation, Cartel Management, and Cartel Enforcement. After all, it would be difficult to monitor cartel members and penalize cheaters without the conspirators communicating with each other. That makes intercompetitor communications a particularly probative plus factor.

Several other plus factors not yet discussed also serve multiple functions within a price-fixing conspiracy. To pigeonhole them into one category would deprive them of their full probative value. This Section highlights four such Multipurpose Plus Factors: prior cartel participation, foreign price-fixing activities, actions against independent interest, and evidence of a traditional conspiracy.

1. Prior Cartel Participation

Perhaps one of the best indicators of whether firms in a particular market will engage in illegal collusion is whether they have fixed prices in the past. In their large study of cartel creation, Professors Margaret Levenstein and Valerie Suslow explained that “one of the most clearly established stylized facts is that cartels form, endure for a period, appear to break down, and then re-form again.”¹⁶² Several major industries have long histories of price-fixing recidivism.¹⁶³

Prior price-fixing activity by the same—or similar—configuration of defendants in a particular market establishes several individual plus factors. For example, antitrust recidivism shows that the defendants trade in a product that is amenable to cartelization and also participate in a market structure that lends itself to collusion.¹⁶⁴ This reinforces plus factors related to Cartel Susceptibility.¹⁶⁵ Furthermore, prior price collusion shows that defendants have a motive to engage in price fixing as well as a willingness

¹⁶² Levenstein & Suslow, *supra* note 34, at 54; *see also* Leslie, *supra* note 28, at 593 (“Cartels appear easier to construct when an industry has some history of collusion.” (citing examples)).

¹⁶³ *See* Maurice E. Stucke, *Behavioral Economists at the Gate: Antitrust in the Twenty-First Century*, 38 LOY. U. CHI. L.J. 513, 567–68 (2007) (“Besides fluid milk and dairy products, other industries such as gypsum board, bread, cement, fertilizers, trucking, and lumber have had a higher degree of recidivism.”); *see also* Hay & Kelley, *supra* note 33, at 28 (“Corollary evidence is that industries colluding at one point in time often can be found to be colluding at later points in time, in spite of Antitrust action in the interim.”).

¹⁶⁴ POSNER, *supra* note 26, at 79 (“A ‘record’ of price fixing or related antitrust violations is some evidence, therefore, that the structure of the market is favorable to collusion.”).

¹⁶⁵ For examples of Cartel Susceptibility plus factors, *see supra* notes 31–47 and accompanying text.

to violate antitrust laws.¹⁶⁶ Previous collusive activity proves that these putative rivals have overcome the difficulties of Cartel Formation and Cartel Management, often including the implementation of a cartel-enforcement regime. Moreover, cartel experience allows rival firms to overcome the trust barriers to collusion.¹⁶⁷ Indeed, some cartel initiators tout their prior price-fixing activities as a calling card to convince their rivals—and would-be coconspirators—that they are sufficiently trustworthy to conspire with.¹⁶⁸ Finally, conspirators learn from their prior price-fixing experience and adjust their strategies to create even more stable cartels moving forward.¹⁶⁹ Given these dynamics, some courts sensibly treat prior price-fixing activities as a plus factor.¹⁷⁰

2. *Foreign Price-Fixing Activity*

In addition to the defendants' prior collusion in the same market, their price-fixing activities in other markets, such as foreign markets, can constitute an important Multipurpose Plus Factor. Federal judges have reasoned that “[e]vidence of cooperation between Defendants in foreign price-fixing, through a trade association or otherwise, would certainly be relevant to establish the existence of an illegal combination or conspiracy in restraint of trade” in the American market.¹⁷¹

The defendants' participation in price-fixing activities in other countries is strong evidence supporting an inference of price fixing in the

¹⁶⁶ See *Ross v. Am. Express Co.*, 35 F. Supp. 3d 407, 449 (S.D.N.Y. 2014) (“Evidence of ‘[p]rior antitrust violations and the history of competition in a market’ may be used to show the ‘intent, motive and method of a conspiracy under Section 1’ so long as there is a ‘direct, logical relationship’ between the collateral conspiracy and the instant conspiracy.” (quoting *U.S. Football League v. Nat’l Football League*, 842 F.2d 1335, 1371 (2d Cir. 1988))), *aff’d sub nom. Ross v. Citigroup, Inc.*, 630 F. App’x 79 (2d Cir. 2015).

¹⁶⁷ See *supra* notes 28–30 and accompanying text (discussing the role of trust in price-fixing cartels).

¹⁶⁸ Leslie, *supra* note 28, at 593.

¹⁶⁹ Levenstein & Suslow, *supra* note 29, at 27 (“[C]artels reappear in some industries, and cartel duration tends to increase with industry experience with collusion”); Leslie, *supra* note 28, at 595–96 (“[C]artel members can learn from their prior experience. This includes learning how to meet, coordinate, enforce, and trust.”).

¹⁷⁰ See, e.g., *In re Pool Prods. Distrib. Mkt. Antitrust Litig.*, 988 F. Supp. 2d 696, 711 (E.D. La. 2013) (listing “involvement in other conspiracies” as a plus factor); *In re Static Random Access Memory (SRAM) Antitrust Litig.*, 580 F. Supp. 2d 896, 903 (N.D. Cal. 2008) (stating guilty pleas of price fixing in the Dynamic Random Access Memory (DRAM) market “support an inference of a conspiracy in the SRAM industry” when some of the same actors “were responsible for marketing both SRAM and DRAM”); see also *In re Travel Agent Comm’n Antitrust Litig.*, 583 F.3d 896, 913 (6th Cir. 2009) (Merritt, J., dissenting) (“Having proposed to fall in line behind one another before strongly suggests that the airlines would do it again.”).

¹⁷¹ *In re Auto. Refinishing Paint Antitrust Litig.*, No. 1426, 2004 WL 7200711, at *3 (E.D. Pa. Oct. 29, 2004).

American market for several reasons. As an initial matter, foreign collusion helps establish the level of trust necessary for firms to fix prices in the American market.¹⁷² Because price fixing is criminal conduct that can result in ten years' imprisonment,¹⁷³ executives are unlikely to collude unless a minimal level of trust exists. Trust among natural adversaries is not organic, however, and rival firms may need to develop trust over time.¹⁷⁴ Foreign markets in nations with either weak competition laws—or weak enforcement of nominally strong competition laws—can provide a testing ground for aspiring price-fixing conspiracies. Cartel ringleaders can also develop a reputation for trustworthiness by cooperating in foreign markets and then harness that reputation in order to cartelize the U.S. market.¹⁷⁵ Empirically, cartels often start small and then expand geographically and across product lines.¹⁷⁶

Furthermore, foreign experience is highly relevant to the plus-factor categories of Cartel Formation, Cartel Management, and Cartel Enforcement. Evidence of foreign price fixing shows that competing firms have solved the coordination problems that can hobble efforts to initiate a price-fixing scheme in the United States.¹⁷⁷ Fixing prices in foreign markets also gives cartels the opportunity to perfect their enforcement mechanisms for detecting and punishing firms that cheat on the cartel.¹⁷⁸

¹⁷² See *supra* notes 28–30 and accompanying text (explaining the importance of trust for cartel formation and maintenance).

¹⁷³ 15 U.S.C. § 1.

¹⁷⁴ THOMAS C. SCHELLING, *THE STRATEGY OF CONFLICT* 134–35 (1960) (“Trust is often achieved simply by the continuity of the relation between parties and the recognition by each that what he might gain by cheating in a given instance is outweighed by the value of the tradition of trust that makes possible a long sequence of future agreement.”); Christopher R. Leslie, *Foreign Price-Fixing Conspiracies*, 67 *DUKE L.J.* 557, 580–84 (2017); Leslie, *supra* note 28, at 591 (“The history of the chemical cartels shows how partners grow to trust each other through incremental demonstrations of trust . . .”).

¹⁷⁵ Leslie, *supra* note 174, at 582 (explaining that cartel ringleaders “use their foreign cartel experience as a calling card to convince potential cartel partners in new product and geographic markets that they are trustworthy”).

¹⁷⁶ See, e.g., *id.* at 580; Wayne E. Baker & Robert R. Faulkner, *The Social Organization of Conspiracy: Illegal Networks in the Heavy Electrical Equipment Industry*, 58 *AM. SOCIO. REV.* 837, 838 (1993) (explaining how the 1950s heavy equipment cartel expanded from a few product lines to twenty); Leslie, *supra* note 28, at 590–94 (discussing expansion of various chemical cartels into new product lines).

¹⁷⁷ Leslie, *supra* note 174, at 584 (“Launching an international cartel requires significant coordination among rival firms that come from different corporate cultures, often speak different languages, and may be generally reluctant to cooperate with their competitors.”). See generally Hovenkamp & Leslie, *supra* note 62, at 825–34 (explaining the different points of coordination a cartel may consider).

¹⁷⁸ Leslie, *supra* note 174, at 593. See generally Leslie, *supra* note 28, at 610–22 (discussing the different monitoring and enforcement mechanisms a cartel may use).

With respect to motive, which is its own plus factor, defendants' price fixing in foreign markets also provides a strong incentive for firms to expand their collusion into the American marketplace. Doing so would increase their cartel profits¹⁷⁹ and reduce the risk of cartel-destabilizing arbitrage whereby arbitrageurs purchase products in the U.S. market at competitive prices and then undercut the price fixers' relatively high prices in cartelized foreign markets.¹⁸⁰ Regional cartels generally expand globally in order to prevent arbitrage.¹⁸¹

In sum, if defendants have conspired to fix prices in foreign jurisdictions, that is strong circumstantial evidence that parallel pricing by the same companies in the American marketplace may be the product of a corresponding domestic price-fixing conspiracy. In addition to being a plus factor unto itself, the existence of a foreign price-fixing conspiracy proves the presence of other plus factors, including the motive to fix prices (to increase cartel profits and reduce arbitrage), opportunity to conspire,¹⁸² intercompetitor communications,¹⁸³ and that the relevant product-market structure is conducive to collusion.¹⁸⁴ The fact that competing firms are fixing prices in foreign markets increases the probability that they are also

¹⁷⁹ Leslie, *supra* note 174, at 587.

¹⁸⁰ Grant Butler, *The Supreme Court's Destruction of Incentive to Participate in the Justice Department's Cartel Leniency Program*, 15 B.U. PUB. INT. L.J. 169, 180 (2005) ("If a cartel chose to fix prices only in foreign countries, arbitrageurs can purchase the goods in the United States at the competitive market price and take them to a foreign country where the goods could be sold at a price higher than the competitive price but lower than the fixed price of the cartel."); *see also* John M. Connor & Darren Bush, *How to Block Cartel Formation and Price Fixing: Using Extraterritorial Application of the Antitrust Laws as a Deterrence Mechanism*, 112 PENN. ST. L. REV. 813, 835 (2008) ("Arbitrage undermines the ability of international cartels to set prices at the most profitable level in each currency zone and could even destroy collusive arrangements.").

¹⁸¹ *See* Butler, *supra* note 180, at 180 ("Price fixing cartels selling global goods must operate in all markets to avoid arbitrage."); Christopher Sprigman, *Fix Prices Globally, Get Sued Locally? U.S. Jurisdiction over International Cartels*, 72 U. CHI. L. REV. 265, 275 (2005) ("Accordingly, the vitamin conspirators were obliged to cartelize globally: that is, to bring into the cartel enough of the worldwide supply that the supracompetitive price is defensible against arbitrage."); *see also* Leslie, *supra* note 174, at 587–88 (explaining why foreign cartels expand into the American market in order to deter foreign consumers from purchasing lower-priced American goods and to prevent price disparities from alerting competition authorities to price fixing in the markets with elevated prices).

¹⁸² *See In re Auto. Refinishing Paint Antitrust Litig.*, No. 1426, 2004 WL 7200711, at *3 (E.D. Pa. Oct. 29, 2004) ("Evidence of foreign price-fixing among Defendants would also be material to prove that they had the opportunity . . . to engage in domestic price-fixing . . .").

¹⁸³ Leslie, *supra* note 174, at 595.

