In This Issue

Editor’s Note: This issue features two articles that draw lessons for practitioners from past cases: the recent FTC Tronox/Cristal merger litigation and the 2008 Ninth Circuit’s PeaceHealth decision on bundling. The third article in this edition brings us face to face with the present by taking a hard look at the role of antitrust in recent proposals to breakup or restructure the large U.S. digital technology companies.

Breaking Up Is Hard to Do: The Implications of Restructuring and Regulating Digital Technology Markets
Diana Moss weighs in on whether breaking up “big tech” is the most effective enforcement tool available to protect competition in digital markets.

Four Key Aspects of the Tronox/Cristal Litigation
Nicholas Hill, Dominic Vote, and Nathan Wilson identify four key implications for antitrust practitioners that arise from federal and administrative court decisions in the Tronox/Cristal merger litigation.

Checking in on PeaceHealth: Providing Clearer Guidance to Bundling Sellers
David Reichenberg and Lauren Stiroh examine the pros and cons of PeaceHealth’s discount attribution test relative to other proposed methods of assessing the competitive effects of bundled discounts.
Breaking Up Is Hard to Do: The Implications of Restructuring and Regulating Digital Technology Markets

Diana L. Moss

Recent proposals to breakup, or restructure, the large U.S. digital technology companies have received mixed reviews in the antitrust community.¹ These proposals highlight a number of issues that pose a conundrum for antitrust. For example, breakup proponents advocate for antitrust as the major policy tool for solving the economic, social, and even political problems raised by the large digital technology companies.² While many antitrust advocates have long called for stronger antitrust enforcement in the digital technology sector, they generally have stopped short of calling for wholesale restructuring.³ They warn that antitrust should not be pressed into service to accomplish goals for which it was not designed, or called on to advance claims that are incompatible with antitrust law. A more effective approach to addressing concerns, they argue, will require a comprehensive “portfolio” of policy tools that includes antitrust, some forms of regulation, and standard-setting for interoperability on digital platforms.

The animating theme for breakup proposals for the digital technology sector is the revival of the comprehensive structural remedy that emerged from the historical Standard Oil and AT&T antitrust cases.⁴ Here again, experts suggest caution. Antitrust breakup remedies have been used rarely


and few industries have been subject to full structural separation as part of sectoral regulatory reform initiatives. The few instances where these steps have been taken involve companies with significantly different forms of economic organization than those of digital technology firms. The services and functionality these firms provide are the product of highly integrated business-to-consumer (B2C) and business-to-business (B2B) markets, the totality of which form an interconnected digital ecosystem. Many digital technology markets feature strong network effects. Connectivity across markets is driven by leveraging user data that is enhanced by machine learning and artificial intelligence. Given these features, applying comprehensive structural remedies to the digital technology sector will require significantly more analysis than what appears to motivate breakup proposals.

Also absent from these proposals is an assessment of the costs and benefits of breaking up digital technology companies—an essential part of any legislative breakup or restructuring initiative. This is a particularly important for a sector featuring some market segments with characteristics that resemble an essential facility, alongside adjacent more competitive markets. For example, in some industries, the forces of natural monopoly account for a larger proportion of the total delivered cost to the consumer or user than do the forces of competition. However, the efficiency gains from restructuring are likely to be lower in the natural monopoly case than in the competition scenario. Without analysis of this dynamic in digital technology markets, the case for breakups remains cloudy.

Other major questions raised by proposals to break up the large digital technology market players include the following: the appropriateness of the threshold criteria for mandated restructuring; how breakups change incentives surrounding competition and innovation; how antitrust is implicated in addressing violations of any new breakup law; and the implications of a mixed regime of permissible integration, mandated structural separation, competition, and regulation. In light of the foregoing issues, some unpacking of breakup proposals can usefully guide future discussions about the role of antitrust in restructuring digital technology markets.

This article pieces together several critical discussions that should lead to both healthy skepticism regarding the use of breakup remedies and the need for a more coherent policy approach for the digital technology sector. It begins by assessing the role of antitrust in breakup proposals. Next, the article turns to the potential consequences of breakup proposals. The article closes by explaining the importance of a policy portfolio approach in addressing the diverse set of concerns in digital technology markets.

Unpacking the Role of Antitrust in Breakup Proposals

Breakup proposals invoke a sweeping precedent and role for antitrust in restructuring digital technology companies. They feature underlying assumptions that should be carefully examined for potential conflicts with antitrust, including the marked contrast between blunt breakup remedies and antitrust’s exacting law enforcement focus.

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Breakup Proposals Rely on Enforcement of Antitrust for Existing and New Laws. Proposals for restructuring the digital technology sector, like that advanced by Senator and Presidential candidate Elizabeth Warren, cannot easily be dismissed simply as political messaging. The proposal, and the premises upon which it rests, relies heavily on antitrust law as the precedent and major tool for restructuring digital technology markets. To fully appreciate the implications of these assumptions, it is important to translate the concern that underlies breakup proposals into antitrust terms. Namely, large digital technology companies allegedly possess durable monopolies in parts of their ecosystems and have thwarted competition through structural and conduct-related impediments, including high market share, barriers to entry, network effects, interoperability restrictions, and exclusion of rivals.

The modern equivalent of the monopoly network or essential facility that was the focus of historical antitrust breakup cases is a “platform.” Platforms are the set of technologies with which other technologies, applications, or processes interoperate. While this engineering definition is agnostic as to whether the platform owner also owns businesses that operate on the platform, the economic definition of a platform is not. As discussed later, the economic incentives attached to ownership of a standalone platform differ materially from those associated with ownership of the platform and affiliated commercial interests.

Breakup proposals invoke antitrust as a tool to address concerns over large digital technology firms in three major ways. One is a call for invigorated anti-monopolization enforcement under Section 2 of the Sherman Act. Section 2 cases are difficult to bring, due in large part to the heavy burden associated with proving the possession and maintenance of monopoly power. The U.S. Department of Justice and Federal Trade Commission have brought only a handful of monopolization and attempted monopolization cases in the last two decades. This stands in contrast to hundreds of merger cases brought under Section 7 of the Clayton Act and conspiracy cases under Section 1 of the Sherman Act. Second, breakup proponents suggest challenges to consummated mergers under Section 7. Third, breakup proponents rely on legislatively mandated restructuring and regulation for certain digital technology players. The “platform utility” is the centerpiece of this concept in the Warren proposal. It is a more specific version of a platform that involves a marketplace on which the owner also competes with third-party rivals (e.g., Google and Amazon). Under this concept, some platform utilities would be prohibited from owning both a platform utility and affiliated businesses that operate on the platform (i.e., restructuring requirements). Moreover, platform utilities

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8 Warren, supra note 2. The proposal refers four times to antitrust: (1) breaking up Standard Oil; (2) Microsoft (which was not broken up); (3) undoing consummated mergers; and (4) generally the adverse effects of weak antitrust enforcement.

9 See, e.g., Allison Schrager, A Nobel-Winning Economist’s Guide to Taming Tech monopolies, QZ.COM (June 27, 2018), https://qz.com/1310266/nobel-winning-economist-jean-tirole-on-how-to-regulate-tech-monopolies/ (“At the platform level, competition confronts the existence of large returns to scale and/or network externalities, leading to natural monopoly situations and a winner-take-all scenario.”).


13 Hughes, supra note 2, Warren, supra note 2.

14 Warren, supra note 2. Google Ad Exchange, Google Search, and Amazon Marketplace would all be deemed platform utilities.
would be additionally subject to a standard of fair, reasonable, and nondiscriminatory (FRAND-type) dealing with participants on the platform and from sharing data with third parties (i.e., regulation requirements). The Warren proposal appears to create a “savings clause” for antitrust that preserves federal, state, and private rights to sue if a company violates the requirements of a new law.

Assumptions Underlying Breakup Proposals Are Potentially in Tension with Antitrust Principles. Antitrust has the starring role in breakup proposals. But the stark contrast between blunt breakup remedies and the reality of the procedural and exacting nature of antitrust raises several questions. These issues highlight potential conflicts between the basic assumptions underlying breakup proposals and the anticipated role for antitrust. First, the Warren proposal sets forth two pathways to restructuring that are tied to company size. Companies with an annual global revenue of $25 billion or more and that operate a platform utility would be required to comply with restructuring and regulatory requirements. For companies with between $90 million and $25 billion in global revenue, their platform utilities would only be required to comply with regulatory requirements. It is not surprising that companies with $25 billion or more in global revenues comprise the 2019 Fortune 500. But a size threshold for breakups is potentially in conflict with antitrust principles. Absent specific and potentially illegal forms of activity, antitrust, particularly in the United States, is indifferent to how firms become big and even acknowledges the merits of organic growth through business acumen, technological innovation, and access to low cost resources.

Second, breakup proponents do not distinguish between the legal and illegal exercise of market power. For example, some digital markets feature zero-price metrics of exchange. In these settings, the exercise of market power may manifest in requirements that users provide more data; quality of service that is positively related to provision of data; and requirements to interact with a platform in ways that impose additional costs on the user. Regardless of whether adverse effects are revealed in high prices, lower quality, or less innovation, they do not constitute a violation of the antitrust laws unless accompanied by exclusion, an illegal agreement, or an illegal merger. As explained by Former DOJ Assistant Attorney General Donald Turner, for example:

“To hold unlawful the charging of a monopoly price by a monopolist, or the maintaining of noncompetitive prices by oligopolists, would be to invoke a purely public utility interpretation of the Sherman Act. Congress [did not intend the courts] to act much like public utility commissions in order to cure the ill effects of noncompetitive oligopoly pricing.”

