

The Increasing Cross-Border Importance of Innovation in Merger Review

BY JENNIFER CASCO NE FAUVER, SUBBU RAMANARAYANAN, AND NICOLA TOSINI

ANTITRUST MERGER ANALYSIS involves predicting how a merger will change the future course of competition in a market, focusing in particular on the merger's impact on consumers. The substantial lessening of competition from a merger is thought to lead to potentially harmful effects on multiple dimensions: higher prices, lower quality, and/or lower rates of innovation.

In spite of widespread acknowledgment of the potential for multi-faceted impact, the evaluation of competitive effects of horizontal mergers has tended to have a greater focus on the impact of the merger on price competition, as compared to its dynamic impact on innovation. Historically, the presence of innovation has been considered in connection with the assessment of price effects as an offsetting procompetitive efficiency resulting from a merger. However, when innovation is a critical feature of competition between the merging parties, a merger may have implications for competition outside of any observable price effect by impacting the incentive of the merging parties to engage in innovation. Moreover, in these instances, current market shares and competition from existing rivals within a relevant market may not fully capture the impact of the merger on future market performance.¹

The historic focus on price effects was driven, in part, by lack of consensus in the academic literature on the effects of competition on innovation,² leading to greater uncertainty among competition authorities on how innovation effects ought to be incorporated into merger review outside of efficiencies.³ Without any clear direction on the relationship between competition and innovation, merger enforcement decisions were based on limited analysis examining how mergers might impact innovation.

Jennifer Cascone Fauver is an Associate Director in the Washington, DC office of NERA Economic Consulting. Dr. Subramaniam (Subbu) Ramanarayanan is an Associate Director in the New York office of NERA Economic Consulting, and Adjunct Professor of Competitive Strategy at UCLA School of Management. Dr. Nicola Tosini is an Associate Director in the Berlin and Brussels offices of NERA Economic Consulting. The authors have consulted on mergers involving the analysis of competitive effects related to innovation in the U.S. and EU. The authors thank Yashaswini Singh for research assistance. The opinions expressed are those of the authors and do not necessarily reflect the views of the firm and its clients.

In recent years, the analysis of innovation effects on future competition, outside of its implication for price effects, has experienced a revival in merger review. In the United States, reflecting current agency practice, the 2010 Horizontal Merger Guidelines formalized the role of innovation in merger review by moving it from solely being a merger efficiency consideration to advocating for its inclusion when assessing competitive effects.⁴ Similarly, innovation effects are referenced throughout the European Union horizontal (and non-horizontal) merger guidelines⁵ in the context of competitive effects and efficiencies.⁶ The result has been a more robust trend in recent merger enforcement as it relates to innovation particularly in the EU, but also in the U.S., whereby innovation is not only considered more prominently in the regulatory agencies' assessment of competitive effects, but is also put forward as a reason to challenge mergers in courts.

In this article, we discuss the specific economic mechanisms underlying how mergers might affect the merging parties' incentives to innovate ex post.⁷ We then discuss these mechanisms in the context of several illustrative merger reviews and challenges brought by U.S. and EU antitrust authorities where concerns about innovation played a meaningful role in the agency's decision to challenge the merger. And, finally, to provide specific guidance to antitrust practitioners on navigating agency investigations where innovation concerns may feature prominently, we discuss the evidence and analyses used by the antitrust agencies to assess innovation effects in recent merger reviews.

Incorporating Innovation Effects into Merger Analysis: Conceptual Background

In analyzing any competitive effect of a merger on innovation, the fundamental inquiry is whether the merger significantly changes the incentives of the merging parties to invest in innovation. From a firm's perspective, the incentive to innovate is driven by the additional profit earned if it were to invest in innovation, compared to a scenario where it does not. The effects are not restricted to situations where the two merging parties currently compete against each other in a product market. Rather, they also can be seen in cases of potential competition where the merging parties are not product market rivals at present or where the product with respect to which there would be expected competition

between the parties does not yet exist. Potential competition in a product market may still translate into actual competition in so-called innovation markets.

A merger can influence the additional profits related to innovation through several general mechanisms: (1) an “indirect effect” driven by the merger-induced change in product market competition; (2) a “direct effect” driven by the merger-induced change in innovation competition; and (3) efficiencies. Ultimately, the net impact of a merger on the incentives and the ability of the merged entity to innovate will depend on a comparison of the competitive effects of the merger on innovation with any innovation-related efficiencies derived from the merger.

