Concurrences

COMPETITION LAW REVIEW

Global merger control innovation

Law & Economics | Concurrences N° 6-2025

Mario Luca
mario.luca@analysisgroup.com
Manager
Analysis Group, Paris

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ABSTRACT

Innovation plays an increasingly central role in merger control across jurisdictions. Economic research shows that the impact of mergers on innovation depends on context—such as market structure, the relationship between the merging firms, and the type of innovation—rather than following a general rule. Recent enforcement actions reflect heightened scrutiny of acquisitions involving nascent competitors, including concerns about both the elimination of emerging rivals and the suppression of future competition by incumbents. In vertical mergers, theories of harm and benefit related to innovation often hinge on the risks of foreclosure and the potential for synergies. Careful, case-specific economic analysis is therefore essential to assess whether a transaction is likely to hinder or foster innovation.

I. Introduction

1. Innovation is widely understood to be a key driver of productivity and economic growth, a viewpoint shared by economists and competition authorities across the globe. Competition authorities in the US and the EU, among others, have cited many potential benefits of innovation for consumers, including the introduction of new products and services and increased product quality and variety. [1]

2. The consideration of innovation in merger reviews is not new but has grown over time. Recent merger challenges and updates to merger guidelines indicate that innovation is top of mind for competition authorities. ZF Friedrichshafen's proposed acquisition of General Motors' Allison division in 1993 was one of the earliest mergers in which US antitrust examined harm to innovation. [2] Though the parties abandoned the merger, the US Department of Justice (DOJ) had alleged that the merger would reduce innovation in heavy-duty transmissions for commercial and military vehicles in addition to increasing prices. [3] Since 2004, the Federal Trade Commission (FTC) and the DOJ have identified innovation concerns in one third of merger challenges in the US, raising concerns around innovation in nearly every instance of a merger challenged within R&D-intensive industries. [4] The FTC and the DOJ explicitly outlined potential anticompetitive harms and procompetitive benefits of mergers on innovation for the first time in the 2010 Horizontal Merger Guidelines. [5] The agencies' Draft Merger Guidelines, released in July 2023, further elaborate on how they evaluate the effects of mergers on innovation. [6]

3. Innovation concerns have also garnered increased attention from competition authorities outside of the US. For instance, in 2016, the European Commission (EC) stated that its merger analysis framework considers innovation to be as important to competition as price and output effects. [7] In 2021,

1. FTC, To Promote Innovation: The Proper Balance of Competition and Patent Law and Policy: A Report by the Federal Trade Commission, October 2003, at 1 https://www.ftc.gov/sites/default/files/documents/reports/promote-innovation-proper-balance-competition-and-patent-law-and-policy/innovationrpt.pdf; C. A. Varney, Promoting Innovation Through Patent and Antitrust Law and Policy, Remarks as Prepared for the Joint Workshop of the U.S. Patent and Trademark Office, the Federal Trade Commission, and the Department of Justice on the Intersection of Patent Policy and Competition Policy: Implications for Promoting Innovation, Alexandria, Virginia, 26 May 2010, https://www.justice.gov/atr/speech/promoting-innovation-through-patent-and-antitrust-law-and-policy; C. Esteva Mosso, Innovation in EU Merger Control, 66th ABA Section of Antitrust Law Spring Meeting, 12 April 2018.

2. DOJ, Antitrust Chief Pledges to Protect Competition in Technology, 10 January 1994, https://www.justice.gov/archive/atr/public/press_releases/1994/211717.htm.

3. D. W. Nauss, Plan to Sell GM Division to Germans Dropped: Courts: An antitrust lawsuit was filed by the Justice Department to block German acquisition of Allison Transmission, *Los Angeles Time*s, 19 November 1993, https://www.latimes.com/archives/la-xpm-1993-11-19-fi-61238-story.html; Complaint, *United States v. General Motors Corp*., *et a*l., 16 November 1993, at 10; M. L. Katz and H. A. Shelanski, Mergers and Innovation, *Antitrust Law Journa*l, Vol. 74, No. 1, 2006, pp. 1–85, at 74; S. C. Sunshine, Initiatives in Merger and Joint Venture Analysis, Address before the Thirty-Third Antitrust Conference sponsored by The Conference Board, New York, 3 March 1994, https://www.justice.gov/atr/speech/initiatives-merger-and-joint-venture-analysis.