¹⁸⁴ *See In re Auto. Refinishing*, 2004 WL 7200711, at *3 ("Evidence of foreign price-fixing among Defendants would also be material to prove that they had the . . . ability to engage in domestic price-fixing for automotive refinishing paint.").

fixing the prices for American consumers.¹⁸⁵ Consequently, this is an important plus factor.¹⁸⁶

3. *Actions Against Independent Interests*

Another Multipurpose Plus Factor is whether the defendants have taken actions that would be against their independent economic interests unless a conspiracy is afoot. The Third Circuit has explained that “evidence of actions against self-interest means there is evidence of behavior inconsistent with a competitive market.”¹⁸⁷ The Sixth Circuit has held that “[a] showing that the defendants’ actions, taken independently, would be contrary to their economic self-interest will ordinarily ‘tend to exclude the likelihood of independent conduct.’”¹⁸⁸ Such conduct is a plus factor.¹⁸⁹

Examples of actions against independent interests abound in antitrust case law and populate several of the plus-factor categories. Some courts recognize that suspicious pricing activity, such as certain Cartel Markers, can represent an action against interest.¹⁹⁰ Courts have held that “sacrific[ing] profitable production” makes little sense “absent coordination and agreement” among the producers and, thus, constitutes important circumstantial evidence of conspiracy.¹⁹¹ Similarly, maintaining a price-verification system—which is a form of cartel monitoring—can be against an individual firm’s self-interest because “confessing price-cutting to competitors makes no economic sense for independent actors, but makes perfect economic sense for cartel members.”¹⁹² Other actions against

¹⁸⁵ Leslie, *supra* note 174, at 586–87 (“If the major firms in an industry are fixing prices in one market, this increases the likelihood that the same firms are engaging in price fixing in another market.”).

¹⁸⁶ *See id.* at 591–96.

¹⁸⁷ *In re* Chocolate Confectionary Antitrust Litig., 801 F.3d 383, 398 (3d Cir. 2015).

¹⁸⁸ Nat’l Hockey League Players Ass’n v. Plymouth Whalers Hockey Club, 419 F.3d 462, 475 (6th Cir. 2005) (quoting *Re/Max Int’l, Inc. v. Realty One, Inc.*, 173 F.3d 995, 1009 (6th Cir. 1999)).

¹⁸⁹ *Blomkest Fertilizer, Inc. v. Potash Corp. of Saskatchewan*, 203 F.3d 1028, 1037 (8th Cir. 2000) (“Evidence that defendants have acted against their economic interest can also constitute a plus factor.”).

¹⁹⁰ *In re* Blood Reagents Antitrust Litig., 266 F. Supp. 3d 750, 773 (E.D. Pa. 2017) (“The Court concludes that all of the price increases were actions contrary to Ortho’s interest.”); *Fleischman v. Albany Med. Ctr.*, 728 F. Supp. 2d 130, 162 (N.D.N.Y. 2010) (“The fact that but-for a wage agreement, [d]efendants would be acting against economic self interest is persuasive evidence that [d]efendants did not act independently.”); *In re* Propranolol Antitrust Litig., 249 F. Supp. 3d 712, 721 n.10 (S.D.N.Y. 2017) (“[N]o company ‘in its right mind’ would raise prices by as much as 1,700% relying on nothing but industry data that the company itself claims is flawed (the present situation).”); *see also* *Starr v. Sony BMG Music Ent.*, 592 F.3d 314, 327 (2d Cir. 2010) (“For example, it would not be in each individual defendant’s self-interest to sell Internet Music at prices, and with DRMs, that were so unpopular as to ensure that ‘nobody in their right mind’ would want to purchase the music, unless the defendant’s rivals were doing the same.”).

¹⁹¹ *Standard Iron Works v. ArcelorMittal*, 639 F. Supp. 2d 877, 896–97 (N.D. Ill. 2009).

¹⁹² *Blomkest*, 203 F.3d at 1047 (Gibson, J., dissenting).

individual interest relate to cartel penalty mechanisms. For example, if a firm decides to purchase products from a rival even when it has excess capacity and could make the product for less than the intercompetitor transaction price, this behavior is both an action against individual interest and a separately recognized plus factor.¹⁹³ Not only is the transaction against the individual interest of the purchaser, it may constitute an action against the individual interest of the seller, who would have been better served if it tried to steal customers away from its rival instead of providing stock that the rival can sell to those same customers.¹⁹⁴ In short, depending on the action against self-interest at issue, this type of plus factor can fall into several different categories.

4. *Evidence of Traditional Conspiracy*

Finally, another plus factor that is difficult to assign to a single category is “evidence . . . [of] traditional conspiracy.”¹⁹⁵ Although some courts describe traditional conspiracy evidence as “the most important plus factor,”¹⁹⁶ this plus factor is actually a bundle of plus factors, including “a high level of interfirm communications,”¹⁹⁷ “proof that the defendants got together and exchanged assurances of common action or otherwise adopted a common plan,”¹⁹⁸ and “noneconomic evidence that there was an actual manifest agreement not to compete.”¹⁹⁹ This plus factor is multipurpose because it can show Cartel Formation, Cartel Management, and Cartel Enforcement.

H. *Outside the Typology*

This typology is not exhaustive. Some forms of circumstantial evidence do not fit neatly into any category. For example, several courts have treated government investigations into defendants’ potential collusion as a plus

¹⁹³ See *supra* notes 120–121 and accompanying text.

¹⁹⁴ See Leslie, *supra* note 63, at 39–40.

¹⁹⁵ *Burch v. Milberg Factors, Inc.*, 662 F.3d 212, 227 (3d Cir. 2011) (quoting *Ins. Brokerage Antitrust Litig.*, 618 F.3d 300, 321–22 (3d Cir. 2010) (describing “evidence implying a traditional conspiracy” as a plus factor)).

¹⁹⁶ *In re Chocolate Confectionary Antitrust Litig.*, 801 F.3d 383, 401 (3d Cir. 2015).

¹⁹⁷ *In re Ethylene Propylene Diene Monomer (EPDM) Antitrust Litig.*, 681 F. Supp. 2d 141, 166–67 (D. Conn. 2009).

¹⁹⁸ *K & S Assocs. v. Am. Ass’n of Physicists in Med.*, No. 3:09–1108, 2013 WL 2177938, at *15 (M.D. Tenn. May 20, 2013) (citing *Burch*, 662 F.3d at 227).

¹⁹⁹ *In re Titanium Dioxide Antitrust Litig.*, 959 F. Supp. 2d 799, 822 (D. Md. 2013) (quoting *In re Flat Glass Antitrust Litig.*, 385 F.3d 350, 361 (3d Cir. 2004)).

factor,²⁰⁰ although the significance of such investigation depends largely on the findings and context of the investigation. Similarly, the testimony or reports of expert witnesses can serve as important circumstantial evidence of collusion because economists and scholars who have studied price-fixing activity can better interpret the factual record and draw informed conclusions.²⁰¹ Neither of these types of circumstantial evidence lends itself to easy classification. Furthermore, because antitrust law is common law, federal courts can recognize new plus factors as the facts of future cases dictate.²⁰²

III. PROBATIVE SYNERGY

Having a typology of plus factors allows judges and juries to better appreciate *why* certain facts or actions are probative of price fixing. Presenting plus factors in these categories also illustrates the relationships among the various plus factors. This is important because no single plus factor exists in a vacuum: each piece of evidence must be evaluated in relation to the surrounding pieces of circumstantial evidence. Furthermore, some plus factors may be particularly significant because they serve multiple functions.²⁰³ Finally, and importantly for our purposes, the above typology provides the necessary context for understanding the errors that courts make when applying the plus-factor framework, as explored in Part IV.

The typology also lays the foundation for the principle of probative synergy. Probative synergy explains why plus-factor analysis in antitrust cases is not arithmetic. Judges do not merely add up how many plus factors

²⁰⁰ See *e.g.*, *Persian Gulf Inc. v. BP W. Coast Prods. LLC*, 324 F. Supp. 3d 1142, 1148 (S.D. Cal. 2018); *In re Generic Pharm. Pricing Antitrust Litig.*, 338 F. Supp. 3d 404, 452 (E.D. Pa. 2018); *Hinds County v. Wachovia Bank N.A.*, 790 F. Supp. 2d 106, 115 (S.D.N.Y. 2011).

²⁰¹ See, *e.g.*, *City of Tuscaloosa v. Harcros Chems., Inc.*, 158 F.3d 548, 565 (11th Cir. 1998) (noting that an economic expert's "data and testimony need not prove the plaintiffs' case by themselves; they must merely constitute one piece of the puzzle that the plaintiffs endeavor to assemble before the jury"); *In re Urethane Antitrust Litig.*, 913 F. Supp. 2d 1145, 1156 (D. Kan. 2012) (denying price-fixing defendants' motion for summary judgment based, in part, on expert evidence that the defendants were charging supracompetitive prices); *In re Polypropylene Carpet Antitrust Litig.*, 93 F. Supp. 2d 1348, 1355 (N.D. Ga. 2000) (noting the probative value of expert testimony that "the climate of the polypropylene market during the relevant time period was consistent with a finding that Defendants engaged in a conspiracy to fix prices").

²⁰² *In re Delta/Airtran Baggage Fee Antitrust Litig.*, 245 F. Supp. 3d 1343, 1371 (N.D. Ga. 2017) ("There is no finite list of potential plus factors."), *aff'd sub nom. Siegel v. Delta Air Lines, Inc.*, 714 F. App'x 986 (11th Cir. 2018).

²⁰³ See *supra* notes 162–199 and accompanying text. Some plus factors are so important that Professors Kovacic, Marshall, Marx, and White refer to them as "super plus factors." Kovacic et al., *supra* note 1, at 396–97.

an antitrust plaintiff has pled or presented evidence for.²⁰⁴ Addition is an inappropriate mathematical operation in this analysis because each plus factor can increase the probative value of the surrounding plus factors, such that one plus factor added to one plus factor added to one plus factor does not necessarily equal a probative value of three, but could equal a probative value of four or five or more. The probative value of any one plus factor is not fixed but can grow when viewed in the context of a bundle of plus factors. This is the essence of probative synergy.

While this Article is the first to introduce the phrase and the concept of probative synergy, it is entirely consistent with the Supreme Court's antitrust jurisprudence. Probative synergy operationalizes the Supreme Court's mandate in *Continental Ore* that courts not isolate an antitrust plaintiff's proffer of proof and not examine each piece of evidence in isolation. The most appropriate way to "look[] at [the plaintiff's evidence] as a whole,"²⁰⁵ as required by *Continental Ore*, is to examine the proffered plus factors in relation to each other.²⁰⁶ Even plus factors that might seem insignificant or irrelevant on their own can be extremely probative when viewed in context with other plus factors present in the case.²⁰⁷

Some combinations of plus factors are especially powerful. Pleading or proffering evidence of plus factors across the different categories in the plus-factor typology can significantly increase the plausibility of a price-fixing claim. For example, Cartel Susceptibility plus factors demonstrate a market's propensity to cartelization, which is important circumstantial evidence of collusion. When some of those plus factors are coupled with plus factors relevant to Cartel Formation and/or Cartel Management, the plaintiff's proffer of circumstantial evidence becomes much more persuasive. For instance, intercompetitor communications—particularly invitations to

²⁰⁴ Courts do not prescribe a minimum number of plus factors that a plaintiff must present. *See In re Flat Glass*, 385 F.3d at 361 n.12.

²⁰⁵ *Cont'l Ore Co. v. Union Carbide & Carbon Corp.*, 370 U.S. 690, 698–99 (1962) (quoting *United States v. Patten*, 226 U.S. 525, 544 (1913)).

²⁰⁶ *See In re Flat Glass*, 385 F.3d 3 at 369 ("A court must look to the evidence as a whole and consider any single piece of evidence in the context of other evidence.").

In some ways, the Supreme Court's largely pro-defendant opinion in *Bell Atlantic Corp. v. Twombly* contained dicta that recognized the concept of probative synergy in theory, when the majority noted that "complex and historically unprecedented changes in pricing structure made at the very same time by multiple competitors, and made for no other discernible reason, would support a plausible inference of conspiracy." 550 U.S. 544, 556 n.4 (2007) (internal quotation marks omitted). This language suggests an acknowledgement that this particular bundle of plus factors, operating together, is sufficient.

²⁰⁷ *See SD3, LLC v. Black & Decker Inc.*, 801 F.3d 412, 425 (4th Cir. 2015) ("Actions that might seem otherwise neutral in isolation can take on a different shape when considered in conjunction with other surrounding circumstances.").

collude or exchanges of price and sales data—are even more suspicious in a market that is prone to cartelization. Although some judges treat parallel pricing in concentrated markets as a natural (noncollusive) phenomenon,²⁰⁸ when this is accompanied by highly questionable communications, a reasonable jury could infer that the parallel price hikes are the product of collusion, not coincidence or independent decisions.