Indirect Effect of a Merger on Innovation Incentives.

The traditional assessment of horizontal mergers considers the loss of competition between rivals in a product market and the corresponding impact on their incentive to raise prices. The indirect effect of a merger on innovation considers the effect of the loss of competition between the merging parties in a product market on the incentive of a merging party to innovate in that product market. This indirect effect arises when reduced price competition between the parties post-merger results in higher prices in a relevant product market. In particular, if the merging firms are product-market rivals, then one of the firms may find it optimal to launch its innovative product⁸ post-merger at a higher price than would have been possible absent the merger.⁹ This indirect effect is complex because a merger changes pricing incentives not only after, but also before the innovation.

In other words, the merger changes not only the pricing incentives for the new product, but also for the existing products of the innovating merging party. In this case, one needs to take into account not only the difference in profits on the new product with and without the merger but also the difference in the cannibalization of the existing products of the innovating merging party with and without the merger. In addition, the merger induces the innovating merging party to internalize the effect that the introduction of its new product has on the profits earned on the sale of the merging partner’s existing products.¹⁰ Both effects (the reduction in price competition and the cannibalization of sales) are two sides of the same coin: without the threat of cannibalization of each other’s sales, there would be no incentive for the merging parties to raise the price at which their new product is offered.¹¹

Whether the indirect effect of a merger on innovation is positive or negative (i.e., if it enhances or restricts innovation) ultimately depends on how the merger impacts the difference in the merging parties’ profits before and after the innovation.¹²

This is best illustrated through a stylized example.

Consider two firms, A and B. Both firms sell existing products that consumers consider to be substitutes. Firm A is investing in innovation to produce a variant of its existing product that would still compete with Firm B’s product but would also appeal to a different set of consumers. How would

a merger between these firms impact Firm A’s incentives to continue investing in innovation?

Let us consider a scenario where Firm A and Firm B have different innovation capabilities and/or whereby Firm B has not historically launched any innovative or variant product lines. Because the merger would lead to less intense competition between a new product variant launched by Firm A and the existing substitute products sold by Firm B, the merged entity could realize greater revenues (and thus, gross profits) on the new product variant by charging a higher price for it, compared to the price at which it would have been sold but for the merger. This results in an *increased* incentive for Firm A to innovate in the product line. This effect needs to be balanced against the softening effect that the merger has on competition between Firm A’s and Firm B’s *existing* products, which results in a reduced incentive to innovate. This complex interaction in competition between new and existing products could lead to an overall positive or negative effect on innovation incentives.

This conceptual framework has been employed by both U.S. and EU regulators in recent merger challenges.

For example, in its 2014 challenge of the merger between Verisk Analytics, Inc. and EagleView Technology Corp., the Federal Trade Commission argued that the merging parties not only competed in the relevant product market (rooftop aerial measurement products), but also competed to offer innovative new products within this market. The FTC pointed to Verisk, which was a recent entrant into the relevant product market and was, at the time, developing a higher resolution product to compete with EagleView’s existing product line. The FTC was concerned that post-merger, Verisk would have had “less incentive to develop new and better products.”¹³

Similarly, in its 2015 review of the acquisition of the Thermal Power, Renewable Power Grid businesses of Alstom by General Electric, the European Commission argued that the merger would have reduced direct competition between GE and Alstom for certain types of frames used in heavy duty gas turbines (HDGT) and that the parties would also have a reduced incentive to innovate to develop upgrades for those HDGT frames. Furthermore, the EC also expressed concern that any reduction in the incentive to innovate by the merging parties would have a spillover effect, reducing the incentives of other rivals to innovate.¹⁴

Likewise, in its 2015 review of the acquisition of GlaxoSmithKline plc’s portfolio of oncology products by Novartis AG, the EC expressed concern that the acquisition would result in reduced incentives for Novartis to continue to conduct clinical research and develop products for the treatment of cancer.¹⁵ At the time of the merger, both parties were developing a pair of B-Raf and MEK (protein) inhibitors for the treatment of a number of advanced cancers. Roche was the only other rival that was also developing these protein inhibitors. The EC expressed concern that because GSK had a lead in the development of the pair of inhibitors for the

treatment of skin cancer, the merged entity would have abandoned Novartis' whole clinical research program, including for a cancer (uveal melanoma), where the merging parties' programs did not overlap.¹⁶

Direct Effect of a Merger on Innovation Incentives.