4. R. Gilbert and H. Greene, Merging Innovation into Antitrust Agency Enforcement of the Clayton Act, *The George Washington Law Revie*w, Vol. 83, No. 6, 2015, pp. 1919–1947

5. DOJ and FTC, Horizontal Merger Guidelines, 19 August 2010, at 23–24 https://www.justice.gov/sites/default/files/atr/legacy/2010/08/19/hmg-2010.pdf ("*Competition often spurs firms to innovate. The Agencies may consider whether a merger is likely to diminish innovation competition by encouraging the merged firm to curtail its innovative efforts below the level that would prevail in the absence of the merger.* (. . .) *The Agencies also consider whether the merger is likely to enable innovation that would not otherwise take place, by bringing together complementary capabilities that cannot be otherwise combined or for some other merger-specific reason*."); Gilbert and Greene, *supr*a note 4, section II.

6. DOJ and FTC, Draft Merger Guidelines, 2023, Appendix 2.E, https://www.justice.gov/d9/2023-07/2023-draft-merger-guidelines_0.pdf.

7. Eur. Comm., EU merger control and innovation, *Competition policy brie*f

the EC issued new guidance on the application of the merger referral mechanism set out in Article 22 of the EU Merger Regulation (EUMR). The new guidance enables the EC to review acquisitions of nascent, innovative firms that are deemed potentially anticompetitive even if the nascent firm produces little or no revenue—transactions that previously were not subject to regulatory assessment or oversight. [8] Some have also pointed to recent merger reviews in the EU, such as the *Dow/DuPont* merger, as indicative of a more aggressive enforcement approach to what constitutes potential harm to innovation. [9]

4. Evaluating the effects of mergers on innovation presents challenges that arise, in part, because innovation involves uncertainty, and in part because mergers may have countervailing effects on innovation, as discussed in detail in the following sections. As a result, enforcers and practitioners must consider tradeoffs between potential harms and benefits to innovation on a case-by-case basis when evaluating mergers, often requiring predictions about the state of technology and the structure of the market in the distant future. This highlights the need for an in-depth analysis of the conditions that can foster innovation in any given merger context, and for a focus on the specific facts and data associated with the particular transaction to confirm whether the predictions and findings of the economic literature hold for that case.

5. In this article, we discuss three topics related to innovation in merger reviews. First, we review recent insights from the economics literature on the effect of mergers on innovation, highlighting both some general takeaways and nuances across different contexts. Second, we discuss the recent attention on acquisitions of nascent competitors, including questions about "killer" and "reverse killer" acquisitions. Finally, we discuss theories of harms and benefits to innovation that have featured prominently in recent vertical merger reviews, clearances and remedies.

II. Economic insights on mergers and innovation

6. One important economic question for analysing the effect of a merger on innovation is: how would the merger change the incentives and abilities of the merging firms (and their rivals) to innovate?

7. Early discussion of innovation in mergers often involved attempts to answer this question by characterising the relationship between market concentration and innovation. However, economic theory does not provide a simple, clear-cut relationship between market concentration and innovation. [10] The FTC's retrospective investigation of the 2001 *Genzyme/Novazyme* merger reflected this ambiguity. The majority of commissioners argued that there is "*no reason to believe, a priori, that a particular merger is more likely to harm innovation than to help it*" and cited a "*lack of any clear theoretical or empirical link between increased concentration and reduced innovation*." [11] In contrast, the minority viewed the fact that the merging parties were the only two companies competing to be a central cause for concern: "*The most significant single fact in this merger analysis is that the Genzyme/Novazyme combination brings*

No. 2016-01, April 2016, at 1 ("*The EU framework for merger control allows the Commission to assess the impact of mergers and acquisitions on innovation. The framework puts the competitive harm caused by reduction of innovation on an equal footing with increased prices and reduced output*.").