Proof of intercompetitor communications on its own is valuable circumstantial evidence, but many additional plus factors increase the probative value of that evidence.²⁰⁹ For example, intercompetitor communications are far more probative of price fixing when the individuals involved took efforts to conceal their meetings, including their frequency and/or contents. Rival firms that are not breaking any laws generally do not affirmatively obscure their activities.²¹⁰ Evidence of parallel pricing *plus* intercompetitor meetings *plus* suspicious timing *plus* concealment creates a powerful inference of collusion.

Similarly, the probative value of any one or more Cartel Markers is significantly magnified when coupled with any acknowledgement-related plus factors. Firms should be able to truthfully explain why they raised their price even though their costs and/or demand were decreasing, or why they declined to expand output or increase their market share despite the fact that they had excess supply or unused capacity. Such suspicious business decisions are significantly more likely to be strong evidence of collusion when defendants lie about their reasons for undertaking parallel conduct that is more consistent with collusion than competition. Likewise, a refusal to provide any explanation for parallel behavior is significantly more probative than that behavior alone because if the conduct were truly independent, executives should be able to recount their decision-making process, including by offering internal reports and testimony from the individuals involved.

A plaintiff's ability to plead or proffer plus factors across a range of categories can increase the strength of the case significantly, but showing multiple plus factors within a single category can also magnify the probative

²⁰⁸ See *Blomkest Fertilizer, Inc. v. Potash Corp. of Saskatchewan*, 203 F.3d 1028, 1042–43 (8th Cir. 2000).

²⁰⁹ See KAPLOW, *supra* note 57, at 304 (“Interfirm communications of all sorts can be important in making reliable inferences. It is also clear that their reliability may be enhanced, perhaps significantly in many instances, by combining them with the other evidence considered throughout.”); see, e.g., *In re Blood Reagents Antitrust Litig.*, 266 F. Supp. 3d 750, 776–78 (E.D. Pa. 2017) (“The Court agrees with plaintiffs that the nature of the communications, including a direct transfer of pricing information, and the communications’ temporal proximity to the 2001 price increase raises an inference of conspiracy.”).

²¹⁰ See Leslie, *supra* note 4 (manuscript at 53).

value of each of those plus factors.²¹¹ For example, the Cartel Enforcement category encompasses two separate types of enforcement behavior: monitoring and penalty. If a plaintiff proffers evidence of monitoring (such as price verifications) and of penalties (such as intercompetitor sales), then the plaintiff has presented evidence of a complete cartel-enforcement system. Evidence of cartel monitoring is significantly more probative when it is accompanied by corresponding evidence of cartel penalties or mechanisms to balance the cartel's book in order to restore market shares.²¹² Evidence of cartel monitoring increases the probative value of evidence of cartel punishment, and vice versa. The likelihood that competitors would innocently engage in both monitoring and punishing activities is far less than the likelihood that they would innocently engage in only one of those types of activities.²¹³

The typology presented in Part II reviewed dozens of recognized plus factors, which means there are billions of permutations of plus-factor packages that a plaintiff could present. Each grouping of plus factors tells a different story. Antitrust plaintiffs should invest effort in explaining to judges how their proffered plus factors interact with one another. Each additional plus factor provides an opportunity for antitrust plaintiffs to provide a comprehensive explanation for why this particular combination of plus factors constitutes strong circumstantial evidence of collusion.

The insights from the concept of probative synergy also inform the way that judges approach pretrial motions. Judges should not dismiss price-fixing claims when a plaintiff pleads several plus factors, at least not without considering the potential probative synergy when those plus factors are combined.²¹⁴ Similarly, in the context of summary judgment motions, if the plaintiff proffers evidence of several plus factors across multiple categories, then courts should be extremely hesitant to decide, as a matter of law, that no reasonable jury could infer an agreement among the defendants. As Judge

²¹¹ See *supra* note 143 and accompanying text (discussing probative synergy of Cartel Markers).

²¹² Leslie, *supra* note 63, at 44.

²¹³ Furthermore, the circumstantial case is magnified even more significantly if this combination of both components of a Cartel Enforcement system is united with other plus factors from another category, such as evidence of one or more Cartel Markers. The cartel-enforcement regime shows the machinations of collusion and the Cartel Markers reveal the collusion's effects.

²¹⁴ See *Cascades Comput. Innovation LLC v. RPX Corp.*, No. 12-CV-1143 YGR, 2013 WL 6247594, at *6 (N.D. Cal. Dec. 3, 2013) ("Courts weighing an antitrust defendant's motion to dismiss should consider the plaintiff's allegations in their entirety and refrain from 'tightly compartmentalizing the various factual components and wiping the slate clean after scrutiny of each.'" (quoting *In re High-Tech Emp. Antitrust Litig.*, 856 F. Supp. 2d 1103, 1118 (N.D. Cal. 2012))); see also *In re Rail Freight Fuel Surcharge Antitrust Litig.*, 587 F. Supp. 2d 27, 33 n.4 (D.D.C. 2008) (noting that *Twombly* did not change the *Continental Ore* standard).

Richard Posner explained, it is a mistake for judges “to suppose that if no single item of evidence presented by the plaintiff points unequivocally to conspiracy, the evidence as a whole cannot defeat summary judgment.”²¹⁵ Unfortunately, a judicial failure to examine an antitrust plaintiff’s evidence through the lens of probative synergy can lead courts to grant summary judgment to defendants when terminating the litigation before trial is inappropriate. Using examples across the federal circuits, Part IV explains how this happens with unfortunate regularity.

IV. HOW COURTS COMPARTMENTALIZE EVIDENCE OF PRICE FIXING

Despite the Supreme Court’s directive that judges and juries should not compartmentalize or dismember an antitrust plaintiff’s evidence, federal courts repeatedly isolate individual plus factors and improperly deprive them of their collective probative value. This Part explains the two principal ways in which they do so. First, some courts discuss each of the plaintiff’s proffered plus factors only in seclusion and do not consider plus factors in relation to each other. Second, many courts improperly discount any single plus factor that cannot unilaterally satisfy the *Matsushita* standard for surviving summary judgment on antitrust claims. Almost every plus factor described in Part II has been the subject of at least one of these fundamental errors. In order to show that these mistakes distort the results in actual cases, this Part also presents a series of case studies in which judges compartmentalized the plaintiffs’ proffered plus factors and improperly dismissed or granted summary judgment on a price-fixing claim.

A. *Isolating and Discounting Plus Factors*

Courts often compartmentalize individual plus factors and deprive them of their probative value. Judges do this over the range of plus-factor categories. For example, courts routinely isolate evidence regarding Cartel Susceptibility. Judges are prone to isolating evidence of market structure by asserting, as the district court in Pennsylvania did in *In re Chocolate Confectionary Antitrust Litigation*, that “[t]he mere fact that a market may exhibit oligarchic tendencies and characteristics is, *without more*, insufficient to establish antitrust liability.”²¹⁶ The court granted summary judgment, which the Third Circuit affirmed, even though the “defendants’ own experts reach[ed] many of the same conclusions as [the plaintiffs’ experts] with respect to whether market conditions were ripe for

²¹⁵ *In re High Fructose Corn Syrup Antitrust Litig.*, 295 F.3d 651, 655 (7th Cir. 2002).

²¹⁶ 999 F. Supp. 2d 777, 790 (M.D. Pa. 2014) (emphasis added), *aff’d*, 801 F.3d 383 (3d Cir. 2015).

collusion[,] agree[ing] . . . that factors such as high market concentration, high entry barriers, collusive opportunities, and closely substitutable products tend to be more conducive to conspiratorial behavior.”²¹⁷ This is a mistake because even if the court is correct that the market structure “without more” was insufficient to show collusion, that market structure needs to be analyzed in context with other plus factors for which the plaintiff provides evidence.²¹⁸ Yet courts often fail to do so. For example, despite the fact that the defendants’ collective market power is a plus factor,²¹⁹ one Florida district court ignored a bundle of other plus factors as it asserted that “[t]he fact that a group of alleged price-fixers possess power in a particular market does not, *standing alone*, make it more likely that the members of that group have entered into an agreement to fix prices.”²²⁰ That is incorrect; collective market power does “make it more likely” that defendants will engage in collusion.²²¹ Market structure itself might not be sufficient to prove collusion, but it is evidence that supports an inference that collusion occurred. Reading plus factors holistically, as judges and juries are supposed to do, can show that the defendants’ parallel behavior was more likely the result of collusion than of independent action.

With respect to Cartel Formation plus factors, courts regularly isolate the opportunity-to-conspire plus factor from the other plus factors in order to incorrectly assert that opportunity is not probative of collusion.²²² While evidence of an opportunity to conspire does not *prove* that the defendants took that opportunity, it is probative of whether collusion occurred. Courts

²¹⁷ *Id.* (internal quotation marks omitted).

²¹⁸ ABA SECTION OF ANTITRUST LAW, PROOF OF CONSPIRACY UNDER FEDERAL ANTITRUST LAWS 78 (2010) (“Courts are unlikely to find that market structure, *by itself*, is a sufficient plus factor to prove conspiracy. In combination with evidence of other plus factors, however, market structure can constitute probative evidence of conspiracy.” (emphasis added)).

A case study of the plus factors presented in the *Chocolate Confectionary Antitrust* case, and the Third Circuit’s serial isolation of those plus factors, is presented *infra* Section IV.C.4.

²¹⁹ See *supra* notes 31–46 and accompanying text.

²²⁰ *Capitol Body Shop, Inc. v. State Farm Mut. Auto. Ins. Co.*, 163 F. Supp. 3d 1229, 1235–36 (M.D. Fla. 2016) (emphasis added).

²²¹ See *supra* notes 31–46 and accompanying text.

²²² See *In re Travel Agent Comm’n Antitrust Litig.*, 583 F.3d 896, 911 (6th Cir. 2009) (“Moreover, a mere opportunity to conspire does not, standing alone, plausibly suggest an illegal agreement”); *Todorov v. DCH Healthcare Auth.*, 921 F.2d 1438, 1456 (11th Cir. 1991) (“[T]he mere opportunity to conspire among antitrust defendants does not, standing alone, permit the inference of conspiracy.” (citing *Bolt v. Halifax Hosp. Med. Ctr.*, 891 F.2d 810, 827 (11th Cir. 1990))); *Utesch v. Dittmer*, 947 F.2d 321, 331 (8th Cir. 1991) (“A jury cannot reasonably infer the existence of a conspiracy merely from the opportunity to form one.” (quoting *H.J., Inc. v. Int’l Tel. & Tel. Corp.*, 867 F.2d 1531, 1545 (8th Cir. 1989))).

are prone to belittle this plus factor as “the *mere* opportunity to conspire.”²²³ However, cases in which courts refer to such “mere” opportunities generally also involve evidence establishing a significant number of additional plus factors.²²⁴

Moreover, in extrapolating from the fact that opportunity alone is not sufficient to prove collusion, some courts have suggested that opportunity is, thus, not evidence at all. For example, the Eighth Circuit asserted that the opportunity to conspire is “not necessarily probative evidence of price-fixing conspiracy.”²²⁵ Similarly, the Third Circuit endorsed the notion that “evidence of ‘opportunity’ should be accorded little, if any weight.”²²⁶ Through their language and their application, these opinions imply or hold that opportunity to conspire is not a plus factor.²²⁷ For example, one federal judge concluded that “[t]he fact that [the defendant] engaged in social informal communication and joined a lobbying group is merely some evidence that they had the opportunity to conspire, it is not a plus factor.”²²⁸ These judicial opinions are wrong: opportunity to conspire *is* a plus factor, and it *is* evidence that the defendants could have conspired. It just is not enough on its own to prove a conspiracy. That is why this evidence should be interpreted in the context of all of the other plus factors pled by the plaintiffs—to determine whether other evidence indicates that the defendants took advantage of the opportunity.

Similarly, with respect to plus factors in the Cartel Management category, courts often take highly probative evidence, sequester it, and then

²²³ See, e.g., *Capital Imaging Assocs. v. Mohawk Valley Med. Assocs.*, 996 F.2d 537, 545 (2d Cir. 1993) (emphasis added).

²²⁴ See, e.g., *In re Chocolate Confectionary Antitrust Litig.*, 801 F.3d 383, 409 (3d Cir. 2015); *Williamson Oil Co. v. Philip Morris USA*, 346 F.3d 1287, 1317–19 (11th Cir. 2003); *Blomkest Fertilizer, Inc. v. Potash Corp. of Saskatchewan*, 203 F.3d 1028, 1036–37 (8th Cir. 2000); *In re High Fructose Corn Syrup Antitrust Litig.*, 156 F. Supp. 2d 1017, 1033–35 (C.D. Ill. 2001), *rev’d*, 295 F.3d 651 (7th Cir. 2002); see *infra* notes 304–323 and accompanying text (discussing plus factors in the *Chocolate Confectionary Antitrust* case).