Third, breakup proposals do not appear to recognize that some assumptions about competition in digital technology markets may not parallel those that we see in conventional markets. The

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15 Id.
16 Id.
Warren proposal states, for example: “With fewer competitors entering the market, the big tech companies do not have to compete as aggressively in key areas like protecting our privacy.”23 The role of user data in fueling digital ecosystems is a central component of their overall value proposition.24 Given the value derived from processing user data by all digital technology firms, it is not clear how more competition, created through antitrust-style breakups, would change incentives to protect user privacy.25 As a result, breakups may not be the most suitable tool to address broader privacy concerns, particularly in social networking markets.

Fourth, breakup proposals do not adequately frame problems in a way that is compatible with antitrust, which requires a theory of harm, evidentiary support through fact-finding, and judicial review. The Warren proposal states, for example: “They’ve bulldozed competition, used our private information for profit, and tilted the playing field against everyone else.”26 The proposal also states that Amazon, Google, and Facebook have “achieved their level of dominance” by using mergers and proprietary marketplaces to limit competition. While these claims are not necessarily wrong, they have not been adequately supported for the purposes of antitrust. As Chief Justice White wrote in Standard Oil, “[B]oth sides agree that the determination of the controversy rests upon the correct construction and application of the first and second sections of the Anti-trust Act.”27 A failure to motivate breakup proposals in a way that is compatible with the substance and process of antitrust is likely to limit support for legislative mandates in the digital technology sector.

Finally, the Warren proposal states that there is a “long tradition” of breaking up U.S. companies. The reality, however, is that breakup remedies are rare. For example, the structural separation of large corporations into smaller, independent entities has only been used in two instances—the U.S. government’s antitrust cases against Standard Oil and AT&T.28 To be sure, there may be circumstances where a comprehensive breakup remedy is warranted. But the austerity of their use historically suggests that their future use in the digital technology sector may be difficult, particularly since such a remedy must be tied to an identified theory of harm. Moreover, the hundreds of merger and non-merger civil cases brought by the U.S. government over the last several decades feature an array of narrowly crafted remedies. These range from civil penalties, to structural remedies such as targeted and line-of-business divestitures, and behavioral conditions.29 The narrowly constructed remedies that are likely available to enforcers suggests that the role of antitrust in achieving wholesale restructuring of digital technology companies is likely to be more limited than what is envisioned by breakup proposals.

The Antitrust Approach Is More Surgical Than Blunt Breakup Remedies. The exacting methodological and evidence-based approach is a central feature of antitrust enforcement. A brief

23 Warren, supra note 2.
24 See, e.g., Garcés, supra note 6, at 2.
26 Warren, supra note 2.
27 221 U.S. 1, 62 (1911). See also Supreme Court Decision Breaking Up Standard Oil, UPI (May 16, 1911), https://www.upi.com/Archives/1911/05/16/Supreme-Court-decision-breaking-up-Standard-Oil/712173901841/.
28 In United States v. United Shoe Machinery Corp., 391 U.S. 244 (1968), the company was forced to divest assets after a court-order remedy failed. See also Matthew Lane, The Great Antitrust Breakup: Often Threatened, Rarely Executed, DISCO (Mar. 13, 2018), http://www.project-disco.org/competition/031318-the-great-antitrust-breakup-often-threatened-rarely-executed#.XTCnFSZ2M6V.
journey through the key issues that would require resolution before obtaining any remedy in an antitrust case involving digital technology markets highlights the contrast with blunt breakup remedies. For example, absent strong, direct evidence of adverse price, quality, or innovation effects, an antitrust inquiry into digital technology markets will look carefully at market definition. Central to this inquiry is asking how users view different digital services as substitutes for obtaining the experiences they want. This includes, for example, choices between ecosystems for the purposes of advertising, online retailing, or social networking. Once markets are defined, assessing their structure provides vital information for exploring a potential competitive problem.

For example, the market for image-based social networking features Facebook, Pinterest, and Twitter, among others. Apple and Google both offer locational services through their mapping apps and functionality. These services are differentiated by each ecosystem’s business model, e.g., Apple’s connectivity across user devices or Google’s focus on machine learning. Most Big Tech firms also compete in luring businesses onto their advertising platforms. In both the Google-AdMeld and Google-DoubleClick cases, enforcers examined the potential effect of the acquisitions in markets for online advertising channels but challenged neither transaction. Finally, Amazon, Microsoft, and Google all compete in differentiated computing markets.

To be sure, some antitrust concerns involving digital technology may implicate multiple relevant markets, particularly in cases that involve the potential leveraging of market power. Where violations are shown, antitrust is likely to consider remedies that are tailored to clearly defined competitive problems in narrowly defined relevant markets. In Google-ITA Software, for example, the DOJ was concerned that Google’s acquisition of the leading independent provider of airfare pricing and shopping systems increased its incentive to foreclose rivals in the market for comparative flight search services. To address these concerns, the DOJ took a remedy that required Google to license ITA software to rivals. Looking forward, mergers involving the rapidly consolidating cloud infrastructure market could be subject to remedies that require interoperability.
between cloud systems to facilitate user switching. These examples highlight that antitrust remedies do not often include comprehensive structural de-integration but rather target specific harms in narrowly defined markets.

Assessing the Potential Consequences of Breakup Proposals

The preceding discussion highlights how breakup proposals pose a challenge for antitrust. This is because they carve a sweeping role for antitrust without appropriate attention to its underlying principles or the details of the enforcement process. This section takes the discussion in another important direction, namely how loosely framed breakup proposals could have unintended consequences.

Size Thresholds Could Lead to Broad Restructuring and Regulation.

Legislative breakup proposals raise a number of questions that highlight their potential unintended consequences. A major issue is the use of firm size thresholds as the criterion for determining which firms are restructured and regulated. For example, size thresholds for breakups in the Warren proposal are insensitive to the fact that revenues generated by operating a platform utility can account for a mere fraction of global revenues for a company that exceeds the $25 billion threshold. This approach could lead to the restructuring and regulation of firms that are perhaps not the intended target of breakup proposals.

For example, Microsoft had $110 billion in global revenue in 2018. It owns LinkedIn, a platform for business networking, and also owns affiliated businesses that interact with it, including its suite of Office products. LinkedIn had annual revenues of about $5.3 billion in 2018, or 5 percent of Microsoft’s total global revenue. Under the Warren proposal, Microsoft would be deemed a platform utility and required to separate LinkedIn from its affiliated businesses. LinkedIn would also be subject to FRAND-type regulation. Similarly, Walmart had global revenues in 2018 of about $500 billion. It operates Walmart Marketplace, an online retail exchange where it sells its own products alongside those of rivals. Walmart Marketplace competes with Amazon. Revenues for Walmart’s e-commerce sales (of which the Marketplace is a part) were about $21 billion in 2018. Under the Warren proposal, Walmart also would be deemed a platform utility and required to separate its marketplace from affiliated businesses. Walmart Marketplace would also be regulated under FRAND standards.

Other firms could avoid the ownership prohibition for platform utilities but still be required to comply with platform utility regulation. For example, Twitter operates in the social networking market. It has a 7 percent market share, competing with Facebook, which has about 37 percent of the market, and others. Twitter had revenue of about $3 billion in 2018 and hosts both rivals’

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42 Kallas, supra note 30.
content and its own content on its platform through affiliates like Snappy TV. Under the Warren proposal, Twitter would be deemed a platform utility and required to comply with FRAND regulation. Finally, E-Bay is an online marketplace that competes with Amazon and others. It offers users access to third-party sellers and also sponsors its own businesses. E-bay had revenue of about $11 billion in 2018 and would also be required to comply with platform utility regulation.

The examples above highlight the fact that a size-based criterion could subject smaller, emerging, disruptive, or expanding rivals to the same restructuring and regulatory requirements as the large players that are the intended target of the Warren proposal. This could have important implications for competition and consumers. These concerns therefore prompt the following questions: How are post-restructured markets likely to evolve and competitive dynamics shift in response to breakups? How does the imposition of restructuring and regulatory requirements affect rivals that may be in a position to challenge larger incumbent firms like Google, Amazon, and Facebook? How would a new law potentially affect the playing field by creating a mixed regime of permissible integration, mandated structural separation, competition, and regulation?

Answers to these questions are essential before breakup proposals move forward.

Market Dynamics Created by Restructuring and Regulation Deserve Careful Consideration. Breakup proposals do not appear to consider the broader dynamics created by prohibition on ownership of a platform utility and affiliated businesses. For example, the Warren proposal could potentially discourage buyers from purchasing assets from digital technology companies. A company with an existing platform utility that purchases an affiliated business could run afoul of the dual ownership restriction, based on size criteria. The same is true of a potential buyer that purchases a platform utility but owns businesses that operate on a platform. And if potential buyers fall below the size thresholds that prohibit dual ownership, legal restrictions under any new law could discourage growth and expansion of an innovative and disruptive market player.

In light of the incentives that are likely to be created by the Warren proposal, platform utilities may be more likely to be sold to a standalone platform operator. Likewise, affiliated businesses may be more likely to be divested to firms operating similar businesses. In the latter case, concerns about horizontal concentration or vertical foreclosure could arise in antitrust merger reviews. The same is true of divesting a platform utility to an existing platform operator, which might increase concentration in the platform market, raising concerns around mega-platform operators and, eventually, non-trivial questions of regulatory capture. In both cases, finding viable buyers to maintain sophisticated assets and inject the competition that is the goal of breakup proposals is likely to be difficult, particularly if markets are concentrated.