More fundamentally, a merger may have a direct effect on the incentives of the merging parties to innovate. The direct effect on innovation incentives differs from the indirect effect in that the indirect effect focuses on how the merger impacts incentives to innovate by modifying product market competition between the merging parties, while the direct effect focuses on how the merger affects competition between the merging parties to innovate.¹⁷ Although the source of the change in the incentives to innovate is different, the harm to competition for direct and indirect effects is the same—loss of new products or delay in their introduction.

The direct effect on innovation incentives can be best illustrated by a patent race to establish a new market, in which only the pioneering player will thrive (a so-called winner-take-all market). In the race for a winner-take-all market, the indirect effect on the incentive to innovate is not applicable because the products of the merging parties will never be sold next to each other in the market. At the same time, the direct effect is present because the innovation success of one merging firm means the innovation failure of the other merging firm. Whereas before the merger this “crowding out effect” is not taken into account by the merging parties, it will be taken into account by the merged entity, leading to an overall reduction in the incentive to innovate.

This reduction in the incentive to innovate could lead to consumer harm at different time horizons, either manifesting itself in the form of lower incentives to continue developing products that are already in the pipeline (short to medium term) or in the form of lower investments in R&D for new or future products (medium to long term).¹⁸ The harm to consumers is derived from a possible delay in the introduction of new products and/or a possible reduction in the overall rate of innovation in an industry.¹⁹ This effect of a merger on innovation is strongest when the merging parties are close innovation rivals and represent substantial sources of innovation in a market that is concentrated and expected to remain so because of high barriers to entry.

The direct effect of a merger on innovation can also be procompetitive, with a merger leading to a stronger incentive for the merging parties to invest in innovation. This could happen in industries where innovation manifests itself in successive generations of technology, with each generation having the potential to displace the previous one as the standard. In this case, the innovations of the merging parties may not be in head-to-head competition with each other but may complement each other. If this is the case, a merger between innovators may make one merging party appreciate how its innovation effort would enhance the future profits of its merger counterpart, thus increasing the incentive to innovate.

Like the indirect effect, the direct effect conceptual framework has been employed by both U.S. and EU regulators in recent merger challenges.

For example, in 2013, the U.S. Department of Justice investigated the announced merger between Applied Materials and Tokyo Electron, “two of the world’s largest providers of the tools that are used to manufacture semiconductor chips.”²⁰ The DOJ described the competition between Applied Materials and Tokyo Electron as “dynamic where firms win or lose successive waves of innovation developments.”²¹ The DOJ pointed to the merging parties’ capabilities, historical experience, engineering staff, and established R&D facilities as giving them an advantage over smaller competitors “to develop the new tool as well as the financial resources (R&D budgets) to take on more risky projects and persevere through setbacks.”²² The DOJ argued on this basis that the parties were the likeliest, if not the only, tool manufacturers capable of competing (innovating) to solve future problems faced by semiconductor manufacturers. As a result, the DOJ concluded that such competition to innovate and develop new tools would have been lost post-merger.

In *Dow/DuPont*,²³ the EC extended its review to products that had not been discovered yet and to innovation competition in the medium to long term. The EC’s investigation in *Dow/DuPont* pertained to, among other products, formulated crop-protection products, i.e., pesticides. Pesticides can be distinguished by the crop that they are meant to protect, the pest from which they are meant to protect it against, and the timing of their application. In light of the increasing resistance of pests to existing products and the increasingly stringent regulatory standard on toxicity, pesticides are subject to continuous innovation. According to the EC, the market for pesticides was characterized by the presence of five truly global players, each of which was fully integrated from product discovery to marketing.