²²⁵ *Blomkest*, 203 F.3d at 1036 (citing *Weit v. Cont’l Ill. Nat’l Bank & Tr. Co. of Chi.*, 641 F.2d 457, 462 (7th Cir. 1981)); see also *Capital Imaging*, 996 F.2d at 545 (“The mere opportunity to conspire does not by itself support the inference that . . . an illegal combination actually occurred.”); *In re Citric Acid Litig.*, 191 F.3d 1090, 1103 (9th Cir. 1999) (finding that opportunities to conspire “do not tend to exclude the possibility of legitimate activity”); *Weit*, 641 F.2d at 462 (“[T]he mere opportunity to conspire, even in the context of parallel business conduct, is not necessarily probative evidence.”).

²²⁶ *In re Baby Food Antitrust Litig.*, 166 F.3d 112, 133 (3d Cir. 1999).

²²⁷ See *In re Chocolate Confectionary Antitrust Litig.*, 999 F. Supp. 2d 777, 804 (M.D. Pa. 2014) (“Limited evidence of opportunities to conspire is not a plus factor enhancing the plausibility of plaintiffs’ claims.”), *aff’d*, 801 F.3d 383 (3d Cir. 2015).

²²⁸ *Alexander v. Phx. Bond & Indem. Co.*, 149 F. Supp. 2d 989, 1006 (N.D. Ill. 2001) (citing *Market Force Inc. v. Wauwatosa Realty Co.*, 906 F.2d 1167, 1172 (7th Cir. 1990)).

treat it as innocuous on its own. For example, notwithstanding the inherent dubiousness of having competitors' pricing materials in one's files, the Ninth Circuit has opined that "the possession of competitor price lists . . . does not, *at least in itself*, tend to exclude legitimate competitive behavior."²²⁹ But, of course, such evidence was not intended to do so "in itself"; it was one plus factor among many.²³⁰

Other circuits have weakened the import of this plus factor by misconstruing the relationship between plus factors and proof of agreement. Notably, in *In re Chocolate Confectionary Antitrust Litigation*,²³¹ the Third Circuit discounted the fact that the alleged conspirators possessed each other's nonpublic "advance pricing information" because, according to the court, "[t]he 'mere possession of competitive memoranda' is not evidence of concerted action to fix prices."²³² The *Chocolate Confectionary Antitrust* court relied on the Third Circuit precedent in *In re Baby Food Antitrust Litigation*, which characterized Eleventh Circuit precedent as holding the "[e]xchange of pricing information *by itself* is an insufficient basis upon which to allow an inference of agreement to fix prices."²³³ One year after *Chocolate Confectionary Antitrust*, the Third Circuit described the circuit's precedent as holding "that the sharing of confidential information *may* be evidence of a conspiracy, not that it *must* be."²³⁴ The court's articulation is incorrect. The "sharing of confidential information" among horizontal competitors is always circumstantial evidence of conspiracy; it just might not be sufficient evidence to prove a conspiracy without other circumstantial evidence. That is why opportunity evidence needs to be interpreted in light of all of the other plaintiff-proffered plus factors.²³⁵

Regarding the Suspicious Statements category, courts routinely isolate incriminating statements made by defendants' executives and employees

²²⁹ *In re Citric Acid*, 191 F.3d at 1103 (emphasis added).

²³⁰ See *infra* notes 323–345 and accompanying text (discussing how the Ninth Circuit in *Citric Acid* mishandled the plus-factor analysis).

²³¹ 801 F.3d 383 (3d Cir. 2015).

²³² *Id.* at 407–08 (emphasis added) (quoting *In re Baby Food Antitrust Litig.*, 166 F.3d 112, 126 (3d Cir. 1999)).

²³³ *In re Baby Food*, 166 F.3d at 126 (emphasis added) (citing *Amey, Inc. v. Gulf Abstract & Title, Inc.*, 758 F.2d 1486, 1505 (11th Cir. 1985)); see also *City of Moundridge v. Exxon Mobil Corp.*, 429 F. Supp. 2d 117, 132 (D.D.C. 2006) ("Evidence that competitors merely exchanged information does not establish a conspiracy.").

²³⁴ *Havens v. Mobex Network Servs., LLC*, 820 F.3d 80, 92 (3d Cir. 2016).

²³⁵ As shown *infra* Section IV.C.4, the plaintiffs proffered evidence of many additional plus factors in *Chocolate Confectionary Antitrust*, which the court also isolated and mishandled.

during the course of the alleged conspiracy.²³⁶ Similarly, despite the fact that defendants advancing pretextual explanations for their parallel or suspicious conduct is a plus factor, courts routinely sequester such evidence and assert that “*pretext alone* does not create a reasonable inference of a conspiracy.”²³⁷ Even though “pretext alone” might not prove a conspiracy, courts should not discredit the legal significance of the defendants’ false exculpatory statements after the conspiracy has been alleged. False explanations for suspicious conduct—such as intercommunications, buybacks, and cartel markers—make the underlying conduct even more probative of collusion.²³⁸

Finally, several courts have sapped even Multipurpose Plus Factors of their evidentiary value by looking at them in isolation. For example, despite the fact that the defendants’ price-fixing activities in other countries can help establish several separate plus factors,²³⁹ several courts have isolated such evidence and deprived it of any probative value.²⁴⁰ For example, while ignoring a multitude of other plus factors, one Michigan court asserted that “the existence of conspiracies in another country, *without more*, does not support an inference of a conspiracy to fix prices in the United States.”²⁴¹ That is incorrect; evidence of foreign collusion “support[s] an inference” of domestic collusion even if it alone does not prove it. Likewise, even when plaintiffs present so-called “traditional conspiracy” evidence, courts routinely segregate this evidence from the other proffered plus factors and assert that such “economic evidence *alone* cannot demonstrate a tacit agreement” when a market is concentrated.²⁴² Yet, it is precisely the fact that such evidence exists in the context of a market that is susceptible to cartelization that renders this evidence particularly probative.

²³⁶ See, e.g., *Valspar Corp. v. E.I. du Pont de Nemours & Co.*, 152 F. Supp. 3d 234, 249–50 (D. Del. 2016), *aff’d*, 873 F.3d 185 (3d Cir. 2017).

²³⁷ *In re Chocolate Confectionary*, 801 F.3d at 411 (emphasis added); see also *In re Linerboard Antitrust Litig.*, 504 F. Supp. 2d 38, 53 (E.D. Pa. 2007) (“[W]ithout more, evidence of pretext is insufficient.” (citing *DeLong Equip. Co. v. Wash. Mills Abrasive Co.*, 887 F.2d 1499, 1514 (11th Cir. 1989))); *Moffat v. Lane Co.*, 595 F. Supp. 43, 49 (D. Mass. 1984) (“[T]he fact that a business reason advanced for action against plaintiff is pretextual does not *without more* justify the inference that the conduct was the result of a conspiracy.” (emphasis added) (citing *Bruce Drug, Inc. v. Hollister, Inc.*, 688 F.2d 853, 857 (1st Cir. 1982))).

²³⁸ Leslie, *supra* note 4 (manuscript at 36).

²³⁹ See *supra* notes 171–186 and accompanying text.

²⁴⁰ Leslie, *supra* note 174, at 608 (reviewing antitrust “opinions [that] seem to suggest that because foreign price fixing is not dispositive proof of domestic price fixing that it is not a plus factor”).

²⁴¹ *Ren v. Philip Morris Cos.*, No. 00-004035-CZ, slip op. at 22 (Mich. Cir. Ct. Sept. 10, 2003) (emphasis added).

²⁴² *Valspar Corp. v. E.I. Du Pont De Nemours & Co.*, 873 F.3d 185, 193 n.3 (3d Cir. 2017) (emphasis added). Although the court claimed to examine the evidence as a whole, it did not. See *infra* notes 266–269 and accompanying text.

For courts to repeatedly say that one factor *alone* or *without more* does not prove collusion is largely meaningless. Plus factors were never intended to be looked at in isolation or to stand on their own as definitive proof of an agreement. That is the entire essence of a *factor* test. In price-fixing cases in which the plaintiffs have proffered evidence of several plus factors, for judges to consistently emphasize that one factor alone does not by itself prove collusion suggests unfamiliarity with how factor tests work. Factors must be examined in the aggregate precisely because they are factors, not elements.

B. *The Judicial Misapplication of Matsushita*

The starting point for many mistakes related to the judicial isolation and rejection of individual plus factors is a misreading of the Supreme Court's *Matsushita* opinion. On the facts before them, the five-Justice majority in *Matsushita* found the plaintiffs' claim of a predatory-pricing conspiracy implausible because the conspiracy would have required the defendants to lose money in the short term with an uncertain payoff later.²⁴³ The majority held that "if the factual context renders [the plaintiffs'] claim implausible—if the claim is one that simply makes no economic sense—[the plaintiffs] must come forward with more persuasive evidence to support their claim than would otherwise be necessary."²⁴⁴

Although *Matsushita* involved an alleged predatory-pricing conspiracy, which the *Matsushita* majority found implausible, lower federal courts have applied *Matsushita*'s heightened summary judgment standard to traditional price-fixing cases. This is a mistake because there is nothing "implausible" about price-fixing conspiracies, which are common, profitable, and require no short-term losses. Thus, courts should not invoke the *Matsushita* rule, which heightens the summary judgment standard for implausible claims, when adjudicating price-fixing claims.²⁴⁵ Ultimately, the *Matsushita* Court concluded that "[t]o survive a motion for summary judgment . . . , a plaintiff seeking damages for a violation of § 1 must present evidence 'that tends to exclude the possibility' that the alleged conspirators acted independently."²⁴⁶ This language has spawned a wave of judicial error.

²⁴³ *Matsushita Elec. Indus. Co. v. Zenith Radio Corp.*, 475 U.S. 574, 589, 592 (1986); see also Christopher R. Leslie, *Predatory Pricing and Recoupment*, 113 COLUM. L. REV. 1695, 1719 (2013) (critiquing *Matsushita*).

²⁴⁴ *Matsushita*, 475 U.S. at 587.

²⁴⁵ *In re Flat Glass Antitrust Litig.*, 385 F.3d 350, 357–58 (3d Cir. 2004).

²⁴⁶ 475 U.S. at 588 (quoting *Monsanto Co. v. Spray-Rite Service Corp.*, 465 U.S. 752, 764 (1984)).

Leaving aside that *Matsushita* should not apply to price-fixing claims at all, courts also should not apply *Matsushita* “to discredit each separate piece of proffered evidence an antitrust plaintiff brings forth.”²⁴⁷ *Matsushita* requires weighing *all* of the evidence collectively to determine whether that evidence *as a whole* supports an inference of conspiracy.²⁴⁸ As Judge Posner explained, at the summary judgment stage, “no single piece of the evidence . . . is sufficient in itself to prove a price-fixing conspiracy. But that is not the question. The question is simply whether this evidence, considered as a whole and in combination with the economic evidence, is sufficient to defeat summary judgment.”²⁴⁹ Similarly, the Second Circuit has explained: “A court deciding whether to grant summary judgment should not view each piece of evidence in a vacuum. Seemingly innocent or ambiguous behavior can give rise to a reasonable inference of conspiracy in light of the background against which the behavior takes place.”²⁵⁰ In short, the *Matsushita* legal standard should not be applied to individual plus factors one at a time.

Courts nonetheless improperly apply the *Matsushita* standard to individual plus factors and then discount or completely disregard each plus factor because it cannot singlehandedly satisfy the *Matsushita* test of tending to exclude the possibility that the defendants acted independently. Judges have committed this mistake across every plus-factor category described in Part II’s typology. At the outset, although market characteristics are important for showing Cartel Susceptibility, some courts have mistakenly rejected market concentration as a plus factor because the “inherent characteristics of an oligopoly . . . cannot tend to exclude independent action.”²⁵¹ Similarly, in the category of Cartel Formation plus factors, the Ninth Circuit has rejected evidence of opportunities to conspire as sufficient to support an inference of conspiracy because they “do not tend to exclude the possibility of legitimate activity.”²⁵² This approach is incorrect because

²⁴⁷ *Valspar*, 873 F.3d at 216 (Stengel, J., dissenting) (citing *In re Flat Glass*, 385 F.3d at 358 n.8, 359 n.9); see also *Blomkest Fertilizer, Inc. v. Potash Corp. of Saskatchewan*, 203 F.3d 1028, 1049 (8th Cir. 2000) (Gibson, J., dissenting) (“The plaintiff’s evidence must amount to more than a scintilla, but the plaintiff does not have to outweigh the defendant’s evidence item by item.” (citing *Rossi v. Standard Roofing, Inc.*, 156 F.3d 452, 466 (3d Cir.1998))).