Restructuring, coupled with regulation, may also result in weaker incentives to maintain a standalone platform utility and continue to innovate—problems that could undermine the claimed effectiveness of restructuring proposals. Two lessons are illustrative. First, the Regional Transmission Operator (RTO) entity was created as part of wholesale electricity market restructuring in the United States in the 1990s. The Federal Energy Regulatory Commission opted to pur-

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issue “functional,” rather than structural separation of generation and transmission. 47 RTOs, which are subject to public utility regulation, are tasked with independently operating transmission networks (which continue to be owned by electric utilities) in various regions of the United States. They have grappled with governance and access pricing issues. Moreover, studies have revealed that the benefits of maintaining standalone RTOs are unclear. 48

Second, standalone operators of regulated networks or utilities typically have weak incentives to maintain a platform or invest in upgrading it. 49 The spinoff of the British railway system to an independent operator in the United Kingdom in the 1990s is instructive. The new network operator experienced safety problems in the wake of restructuring, and numerous modifications have been made to the original ownership and operation scheme. 50 These problems all pose potential costs on competition and consumers.

**New Regulatory Regimes for Platform Utilities Will Require Significant Thought.** Breakup proposals would ideally also consider the details and implications of developing and implementing a FRAND-type system of regulating a standalone or integrated platform. Borrowed from the standard essential patent context, FRAND regulation has three basic components. One is to set “fair” terms of dealing between the platform utility and third parties operating on it. This prohibits anticompetitive terms of access such as exclusivity conditions and requiring third parties to buy or engage services that they do not want in order to access the platform. A second condition is that access prices are “reasonable,” or that the aggregate rate does not raise industry costs. At the same time, the price should reward the platform utility for maintaining and innovating on the platform. A third principle focuses on terms and prices that are “nondiscriminatory,” or embody the concept of treating all parties (including the platform utility’s own businesses) in the same manner.

A roadmap for achieving a system of FRAND-based regulation of standalone and integrated platform utilities requires significant thought, particularly in terms of how regulation interacts with antitrust. Lessons from the standard essential patent context are relevant for the use of FRAND-based regulatory systems in other sectors. 51 Regulation of platform utilities on the scale envisioned by the Warren proposal would also require a new regulatory oversight authority for the sector (e.g., on Online Technology Markets Regulator, or similar). Presumably, a new sector regulator would have legislatively mandated oversight authority and would collaborate with the antitrust agencies

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51 See, e.g., Mark A. Lemley & Carl Shapiro, *A Simple Approach to Setting Reasonable Royalties for Standard-Essential Patents*, 28 Berkeley Tech. L.J. 1135, 1137–38 (2013), https://scholarship.law.berkeley.edu/cgi/viewcontent.cgi?article=2003&context=btlj. The authors note: “FRAND commitments have taken on increasing importance in recent years as courts have been called upon to decide what they mean, and as the Federal Trade Commission has brought antitrust actions to enforce those commitments. This litigation is largely a function of ambiguities and omissions in the FRAND system used by most SSOs. The effectiveness of the FRAND commitment has been undermined by these ambiguities and omissions, especially for standards in the information technology sector.”
on technical matters that affect the agencies competition mandate. But breakup proposals do not discuss a sector regulator, a concerning void given the complexity and implications of putting into place a new regulatory regime.

In light of these concerns, policymakers should be aware that crafting a restructuring and regulation regime for platform utilities raises many questions about the costs and benefits that accompany market interventions and displacement of competition with regulation. These questions, which should be resolved in advance of any legislative breakup mandate, would focus on changes in incentives for platform utilities to innovate if separated from affiliated businesses. Questions would also address incentives for third parties that operate on platform utilities to enter markets. Breakup proposals should also consider effects on consumers. This includes any changes in the value consumers derive from services and experiences in pre- to post-breakup markets. Finally, policymakers should ask the vitally important question: How will antitrust operate in digital technology markets post-breakups and will it play an effective role in addressing the competitive problems that arise?

A “Policy Portfolio” Approach Can Best Address Online Technology Markets

The major takeaway from the foregoing discussion is that “breaking up is hard to do.” This is particularly true if antitrust is tasked primarily with accomplishing the job. The consequences of breakup proposals are potentially significant. One class of concerns revolves around the higher probability of failure associated with poorly framed and justified breakup proposals. Another class of concerns focuses on the consequences for antitrust if it is burdened with solving problems for which it was not designed. This includes, among others, weakening antitrust through a surge of failed “test cases” prompted by restructuring and associated litigation; judicial interpretations of savings clauses in any new law; and other unintended spillover effects.

Many of these issues might be more constructively addressed by a “policy portfolio” approach. This means that other policy tools should be added to the mix to achieve well-defined goals for addressing identified problems in the digital technology sector. Those policies can be framed to complement antitrust. For example, social regulation is likely to be an important tool moving forward, given widespread concerns over the abuses surrounding user privacy. Antitrust can and has addressed privacy as a non-price dimension of competition in cases such as Google-DoubleClick. But experience to date also highlights that broader, more systemic privacy concerns surrounding treatment of user data are not reachable under antitrust and therefore require a different policy tool.

Standard setting and interoperability will likely also be needed to address concerns surrounding digital technology markets. Interoperability is central to facilitating competition on a single network, and across multiple networks. The issue has arisen with frequency in electricity, railroads, telecommunications, and natural gas transportation—industries that have grappled with similar questions posed by digital technology market breakup proposals. For example, advocates


have pushed for interoperability conditions for Facebook, designed to address user interfaces, privacy-based choice of services, and policies that determine content and editorial control.\textsuperscript{55} To be sure, antitrust plays a key role in promoting competition and consumer welfare in digital technology markets. But it is also clear that the scope of the competition, social, and political concerns in these markets is vast. Accordingly, more than one policy tool should be deployed as part of a constructive and coherent approach to the sector.

**Conclusion**

The foregoing analysis highlights the many questions and concerns raised by proposals to restructure and regulate digital technology markets. Antitrust advocates by and large support strengthening antitrust and deploying it for the purposes for which it is intended. This article makes clear that without answers to a number of critical questions, loosely defined breakup proposals could result in a failed experiment. The costs of failure are potentially high for competition, consumers, and innovation. A more coherent public policy approach is therefore necessary. Before that, however, it will be vital to define the goals for various approaches to addressing concerns surrounding the digital technology markets, identify the appropriate tools to address them, and sensibly predict how those tools will interact.

Four Key Aspects of the Tronox/Cristal Litigation

Nicholas Hill, Dominic Vote, and Nathan E. Wilson

On December 5, 2017, the Federal Trade Commission filed a complaint in its administrative court alleging that Tronox Limited’s proposed acquisition of National Titanium Dioxide Company’s titanium dioxide assets (Cristal) would substantially reduce competition.1 While that court’s decision was pending, the FTC also petitioned the D.C. District Court on July 10, 2018, to issue a preliminary injunction to prevent Tronox from closing the proposed acquisition before the administrative court could issue its decision. The federal court issued the preliminary injunction on September 5, 2018, finding that the FTC had demonstrated a likelihood of anticompetitive effects and that the preliminary injunction was in the public interest. Then, on December 17, 2018, the administrative court upheld the FTC’s complaint. Subsequently, the parties agreed to settle the FTC’s charges by divesting all of Cristal’s North American titanium dioxide assets.

The opinions of the federal and administrative courts broke ground in a number of areas and have important implications for antitrust practitioners. In this article we discuss what we see as four key aspects of these decisions, and explain their potential implications for the federal antitrust agencies and the private bar. These key aspects are: (1) clarifying the importance of evidence directly addressing customer responsiveness when defining relevant markets; (2) providing support for theories of harm focused on strategic withholding of output; (3) showing that arguments about Chinese expansion must be more than theoretical to overcome competition concerns; and (4) demonstrating that the agencies remain willing and able to bring—and win—coordinated effects cases.

Before turning to what we see as key takeaways from the litigation, we begin with some background on titanium dioxide.

Background on Titanium Dioxide

Rutile titanium dioxide is used to provide brightness and opacity to paints, plastics, paper, and other products.2 It is produced by interacting a titanium-bearing feedstock with either chlorine or sulfuric acid. These two approaches are commonly referred to as the chloride process and the sulfate process, respectively. Although both manufacturing processes result in titanium dioxide products suitable for use in a variety of final goods, the different reactions have an enduring impact on the output. Chloride-process titanium dioxide tends to be brighter and more durable than sulfate-process titanium dioxide. Moreover, the chloride process imparts a bluish tint relative to sulfate-process titanium dioxide’s more yellow hue.3

1 Publicly available details on the administrative and district court litigation can be found on the FTC’s website, https://www.ftc.gov/enforcement/cases-proceedings/171-0085/tronoxcristal-usa and https://www.ftc.gov/enforcement/cases-proceedings/171-0085/tronox-limited-et-al-ftc-v. In this case, the FTC filed an administrative complaint but did not immediately seek a preliminary injunction in district court because of an ongoing review in the European Union that precluded closing at that time.

2 The other form of titanium dioxide, anatase, has very different end uses, including inks, sun screens, and edible applications such as Oreos.

World-wide production of chloride-process and sulfate-process titanium dioxide are roughly equal. However, the distribution of production by process varies significantly across regions. In the United States and Canada, which are frequently referred to as North America in the industry, 99 percent of titanium dioxide is produced using the chloride process.\(^4\) Consumption of titanium dioxide varies significantly by process type across regions, as we discuss further below.