8. Communication from the Commission, Guidance on the application of the referral mechanism set out in Article 22 of the Merger Regulation to certain categories of cases, OJ C 113, 31.3.2021, p. 1, https://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=OJ:C:2021:113:FULL.

9. M. Todino, G. van de Walle and L. Stoican, EU Merger Control and Harm to Innovation—A Long Walk to Freedom (from the Chains of Causation), *The Antitrust Bulleti*n, Vol. 64, No. 1, 2019, pp. 11–30; Eur. Comm., decision C(2017) 1946 final of 27 March 2017, *Dow/DuPo*nt, case M.7932, https://ec.europa.eu/competition/mergers/cases/decisions/m7932_13668_3.pdf.

10. In the seminal literature on the topic of competition and innovation, one school of thought, pioneered by Kenneth Arrow, argued that a more dominant firm is less likely to innovate because it has a financial interest in the status quo and new technology can be disruptive and generate new competitors. The other school of thought, pioneered by Joseph Schumpeter, argued that a dominant firm is more likely to innovate because it has a greater ability to invest in and capture profits resulting from R&D than firms in more competitive and fragmented markets. *See* K. Arrow, Economic Welfare and the Allocation of Resources for Invention, *in The Rate and Direction of Inventive Activity: Economic and Social Factor*s, National Bureau of Economic Research, Princeton University Press, 1962, pp. 609–626; J. A. Schumpeter, *Capitalism, Socialism and Democra*cy, Routledge, London and New York, 1976; R. Gilbert, Looking for Mr. Schumpeter: Where Are We in the Competition–Innovation Debate?, *Innovation Policy and the Econo*my, Vol. 6, 2006, pp. 159–215.

11. Statement of Chairman Timothy J. Muris in the matter of Genzyme Corporation / Novazyme Pharmaceuticals, Inc., 13 January 2004, at 3, 17, 23.

together the only two companies in the world researching Pompe enzyme replacement therapies." [12]

8. Later research has pointed out that a unified theory of the relationship between market concentration and innovation is not necessary for analysing the effect of a merger on innovation. [13] Rather, economic researchers have focused on the relationship between the merging firms and how the merger may change their incentives, abilities and decisions as it relates to innovation. A recent and growing literature has developed around the specific question of the effect of mergers on innovation. In the rest of this section, we highlight some of this recent literature, which offers some general patterns as well as some nuances to consider in the economic analysis of innovation in the context of mergers.

1. Economic theory

9. Economists have long understood that merging firms may internalise the effect of their decisions on each other post-merger. For example, a firm may have an incentive to lower prices or introduce new products or technologies to capture sales, but those incentives may be dampened if it is capturing sales from its merger partner. On the other hand, a merger may allow firms to combine complementary assets in ways that reduce costs or enhance innovation.

10. Several recent economic theory papers seek to shed light on how mergers may affect firms' incentives to innovate under various settings and assumptions. In general, this theoretical literature finds that horizontal mergers tend to reduce merging firms' incentives to innovate because the parties internalise how innovation may steal business from their merging partner, but the overall effect of the merger on innovation more broadly depends on other factors. For example, Federico et al. (2018) find that in a market with a small number of firms, a merger will likely reduce the incentives of the merging firms to innovate, as they will internalise the effects of innovation on the profits of the merging partner. At the same time, the merger increases the incentives of non-merging firms to innovate because, in a relatively concentrated market, a merger reduces the number of rivals and increases the returns to successful innovation. [14]

11. Recent research in economic theory also finds that the direction and magnitude of the effect of a merger on innovation can vary depending on the market and the nature of innovation. On the one hand, when merging firms are innovating to produce close substitutes or improved versions of existing products, the merger may reduce their incentives to continue such innovation. [15] Federico et al. (2018) find that incentives to innovate are more likely to be reduced when the merger involves two firms that are close competitors or dominant innovators in a relevant market. [16] Federico et al. (2020) additionally argue that the higher the profit margin on sales that would be diverted from one merging firm to the other in response to innovation, the lower the incentive to innovate post-merger. [17] On the other hand, Jullien and Lefouili (2018) show that under some conditions, a horizontal merger may increase the merging firms' incentives to innovate post-merger, even absent efficiencies. [18]