The EC’s review of *Dow/DuPont* focused on both direct and indirect effects of the proposed merger on innovation incentives.²⁴ In particular, employing an approach reminiscent of the “innovation markets” framework in the economic literature,²⁵ the EC considered both innovation competition in “innovation spaces,” defined by lines of research/early pipeline products, and innovation competition “at the industry level.” In other words, the EC was concerned that the merger would have reduced not only competition in specific research areas where both parties were active but also competition in the crop protection industry overall, irrespective of the presence or absence of current and future overlaps in individual product markets and overlaps in lines of research/early pipeline products. Once the EC had assessed market structure in the pesticides industry, and established the importance of patents in measuring innovation, it focused its investigation on the closeness of the merging parties as competitors in innovation, on the basis of its analysis of patenting patterns.²⁶

The EC was concerned that the merged entity would have reduced competition and therefore innovation effort at both the innovation-space and the industry level, and judged that this concern was corroborated by ordinary course of business documents, according to which the merged entity would have cut down on innovation inputs and output targets. According to the EC, innovation efforts undertaken by rivals would not have offset such reductions, either because they were not effective enough in the overlapping innovation spaces (the three other global integrated firms) or because they were regionally focused (firms in Japan).²⁷

Assessing Efficiencies When Innovation Effects Are Present. In reaching a final assessment on innovation effects, regulators compare the potential competitive harm stemming from a direct or an indirect reduction in the incentives of the merging parties to innovate with potential innovation-enhancing efficiencies generated by the merger. In this way, the analysis very much follows the traditional approach taken in merger analysis in weighing any procompetitive efficiencies against any adverse competitive effects resulting from the merger.

One way in which a merger might have a beneficial impact on innovation incentives is by enhancing the extent to which a merging party can capture the benefits generated by its investments in innovation, as opposed to having these benefits captured by its merging partner or other rivals. This notion, termed appropriability, is well-recognized in the economic literature and is particularly relevant in industries with ineffective intellectual property protection.²⁸ Appropriability is impacted by the number of rival innovators—that is, the smaller the number of rival innovators, the higher the probability that a firm will be able to capture a large share of the additional value from its innovation without concern that another firm would imitate its innovation and launch a competing product. Such enhanced appropriability resulting from a merger can thus be a procompetitive efficiency related to innovation.

A merger could also have a beneficial impact on innovation through other efficiency-related mechanisms, such as realization of economies of scale and scope, which motivates the merging parties to undertake investments in R&D that they would not have undertaken otherwise. If the merger involves firms selling and developing products that are complements, better coordinated pricing in the aftermath of the merger could lead to increased profitability, and therefore increased incentives to innovate. Finally, if the merging parties have different best practices and capabilities that can be combined to increase the likelihood of successful innovation, that could be an important merger-related efficiency as well.²⁹

While a merger could lead to significant innovation-related efficiencies, such efficiencies are typically subject to a high standard of proof by the antitrust agencies, in that, in the language of the European and U.S. agencies, they must be merger-specific, verifiable, cognizable, and passed on to

consumers.³⁰ The traditional imbalance in the standard of proof between procompetitive and anticompetitive merger effects is exacerbated in mergers involving innovation effects given that innovation is an intrinsically uncertain activity.

In particular, given that the development of new products involves a large degree of uncertainty, and that in many cases products in various stages of development might never actually make it to market, the task of determining overlap in future products and assessing overall competitive effects net of efficiencies on the basis of that overlap is a daunting one. In addition, balancing anticompetitive and procompetitive effects of the merger on innovation would require balancing any possible efficiencies generated by the merger with the potential anticompetitive effect discounted by the probability of that effect being realized.

When Are Innovation Effects Likely to Be of Concern?

The preceding discussion outlines the various mechanisms by which a merger might have an impact on competition when the level of innovative activity is itself considered to be an important measure of market performance. A proposed merger under review by the antitrust agencies will likely raise greater concerns regarding a possible adverse impact on innovation if either the direct or the indirect effects, or both, act to reduce the incentive to innovate post-merger, in conjunction with a lack of (or a weak case for) countervailing efficiencies.

As a practical matter, this implies that a merger will lead to significant concerns regarding innovation if the following hold true.

- *Importance of innovation in the industry:* Innovation is a key measure of market performance in the industry, underscoring the need for going beyond a static analysis of competition focused on price effects alone.
- *Innovation competition between the parties:* The merging firms are important sources of innovation and compete closely in that space to be the first one to establish a new market, implying that stronger negative direct effects are likely. This competition can be at the level of products being developed, products being discovered, or in terms of broader innovation capabilities. However, the more distant the merging parties' products are from being launched, the more difficult it is—for outside observers as well as for the merging parties themselves—to determine how closely they will compete in (or for) the product market and thus to what extent the merger will affect the parties' incentives to innovate.
- *Product market competition between the parties:* A merging party is developing a product that would enable it to compete in a product market in which its merger partner is already present.
- *Alternate sources of innovation:* The merging firms have only a few rivals (actual or potential) that provide competition on innovation.