**Direct Evidence of Customer Responsiveness Is More Convincing Evidence of the Relevant Market than Price Co-Movement**

The FTC argued that the supply of chloride-process titanium dioxide to customers in North America is a relevant market. In other words, the agency defined the relevant geographic market on the basis of customer locations, and not supplier locations. Such a price discrimination market implies that North American customers strongly prefer chloride-process titanium dioxide relative to sulfate-process titanium dioxide, and that pigment suppliers are able to charge a different price in North America than in other regions. In both the federal and administrative court trials, the FTC supported its market definition using both qualitative and quantitative evidence.

**In both the federal and administrative court trials, the FTC supported its market definition using both qualitative and quantitative evidence.**

The qualitative evidence consisted of testimony and documents from customers and producers. For example, Tronox’s CEO testified at the district court hearing that “the way things have developed here in the United States is as a chloride market.”\(^5\) This statement was given context by other witnesses. For example, a producer witness testified in the same proceeding that chloride-process titanium dioxide is whiter, brighter, more durable, and more “scrubbable” than sulfate-process titanium dioxide, and that North American consumers demanded these characteristics in their final goods. Similar evidence—documentary and testimonial—was presented in administrative court.\(^6\) The distinct demand of North American customers for chloride-process material was further reinforced by a customer witness who testified in district court that chloride and sulfate TiO2 are “not substitutable on a color basis’ and that ‘if you don’t want [a paint product] to degrade or fade’ the product would “require chloride.”\(^7\)

Overall, the witnesses and documentary evidence supported the argument that, for the customers, differences imparted by the sulfate and chloride production processes are sufficiently large that altering formulations to achieve equivalent performance using sulfate-process titanium dioxide might not be feasible and would likely not be commercially viable.\(^8\)

The quantitative evidence presented on behalf of the FTC ranged from simple to complex, but its orientation was consistently on the core question of market definition: how do customers respond to price changes? As with the qualitative evidence, the empirical work presented by the FTC supported the conclusion that sulfate-process titanium dioxide was not a good substitute for most North American customers.\(^9\)

At the simple end of the analytical spectrum, the FTC presented data showing that 90 percent of all rutile titanium dioxide purchased in the United States and Canada is made using the chloride process, and that this percentage has been consistent over time. Notably, this was true

\(^4\) Id. at 194.
\(^5\) Tronox, 332 F. Supp. 3d at 199.
\(^7\) Tronox, 332 F. Supp. 3d at 199.
\(^8\) Id. at 199–201.
\(^9\) Id. at 203–05.
despite the fact that the relative price of chloride-process over sulfate-process titanium dioxide changed over time. The FTC argued that if North American customers were willing to switch significant volume between processes, one would have expected chloride-process titanium dioxide’s share to vary meaningfully—but it did not.

At the complex end, the FTC provided multiple hypothetical monopolist tests to support its market definition. These included two tests that used estimates of consumers’ willingness to substitute away from chloride-process titanium dioxide in response to price increases that were drawn from analysis sponsored by the merging parties.

The defendants, conversely, argued that a product market of chloride-process titanium dioxide was too narrow and that sulfate-process titanium dioxide should also be included in the market. Similarly, they argued that the relevant geographic market was the entire world rather than just North America. Qualitatively, the parties emphasized documents and analyses suggesting that sulfate-process material could be used in lieu of chloride-process titanium dioxide. While such evidence can be useful, it does not directly speak to the critical question of understanding consumers’ willingness to switch (i.e., would consumers switch).

Quantitatively, the parties’ emphasized evidence that chloride-process and sulfate-process titanium dioxide prices inside and outside of North America have tended to move in similar ways. For example, Dr. Ramsey Shehadeh, who testified on behalf of the merging parties, summarized this view by stating that, “Economically significant co-movement between prices for chlor-ide-produced TiO2 and prices for sulfate-produced TiO2 establishes a single market.”

The argument that co-movement analyses can be used to define a market is not new. It dates at least to the work of George Stigler and Robert Sherwin in 1985. The approach has been especially popular with practitioners evaluating mergers in commodity markets in the United States and other countries. The reason for the enduring appeal of the approach is simple: intuition suggests that the prices of goods in the same market should behave in similar ways. However, the economics and legal literature acknowledge the shortcomings of using these methodologies to define antitrust markets. This is because co-movement methodologies suffer from several significant flaws that will often make them unreliable for purposes of market definition.

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11 Tronox, 332 F. Supp. 2d at 200.

12 Tronox Initial Decision, supra note 6, at 29–30.

13 Specifically, the parties presented statistical evidence relating to the correlations, partial correlations, and cointegration of the different price series. The degree to which two data series are correlated reflects the extent to which a movement in one is paralleled by a simultaneous move in the other. Partial correlation statistics measure two data series’ correlation after the possible influence of confounding information is controlled for. And intuitively speaking, cointegration refers to the existence of an equilibrium relationship between two data series. It involves more formal econometric analysis than either correlation or partial correlation analyses.

14 Tronox, 332 F. Supp. 3d at 201.


Like documents that suggest outputs could be made with different types of inputs, tests of whether prices are correlated or cointegrated do not directly address the hypothetical monoplist test: would a 5 percent increase in one product’s price lead to significant substitution to products outside the hypothetical market? Instead, such co-movement analyses address whether or not a statistical relationship exists between two products’ prices. Such evidence is insufficient for market definition because there may be both demand-side (e.g., if both products have seasonal demand) and supply-side (e.g., if the two products have common inputs) reasons that different price series might be statistically related while still being in different antitrust markets.

In practice, the existence of these confounding reasons will often make it difficult to be confident that prices move together solely because of demand-side substitution. Consistent with this, the available empirical evidence in the academic literature suggests that cointegration analyses commonly result in false positives—that is, that co-movement analysis will tend to define excessively broad markets. For example, the prices of crude oil and propane gas are both highly correlated and cointegrated, but few consumers would power their barbeques using crude oil in response to a modest increase in the price of propane gas.

In short, the available evidence indicates that one should hesitate to draw conclusions on the basis of correlation and cointegration analyses. This is particularly true when they contradict the implications of more direct evidence—qualitative or quantitative—about the contours of the relevant market.

Despite their well-known shortcomings, prior to the Tronox-Cristal litigation, we are aware of no U.S. court that has opined on whether correlation and cointegration analysis is reliable for defining markets in a merger case. The district court changed that by weighing in clearly and decisively:

Price correlation between the two types of TiO2 may reflect changes in feedstock prices, or a correlation in the demand for different types of paint (like low-end traffic marking paint, which tends to use sulfate TiO2, and high-end exterior paint, which uses the chloride pigment). In other words, “rather than high cross-elasticity of demand, correlated price movements might reflect the similar responses of different markets to similar changes, as when all prices move up in response to changes in common costs.”

The district court went on to emphasize this logic by way of example:

18 Multiple econometric studies have found that in the absence of very rich data, the popular Johansen cointegration test, as is often applied, is prone to false positives. See, e.g., Cheung Yin-Wong & Kon S. Lai, Finite-Sample Sizes of Johansen’s Likelihood Ratio Tests for Cointegration, 55 OXFORD BULL. ECON. STAT. 313 (1993); Mindy Mallory & Sergio H. Lence, Testing for Cointegration in the Presence of Moving Average Errors, 4 J. TIME SERIES ECONOMETRICS (2012). Other papers document that the Johansen test can have low power (i.e., high false negatives) when the sample size is small. For example, Hiro Y. Toda, Finite Sample Performance of Likelihood Ratio Tests for Cointegrating Ranks in Vector Autoregressions, 11 ECON. THEORY 1015 (1995).

19 Data used for this example were obtained from the Federal Reserve Economic Data (FRED) website, https://fred.stlouisfed.org/. The FRED series used are Crude Oil Prices: West Texas Intermediate—Cushing, Oklahoma (DCOILWTICO) and Propane Prices: Mont Belvieu, Texas (DPROPNEMBTX). We used daily price data from April 30, 2008 to April 30, 2018. Further details are available from the authors upon request.

20 In the In Re Mushroom Direct Purchaser Antitrust Litigation, the plaintiff’s economic expert used correlations as part of his market definition exercise. The defendants moved to exclude his opinions on the basis that he only considered correlations. The district court judge held a Daubert hearing to consider the motion. Ultimately, the judge denied their motion. However, in denying the motion, the judge noted that the plaintiff’s expert “uses price correlation as only one piece of evidence supporting his product definition.” In Re Mushroom Direct Purchaser Antitrust Litig., No. 06-0620, at 42 (E.D. Pa. July 29, 2015).

21 Tronox, 332 F. Supp. 3d at 201 (citing AREEDA & HOVENKAMP, supra note 17, ¶ 534c).
[T]he mere fact that the prices of two goods move upward or downward together need not mean that they are substitutes. As Dr. Hill explained during the evidentiary hearing, “If you think about the sale of hamburger buns and hot dog buns, their prices will be highly correlated. Their demands are both seasonal—high in the summer, low in other seasons—and they’re made with the same ingredients. So their prices will be highly correlated. But they’re not close substitutes for one another.”

The administrative court agreed, writing, “Even if prices are correlated, this does not show that the products are reasonably substitutable for each other, especially in light of the proof that TiO2 customers do not substitute.”

It is our hope that the courts’ opinions, in addition to the conclusions in the economic and legal literatures, will put an end to the use of correlation and cointegration tests to define antitrust markets when more direct evidence is available. Similarly, we hope that the opinions lead all litigants to emphasize qualitative evidence on customers’ willingness to switch in the face of a price increase and not solely the technical feasibility of such a change. As the district court ruled, “The relevant question concerns not just the hypothetical possibility of substitution, but whether customers do in fact exhibit a willingness to substitute chloride- and sulfate-process TiO2... The evidence from customers and suppliers suggests a lack of significant interchangeability between chloride and sulfate TiO2.”