12. Several studies also examine how mergers affect the decision to innovate when merging firms have multiple research projects. In general, this research finds that mergers tend to reduce the number of research projects but may have mixed effects on total research investments. Denicolò and Polo (2018) [19] argue that when individual firms have overlapping research projects, the merged entity may have an incentive to stop investing in one research project, but increase its overall investment by investing more in the remaining project. Letina (2016) [20] studies a

12. Dissenting Statement of Commissioner Mozelle W. Thompson, Genzyme Corporation's Acquisition of Novazyme Pharmaceuticals Inc., 13 January 2004, at 4.

13. *See* e.g. C. Shapiro, Competition and Innovation: Did Arrow Hit the Bull's Eye?, *The Rate and Direction of Inventive Activity Revisit*ed, J. Lerner and S. Stern (eds.), University of Chicago Press, 2012, pp. 361–410.

14. G. Federico, G. Langus and T. Valletti, Horizontal mergers and product innovation, *International Journal of Industrial Organizatio*n, Vol. 59, 2018, pp. 1–23.

15. G. Federico, F. Scott Morton and C. Shapiro, Antitrust and Innovation: Welcoming and Protecting Disruption, *Innovation Policy and the Econo*my, Vol. 20, 2020, pp. 125–190, at 131–132; Federico, Langus and Valletti, *sup*ra note 14, at 2.

16. Federico, Langus and Valletti, *sup*ra note 14, at 2.

17. Federico, Scott Morton and Shapiro, *supra* note 15, at 140.

18. B. Jullien and Y. Lefouili, Mergers and Investments in New Products, *TSE Working Pape*r, No. 18-949, August 2018.

19. V. Denicolò and M. Polo, Duplicative research, mergers and innovation. Economics Letters, 166, 2018, pp. 56-59.

20. I. Letina, The road not taken: competition and the R&D portfolio, *The RAND Journal of Economics*, 47(2), 2016, pp. 433-460.

model where firms choose the number of projects to initiate, knowing that only one will turn out to be successful, and finds that a merger decreases the variety of projects undertaken and the duplication of research, which, depending on parameters, may increase or decrease welfare. Gilbert (2019) [21] also finds that horizontal mergers can decrease the number of projects the merging parties invest in, but even when the number of research projects declines, the overall effect on innovation may be mixed.

13. While most of the theoretical literature focuses on the effects of concentration on merging parties, Motta and Tarantino (2021) [22] also analyse the impact on competitors. Their model suggests that, while a horizontal merger that generates no efficiencies will decrease the merging firms' incentive to invest in innovation, non-merging firms will respond by increasing their own innovation. The net effect in the model is a decrease in total innovation and consumer surplus. If the merger generates efficiencies, however, the model predicts that the increased investments from competitors could offset the merging parties' reduced incentives to invest. The authors show that these conclusions hold in a certain class of models that includes models of process innovation and models of product innovation.

2. Empirical studies

14. Recent empirical studies shed some light on the observed effects of certain mergers on innovation, building on insights from economic theory. Much like the theoretical models, the empirical results often depend on the context being studied and, in that sense, point to the need to focus on the specific facts and data associated with any given transaction.