²⁴⁸ See *In re Urethane Antitrust Litig.*, 913 F. Supp. 2d 1145, 1152 (D. Kan. 2012).

²⁴⁹ *In re High Fructose Corn Syrup Antitrust Litig.*, 295 F.3d 651, 661 (7th Cir. 2002).

²⁵⁰ *Apex Oil Co. v. DiMauro*, 822 F.2d 246, 254–55 (2d Cir. 1987).

²⁵¹ *Romero v. Philip Morris Inc.*, 242 P.3d 280, 296 (N.M. 2010); see also *In re Domestic Drywall Antitrust Litig.*, 163 F. Supp. 3d 175, 231 (E.D. Pa. 2016) (“Evidence that participants in an oligopolistic market acted the same way at the same time will always be insufficient, standing alone, to defeat a summary judgment motion.”).

²⁵² *In re Citric Acid Litig.*, 191 F.3d 1090, 1103 (9th Cir. 1999).

no single plus factor alone can “tend to exclude the possibility” of independent action. No individual plus factor is supposed to.

Courts have replicated this mistake for plus factors in the Cartel Management and Cartel Enforcement categories. For example, even though cartels often use price announcements to manage and adjust cartel-fixed prices, the district court in *Valspar Corp. v. E.I. du Pont de Nemours & Co.*²⁵³ disparaged them as a plus factor because “nothing about these [competitor price] announcements tends to exclude the possibility of independent action.”²⁵⁴ Similarly, even though price verification among competitors is an important form of cartel monitoring, and thus Cartel Enforcement, the Eighth Circuit segregated the evidence of the defendants’ price verifications by concluding that such “evidence falls far short of excluding the possibility of independent action.”²⁵⁵ These decisions take the *Matsushita* standard—which should be applied to all of the plaintiff’s evidence collectively—and use it to discount evidence of an individual plus factor.

Federal judges have similarly undermined the significance of Cartel Markers. For example, the Seventh Circuit in *Reserve Supply Corp. v. Owens-Corning Fiberglas Corp.* discounted the plaintiff’s proof of price discrimination, stating that the evidence was insufficient by itself to create a “genuine issue of triable fact.”²⁵⁶ The *Reserve Supply* court further discredited evidence of “increased prices during a period of low demand” that “[did] not unambiguously suggest . . . an agreement to fix prices.”²⁵⁷ This is incorrect and asks too much from plus factors because no individual plus factor can constitute “unambiguous” evidence of collusion. Similarly, in an opinion affirmed by the Fourth Circuit, the district court in *Hall v. United Air Lines, Inc.* discounted long-term static market shares as a plus factor because “the stability of their market shares does not tend to exclude the possibility that defendants acted independently, particularly in light of a lack of any *direct evidence* to the contrary.”²⁵⁸ The court isolated stable market shares from all of the other plus factors proffered by the plaintiffs, including price signaling, communications through trade association meetings, price discrimination, a history of collusion, and a bevy of plus

²⁵³ 152 F. Supp. 3d 234 (D. Del. 2016).

²⁵⁴ *Id.* at 249.

²⁵⁵ *Blomkest Fertilizer, Inc. v. Potash Corp. of Saskatchewan*, 203 F.3d 1028, 1034–35 (8th Cir. 2000).

²⁵⁶ 971 F.2d 37, 51 (7th Cir. 1992).

²⁵⁷ *Id.* at 52 (diminishing evidence of “increased prices during a period of low demand”).

²⁵⁸ 296 F. Supp. 2d 652, 676 (E.D.N.C. 2003) (emphasis added) (citing *In re Citric Acid Litig.*, 191 F.3d 1090, 1106 (9th Cir. 1999), *aff’d sub nom.* *Hall v. Am. Airlines, Inc.*, 118 F. App’x 680 (4th Cir. 2004)).

factors related to Cartel Susceptibility, including an oligopolistic market, entry barriers, and “highly fungible” products.²⁵⁹ The court slighted the plaintiffs’ evidence of stable market shares because it alone could not satisfy the *Matsushita* standard and because the plaintiffs did not present direct evidence.²⁶⁰ But, of course, if the plaintiff had direct evidence, it would not need to rely on plus factors in the first place, since the entire purpose of plus factors is to prove agreements circumstantially rather than through direct evidence.

Courts have also repeated this mistake with Multipurpose Plus Factors. For example, even though prior collusion in a product market is a strong indicator of later collusion, courts have applied the *Matsushita* standard to hold that an alleged “‘history of collusion’ in the industry does not tend to exclude the possibility that Defendants were engaged in lawful conduct during” the period alleged by the plaintiffs.²⁶¹ Some courts have gone so far as to (incorrectly) conclude that the defendants’ history of collusion is not a plus factor at all.²⁶²

In all of the above cases, courts have misapplied the *Matsushita* standard for surviving summary judgment—a legal test that requires evaluating the plaintiff’s bundle of evidence collectively²⁶³—by applying *Matsushita*’s language to each single piece of circumstantial evidence on its own. This application is wrong because no single plus factor is meant to tend to exclude the possibility of independent action. Rather, the bundle of proffered plus factors should be analyzed holistically to determine whether they *collectively* establish that the defendants did not act independently. Moreover, in misapplying the *Matsushita* test, some courts have decimated plus factors altogether. For example, the Eleventh Circuit in *Williamson Oil* asserted that if a piece of circumstantial evidence “does not tend to exclude the possibility of independent action (or tend to establish a price fixing conspiracy), . . . [it] cannot constitute a plus factor.”²⁶⁴ That is wrong. An individual piece of evidence need not tend to “exclude the possibility of

²⁵⁹ *Id.* at 672–76.

²⁶⁰ *Id.* at 676.

²⁶¹ *Holiday Wholesale Grocery Co. v. Philip Morris, Inc.*, 231 F. Supp. 2d 1253, 1305 (N.D. Ga. 2002), *aff’d sub nom. Williamson Oil Co. v. Philip Morris USA*, 346 F.3d 1287 (11th Cir. 2003).

²⁶² *See, e.g., Smith v. Philip Morris Cos.*, 335 P.3d 644, 670–71 (Kan. Ct. App. 2014) (“Thus, we do not find the claimed history of collusion to be a viable plus factor.”).

²⁶³ It bears repeating that this is the legal standard for *implausible* antitrust claims (such as predatory pricing), not price-fixing cases (which are inherently more plausible). *See supra* notes 247–249 and accompanying text.

²⁶⁴ 346 F.3d at 1313. In a related state case, the New Mexico Supreme Court relied on the Eleventh Circuit’s *Williamson Oil* opinion to reject the plaintiffs’ plus factors one at a time in seriatim because each one individually did “not tend to exclude independent conduct.” *Romero v. Philip Morris Inc.*, 242 P.3d 280, 296–98 (N.M. 2010).

independent action.” The plus factors discussed in Part II’s typology are just that: factors. None of them alone is determinative. The only issue in any given price-fixing case based on circumstantial evidence is whether the plaintiffs have presented a sufficient bundle of plus factors from which a reasonable jury could infer that the defendant colluded to restrain competition.

While citing *Matsushita*, courts have deviated from *Continental Ore*’s mandate that an antitrust plaintiff’s evidence be considered holistically. As a matter of common law, this would be permissible if the *Matsushita* opinion had, in fact, reversed or limited *Continental Ore*. But it did not. The two Supreme Court opinions are not in tension. The holding of *Continental Ore* is not now, nor has it ever been, controversial. Courts should not compartmentalize an antitrust plaintiff’s evidence.

But across circuits and across plus factors, courts fail to recognize that the *Matsushita* standard should not be applied to individual plus factors. When courts impose such a requirement, they effectively eliminate plaintiffs’ ability to prove collusion through circumstantial evidence, since no single piece of circumstantial evidence is ever sufficient on its own. Looking at one factor in isolation deprives that factor of its antitrust significance because the factors must be examined collectively in order to determine whether there is sufficient evidence of enough factors to create a genuine issue of material fact on the issue of agreement.

C. Case Studies

It may be tempting to think that the prior discussion selected isolated examples of sloppy judicial language that did not affect the ultimate decision or cause any miscarriage of justice. This Section refutes that objection by presenting several case studies in which the judicial practice of isolating plus factors in price-fixing cases caused the court to improperly grant or affirm summary judgment for the defendants. In each of these cases, the plaintiffs proffered more than enough circumstantial evidence to reach a jury, but judges violated the *Continental Ore* rule and segregated each plus factor, viewing it in isolation from its companion evidence.

1. Valspar

In evaluating a plaintiff’s catalog of plus factors, some courts never consider the relationship among the proffered plus factors. For example, in *Valspar Corp. v. E.I. Du Pont De Nemours & Co.*,²⁶⁵ the Third Circuit affirmed summary judgment for defendants who had been accused of fixing prices in the multibillion-dollar titanium dioxide market. The two-judge

²⁶⁵ 873 F.3d 185, 189–90 (3d Cir. 2017).

majority isolated each of the proffered plus factors, depriving them of any probative synergy. For example, they downplayed the fact that the defendants engaged in thirty-one parallel price increases—an unprecedented number—even though no market conditions prompted the price hikes.²⁶⁶ The plaintiffs proffered plus factors related to Cartel Susceptibility (market concentration, homogeneous products, and a market susceptible to conspiracy); Cartel Formation (including exchanges of confidential information); Cartel Management (in the form of price signaling); Cartel Enforcement (most significantly, intercompany sales of titanium dioxide at below market price); Cartel Markers (such as relatively static market shares); and Suspicious Conduct (such as “abrupt departure from pre-conspiracy conduct”).²⁶⁷ Thus, the plaintiffs presented significant evidence that the defendants were engaging in cartel formation, management, and enforcement conduct in a market that was highly susceptible to illegal price fixing and where Cartel Markers indicated that the defendants’ thirty-one parallel price hikes were the product of collusion. In affirming summary judgment for the defendants, and despite claiming to “consider the evidence as a whole,”²⁶⁸ the Third Circuit never considered how these plus factors related to each other. For example, when denying the intercompetitor sales any probative value, the court did not consider that those below-cost transactions occurred in the context of static market shares and thirty-one parallel price increases. If the court had not compartmentalized the plus factors, it would have permitted the plaintiffs to make their case to a jury.²⁶⁹

2. Williamson Oil

Judges often criticize the plaintiff’s proffered individual plus-factor evidence one piece at a time and then assert that collectively the bundle of plus factors is insufficient to survive summary judgment. In *Williamson Oil Co. v. Philip Morris USA*,²⁷⁰ the Eleventh Circuit affirmed summary judgment for price-fixing defendants by isolating each of the plaintiffs’ proffered plus factors. The plaintiffs presented plus factors related to Cartel Susceptibility by showing that the defendants operated in a tobacco market structure that was highly concentrated and had high barriers to entry, involved a fungible product, and exhibited inelastic demand at competitive

²⁶⁶ *Id.* at 207, 218 (Stengel, J., dissenting).

²⁶⁷ *Id.* at 218.

²⁶⁸ *Id.* at 201 (majority opinion).

²⁶⁹ *Id.* at 218 (Stengel, J., dissenting) (“Viewed together, and not compartmentalized, all this evidence was more than sufficient to preclude summary judgment.”).

²⁷⁰ 346 F.3d 1287, 1291 (11th Cir. 2003).

prices.²⁷¹ The plaintiffs also noted that prices could be changed quickly, which would facilitate active price fixing.²⁷² With regard to Cartel Formation, the plaintiffs explained the defendants' strong motivation to conspire and many opportunities to do so.²⁷³ The plaintiffs submitted evidence of plus factors related to Cartel Management, including ongoing communications and signaling of price intentions.²⁷⁴ The plaintiffs also presented the components of a Cartel Enforcement program, including the mutual monitoring of sales and the establishment of permanent allocation programs.²⁷⁵ The effectiveness of this allocation established the Cartel Marker of stable market shares, which the plaintiffs also alleged.²⁷⁶ The plaintiffs presented a number of suspicious activities, including the defendants' failure to perform meaningful business analysis before raising prices and reducing the number of tiers in pricing, which would make it easier for cartel managers to fix prices and monitor compliance.²⁷⁷ Finally, the plaintiffs also proffered double-duty plus factors such as actions against economic self-interest, a long history of antitrust violations, foreign price-fixing activities, and participation in other conspiracies involving the health effects of smoking.²⁷⁸ These Multipurpose Plus Factors showed that the defendants had demonstrated their willingness and ability to collude. Ultimately, the plaintiffs alleged approximately twenty individual plus factors.