**Strategic Output Withholding Is Validated as a Theory of Harm**

The price in a commodity market is set by the balance between supply and demand. A firm in such a market can raise the market price by withholding output from the market. Whether doing so is profit-maximizing depends upon the balance between the benefits and costs associated with output withholding. The benefit is that a higher market price means a higher margin on the output that the firm does not withhold. The cost is that the firm must give up the margin that it could have earned on the withheld output. A firm will have an incentive to withhold output if the gains from higher margins on the remaining quantity exceed the lost earnings on the withheld output.

Now consider a merger of two firms in a commodity industry and the payoff to an output withholding of a fixed size. The merged firm will be larger than either stand-alone firm, so it will benefit more from withholding a unit of output than did either of the stand-alone firms. That is because the merged firm has more output on which to enjoy the benefits of the higher price that will result from the output withholding. The cost of output withholding of a fixed size is, naturally, the same to the merged firm and the stand-alone firms. The merged firm will therefore have more incentive

22 Id. (citing trial transcript).
23 Tronox Initial Decision, supra note 6, at 21.
24 When more direct evidence is not available, co-movement analyses may be worth considering. In particular, the capacity of cointegration techniques to sometimes address the problem of spurious correlation make them interesting options. However, we see the cautionary words of Davis and Garcés as quite apropos:

   While in principle, under special circumstances, you may not have an endogeneity problem, you certainly will not have escaped the fundamental identification problem that both supply and demand curves depend on prices and quantities. Investigators with limited knowledge in the cointegration arena are therefore advised to proceed with extreme caution when attempting to apply complex econometric arguments with sometimes subtle implications. The risk of being led seriously astray by apparently extremely attractive econometric theorems is very high.

25 Tronox, 332 F. 3d at 200.
26 One way to think about output withholding is to notice that output withholding generates a positive externality for all market participants in the form of a higher price. The larger a firm’s market share is, the more of the positive externality it captures, and hence the greater is its incentive to withhold output.
to withhold output than did the stand-alone firms (though output withholding need not be profit maximizing for the merged firm).

This basic intuition behind strategic output withholding theories of harm is well understood and accepted in the economic and legal literatures. Indeed, it is explicitly discussed in the joint DOJ-FTC Horizontal Merger Guidelines27 in a section entitled “Capacity and Output for Homogeneous Products.” This section of the Guidelines begins with a high-level summary of strategic output withholding theories of harm: “In markets involving relatively undifferentiated products, the Agencies may evaluate whether the merged firm will find it profitable unilaterally to suppress output and elevate the market price.”28 They then articulate the mechanism, explaining that, “A merger may provide the merged firm a larger base of sales on which to benefit from the resulting price rise, or it may eliminate a competitor that otherwise could have expanded its output in response to the price rise.”29

Despite the broad recognition by antitrust practitioners of strategic output withholding as a theory of harm, there was little, if any, unambiguous support for them in merger case law prior to the Tronox-Cristal cases.30 The district court remedied this deficiency by restating its conclusion that the transaction “raises serious and substantial questions about likely anticompetitive effects” on a strategic output withholding theory:

The available real-world evidence thus suggests that (1) to counter declining prices, chloride TiO2 producers have incentives and the means to withhold supply, and (2) the proposed transaction, which would create two firms with nearly three-quarters of the total market share, will likely increase these incentives and make implicit price coordination easier.31

Embracing the FTC’s strategic output withholding theory required the courts to accept the notion that it may be profit maximizing for a firm to decline to make profitable sales in the hopes of driving up the market price—and thereby earn a higher total profit. This notion, while broadly accepted in the academic antitrust literature, can be counterintuitive for lay audiences. In this matter, however, the FTC pointed to a host of information to establish that the theory was consistent with real-world evidence from the titanium dioxide industry.32

That the output withholding theory was supported by both qualitative and quantitative evidence is one of the key themes of the district court’s opinion: i.e., what Judge McFadden referred to as the “economic realities” of the industry broadly matched the theory of harm described by the FTC Complaint and the economic testimony given by the FTC’s testifying expert.33 This broad consistency appears to have been decisive in helping the district court overcome any qualms that it might have had about “decisively sift[ing] through various models and theories.”34

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28 Id.
29 Id.
30 Output withholding theories tend to be more common in price fixing litigation, where typically a large group of firms is accused of withholding output collectively. See, e.g., In re Linerboard Antitrust Litig., 305 F.3d 145 (3d Cir. 2002).
31 Tronox, 332 F. Supp. 3d at 210. While FTC staff presented the same theories of harm to both the administrative and district courts, the ALJ ultimately did not opine on the likelihood of unilateral strategic output withholding. Tronox Initial Decision, supra note 6, at n.13.
32 For example, an email from a senior Tronox executive stated explicitly that “to stop the price erosion in the market we reduced the production output in our pigment plants mid 2015 by 15%.” Tronox, 332 F. Supp. 3d at 208. Evidence from other competitors presented to the district court similarly referred to a history of idling or dialing back production. Id.
33 Id. at 198, 212.
34 Id. at 212.
China Is Not a Panacea for the Defense in Cases Involving Commodities

Before ongoing trade disputes resulted in extensive tariffs on Chinese goods, a common refrain for parties advocating for mergers in manufacturing industries is that the likelihood of entry or expansion by Chinese—or other emerging market—producers would preclude any anticompetitive effect. In the Tronox-Cristal matter, the parties made just such an argument, focusing on the alleged competitive constraint imposed by the entry and expansion of Chinese titanium dioxide producers. They particularly emphasized the looming threat of competition from Lomon-Billions, the largest Chinese producer. The district court, however, was not persuaded, writing, “But the pertinent question here is whether the emergence of Lomon Billions can be ‘rapid enough to make unprofitable overall the [predicted] actions’ that otherwise lead to the Commission’s concerns about anticompetitive effects. Merger Guidelines § 9.1. The evidence suggests that it cannot.”

In reaching this conclusion, the court focused upon three pieces of evidence: (1) the current share of Chinese producers in the North American chloride-process titanium dioxide market is less than 1 percent; (2) there are significant entry barriers, particularly the fact that Chinese producers have struggled to master the chloride process and produce high-quality chloride-process titanium dioxide; and (3) Chinese demand is projected to grow rapidly, absorbing any increase in production. Based on similar reasoning, the administrative court also concluded that entry or expansion by Chinese suppliers was not likely to offset any anticompetitive effects from the transaction.

There are two important messages here. First, appeals to the disciplining power of Chinese producers are more likely to be successful when based on current market facts rather than speculation about what the future may hold. Second, it is important to consider the economic incentives of Chinese producers. Producers outside the United States do not focus exclusively on the North American market, and will emphasize opportunities that lead to the greatest benefit for them. Here, the court cited extensive evidence that expansion of Chinese chloride-process production would likely be used to satisfy growing, proximate Asian demand for chloride-process titanium dioxide, rather than to ship output significant distances to expand in the North American market in response to a small but significant and sustained price increase.

The decisions in Tronox are not an indication that competition from China cannot play an important role when advocating for a merger. Rather, the bottom line for practitioners should be that an appeal to China, if it is to be more than a Hail Mary pass, should likely include evidence of significant present sales by Chinese firms, or evidence that Chinese firms would have both the ability and the incentive to expand or reposition in response to a small increase in price. In the case

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35 “Chinese producers have already ‘transformed the global market, continuing to take market share from Western producers.’ Chinese competition has grown incredibly in a matter of just a few years, and the quality of Chinese TiO2 ‘gets better every day.’” Respondents’ Post-Trial Reply Brief at 43, Tronox (Sept. 11, 2018), https://www.ftc.gov/system/files/documents/cases/d09377_rs_post-tr_reply_brief_public_592136.pdf.
36 Tronox, 332 F. Supp. 3d at 213.
37 Id.
38 Id. at 214.
39 Id.
40 Tronox Initial Decision, supra note 6, at 45–50.
of Tronox and Cristal, both the district court and the FTC administrative court found such evidence to be lacking.

**Coordinated Effects Theories Are Alive and Well**

Over the past several years, the Agencies have not typically focused on coordinated effects theories in merger litigation. Instead, unilateral effects have generally been at the center of cases that have ended up in court. While the scholarly literature has recognized that coordinated effects theories have been and remain integral to antitrust enforcement, the relative absence of litigation of cases involving coordinated effects theories may have led some observers to conclude that it was no longer likely that a coordinated case might be brought (let alone won) in all but the most extreme of circumstances. Indeed, the American Bar Association organized a recent panel to discuss whether or not coordinated effects were “alive or dead.” The Tronox case (as well as a closer reading of the Agencies recent activity) shows that any belief that coordinated effects has “died” would be misplaced, and provides some useful insights for practitioners dealing with matters where coordinated effects may be an issue.

In Tronox, the FTC alleged that the market for titanium dioxide was characterized by multiple features making it vulnerable to coordination. This matched the conclusions of the Third Circuit and the Maryland District Court in prior price-fixing litigation cases. Specifically, the FTC noted that the market concerned a commodity-like product, a high level of concentration, a small number of rivals with significant visibility into each other’s competitive and strategic decisions, a low market elasticity of demand, and a history of strong interdependent behavior. Not only would the transaction lead to an even smaller number of actors and higher levels of concentration, but the FTC argued also argued that it would facilitate coordination by increasing symmetry between Tronox and Chemours.