15. Some retrospective, empirical studies find that in certain contexts, the studied mergers appear to have led to a decrease in R&D investments among merging firms, consistent with a decrease in merging firms' incentives to innovate post-merger. For example, Szücs (2014) compares the R&D spending of nearly 400 merging firms that were involved in mergers reviewed by the EC or FTC between 1990 and 2009 with a matched control group of similar firms and finds that R&D spending decreases among merging firms post-merger relative to the control group, with a sharper decrease for target firms than acquiring firms. [23] Morzenti (2023) exploits a policy change in the thresholds for pre-merger notification in the US and finds that an increase in the threshold, resulting in less merger scrutiny, increased the number of horizontal mergers between asymmetric firms (i.e. where the acquired firm was sufficiently small to be affected by the threshold change) and reduced the patenting activity (a proxy for innovation) among merging parties by about 30%. [24] The effect estimated by the paper is mainly driven by mergers in the pharmaceutical and tech industries. [25]

16. Other empirical studies suggest more nuance is needed in examining the effects of mergers on innovation. For instance, Desyllas and Hughes (2010) study the medium-term effects of mergers on innovation among a sample of high-tech US acquisitions from 1984 to 1998 and find that, despite an initial decline in the merging firms' R&D spending due to temporary restructuring costs, they tend to recover and even increase R&D spending over time, suggesting that any harm to innovation may be transitory. [26] Cassiman et al. (2005) study a sample of 31 mergers in medium- and high-tech industries from the late 1990s to early 2000s and find that mergers between competitors in the same technological field tend to lessen R&D efforts relative to mergers between competitors in complementary technological fields. [27] Cloodt et al. (2006) develop this insight further in a study of over 1,000 mergers and acquisitions in four high-tech

21. R. J. Gilbert, Competition, mergers, and R&D diversity, *Review of Industrial Organization*, 54, 2019, pp. 465-484.

22. M. Motta and E. Tarantino, The effect of horizontal mergers, when firms compete in prices and investments, *International Journal of Industrial Organization*, 78, 102774, 2021.

23. F. Szücs, M&A and R&D: Asymmetric Effects on acquirers and targets?, *Research Policy*, Vol. 43, Issue 7, 2014, pp. 1264–1273.

24. G. Morzenti, Antitrust Policy and Innovation, Bocconi University, Mimeo, June 2023.

25. Some empirical papers also analyse the effects of a merger on innovation among non-merging firms. For instance, Haucap et al. (2019) analyse 65 mergers involving the pharmaceutical sector and reviewed by the EC between 1991 and 2008 and find that patenting and R&D of both merged entities and their rivals decrease post-merger, particularly when there is overlap in the technology class between the merging parties. *See* J. Haucap, A. Rasch and J. Stiebale, How mergers affect innovation: Theory and evidence, *International Journal of Industrial Organization*, Vol. 63, 2019, pp. 283–325.

26. P. Desyllas and A. Hughes, Do high technology acquirers become more innovative?, *Research Policy*, Vol. 39, Issue 8, 2010, pp. 1105–1121.

27. B. Cassiman, M. Colombo, P. Garrone and R. Veugelers, The impact of M&A on the R&D process: An empirical analysis of the role of technological- and market-relatedness, *Research Policy*, Vol. 34, Issue 2, 2005, pp. 195–220.

industries from 1985 to 1994, [28] showing that mergers can have different impacts depending on the merged firm's ability to integrate new knowledge—mergers between competitors that are close enough so that the new knowledge can be easily integrated, but sufficiently differentiated to learn from each other, may have the most positive impact on innovation. [29]

17. Finally, some studies consider the *ex ante* likelihood that competitors with different R&D efforts will try to merge. Bena and Li (2014) study a sample of over 1,500 US mergers and acquisitions from 1984 to 2006 and find that companies with large patent portfolios and low R&D expenses tend to be acquirers, while companies with high R&D expenses and slow growth in patent output are targets. [30] Technological closeness is also seen as a factor that increases the likelihood of a merger, as well as the production of new patents after the operation. Therefore, the possibility of synergies is often a real driver for mergers, and the market incentives are such that productive acquisitions take place. On the other hand, Cunningham et al. (2021) find that, among pharmaceutical industry acquisitions, the target firm's projects are more likely to be interrupted when they overlap with the acquiring firm's portfolio. [31] Thus, in some cases, the incentive to buy and shut down innovation from a close competitor could prevail over the incentive to realise synergies.