Despite this plethora of plus factors, the Eleventh Circuit isolated the plus factors one at a time and held each one insufficient on its own to defeat the defendants' summary judgment motion. The appellate panel ultimately reasoned that because "none of [proffered plus factors] actually tends to exclude the possibility of independent behavior," that meant that the plaintiffs could not "demonstrate the existence of a plus factor."²⁷⁹ That conclusion is, in a word, bizarre. The court applied the *Matsushita* standard to each individual plus factor—which is inappropriate²⁸⁰—to conclude that the plaintiffs proffered no evidence of plus factors whatsoever. The court's language here is troubling; it asserted that the plaintiffs failed to show "a plus factor," any plus factor, suggesting that the plaintiffs did not proffer

²⁷¹ *Id.* at 1296, 1317.

²⁷² *Id.* at 1317.

²⁷³ *Id.* at 1305, 1319.

²⁷⁴ *Id.* at 1305–09.

²⁷⁵ *Id.* at 1293, 1315.

²⁷⁶ *Id.* at 1318.

²⁷⁷ *Id.* at 1310–11.

²⁷⁸ *Id.* at 1310, 1315–18.

²⁷⁹ *Id.* at 1304, 1323.

²⁸⁰ See *supra* notes 243–264 and accompanying text.

evidence of a single plus factor. The court never looked at the twenty-some plus factors collectively because it falsely asserted said that there were no plus factors to aggregate. While it is true that none of the proffered plus factors individually proved a conspiracy, the Eleventh Circuit was wrong to rule that because no plus factor on its own was sufficient, that meant there were no plus factors at all.

Audaciously, the Eleventh Circuit asserted that it had obeyed the *Continental Ore* prohibition against compartmentalizing an antitrust plaintiff's evidence. For example, the court concluded that "we are satisfied that none of the actions on which appellants' arguments are based rise to the level of plus factors. Nor do they constitute plus factors when considered in concert."²⁸¹ This is not the cumulative analysis demanded by *Continental Ore*; instead, the court looked at each plus factor in isolation, decided it was insufficient on its own, and deprived it of any probative value. The court then added this column of zeroes to conclude that there were no plus factors of any kind.

Moreover, at some junctures, the *Williamson Oil* court claimed to be analyzing evidence collectively while explicitly refusing to do. For example, when the plaintiffs explained how several actions and statements made by the defendants constituted price signals, which are an important plus factor,²⁸² the judges disregarded this evidence because none of these actions satisfied the *Matsushita* standard of "tend[ing] to exclude the possibility . . . [of] lawful, parallel pricing behavior."²⁸³ The judges next claimed that examining the evidence of price signals "cumulatively" could not change their conclusion because "the whole of the [defendants'] actions is no greater than the sum of its parts. Because none of [defendants'] largely ambiguous statements and actions come close to meeting the mark, it is unhelpful . . . to consider those actions in concert."²⁸⁴ The court's language is telling: the judges admitted that because they did not find individual pieces of evidence persuasive, they declined to consider them "in concert," despite the *Continental Ore* mandate to do so.

In short, the *Williamson Oil* plaintiffs presented evidence of plus factors from every category in the typology presented in Part II. But the Eleventh Circuit's approach to this body of circumstantial evidence was astonishingly flawed. The court isolated each plus factor, improperly applied the *Matsushita* standard to each individual plus factor, discredited each plus

²⁸¹ *Williamson Oil*, 346 F.3d at 1319–20.

²⁸² See *supra* notes 75–86 and accompanying text.

²⁸³ *Williamson Oil*, 346 F.3d at 1310; see *supra* notes 247–250 and accompanying text (explaining why the *Matsushita* standard does not apply to individual plus factors).

²⁸⁴ *Williamson Oil*, 346 F.3d at 1310.

factor seriatim, and then asserted that there were no plus factors at all. The court did not look at the plaintiffs' plus factors cumulatively, but then falsely claimed that it did before switching course and ultimately admitting that it did not. If these plaintiffs' bundle of plus factors is insufficient to defeat a motion for summary judgment, then the court has essentially eliminated the circumstantial path to proving price fixing.²⁸⁵

3. Blomkest

The *Valspar* and *Williamson Oil* cases are not aberrations. Several courts have committed this same mistake of isolating individual plus factors, declining to aggregate, and failing to appreciate the probative synergy of multiple plus factors. For example, in *Blomkest Fertilizer, Inc. v. Potash Corp. of Saskatchewan*, an en banc Eighth Circuit decided by a six-to-five majority to affirm summary judgment for defendants accused of fixing prices in the billion-dollar market for potash, a fertilizer whose price affects the cost of food for all consumers.²⁸⁶ The defendants had conceded that they had engaged in parallel pricing, so the case came down to whether the plaintiffs had proffered evidence of sufficient plus factors to survive summary judgment.²⁸⁷ As in *Valspar* and *Williamson Oil*, the plaintiffs in *Blomkest* introduced evidence across the entire range of plus-factor categories. The plaintiffs showed Cartel Susceptibility with proof that the potash market was concentrated and characterized by high barriers to entry, inelastic demand, and a standardized product,²⁸⁸ each of which is a separate plus factor.²⁸⁹ The plaintiffs "introduced significant evidence of solicitations to enter a price-

²⁸⁵ Explicitly following the lead of *Williamson Oil*, a Kansas appellate court made the same mistake on the same facts. Instead of looking at the plus factors collectively, the court decided to "consider each asserted plus factor in turn" and ruled each one out individually, before outrageously stating:

Taken individually or collectively, the structure of the market, the meetings between tobacco company executives, the exchange of sales information, the history of past misconduct, the actions claimed to be contrary to the actors' independent self-interest, the claimed pretextual reasons for actions, the foreign price-fixing claim, and the health conspiracy do not constitute evidence that tends to exclude the possibility that Defendants were engaged in lawful conscious parallelism in their pricing decisions. With that, we conclude the district court did not err in granting summary judgment to Defendants.

Smith v. Philip Morris Cos., 335 P.3d 644, 668, 676 (Kan. Ct. App. 2014). The court's approach is ridiculous on its face. Similar to the Eleventh Circuit in *Williamson Oil*, the Kansas court listed all of the reasons why the plaintiff's case deserved to be heard by a jury and then asserted, without reasoning, that the defendants were entitled to summary judgment.

²⁸⁶ 203 F.3d 1028, 1031 (8th Cir. 2000).

²⁸⁷ *Id.* at 1034.

²⁸⁸ *Id.* at 1044 (Gibson, J. dissenting).

²⁸⁹ See *supra* notes 31–47 and accompanying text.

fixing agreement”²⁹⁰—one of the most important plus factors related to Cartel Formation—as well as a “joint action” plan by one of the defendants to raise the price of potash.²⁹¹ To show Cartel Management plus factors, the plaintiffs pointed to the defendants’ advance price announcements and exchanging of price lists.²⁹² The majority, however, discounted all evidence of intercompetitor communications by asserting that “the evidence of interfirm communications does not tend to exclude the possibility of independent action, as required under *Monsanto* and *Matsushita*.”²⁹³ The court failed to appreciate that *Matsushita* should not be applied to individual plus factors.²⁹⁴

Perhaps most significantly, the plaintiffs demonstrated both components of a Cartel Enforcement regime. Regarding cartel monitoring, the plaintiffs pointed to the fact that the rival executives had called each other dozens of times to verify the prices that they had previously charged on specific sales.²⁹⁵ Despite the fact that price-verification schemes are an important plus factor in the Cartel Enforcement category,²⁹⁶ the majority disaggregated the defendants’ price verification calls, treating them as “circumstantial evidence . . . that . . . bears no relationship to the price increases” and depriving them of probative value.²⁹⁷ In addition, the plaintiffs presented evidence of “an explicitly discussed cheater punishment program.”²⁹⁸ The majority, nonetheless, failed to connect the dots and see that the defendants had effected a complete Cartel Enforcement program that had both components of monitoring and punishment.

The *Blomkest* plaintiffs also presented evidence of a plethora of additional plus factors. Beyond the communications previously discussed, the plaintiffs also showed Suspicious Statements by the defendants, such as complaints about a rival’s price-cutting activity and resulting apologies for charging a low price.²⁹⁹ These are important plus factors because rivals do

²⁹⁰ *Blomkest*, 203 F.3d at 1044 (Gibson, J., dissenting).

²⁹¹ *Id.* at 1039, 1044.

²⁹² *Id.* at 1037 (majority opinion).

²⁹³ *Id.* at 1033.

²⁹⁴ See *supra* notes 247–250 and accompanying text.

²⁹⁵ *Blomkest*, 203 F.3d at 1033.

²⁹⁶ See *supra* notes 96–102 and accompanying text.

²⁹⁷ *Blomkest*, 203 F.3d at 1033. In contrast, the five-judge dissent recognized that price verification is a cartel monitoring device. *Id.* at 1047 (Gibson, J., dissenting) (“[I]f there were a cartel, it would be crucial for the cartel members to cooperate in telling each other about actual prices charged in order to prevent the sort of widespread discounting that would eventually sink the cartel.”).

²⁹⁸ *Id.* at 1051.

²⁹⁹ *Id.* at 1045.

not communicate that way in a noncollusive, competitive market.³⁰⁰ As a Cartel Marker, the plaintiffs also demonstrated that the defendants’ “prices were roughly equivalent during the alleged conspiracy, despite differing production costs.”³⁰¹ Finally, the plaintiffs introduced expert-written “econometric models which purport to prove that the price of potash would have been substantially lower in the absence of collusion.”³⁰² Ultimately, the Eighth Circuit disaggregated the plaintiffs’ plentiful evidence, never considered the probative synergy of the plus factors, and improperly blocked a case that should have advanced to a jury trial.³⁰³

4. Chocolate Confectionary Antitrust

All of these antitrust opinions suffer from the same fundamental flaw: they never consider how the plus factors identified by the plaintiffs relate to each other. In other words, they never contemplate the concept of probative synergy—the fact that evidence of individual plus factors gains in its probative value when it exists in conjunction with certain other plus factors.³⁰⁴ In *In re Chocolate Confectionary Antitrust Litigation*, for example, the Third Circuit affirmed summary judgment for price-fixing defendants³⁰⁵ but provided no explanation for *why* the plaintiffs’ collection of plus factors was deficient. The plaintiffs had demonstrated plus factors across the categories of Cartel Susceptibility (market concentration³⁰⁶); Cartel Formation (motive³⁰⁷ and opportunity, including intercompetitor

³⁰⁰ See *supra* notes 150–153 and accompanying text.

³⁰¹ *Blomkest*, 203 F.3d at 1032. This is suspicious because in a competitive market, firms with lower production costs would charge a lower price and take market share away from less efficient rivals.

³⁰² *Id.* at 1033.

³⁰³ See HERBERT HOVENKAMP, *THE ANTITRUST ENTERPRISE: PRINCIPLE AND EXECUTION* 134–35 (2005) (condemning *Blomkest* for misunderstanding conscious parallelism because “[c]ajoling competitors into adhering to their posted price lists, or reprimanding them when they steal sales, is not conscious parallelism: it is collusion[;] [t]he combination of market structure and history and these communications was more than enough to create an inference of agreement”); Edward D. Cavanagh, *Matsushita at Thirty: Has the Pendulum Swung Too Far in Favor of Summary Judgment?*, 82 ANTITRUST L.J. 81, 101 (2018) (“*Blomkest* is a classic example of improper issue-weighting at the summary judgment stage.”); Louis Kaplow, *On the Meaning of Horizontal Agreements in Competition Law*, 99 CALIF. L. REV. 683, 743 n.151 (2011) (critiquing *Blomkest*).

³⁰⁴ Obviously, this Article does not condemn courts for not using the phrase “probative synergy,” which originates in this Article. But courts should have been employing this concept—however christened—ever since the Supreme Court’s 1962 *Continental Ore* opinion. See *supra* notes 205–207 and accompanying text.

³⁰⁵ 801 F.3d 383, 391 (3d Cir. 2015).