The administrative court found that the facts supported the FTC’s allegations. Consistent with this, it ruled: “[T]he evidence proves that the North American chloride TiO2 market is vulnerable to coordinated conduct, and that this vulnerability will be enhanced by the Acquisition.” Similarly, the district court concluded: “A Tronox-Cristal merger will make TiO2 supply reductions easier to coordinate through implicit understanding and sheer market power, in a market where producers have already shown an awareness that implicit coordination would be beneficial.”

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43 https://www.americanbar.org/events-cle/mtg/teleconference/358712326/. This panel took place following the Tronox decisions, and a central element of the discussion was that coordinated effects theories were (and had consistently been) very much alive.


46 For details on the FTC’s theory, see FTC Complaint, supra note 44, section VIII at 9–10. Economic models have shown that symmetry can facilitate collusion in markets where firms strategically set outputs.


48 Tronox Initial Decision, supra note 6, at 43.

49 Tronox, 332 F. Supp. 3d at 209.
In finding that the transaction created a reasonable likelihood of coordinated effects, both the district court and the administrative court explicitly acknowledged that merger cases are typically focused on the likelihood of tacit coordination, rather than explicit price fixing. While practitioners often argue to the Agencies that coordination in the merger context is unlikely because of the difficulties in reaching and policing an agreement, Judge McFadden clearly articulated that the concern should be whether the merger increases the likelihood of softer forms of competition. Post-merger, he noted that “Chemours and the Tronox-Cristal entity would often be able to maintain price discipline and control supply in a post-merger market simply by competing less vigorously against each other for major accounts.”

As the district court further explained, such conduct is not illegal when initiated by independent firms, but is nevertheless a “core” concern when assessing mergers: “There is, of course, nothing improper about a firm making independent production decisions to maximize profits. But a core purpose of antitrust law is to scrutinize mergers that may make it easier for firms to collectively reduce output, and indeed, to prevent mergers that are likely to do so.”

This analysis reinforces that the Agencies need not demonstrate a high likelihood of future or past price fixing (i.e., explicit collusion) to prevail in blocking a merger—instead, the Agencies can prevail solely by showing an increased risk of tacit coordination. Effective advocacy about coordinated effects should therefore acknowledge, and seek to address, that investigating staff are often more likely to be concerned about facilitating or strengthening tacit rather than explicit cooperation amongst competitors.

Conclusion
The Tronox opinions may reduce the litigation risk that the Agencies may have sometimes felt when challenging a proposed merger based upon a strategic output withholding theory of harm. Moreover, they have clarified the circumstances under which the Agencies may bring coordinated effects cases. Both impacts will likely lead to more case law developing as such theories appear more often in litigated matters. Conversely, the results of the Tronox litigation will likely significantly lessen the appeal of using co-movement analyses to define markets and force discussion of purported entry threats posed by China to be firmly grounded in the economic realities of the market.

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50 Id. at 30; see also Tronox Initial Decision, supra note 6, at 42 (“[It is not necessary to demonstrate that market participants can form and enforce an agreement.”).

51 Tronox, 332 F. Supp. 3d at 208–09; see also Tronox Initial Decision, supra note 6, at 121 (“It is a central object of merger policy to obstruct the creation or reinforcement by merger of market structures in which tacit coordination can occur.”).

52 The titanium-dioxide industry has a history of private price-fixing litigation. See FTC Tronox Complaint, supra note 44 (discussion and citations). The district court did not rule on whether the alleged history of price fixing was grounds for blocking the merger. See Tronox, 332 F. Supp. 3d at 209 n.12.
Checking in on *PeaceHealth*: Providing Some Clearer Guidance to Bundling Sellers

David Reichenberg and Lauren J. Stiroh

In 2007, the Antitrust Modernization Commission (AMC) published broad recommendations for changes and clarifications to antitrust enforcement in the United States. Since then, multiple courts have discussed the portion of the AMC Report relating to Section 2 of the Sherman Act recommending use of what has become known as the discount attribution test when evaluating the competitive effects of bundled discounts. In 2008, the Ninth Circuit adopted most of the AMC’s recommendation in *Cascade Health Sol. v. PeaceHealth*, finding the discount attribution test superior to the standard previously applied by the Third Circuit in *LePage’s v. 3M*. The Ninth Circuit did not follow the AMC’s recommendation to require that the plaintiff additionally prove that a defendant would likely recoup losses sustained.

Whether *PeaceHealth* provides the best guidance for sellers offering bundled discounts remains to be seen. In the decade plus since *PeaceHealth*, only a handful of plaintiffs have attempted to satisfy the *PeaceHealth* test. While numerous cases and discussions generally touch on loyalty discounts and other allegedly exclusionary practices, very few judicial decisions bear upon and provide guidance to firms on the subject of bundled discounts. Beyond that, courts may want to take a closer look at *PeaceHealth*’s own pros and cons.

The *PeaceHealth* test removes some of the flaws of prior tests for price predation, which, for instance, asked the jury to consider whether the plaintiff has been excluded from the market but without requiring the jury to consider whether the plaintiff was at least as efficient of a producer as the defendant. The prior tests could lead to over-correcting, and eliminate some procompetitive discounts. However, *PeaceHealth*’s failure to address future competitive effects of pricing conduct leaves markets vulnerable to under-correcting and allowing pricing strategies that offer consumers short-term benefits but risk competitive foreclosure over the long run.

Courts should consider such long-run effects on competition and affirm that the discount attribution test applies regardless of the specific circumstances of an individual plaintiff. A core strength of the discount attribution test is the ability it affords sellers to assess their bundling practices under an ex ante standard, using the hypothetically equally efficient plaintiff, while leaving courts with the ability to identify bundles that fail discount attribution; it thereby prevents “more antitrust litigation than is reasonably necessary to ferret out anticompetitive practices.”

1 The AMC report has also been referenced by courts with respect to price-fixing overcharges, the Robinson-Patman Act, and the Class Action Fairness Act.
2 *Cascade Health Sol. v. PeaceHealth*, 515 F.3d 883, 899 (9th Cir. 2008).
3 *LePage’s Inc. v. 3M*, 324 F.3d 141, 155 (3d Cir. 2003).
4 We refer here to the tests for predation described in *LePage’s, id.*, and *Ortho Diagnostic Systems Inc. v. Abbott Labs, Inc.*, 920 F. Supp. 455, 467 (S.D.N.Y. 1996), discussed further below.
5 *PeaceHealth*, 515 F.3d at 905–06.
may also consider whether unique circumstances are driving the potential for false positives or false negatives under the test.

**Criticisms of LePage’s and the Substantial Adoption of the AMC Recommendation in PeaceHealth**

Bundled discounts are pricing incentives that are offered only if the consumer buys a range of products (the bundle) from the same producer. For example, a seller of both shampoo and conditioner that offers a 10 percent discount on the price of both shampoo and conditioner if the consumer buys both products together is offering a bundled discount. An antitrust concern potentially arises if the pricing incentive forecloses a manufacturer of only a subset of the bundled products from competing successfully. A manufacturer of only shampoo, for example, may have to offer a discount of up to 20 percent on its product in order to entice customers to choose to buy the products separately and forgo the bundled discount offered by the seller of both products. If the discount necessary to entice consumers to buy the products separately (and forgo the bundled discount) is below the variable cost of the shampoo-only manufacturer, the shampoo-only manufacturer will not be able to sell its product profitably.

In *LePage’s v. 3M*, the Third Circuit Court of Appeals adopted a standard for assessing the legality of bundled discounts under the Sherman Act that was based on the ability of a firm’s bundled discount to exclude a rival from competition—also referred to as the foreclosure standard. 6 This approach considered “whether the bundle is structurally capable of excluding some hypothetical rival who produces only a subset of the goods in the bundle.”7

LePage’s alleged that 3M’s conduct—offering discounts on bundles that included products not offered by LePage’s (specifically brand-name tape) as well as a common product offered by both parties (private-label tape)—constituted monopolization under Section 2 of the Sherman Act.8 LePage’s alleged that 3M attempted to monopolize the competitive market for private-label tape by leveraging its market power as the sole producer in the brand-name tape market. The Third Circuit, while acknowledging that 3M did not price below its own average variable cost, ruled that 3M’s bundled rebates “impeded LePage’s ability to compete” and “harmed competition itself.”9 Despite accepting that LePage’s was a less efficient competitor, the court ruled that 3M was still liable for antitrust injury because its bundled discounts extended and maintained market power by foreclosing LePage’s from the private label transparent tape market.10

The foreclosure standard applied by the court in *LePage’s* did not use a cost-based test to determine whether 3M’s bundled discounts were anticompetitive, but instead broadly considered the effects of the discounts on LePage’s long-term sustainability.11 This deviated from the two cri-

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6 *LePage’s*, 324 F.3d at 155 (“The principal anticompetitive effect of bundled rebates as offered by 3M is that when offered by a monopolist they may foreclose portions of the market to a potential competitor who does not manufacture an equally diverse group of products and who therefore cannot make a comparable offer.”); see also Nicholas Economides & Ioannis Lianos, *The Elusive Antitrust Standard on Bundling in Europe and in the United States in the Aftermath of the Microsoft Cases*, 76 *Antitrust L.J.* 483, 494 (2009).


8 *LePage’s*, 324 F.3d at 145.

9 *Id.* at 162.