- *Efficiencies*: The effect of the merger on appropriability is somewhat limited due to, say, effective intellectual property rights.

Types of Evidence Used to Assess Innovation Effects

Assessing the effect of a merger on innovation is substantially more demanding than determining the effect of a merger on the price of existing products. In particular, the assessment of innovation effects not only requires examination of market structure and market characteristics (to determine strength of entry barriers, for example) but also requires determination of the extent to which the merging parties compete in innovation efforts, and the degree to which the merger might have a direct or indirect impact on these efforts.

Evaluating the indirect effect of a merger on the incentives to innovate entails in the first place a traditional analysis of profit margins and diversion ratios between the merging parties' products, albeit in a more sparsely populated empirical environment, given there are no data on sales of new products. The analysis of the indirect effect, however, does not stop here, since it also involves analyzing the parameters governing the sunk costs of product development to determine the profitability of the development and sale of the new products.

Evaluating the direct effect on the incentives to innovate and innovation efficiencies is even more complex because it entails determining how firms compete in innovation, an undertaking that requires understanding the nature and evolution of R&D investments and efforts not only by the merging parties, but industry wide.

Antitrust agencies have relied on a variety of sources of evidence in making these determinations. These include:

- *Ordinary course documents*: Documents generated by the parties during the ordinary course of business (including board presentations, strategic plans, and market studies) can be used to assess the nature of innovation in the industry and the degree to which innovation is targeted towards specific product lines and, more importantly, to infer the extent to which the merging parties are close competitors in innovation and track each other's activities closely in that space. The EC relied heavily on ordinary course documents in its review of *Dow/Dupont* to conclude that the parties competed "head-to-head for a significant number of innovation spaces" and that the merger would therefore likely lead to the "discontinuation, delay or reorientation of the parties' existing overlapping lines of research and pipeline products."³¹ This was also the case in the FTC's 2014 challenge in *Verisk/EagleView*, where ordinary course business documents discussing the ongoing innovation and competition between the parties underscored the FTC's concerns regarding the impact of the merger on the parties' incentives to continue to innovate.³²
- *Transaction-related documents*: Internal documents generated as part of the evaluation of the transaction might also be used to assess the impact on innovation. For example, post-integration planning documents discussing proposals to integrate R&D activity or revise innovation output targets post-merger could be used by competition authorities as evidence of direct harm to innovation competition, as was the case in the EC's review of the merger between GE and Alstom.³³
- *Historical competition between the merging parties*: As is the case with typical merger analysis, historical competition between the merging parties can provide insight into whether the merger would impact the parties' incentive to innovate post-merger. In the DOJ's 2013 review of *Applied Materials/Tokyo Electron*, the DOJ identified the parties' historical competition to innovate and create product lines—specifically to solve a tooling problem identified by a semiconductor manufacturer—as a key consideration in how the merger might impact this innovation going forward.³⁴ This was compounded by the fact that the merging parties were identified as the only two entities capable of addressing the tooling problems identified by the semiconductor manufacturers.
- *Analysis of patents*: Given the inherent difficulty in measuring output from innovation-related activity, an analysis of patents can be particularly helpful in assessing innovation effects. Such an analysis could be helpful not just in determining whether the merging parties are key innovators, but also in assessing the extent to which the industry is concentrated from an innovation standpoint. For example, in its review of *Dow/Dupont*, the EC analyzed the merging parties' patent portfolios to argue that they were "more important innovation competitors at industry level" than suggested by their market shares and R&D expenditures.³⁵ This conclusion was based on the finding that the merging parties had a particularly strong presence in high-quality patents, with quality of a patent being measured by the number of citations it receives in future patents.³⁶
- *Opinion of industry experts*: Competition authorities might consult industry experts in forming an opinion as to whether a proposed merger might have an adverse impact on innovation, particularly in situations where there is limited information available in the form of precedent or relevant past patent activity. For example, in its review of *Novartis/GSK Oncology*, the EC consulted "Key Opinion Leaders" as part of its investigation to conclude that the merged entity would abandon Novartis' clinical research program.³⁷
- *Opinion of customers*: Competition authorities might consult customers of the merging parties to assist them in forming an opinion about how or whether the proposed merger would have an adverse impact on innovation. For example, the opinion of customers as to whether other rivals—current or future—would be in a position to compete with yet-to-be-developed products was a key component of the FTC's analysis in its review of the 2013 merger between Arbitron Inc. and Nielsen Holdings N.V.