³⁰⁶ *Id.*

³⁰⁷ The court isolated and discounted the motive plus factor because “evidence of motive without more does not create a reasonable inference of concerted action.” *Id.* at 398.

communications³⁰⁸); Cartel Management (possession of rivals' confidential pricing documents³⁰⁹); Cartel Markers (parallel price increases unexplained by cost increases³¹⁰); Suspicious Statements by defendants (pretextual explanations for parallel price increases³¹¹); and Multipurpose Plus Factors (actions against self-interest³¹² and participation in contemporaneous illegal price fixing in another country³¹³).

The Third Circuit approached the plaintiffs' plus factors in a manner designed to deprive them of their full probative value. The court began by noting that "evidence of conscious parallelism cannot alone create a reasonable inference of a conspiracy" and that "a plaintiff must also show that certain plus factors are present."³¹⁴ While this is a correct articulation of the standard, the court proceeded to isolate and discount every one of the plus factors, as follows:

- "[E]vidence of mere opportunities . . . cannot *alone* support an inference of a conspiracy."³¹⁵
- "[E]vidence of motive *without more* does not create a reasonable inference of concerted action . . ."³¹⁶
- "A conspiracy elsewhere, *without more*, generally does not tend to prove a domestic conspiracy . . ."³¹⁷
- "[S]ocial contacts between competitors *without more* are not unlawful."³¹⁸
- "[P]retext *alone* does not create a reasonable inference of a conspiracy."³¹⁹

³⁰⁸ *Id.* at 409.

³⁰⁹ *Id.* at 407–08. The court isolated and discounted this evidence by asserting that "[t]he 'mere possession of competitive memoranda' is not evidence of concerted action to fix prices." *Id.* at 408 (quoting *In re Baby Food Antitrust Litig.*, 166 F.3d 112, 126 (3d Cir. 1999)).

³¹⁰ *Id.* at 399.

³¹¹ *Id.* at 410–11.

³¹² *Id.* at 399–401.

³¹³ *Id.* at 401–02; see Leslie, *supra* note 174, at 604–08 (explaining the mistakes in the *Chocolate Confectionary Antitrust* opinion regarding the legal significance of defendants' participation in foreign cartels).

³¹⁴ *In re Chocolate Confectionary*, 801 F.3d at 398 (first citing *In re Baby Food*, 166 F.3d at 122; and then citing *In re Flat Glass Antitrust Litig.*, 385 F.3d 350, 360 (3d Cir. 2004)).

³¹⁵ *Id.* at 409 (emphasis added).

³¹⁶ *Id.* at 398 (emphasis added).

³¹⁷ *Id.* at 403 (emphasis added).

³¹⁸ *Id.* at 406 (emphasis added).

³¹⁹ *Id.* at 411 (emphasis added).

In closing, the court acknowledged its mistake and then doubled down, asserting, “[W]e held that some of this evidence individually was insufficient ‘without more,’ but taken together, the aforementioned evidence does not provide the necessary ‘more’ to survive summary judgment.”³²⁰ No further analysis explained the court’s decision. While each factor “alone” or “without more” did not prove an agreement, the court failed to explain for each plus factor why the evidence presented for the *other* plus factor did not constitute the “more” that proof of conspiracy through circumstantial evidence requires.

The plaintiffs’ bundle of plus factors should have sufficed to create a genuine issue of material fact and advance the plaintiff’s price-fixing claim to a jury. But the Third Circuit never considered the plus factors’ relationships with each other. Instead, it dissected them one at a time and then concluded that they “do not support a reasonable inference of a conspiracy.”³²¹ The Third Circuit affirmed the district court opinion, which had asserted “whether considered individually or collectively, the record evidence inexorably leads to one conclusion: plaintiffs have adduced *no evidence* tending to exclude the possibility that defendants acted independently.”³²² It is simply incorrect to assert that the plaintiffs presented no evidence. They proffered evidence of plus factors across a range of categories. Nevertheless, by compartmentalizing evidence and failing to appreciate probative synergy, the court confronted a long list of plus factors and incorrectly concluded that there was “no evidence.”

5. Citric Acid

Confronted with the mandate to not look at the plaintiffs’ evidence of agreement in isolation, most judges would deny that they are segregating the plaintiffs’ evidence. Most such protestations ring hollow. For example, the Ninth Circuit in *In re Citric Acid Litigation* claimed to abide by *Continental Ore*’s mandate,³²³ but an examination of the facts and the court’s reasoning reveals mistake after mistake. There is no doubt that sellers of citric acid had conspired to fix prices and divide the world market. The Department of

³²⁰ *Id.* at 412.

³²¹ *Id.*

³²² *In re Chocolate Confectionary Antitrust Litig.*, 999 F. Supp. 2d 777, 804 (M.D. Pa. 2014), *aff’d*, 801 F.3d 383 (3d Cir. 2015). The district court seemed to accept the defendants’ argument that “motive and opportunity, *standing alone*, fail to establish a Section 1 violation.” *Id.* at 789 (emphasis added). But motive and opportunity were not “standing alone”: they stood together with the other plus factors in the case, including the defendants’ illegal price fixing in Canada and advanced knowledge of each other’s upcoming price increases. *See id.* at 797.

³²³ 191 F.3d 1090, 1102 (9th Cir. 1999).

Justice's Antitrust Division had already secured guilty pleas and received tens of millions of dollars in criminal fines³²⁴ from all of the major suppliers except one, Cargill, which had escaped criminal prosecution.³²⁵

When purchasers of citric acid sued all of the major citric acid manufacturers, including Cargill, for illegally conspiring to fix prices, Cargill moved for summary judgment. In opposition, the plaintiffs presented a range of circumstantial evidence that Cargill had been a member of the already-proven citric acid cartel. For example, Cargill engaged in the same "nearly identical" lockstep price increases as the convicted members of the cartel.³²⁶ The plaintiffs proffered evidence of Cartel Formation and Cartel Management. For example, the leaders of the illegal cartel had created the European Citric Acid Manufacturers Association (ECAMA) as a fake trade association to create a cover for why the competing citric acid manufacturers had to be in the same room. Cargill had joined and was a member of ECAMA. Cartel business was done during ECAMA meetings. Cargill executives attended meetings and had several phone conversations with their rival counterparts who were actively managing the citric acid cartel.³²⁷ Moreover, Cargill possessed copies of their competitors' price lists and exchanged price information with these same competitors, who were criminally convicted of price fixing.³²⁸

The Ninth Circuit sapped the evidence of the exchange of price information of all probative value by asserting that such conduct "is standard fare for trade associations."³²⁹ The Ninth Circuit ignored the fact that ECAMA was not an ordinary trade association; it was created in order to "provide a convenient cover for illegal price-fixing discussions."³³⁰ One cartel insider explained "that there always was a meaningless official meeting followed by an 'unofficial' meeting where the ongoing strategy of the conspiracy was developed. The official ECAMA meetings had an agenda. The unofficial meetings did not."³³¹ Thus, the "biennial meetings of

³²⁴ See, e.g., CONNOR, *supra* note 50, at 358 ("A couple of days later, ADM paid a \$30 million fine for its role in price fixing in the market for citric acid, an amount that reflected a hefty discount for its cooperation with prosecutors.").

³²⁵ *In re Citric Acid Litig.*, 996 F. Supp. 951, 953 (N.D. Cal. 1998).

³²⁶ *In re Citric Acid*, 191 F.3d at 1102.

³²⁷ *Id.* at 1103.

³²⁸ *Id.*

³²⁹ *Id.* at 1098.

³³⁰ CONNOR, *supra* note 50, at 192.

³³¹ JAMES B. LIEBER, *RATS IN THE GRAIN: THE DIRTY TRICKS AND TRIALS OF ARCHER DANIELS MIDLAND* 188 (2000).

ECAMA were pretexts for holding secret parallel price-fixing sessions for citric acid.”³³² And Cargill attended these “official” ECAMA meetings.

The *Citric Acid* plaintiffs also proffered evidence from other plus-factor categories. Regarding Cartel Susceptibility, the citric acid market was not merely conducive to cartelization; it was the situs of an active, multiyear international cartel that illegally raised prices by hundreds of millions of dollars. During the relevant time period, Cargill artificially reduced its planned output, cutting it in half, and thereby creating underused capacity, a Cartel Marker.³³³ Cargill took action against its individual interest (which is a Multipurpose Plus Factor) by not expanding to make profitable sales and thus keeping relative market shares stable (which is a Cartel Marker). Yet the Ninth Circuit isolated each piece of this evidence³³⁴ and asserted it was “untenable” to deny summary judgment to a defendant simply because that firm did not increase its market share.³³⁵ But, of course, this was not the only evidence proffered by the plaintiffs. In addition to these several plus factors, the plaintiffs also produced eyewitness testimony. In hindsight, there is little doubt that Cargill participated in the citric acid cartel because Barrie Cox, an ADM employee who helped run the cartel, gave sworn testimony to the FBI that he had more than a dozen conversations with his counterpart at Cargill about raising price, rigging bids, and suppressing output.³³⁶ The Ninth Circuit dismissed Cox’s testimony as “not constitut[ing] *direct* evidence.”³³⁷

The Ninth Circuit claimed to look at the plaintiffs’ evidence as a whole,³³⁸ but it did not. Although the court cited *Continental Ore* for the proposition that it must “consider the evidence in the record as a whole,”³³⁹ the judges proceeded to examine the *defendant’s* evidence, not the plaintiffs’,

³³² CONNOR, *supra* note 50, at 209.

³³³ See *In re Citric Acid*, 191 F.3d at 1100–01.

³³⁴ *Id.* at 1101 (“[I]t is not reasonable to infer that a firm is engaging in illegal activities merely from the fact that it failed to continue to increase market share.”).

³³⁵ *Id.*

³³⁶ CONNOR, *supra* note 50, at 148 (“Cox stated that he had held more than a dozen conversations with William Gruber, his counterpart at Cargill. The conversations dealt with Cargill’s plans to raise prices and rig bids to certain customers. Cox said that he agreed to ‘go along’ with Cargill’s plan to raise the price of citric acid and restrain ADM’s sales volume.”); David Barboza, *Archer Daniels Executive Said to Tell of Price-Fixing Talks with Cargill Counterpart*, N.Y. TIMES (June 17, 1999), <https://www.nytimes.com/1999/06/17/business/archer-daniels-executive-said-tell-price-fixing-talks-with-cargill-counterpart.html> [<https://perma.cc/DDN6-GQS7>].

³³⁷ *In re Citric Acid*, 191 F.3d at 1104.

³³⁸ See *id.* at 1097.

³³⁹ *Id.* at 1102 (citing *Cont’l Ore Co. v. Union Carbide & Carbon Corp.*, 370 U.S. 690, 699 (1962)).

and the judges credited Cargill’s explanation for its suspicious behavior.³⁴⁰ The Ninth Circuit then committed the error, discussed in Section IV.B, of applying the *Matsushita* standard to individual plus factors.³⁴¹ For example, the panel discounted the plaintiffs’ expert economist report, asserting that “no piece of evidence tends to exclude the possibility that Cargill acted independently.”³⁴² The case against Cargill was particularly strong given that the other members of the cartel had already admitted their participation in the illegal conspiracy. And even though the plaintiffs presented plus factors across almost every category, the Ninth Circuit concluded that “there is no more than a scintilla of evidence that Cargill was a participant in the citric acid conspiracy.”³⁴³ Despite claiming to consider the plaintiffs’ evidence as a whole, the court never did so.³⁴⁴

The *Citric Acid* opinion is typical. Although courts routinely claim to examine the plaintiff’s evidence of agreement holistically, more often than not judges simply assert in passing that the plaintiff’s evidence of plus factors is insufficient both individually and collectively.³⁴⁵ Most judges never actually analyze plus factors collectively as a body of evidence that combines to create an overall circumstantial case for collusion or evaluate the strength of that overall case. Such perfunctory judicial claims of aggregation are inadequate and betray an ignorance of how evidence should be analyzed holistically. In short, courts do not aggregate plus factors even when they claim to be doing so.

³⁴⁰ *Id.*; *id.* at 1106 (“Cargill has offered reasonable legitimate explanations for . . . evidence offered by Varni purportedly showing that Cargill engaged in price fixing.”).

³⁴¹ *Id.* at 1105–06 (stating, before claiming to consider the evidence as a whole, that “[a]pplying the legal framework set forth in *Matsushita* and developed through several subsequent cases in this circuit, we have concluded that none of the various pieces of evidence offered by [plaintiff] supports a reasonable inference that Cargill conspired to fix prices because none of the evidence, *when considered individually*, tends to exclude the possibility that Cargill acted independently” (emphasis added)).

³⁴² *Id.* at 1105 n.9.

³⁴³ *Id.* at 1106.