18. As is often the case in economics, the general answer to the question of how mergers affect innovation is "It depends." This does not mean that general patterns cannot be discerned or that one cannot evaluate *ex ante* the potential impact of a merger. Quite the contrary, the lack of a one-size-fits-all prediction calls for a deeper study of each merger to assess whether it might foster or limit innovation. This highlights the need for an economics-driven approach in merger review, with an in-depth analysis of the conditions that can make the market thrive. This is particularly true for mergers that involve more uncertainty and complex relationships among firms, as in the case of nascent acquisitions and vertical mergers.

III. Acquisitions involving nascent competitors

19. While innovation concerns can arise in horizontal mergers involving two firms with existing products—as in the case of the *ZF Friedrichshafen/General Motors* and *Dow/DuPont* mergers mentioned above—agencies often raise concerns about innovation in mergers involving one or more products in early stages of development. In this section, we use several case examples to illustrate concerns that can arise in mergers involving nascent competitors.

20. Acquisitions that target firms with promising innovation pipelines can raise questions about potential loss of innovation through a so-called killer acquisition. The term "killer acquisition," coined by Cunningham et al. (2021), refers to an acquisition in which an incumbent acquires an innovative target developing a competing product and subsequently terminates that product and/or its development, thereby eliminating future competition and reducing consumer choice. [32] The *Medtronic/Covidien* merger is an example from the pharmaceutical industry that illustrates how mergers involving overlapping product development may attract the attention of regulators concerned about the elimination of a nascent competitor.

28. The four industries included in the study are: (i) aerospace and defence; (ii) computers and office machinery; (iii) pharmaceuticals; and (iv) electronics and communications. *See* M. Cloodt, J. Hagedoorn and H. Van Kranenburg, Mergers and acquisitions: Their effect on the innovative performance of companies in high-tech industries, *Research Polic*y, Vol. 35, Issue 5, 2006, pp. 642–654.

29. Ibid.

30. J. Bena and K. Li, Corporate Innovations and Mergers and Acquisitions, *The Journal of Finan*ce, Vol. 69, Issue 5, 2014, pp. 1923–1960.

31. C. Cunningham, F. Ederer and S. Ma, Killer Acquisitions, *Journal of Political Econo*my, Vol. 129, No. 3, 2021, pp. 649–702.

32. Ibid. at 650.

- *Medtronic/Covidien*. Medtronic announced its acquisition of Covidien in 2014, and the deal quickly raised innovation concerns among EC officials. Medtronic is a leading US firm in the market for drug-coated balloons, and Covidien was an Irish med-tech firm whose Stellarex-brand drug-coated balloons were in the development stage with promising first-stage clinical trials. Despite the merging firms' claims that the transaction would "*meaningfully accelerate*[] *Medtronic's core strateg*[y] *of therapy innovation*," [33] the EC alleged that the acquisition would eliminate "*a credible future competitor* (. . .) *and* [would likely have] *reduced innovation in this area*." [34] The EC's decision explained that internal documents from Medtronic indicated that "*the development of Covidien's product will be put to an end*." [35] To address these innovation concerns, the EC required Medtronic to divest Covidien's Stellarex business, including manufacturing equipment, related intellectual property (IP) rights, and scientific and regulatory materials, as well as all other assets necessary to "*bring* Stellarex *to the market and remedy the identified competition concerns*." [36]

21. Cunningham et al. (2021) estimate that 5–7% of acquisitions in the pharmaceutical industry are killer acquisitions. Within the tech industry, Latham et al. (2020) found that the fact patterns consistent with killer acquisitions are quite rare among completed transactions. [37] Nevertheless, *Visa/Plaid* is one example of a high-profile acquisition in the fintech industry that raised concerns about the elimination of a nascent competitor.