In its review, the FTC reasoned that customers identified the merging parties as the “best positioned to compete in” national syndicated cross-platform audience measurement services.³⁸

Conclusion

Recent enforcement actions in the U.S., and particularly in the EU, have highlighted the willingness of enforcement agencies to review and challenge mergers on the basis of the projected adverse impact of the merger on incentives of the merging parties to innovate. Both direct and indirect effects of the merger on innovation incentives appear to have played a role in the agencies’ decision-making process. As such, it is necessary for merging parties to understand the specific mechanisms behind how a merger might impact innovation, and to develop support for these mechanisms (or the lack thereof) using the facts of the case at hand.

Given this trend, antitrust practitioners will be well-served to focus early in the merger review process on potential innovation concerns. Critically, it is important for practitioners to anticipate the types of evidence the agencies may rely on in their assessment of innovation effects, particularly pertaining to head-to-head competition in innovation between the merging parties. Relatedly, on the efficiencies front, practitioners need to pay early heed to evidence supporting the merging parties’ claims regarding the proposed transaction’s role in enhancing innovation incentives.

At the current time, there appears to be somewhat of a divergence between the U.S. and the EU in their approach to assessing innovation effects and, in particular, in the extent to which each regulatory regime is willing to define strict innovation markets as in the EC’s recent approach in *Dow/DuPont*. This implies that a one-size-fits-all approach might not be as effective when dealing with mergers involving multi-jurisdictional reviews.

Looking forward, the trend in enforcement decisions coupled with the recent stream of economic literature studying innovation effects points to a regulatory environment where concerns regarding the impact of transactions on innovation will continue to play a major role in merger review. ■

vation using innovation market analysis because “economic theory and empirical investigations have not established a general causal relationship between innovation and competition.” See Statement of Chairman Timothy J. Muris, Genzyme Corp./Novazyme Pharma. Inc., FTC File No. 021 0026 (2004) [hereinafter Muris Genzyme/Novazyme Statement (2004)], <https://www.ftc.gov/system/files/attachments/press-releases/ftc-closes-its-investigation-genzyme-corporations-2001-acquisition-novazyme-pharmaceuticals-inc./murisgenzymestmt.pdf>.