10 *Id.* at 177 (Greenberg, J., dissenting) (“LePage’s economist conceded that LePage’s is not as efficient a tape producer as 3M. Thus, in this case section 2 of the Sherman Act is being used to protect an inefficient producer from a competitor not using predatory pricing but rather selling above cost.”); see also Economides & Lianos, *supra* note 6, at 491.

11 *LePage’s*, 324 F.3d at 163.
teria for single-product predatory pricing established in *Brooke Group v. Brown & Williamson*, that (1) “a plaintiff seeking to establish competitive injury resulting from a rival’s low prices must prove that the prices complained of are below an appropriate measure of its rival’s cost” and (2) “a demonstration that the competitor had a reasonable prospect, or under § 2 of the Sherman Act, a dangerous probability of recouping its investment in below-cost prices.” \(^{12}\) The first criterion tested whether the discount-offering firm was losing money on sales of the good in question, while the second criterion, the recoupment policy, assessed whether the firm’s below-cost prices could ultimately be profitable if a rival could be excluded from the market.

In its 2007 report, the AMC asserted that the majority in *LePage’s* did not properly assess the competitive effects of 3M’s bundled discounts, stating, “[t]he fundamental criticism of the Third Circuit’s decision is that it did not assess whether 3M’s bundled rebates constituted competition on the merits.” \(^{13}\) In other words, the mere finding that 3M weakened its rival was insufficient for establishing liability under the Sherman Act. \(^{14}\) The AMC pointed out that the foreclosure standard embraced by *LePage’s* did not require proof that the plaintiff was at least as efficient as the defendant and could therefore protect a less efficient competitor at the expense of proconsumer discounts. \(^{15}\)

Moreover, the AMC noted that the foreclosure standard lacked coherent guidelines needed for firms to gauge ex ante whether they would face anticompetitive liability for their discounts, \(^{16}\) noting that *LePage’s* “offers no clear standards by which firms can assess whether their bundled rebates are likely to pass antitrust muster.” \(^{17}\) In addition, firms that hold market power in at least one product of a bundle are vulnerable to treble damage penalties, even if their strategies reflect valid price competition. \(^{18}\) Firms’ inability to gauge the anticompetitive impact of a bundled discount under the foreclosure standard, in tandem with their exposure to trebled antitrust damages, could discourage sellers from even offering such discounts, thereby reducing potential gains for consumer welfare.

Ex ante assessment of anticompetitive liability under the foreclosure standard is further complicated by the difficulties of acquiring detailed information on competitors’ cost of sales. A diligent antitrust analysis under the foreclosure standard would entail individual analysis of potential competitors using sensitive, rival-specific cost information to determine the risk of foreclosure. \(^{19}\) Firms in competitive markets generally do not have access to their rivals’ cost and sales infor-

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\(^{14}\) Id.

\(^{15}\) Id. at 12, 94, 97; see also *PeaceHealth*, 515 F.3d at 899.

\(^{16}\) Id., supra note 13, at 94.

\(^{17}\) Id.


\(^{19}\) *PeaceHealth*, 515 F.3d at 907.
mation. Absent such intelligence, firms are unable to conduct a thorough appraisal of anticompetitive liability and, as a result, those with substantial market share or which have achieved significant brand-name recognition risk exposure to antitrust litigation if they adopt bundled discounts.

In deciding PeaceHealth, the Ninth Circuit echoed many of the AMC’s criticisms. It declined to endorse the Third Circuit’s definition of exclusionary conduct and instead proposed an alternative standard known as the discount attribution test or PeaceHealth test, which the court noted had been endorsed by Areeda and Hovenkamp and adopted by other lower courts. According to the test, a firm’s bundled discount is anticompetitive if the price of a competitive product in the bundle, after applying its entire discount to that product, is below the firm’s average variable cost of the product. This standard requires a bundler to use its own price and cost information to measure potential injury to a hypothetical equally efficient rival.

The question of antitrust harm under the discount attribution standard rests on the defendant firm’s conduct, and not on the bundle’s effects on any particular rival. Bundlers are granted a definitive guideline: if a firm can profitably apply an entire discount to a single competitive product, given its own cost structure, then it can assume the discount is in a safe harbor. Such a test closely matches the standard set by the Supreme Court in Brooke Group for single-product predatory pricing, an approach the AMC sought to reflect. However, where the Brooke Group test as applied to bundles would ask only whether the price of the bundle was above the cost of producing it, the PeaceHealth test asks whether such a discount could nonetheless drive a hypothetically competitive but less diversified firm from the market.

In adopting the discount attribution test, the Ninth Circuit limited the broad foundation set by the Third Circuit in LePage’s for claims of injury by less efficient competitors, based on a concern that LePage’s premise impedes procompetitive price competition. The discount attribution test used by PeaceHealth recognizes that only the exclusion of equally efficient rivals risks anticompetitive harm to consumers. A rival that makes a single product contained in the bundle may produce at an equal or lower cost than the bundler but cannot continue to compete because of its inability to amortize the discount over other products in the bundle.

PeaceHealth’s standard differs from the cost assessment utilized when applying the Brooke Group predatory pricing standard. The Brooke Group standard would allow a bundler to avoid liability if the total discounted price of the bundle exceeds the cost of producing the entire bundle—despite the exclusion of an equally efficient rival. The Ninth Circuit’s test, by directing bundlers to consider ex ante the potential of a bundle to exclude equally efficient but less diversified rivals of competitive products within a given bundle, should prevent anticompetitive effects.

The discount attribution test empowers firms to assess the anticompetitive liability of bundled discounts prior to the litigation process. This is in contrast to the Third Circuit’s foreclosure standard, which inhibits firms from assessing their liability because they may not reasonably be able to measure competitors’ costs and, therefore, competitors’ potential to sustainably match a bundled discount. The use of a “hypothetical” competitor in the discount attribution test instead of an

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20 Id. at 906–07 (citing 3 PHILLIP E. AREEDA & HERBERT HOVENKAMP, ANTITRUST LAW ¶ 749b2 at 335–36 (Supp. 2006)).
21 Id. at 910.
22 Id. at 905.
23 Brooke Group, 509 U.S. at 222–23; AMC REPORT, supra note 13, at 100.
24 See PeaceHealth, 515 F.3d at 909.
actual rival gives firms a potential guide by which to appraise antitrust exposure as part of its ordinary course business strategy.

**Subsequent Application of PeaceHealth by Courts**

Despite the attention that *PeaceHealth* received when issued, there has been limited discussion of the discount attribution test in the case law. In 2016, the Ninth Circuit in *Aerotec* determined whether *PeaceHealth* applies when the plaintiff can and does offer a bundle comparable to the defendant’s bundle. The answer was no. The Ninth Circuit found (in a three-judge panel different from the *PeaceHealth* panel) that “invok[ing] the discount attribution framework [under these facts] yields an absurd result, and one that risks applying our bundled discount jurisprudence to conduct far afield from conduct resembling the behavior that the Supreme Court in *Brooke Group* identified as predatory.”25 Still, before coming to that conclusion, the Ninth Circuit again emphasized that the test is concerned with the “force out [of] a ‘hypothetically equally efficient producer of the competitive product.’”26 Thus, the opinion did not set out whether such a hypothetical equally efficient producer would be foreclosed. However, one could infer that the test is one that a defendant could apply before litigation, but it may be the case, as in *Aerotec*, that the eventual plaintiff cannot have suffered antitrust injury because of its own offerings. Similarly, according to the Tenth Circuit’s 2017 decision in *Suture Express*, if the potential defendant can demonstrate that it is not a monopolist, the discount attribution test also does not apply, as a plaintiff cannot “show coercion by a nonmonopolist.”27

Other courts adopting the discount attribution test have highlighted that the test is designed so that a potential defendant may apply it to assess its offerings without knowing which potential plaintiff would challenge the practice in court. In *Collins Inkjet*, the Sixth Circuit affirmed the use of the test, finding:

> In setting prices, it is important for companies to have clear guidelines. Every company knows its own cost of production, but the cost of production of its competitors may be less clear. Further, because competitors often do not sell exactly the same product, using the plaintiff’s costs may ignore differences in the competitors’ products’ value to consumers that might affect the analysis.”28

The Sixth Circuit affirmed the lower court’s application of the test in granting a preliminary injunction, even without full discovery of the defendant as part of preliminary injunction proceedings. Similarly, in a Report and Recommendation made by a panel of appointed Special Masters to the U.S. District Court for the Eastern District of Michigan in *Valassis*, the panel stated that where “the defending firm retains a product that customers ‘must have’ from the defendant, then the bundles cannot be equally effective or competitive, and the concerns articulated in *PeaceHealth* should apply in full force such that the attribution test will still apply.”29

In sum, these cases suggest that in certain situations a plaintiff’s circumstances do matter in applying the test. However, courts recognize the benefits of a standard that is clear and has value to companies considering particular bundles of products.

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26 *Id.* at 1187 (quoting *PeaceHealth*, 515 F.3d at 906).
27 *Suture Express*, Inc. v. Owens & Minor Distrib., Inc., 851 F.3d 1029, 1043 (10th Cir. 2017).
Undesirable Outcomes to Avoid

Critics of the discount attribution test have pointed out that it may, in certain cases, fail to identify instances of predatory pricing (i.e., result in false negatives) or incorrectly identify bundled discounts as predatory (i.e., result in false positives). Various commentators have recognized the possibility for anticompetitive conduct that falls within the safe harbor zone, and for procompetitive discounts that appear problematic at first glance. PeaceHealth, despite addressing critical shortcomings of the LePage’s standard, still exposes limitations of cost-based standards in bundled discount antitrust litigation.