³⁴⁴ *Id.* at 1105–06.

³⁴⁵ *See, e.g., In re Delta/Airtran Baggage Fee Antitrust Litig.*, 245 F. Supp. 3d 1343, 1381 (N.D. Ga. 2017) (“Although the Court has analyzed each of Plaintiff’s would-be plus factors sequentially, the outcome is the same when they are considered cumulatively.”), *aff’d sub nom. Siegel v. Delta Air Lines, Inc.*, 714 F. App’x 986 (11th Cir. 2018); *In re Hawaiian & Guamanian Cabotage Antitrust Litig.*, 647 F. Supp. 2d 1250, 1260–61 (W.D. Wash. 2009) (“In this case, the whole is not more than the sum of the parts.”); *In re Text Messaging Antitrust Litig.*, 46 F. Supp. 3d 788, 811–12 (N.D. Ill. 2014) (comparing the approach of considering evidence as a whole to “a mosaic whose individual tiles add up to a complete picture” (quoting *Morgan v. SVT, LLC*, 724 F.3d 990, 995 (7th Cir. 2013))).

6. Musical Instruments

The judicial isolation of plus factors is not limited to the consideration of summary judgment motions. Courts have also committed this mistake when evaluating motions to dismiss filed by price-fixing defendants. For example, in *In re Musical Instruments & Equipment Antitrust Litigation*,³⁴⁶ the district court dismissed the plaintiffs' claim that Guitar Center, several guitar manufacturers, and their trade association (the National Association of Music Merchants, or NAMM) had "conspired to implement and enforce minimum-advertised-price policies ('MAP policies')," which raised retail prices.³⁴⁷ When the plaintiffs pled that the defendants used NAMM meetings to form and maintain the cartel, the Ninth Circuit viewed this evidence in isolation and asserted that "mere participation in trade-organization meetings where information is exchanged and strategies are advocated does not suggest an illegal agreement."³⁴⁸ Not only is compartmentalizing this evidence as "mere participation" in a trade association a violation of the *Continental Ore* mandate, it overlooks and downplays the fact that price information was exchanged and pricing strategies were discussed among competitors. Because such actions help both Cartel Formation and Cartel Management, they are themselves important plus factors for inferring collusion.

In response to the plaintiffs' pleading the existence of Cartel Markers, such as defendants' dramatically increasing prices in tandem even though demand was sharply decreasing, the Ninth Circuit asserted that this provided "no basis from which we can infer an agreement" because "parallel price increases, *without more*, are no different from other forms of parallel conduct."³⁴⁹ The court's invocation of "without more" is the classic way to isolate a plus factor. More importantly, there was "more," as the court had just acknowledged that demand was decreasing as prices were increasing, which makes those price hikes more likely to be the product of collusion and, thus, a plus factor.³⁵⁰ Moreover, the plaintiffs had pled the presence of several other plus factors, including a common motive to conspire, each company's actions against individual self-interest, adopting "substantially similar MAP policies," and an "FTC investigation and settlement regarding alleged price

³⁴⁶ 798 F.3d 1186 (9th Cir. 2015).

³⁴⁷ *Id.* at 1189–91.

³⁴⁸ *Id.* at 1196.

³⁴⁹ *Id.* at 1197 (emphasis added).

³⁵⁰ *See supra* note 119 and accompanying text.

fixing in the music-products industry, specifically at NAMM-sponsored events.”³⁵¹

Despite the fact that the plaintiffs pled plus factors across a variety of plus-factor categories, the Ninth Circuit affirmed dismissal “because plaintiffs’ plus factors add nothing.”³⁵² This is an alarming holding at the motion-to-dismiss stage,³⁵³ and it flows from the court failing to consider all of the plaintiffs’ evidence in context. The two-judge majority on the Ninth Circuit panel claimed to examine the evidence as a whole, but never did.³⁵⁴ Unfortunately, *Musical Instruments* is not a complete outlier, as district court judges sometimes incorrectly isolate the components of a plaintiff’s complaint and dismiss price-fixing claims even when the plaintiff has pled a variety of relevant plus factors whose probative synergy went unexamined by the court.³⁵⁵

7. Summary

All of the above opinions have made the same mistake of ignoring the probative synergy of plus factors in price-fixing cases. When dismissing price-fixing claims or granting summary judgments for Section 1 defendants, judges do not discuss how the plus factors presented in the case relate to each other despite the fact that plus factors provide context for each other and, when viewed in combination, can present a strong circumstantial case for collusion.³⁵⁶ Yet, in dozens of cases, courts consistently isolated individual plus factors and held that each individual plus factor was insufficient “*on its own*,” “*without more*,” or “*standing alone*” to create a circumstantial case

³⁵¹ *In re Musical Instruments*, 798 F.3d at 1199–1200 (Pregerson, J., dissenting).

³⁵² *Id.* at 1189 (majority opinion).

³⁵³ *Id.* at 1199 (Pregerson, J., dissenting) (“Both the district court and the majority opinion fault plaintiffs for being unable to show agreement between the manufacturer defendants by pinpointing the exact terms of the MAP policies and the exact timing of their adoption. Because plaintiffs have not been afforded an opportunity to discover these confidential and proprietary policies, it is unfair to require this level of specificity at the pleading stage.”); see also William H. Page, *Pleading, Discovery, and Proof of Sherman Act Agreements: Harmonizing Twombly and Matsushita*, 82 ANTITRUST L.J. 123, 139–41 (2018) (critiquing the Ninth Circuit’s application of “a far more exacting standard” at the pleading stage and suggesting that this approach was applied due to a suboptimal use of predissmissal discovery).

³⁵⁴ *Musical Instruments*, 798 F.3d at 1198 (Pregerson, J., dissenting) (“Although the majority opinion purports to address the six plus factors as a whole, it actually focuses on each factor individually.”). Indeed, the district court dismissed the claim while admitting that “the consolidated complaint’s claims are not, taken as a whole, implausible.” *In re Nat’l Ass’n of Music Merchs., Musical Instruments & Equip. Antitrust Litig.*, No. 2121, 2011 WL 3702453, at *4 (S.D. Cal. Aug. 22, 2011).

³⁵⁵ See, e.g., *In re Zinc Antitrust Litig.*, 155 F. Supp. 3d 337, 372 (S.D.N.Y. 2016).

³⁵⁶ *In re Med. X-Ray Film Antitrust Litig.*, 946 F. Supp. 209, 218 (E.D.N.Y. 1996); Page, *supra* note 77, at 417 (noting that plus factors can be “a constellation of pieces of evidence that, taken as a whole, create the necessary inference” of concerted action).

from which a reasonable jury could infer an agreement among the defendants to restrain competition. Looking at each plus factor in isolation—as these courts have done—is completely at odds with the Supreme Court’s mandate that antitrust plaintiffs’ evidence should be considered as whole and not “on its own,” “without more,” or “standing alone.”³⁵⁷

D. The Consequences of Compartmentalizing Plus Factors

The failure of federal courts to consider plus factors holistically is not a mere abstract mistake. This mistake has real consequences for markets and for consumers. When judges improperly isolate plus factors, it leads them to grant summary judgment on price-fixing claims even when illegal collusion has, in fact, occurred. Section IV.C described how the Ninth Circuit mistakenly isolated the plethora of plus factors that the plaintiffs presented showing how Cargill had participated in the citric acid price-fixing conspiracy, whose existence had already been proven through the guilty pleas of Cargill’s competitors (and coconspirators). Despite the fact that the plaintiffs had proffered evidence across every category of plus factor that Cargill had illegally conspired with its (already-convicted) rivals, the Ninth Circuit isolated every piece of evidence and then affirmed summary judgment, concluding that “there is no more than a scintilla of evidence that Cargill was a participant in the citric acid conspiracy.”³⁵⁸ This holding is wrong on its face given that the plaintiffs presented a surplus of plus factors well in excess of a scintilla. This holding might be less controversial if the court nonetheless reached the correct result, albeit using flawed analysis. But we know that both the court’s interpretation of the evidence and its outcome in the case were wrong. Although the court diminished the testimony of ADM employee Barrie Cox as not “direct evidence,” Cox informed the FBI, as part of his immunity deal, that he and his counterpart at Cargill had several explicit discussions in which the firms agreed to reduce output and mutually increase price of citric acid.³⁵⁹ Through these bilateral side meetings, Cargill belonged to the citric acid cartel and profited from the illegal collusion in proportionate measure to those manufacturers—Cargill’s coconspirators—who had been criminally convicted. By prematurely granting summary judgment to Cargill, the Ninth Circuit prevented a jury from ever hearing Cox’s testimony—testimony that, when coupled with the abundance of plus factors, would have led any reasonable jury to find Cargill had participated in the citric acid price-fixing conspiracy. As a consequence of the Ninth Circuit’s improper cabining of evidence, Cargill escaped responsibility for

³⁵⁷ *Cont’l Ore Co. v. Union Carbide & Carbon Corp.*, 370 U.S. 690, 699 (1962).

³⁵⁸ *In re Citric Acid Litig.*, 191 F.3d 1090, 1106 (9th Cir. 1999).

³⁵⁹ CONNOR, *supra* note 50, at 147–48.

its illegal conduct; it retained its ill-gotten gains from collusion, which undermines deterrence of price fixing.

Not only does the compartmentalization of plus factors allow price fixers to evade antitrust liability, as Cargill did, it can deprive the victims of price fixing compensation for their injuries. Section IV.C explained how the Third Circuit in *Valspar* improperly isolated plus factors in granting summary judgment to the price-fixing defendants. The *Valspar* case, however, was but one of many antitrust lawsuits brought against the manufacturers of titanium dioxide. Antitrust lawyers had initiated class action litigation in Maryland district court. *Valspar*, which alone had purchased more than \$1.2 billion of titanium dioxide during the period of the conspiracy, opted out of the class action and pursued its own lawsuit in Delaware district court.³⁶⁰ The Maryland judge did not compartmentalize plus factors and denied the defendants' motion for summary judgment.³⁶¹ Facing the prospect of a trial during which the class counsel would present an overwhelming bundle of plus factors to the jury, the defendants agreed to pay \$163.5 million to settle the case.³⁶² In contrast, because the Delaware judge and the Third Circuit isolated plus factors, the titanium dioxide manufacturers evaded liability and did not have to pay any damages to one of their largest customers. The price fixers got to keep ill-gotten gains. This undermines deterrence.

CONCLUSION

When performing plus-factor analysis, courts too often disregard the Supreme Court's mandate to examine plus factors holistically even if they pay lip service to that mandate. Antitrust opinions tend to discuss the plus factors proffered by an antitrust plaintiff one at a time in isolation and rarely do these opinions attempt to explain why each plus factor is probative of price fixing, let alone the relationships among the proffered plus factors. When judges find a plus factor insufficient in and of itself to establish an agreement, they incorrectly assert that the plus factor is, consequently, not a plus factor at all, without examining whether its interaction with other plus factors might support an inference of an agreement among competitors.

This demonstrates a complete failure to appreciate how factor tests work. The whole point of a factor test is that no one factor is either necessary or sufficient. Each plus factor is probative, even if none on its own

³⁶⁰ *Valspar Corp. v. E.I. Du Pont De Nemours & Co.*, 873 F.3d 185, 190 (3d Cir. 2017).

³⁶¹ *In re Titanium Dioxide Antitrust Litig.*, 959 F. Supp. 2d 799, 832 (D. Md. 2013).

³⁶² *In re Titanium Dioxide Antitrust Litig.*, No. RDB-10-0318, 2013 WL 5182093, at *2 (D. Md. Sept. 12, 2013) (approving "Proposed Settlement Agreements pursuant to which the Defendants will pay a total of \$163.5 million into a common settlement fund").

constitutes proof of a conspiracy. The fact that dozens of courts have opined that a single plus factor does not *on its own* prove an agreement is troubling. By suggesting that a particular factor is not a plus factor if it does not prove an agreement on its own, courts show a fundamental lack of understanding of the difference between direct and circumstantial evidence. As a result, courts are too quick to dismiss price-fixing claims and to grant summary judgment when there is evidence of multiple plus factors that, when viewed together, permit a reasonable inference of collusion.

Correcting these errors is necessary to restore antitrust law's role in deterring and punishing price fixing. Moving forward, courts should consider how the proffered plus factors relate to each other. Plus factors are not simply additive; their probative value can increase exponentially when observed in combination with other plus factors. Each supplemental plus factor can increase the probative value of all of the preceding plus factors. Judges should analyze plus factors in relation to each other because the whole is often greater than the sum of its parts.