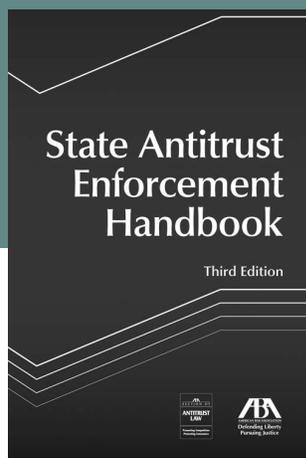
- 4 U.S. Dep’t of Justice & Fed. Trade Comm’n, Horizontal Merger Guidelines (2010). *Id.* §§ 1, 6 (unilateral effects); *id.* § 10 (efficiencies), <https://www.ftc.gov/sites/default/files/attachments/merger-review/100819hmg.pdf> [hereinafter 2010 Horizontal Merger Guidelines]; U.S. Dep’t of Justice & Fed. Trade Comm’n, Horizontal Merger Guidelines (1992); *id.* § 4 (efficiencies), <https://www.justice.gov/atr/horizontal-merger-guidelines-0>.
- 5 Eur. Comm’n, Guidelines on the Assessment of Horizontal Mergers under the Council Regulation on the Control of Concentrations Between Undertakings, 2004 O.J. (C 31) [hereinafter EC Merger Guidelines].
- 6 In fact, the EU’s interest in innovation has stretched beyond mergers and includes restrictive agreements between firms or cases where there are allegations of abuse of dominance. See, e.g., Press Release, Eur. Comm’n, Antitrust: Commission Opens Formal Investigation into Mobile Telephone Network Sharing in Czech Republic (Oct. 25, 2016) (IP/16/3539); Press Release, Eur. Comm’n, Antitrust: Commission Confirms Inspections in the Car Sector in Germany (Oct. 23, 2017) (STATEMENT/17/4103) (announcing inspections at the premises of car manufacturers in Germany as part of an EU antitrust probe into possible cartel behavior).
- 7 There is, in addition, an *ex ante* impact of merger policy on firms’ expected profits and innovation decisions, which is outside the scope of this article.
- 8 For ease of exposition, in this article we focus on the impact of a merger on product innovation. The analysis of the impact on process innovation is similar, although not identical.
- 9 This effect is referred to as the “price coordination” effect. Giulio Federico, Gregory Langus & Tommaso Valetti, *A Simple Model of Mergers and Innovation*, 157 *ECON. LETTERS* 136 (2017).
- 10 This effect is referred to as the “innovation externality” effect. *Id.*
- 11 Cannibalization of sales can be so large as to make the launch of the new product altogether unprofitable, irrespective of the price at which it would be offered.
- 12 In the case of potential competition, the existing sales of the innovating merging party play no role. This fact simplifies the analysis of indirect effects, because the change in price incentives only affects the new product.
- 13 Complaint ¶¶ 3, 6, 23, 40, Verisk Analytics Inc., FTC File No. 141-0085 (Dec. 16, 2014), <https://www.ftc.gov/system/files/documents/cases/141216veriskcmpt.pdf>. The parties ultimately abandoned the transaction. See also Terrell McSweeney, Comm’r, Fed. Trade Comm’n, Opening Remarks at the CRA Conference—Brussels, Belgium: Why Regulate Online Platforms: Transparency, Fairness, Competition or Innovation? 2 (Dec. 9, 2015), https://www.ftc.gov/system/files/documents/public_statements/903953/mcsweeney_-_cra_conference_remarks_9-12-15.pdf.
- 14 Case COMP/M. 7278—GE/Alstom, Comm’n Decision (Sept. 8, 2015) [hereinafter *GE/Alstom* Commission Decision], http://ec.europa.eu/competition/mergers/cases/decisions/m7278_6808_3.pdf. See also European Comm’n, 1 Competition Merger Brief 17 (2016). The EC approved the merger conditional upon Alstom divesting most of its existing products and innovation assets for selected frames to a smaller rival with more limited existing innovation capabilities.
- 15 Case COMP/M. 7275—Novartis/GSK Oncology, Comm’n Decision (Jan. 28, 2015), http://ec.europa.eu/competition/mergers/cases/decisions/m7275_20150128_20212_4158734_EN.pdf. See also European Comm’n, 2 Competition Merger Brief 1–4 (2015). The EC approved this transaction conditional on Novartis divesting rights to MEK inhibitors to an approved third party.
- 16 This would suggest the existence of substantial economies of scope in the development of the pair of inhibitors for the treatment of different cancers, which is not discussed in the decision.
- 17 The direct effect of a merger on innovation incentives is grounded in the concept of cannibalization of future product sales and represents the innova-

¹ Michael L. Katz & Howard A. Shelanski, *Mergers and Innovation*, 74 *ANTI-TRUST L.J.* 1 (2007). Katz & Shelanski refer to these two distinct perspectives as “innovation impact” (where innovation impacts price competition) and “innovation incentives” (where innovation is a key determinant of competition). *Id.* at 12.

² For a more comprehensive analysis of the economic literature on competition and innovation, see, e.g., Richard Gilbert, *Looking for Mr. Schumpeter: Where Are We in the Competition-Innovation Debate?*, in 6 *INNOVATION POLICY AND THE ECONOMY* 159 (2006); Katz & Shelanski, *supra* note 1; Carl Shapiro, *Competition and Innovation. Did Arrow Hit the Bull’s Eye?*, in *THE RATE AND DIRECTION OF INVENTIVE ACTIVITY REVISITED* 361 (Josh Lerner & Scott Stern eds., 2012).