The PeaceHealth standard risks false negatives, which underestimate harm to competition, by overlooking potential future anticompetitive ramifications of above-cost pricing. The PeaceHealth test looks only at current market conditions but does not take into account whether a pricing strategy that passes the test may nonetheless cause an apparently less efficient competitor to exit the market and subsequently allow the incumbent to raise prices. The court’s opinion in Ortho provides an example of a scenario in which one firm produces both shampoo and conditioner and competes with a firm that produces only shampoo.30 The multiproduct firm may establish a discount on a bundle of shampoo and conditioner that passes PeaceHealth’s above-cost pricing requirement for an equally efficient rival, but makes it economically irrational for a consumer of both products to break the bundle and purchase the products separately if the rival cannot match the discount on the single product it sells.31 From a consumer welfare standpoint, while the discount is beneficial, the PeaceHealth test does not take into consideration either what will likely happen if the rival is driven from the market or what the potential is for the rival to become more efficient over time (i.e., the potential for the rival’s cost conditions to change in the future).

Ignoring non-price variables, it would be irrational for shampoo-and-conditioner buyers to select the competitor’s shampoo when the bundler’s shampoo is cheaper. But buyers can access the discount only by selecting both products from the bundling firm, stipulating conditioner as a prerequisite to buying shampoo. The PeaceHealth bright line overlooks the de facto tying that results from the erosion of competition on shampoo and may allow the remaining firm to control future prices of both shampoo and conditioner.

An example of a false negative under the discount attribution test could arise when a firm achieves economies of scale.32 The firm may take advantage of its costs efficiencies by producing large quantities of its goods to decrease marginal costs and/or average variable costs—to the extent that it can implement significant bundled discounts while remaining above-cost and passing the discount attribution test. A smaller rival may appear less efficient due to its size and not due to inferior business acumen. Economies of scale accord the larger firm a structural advantage: potential new rivals may not be able to scale production sufficiently to compete with the dominant firm on price.33 In practice, the leeway that the test affords the dominant firm in its dis-

31 Id. at 467–68.
32 Economies of scale exist when a firm’s output and average costs have an inverse relationship, so that as output rises, average cost decreases, and the firm’s returns increase. This can occur when fixed costs of production do not change as output varies, or when increased output allows labor to be used more efficiently, among other reasons. See Dennis W. Carlton & Jeffrey A. Perloff, Modern Industrial Organization 35–36 (4th ed. 2005).
33 To be clear, we are not suggesting an approach that artificially props up a rival that cannot achieve economies of scale. Rather, the approach should take account of the potential expected growth trajectory of the smaller, less diversified firm, as well as the likely effects of a multi-product bundle on long term pricing.
count strategy may be employed to deter market entry—a potentially exclusionary strategy that the PeaceHealth standard would be unable to detect.

It should be noted that the debate over the risk of false negatives under PeaceHealth is ongoing. A recent study suggests that industries prone to false negative results “are more common than the court in [PeaceHealth] could have imagined.”

PeaceHealth's omission of tests for both false positives and false negatives necessitates a deeper dive into the details that truly inform foreclosure, exclusion, and predation from an economic perspective.

The DOJ’s perspective underscores the balance between identifying false negatives and false positives—and that demonstrable harm to competition can exist if one side of the scale carries too much weight. False positives under the discount attribution test may arise when a firm attains economies of scope.

Economies of scope occur when it is cheaper to produce two products together than it is to produce them separately because the products require a common input that the producer can obtain at a lower price by sourcing a higher volume. See OECD, GLOSSARY OF INDUSTRIAL ORGANIZATION ECONOMICS AND COMPETITION LAW 40–41, http://www.oecd.org/regreform/sectors/2376087.pdf.

Economies of scope can occur when a firm operates multiple production lines and can more easily shift resources from a declining product to a growing product as market conditions evolve. Firms with fewer production lines may be less agile in responding to changing market conditions and face higher costs of expansion or contraction within particular product lines.

A sufficient reduction in overall costs would allow the firm to profitably offer a discount that it could not have implemented by producing a subset of goods.

From a consumer standpoint, the cost efficiencies from economies of scope enhance welfare and the discount is desirable. Yet, the discount could fail under PeaceHealth because the cost of producing a single good does not reflect joint cost savings. PeaceHealth’s omission of tests for both false positives and false negatives necessitates a deeper dive into the details that truly inform foreclosure, exclusion, and predation from an economic perspective.

Economic analysis can help courts gauge the expected future consequences of a bundling firm’s conduct. The PeaceHealth standard, in rejecting future recovery of lost profits as a requirement for liability, misses an opportunity to properly appraise long-term competitive impact.

In rejecting the role of recoupment, the PeaceHealth opinion does not clearly consider the long-term ramifications of bundles that successfully exclude rivals. The court assumes that profitability analysis can only be relevant if a firm is willing to endure adverse short-term losses to capture

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37 Other examples of economies of scope include firms that are able to use a by-product from one production line as an input to another production line, or which are able to leverage resources such as market intelligence, strategy, or branding across multiple product lines.

38 CARLTON & PERLOFF, supra note 32, at 19–20.

profits from future exclusion. However, bundlers stand to benefit from the effects of less competitive markets even if their discounts are not predatory, and the freedom to reap additional profits from the absence of competitors can factor into strategic decision making. The viability of a bundled discount may be dependent on the residual profits that can be accessed when a firm eventually monopolizes a competitive market—regardless of whether the discount in the short-term is profit-maximizing or even above cost. While a simple cost standard for liability accounts for the potential for only immediate foreclosure, assessing potential long-range profit recovery would allow courts to evaluate a key objective of an effective, sustainable legal standard: whether a firm is capable of reaping the benefits of its exclusionary conduct.

PeaceHealth’s impact is less clear on the topic of innovation. In addition to reducing price, spurring innovation, according to one school of thought, is a central tenet of protecting market competition for the benefit of consumer welfare. According to this theory, barriers to competitor entry limit a dominant firm’s need to improve quality, develop differentiated goods, or invent new products altogether. The relationship between competitive impact and competitor entry under this standard is mixed. For example, some bundled discounts erect barriers by exploiting economies of scale that entrants cannot access in the short term but may incorrectly be granted safe harbor under the discount attribution test. In such cases, effects on incentive to innovate can be subjectively balanced with price competition to measure overall harm to competition. The impact of bundled discounts upon innovation constitutes an open question, but an important one to consider as a matter of competition policy in antitrust law.

Courts may also wish to entertain an argument that, under the facts of a given case, an application of the PeaceHealth test results in one of the false negative or false positive scenarios discussed above. Entertaining the possibility of false negatives or false positives lessens the useful, ex ante predictability of the test and complicates usefulness to the court as well. In the circumstances, the party claiming the test generated a false positive (or negative) should have the burden of proving so. For instance, if a defendant fails the test under the court’s application but puts forth evidence that substantiates that consumers would not have tried a new product but for the bundle, then that should be considered as a procompetitive justification. Conversely, if a defendant passes the test but there is evidence in the record that consumers were induced to accept the bundle because of a “must have” product offered by the defendant, then this may be cause for concern.

Recommendations

The above limitations underscore that while PeaceHealth is a superior test for the legality of bundled pricing, there remains a need for further improvement in price/cost tests used for determining the competitive impact of bundled discounts.

40 The court in PeaceHealth considered the possibility that a recoupment test may not be necessary if a firm offering a bundled discount does not suffer actual losses because the price of the bundle is above the discounting firm’s incremental cost of producing and selling the bundle. See PeaceHealth, 515 F.3d at 910 n.21 (“[i]n such a case we do not think it is analytically helpful to think in terms of recoupment of a loss that did not occur.”).

41 There are at least two competing theories on the effects of barriers to entry on innovation. One theory, described above, is that barriers to entry reduce competition and firms’ incentive to innovate. See Pollina, supra note 34, at 98. A competing theory holds that barriers to entry facilitate innovation as they allow firms to build up profits that can be spent as R&D expenditures. See Carlton & Perloff, supra note 32, at 536.

42 Pollina, supra note 34, at 98.
As a start, we recommend that courts affirm that the discount attribution test as set out by PeaceHealth applies to multiproduct bundles regardless of the specific circumstances of an individual plaintiff. Even if application of the test produces an “absurd result,” as the Aerotec court found when the plaintiff offered a comparable bundle to the defendant, it is helpful for the business community to know if a hypothetically equally efficient plaintiff may have suffered an antitrust injury. A core strength of the discount attribution test is the ability it affords a prospective defendant to assess its bundling practices under an ex ante standard, and courts still have the ability to identify bundles that fail discount attribution to prevent “more antitrust litigation than is reasonably necessary to ferret out anticompetitive practices.”43 One should determine if there are one or more scenarios in which a given bundle fails the test, depending upon which product the penalty/discount is applied (the terminology depending on whether the plaintiff or defendant is describing it), with plaintiff claiming it suffers an à la carte penalty and defendant claiming a bundled discount). The outcome may also depend upon how narrowly the product or service market is drawn, and if a given bundle fails the test, then a court can move onto the specific circumstances of the plaintiff to determine if antitrust injury has been sustained.

The discount attribution test should not be applied mechanically. There is a balance to be struck between the ex ante predictability of the test and an application of the law to the facts of a given case that is done in every antitrust case, taking care to avoid both false negatives and false positives. Courts and parties should be aware of this balance and strive to reach results that achieve both goals. A consideration of the likely long-term competitive effects of the pricing practices at issue will allow a better balancing of short-term efficiency against future competitive harms.

43 PeaceHealth, 515 F.3d at 905–06.