³ For example, in its 2004 review of the 2001 consummated merger between Genzyme Corporation and Novazyme Pharmaceuticals Inc., the FTC expressed caution with respect to analyzing the effects of a merger on inno-

- tion analog of the standard unilateral effects theory that is used in examining the price effects of mergers. Extending this analogy, Farrell and Shapiro propose the “innovation diversion ratio” to measure this internalization effect. See Joseph Farrell & Carl Shapiro, *Antitrust Evaluation of Horizontal Mergers: An Economic Alternative to Market Definition*, 10 B.E. J. THEORETICAL ECON. Vol. 10, Issue 1, Art. 9 (2010), <https://faculty.haas.berkeley.edu/shapiro/alternative.pdf>.
- ¹⁸ See, e.g., 2010 Horizontal Merger Guidelines, *supra* note 4, § 6.4 (“That curtailment of innovation could take the form of reduced incentive to continue with an existing product-development effort or reduced initiative to initiate development of new products.”).
- ¹⁹ Even in cases where the merged entity proceeds with the introduction of products in the pipeline being developed by both merging parties, there might be harm to consumers stemming from reduced product market competition, as outlined in the discussion of “indirect effects” of a merger on innovation.
- ²⁰ Nicholas Hill, Nancy L. Rose & Tor Winston, *Economics at the Antitrust Division 2014–2015: Comcast/Time Warner Cable and Applied Materials/Tokyo Electron*, 47 REV. INDUS. ORG. 431 (2015).
- ²¹ *Id.* at 432.
- ²² *Id.* at 433.
- ²³ Case COMP/M. 7932—Dow/Dupont, Comm’n Decision (Mar. 27, 2017) [hereinafter *Dow/DuPont* Commission Decision], http://ec.europa.eu/competition/mergers/cases/decisions/m7932_13668_3.pdf. See also Eur. Comm’n, 2 Competition Merger Brief 1–8 (2017).
- ²⁴ *Dow/DuPont* Comm’n Decision, *supra* note 23, Annex 4.
- ²⁵ Richard J. Gilbert & Steven C. Sunshine, *Incorporating Dynamic Efficiency Concerns in Merger Analysis: The Use of Innovation Markets*, 63 ANTITRUST L.J. 569 (1995); see also Katz & Shelanski, *supra* note 1, at 41–43.
- ²⁶ *Dow/DuPont* Commission Decision, *supra* note 23, Annex 1.
- ²⁷ *Id.* at 358–76.
- ²⁸ The relationship between market concentration and appropriability is discussed at length in the economic literature. See, e.g., Shapiro, *supra* note 2; Gilbert, *supra* note 2. (2006).
- ²⁹ The FTC took such considerations into account in deciding to close their investigation of Genzyme Corporation’s acquisition of Novazyme Pharmaceuticals Inc. in 2001. See Muris Genzyme/Novazyme Statement, *supra* note 3.
- ³⁰ 2010 Horizontal Merger Guidelines, *supra* note 4, § 10; EC Merger Guidelines, *supra* note 5.
- ³¹ Eur. Comm’n, 2 Competition Merger Brief, *supra* note 23, at 1–8.
- ³² McSweeney, *supra* note 13, at 2 (“There was strong qualitative evidence that Verisk was uniquely positioned to compete against EagleView in providing roof reports.”).
- ³³ *GE/Alstom* Commission Decision, *supra* note 14.
- ³⁴ Hill et al., *supra* note 20, at 431–35 (discussing the evidence of historical competition by the merging parties in innovating to create product lines).
- ³⁵ *Dow/DuPont* Commission Decision, *supra* note 23, at 389.
- ³⁶ *Id.*
- ³⁷ *Novartis/GSK Oncology*, Commission Decision, *supra* note 15, ¶ 107.
- ³⁸ Statement of the Federal Trade Comm’n, Nielsen Holdings N.V. and Arbitron Inc., FTC File No. 131-0058, at 2 (Sept. 20, 2013) (“This forms the basis for our concern that there would be anticompetitive consequences from the combination, despite the fact that others are trying to develop cross-platform measurement services of their own. Customer views that Nielsen and Arbitron would be by far the two strongest competitors are supported by Nielsen and Arbitron statements about the products they are each developing and, in some cases, already beta testing with customers.”), <https://www.ftc.gov/enforcement/cases-proceedings/131-0058/nielsen-holdings-nv-arbitron-inc-matter>. The FTC approved the merger conditioned on the divestiture of Nielsen’s assets pertaining to cross-platform audience measurement to an approved buyer.



Product Code: 5030649
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