- *Visa/Plaid*. In 2020, Visa announced a $5.3 billion acquisition plan of Plaid, a start-up the DOJ described as "*a successful fintech firm* (. . .) *developing a payments platform that would challenge Visa's monopoly* [in online debit services]." [38] Though there was no indication that the acquisition would increase prices for Visa or Plaid's services, the DOJ concluded that "[a]*cquiring Plaid would eliminate the nascent but significant competitive threat Plaid poses*" and that "*Visa feared that Plaid's innovative potential – on its own or in partnership with another company – would threaten Visa's debit business*." [39] By January 2021, Visa abandoned the acquisition in order to avoid "*protracted and complex litigation*," [40] an outcome the DOJ noted would "*preserve competition*." [41]

22. An alternative concern in mergers involving nascent firms is the "reverse" killer acquisition. In a reverse killer acquisition, a large incumbent firm in one market acquires a start-up in order to expand into an adjacent market. [42] Rather than worrying about the disruption of the acquired firm's innovation efforts, the concern is about the discontinuation of innovation efforts by the acquiring firm. However, this kind of concern also requires careful scrutiny of the potential for efficiencies and synergies, and care not to curb incentives for firms to enter and expand into new markets.

23. The reverse killer acquisition theory appears to have motivated several merger reviews by the UK Competition and Markets Authority (CMA) in recent years. [43] For example, when Amazon acquired a 16% share of Deliveroo as a means to enter the restaurant delivery market in the UK, the CMA focused on

33. Medtronic, press release, Medtronic to Acquire Covidien for $42.9 billion in Cash and Stock, 15 June 2014, page 31. https://filecache.investorroom.com/mr5ir_medtronic/205/Medtronic%20Inc%20_2014%20Integrated%20SRI%20Report.pdf.

34. Eur. Comm., press release IP/14/2246 of 28 November 2014, Mergers: Commission approves acquisition of Covidien by Medtronic, subject to conditions, https://ec.europa.eu/commission/presscorner/detail/en/IP_14_2246.

35. Eur. Comm., decision C(2014) 9215 final of 28 November 2014, *Medtronic/Covidi*en, case No. COMP/M.7326, ¶ 247 https://ec.europa.eu/competition/mergers/cases/decisions/m7326_20141128_20212_4138173_EN.pdf.

36. Eur. Comm. press release, *supr*a note 34.

37. O. Latham, I. Tecu and N. Bagaria, Beyond Killer Acquisitions: Are There More Common Potential Competition Issues in Tech Deals and How Can These Be Assessed?, *CPI Antitrust Chronic*le, May 2020, pp. 26–37.

38. DOJ, press release, Justice Department Sues to Block Visa's Proposed Acquisition of Plaid, 5 November 2020, https://www.justice.gov/opa/pr/justice-department-sues-block-visas-proposed-acquisition-plaid.

39. Complaint, *United States v. Visa Inc. and Plaid In*c., case 3:20-cv-07810 (N.D. Cal. Nov. 5, 2020), at 4–5.

40. Visa, press release, Visa and Plaid Announce Mutual Termination of Merger Agreement, 12 January 2021, https://usa.visa.com/about-visa/newsroom/press-releases.releaseId.17586.html.

41. DOJ, press release, Visa and Plaid Abandon Merger After Antitrust Division's Suit to Block, 12 Januari 2021, https://www.justice.gov/archives/opa/pr/visa-and-plaid-abandon-merger-after-antitrust-division-s-suit-block.

42. C. Caffarra, G. S. Crawford, and T. Valletti, "How Tech Rolls": Potential Competition and "Reverse" Killer Acquisitions, *CPI Antitrust Chronic*le, May 2020, pp. 13–18. Latham et al., *supra* note 37.

43. Latham et al., *supra* note 37.

whether Amazon might enter the restaurant delivery market with its own services and continue its innovation activities after or in the absence of the acquisition. The acquisition was eventually approved by the CMA, citing that the minority stake would not dampen Amazon's incentives or ability to enter the restaurant delivery market on its own enough to result in a substantial lessening of competition. [44]

24. Similar questions about the incentives and ability of the acquiring firm to compete on its own in an adjacent market where the acquired firm operates arose in the *Altria/JUUL* transaction.

- *Altria/JUUL*. In 2018, Altria, one of the largest tobacco companies in the world, announced its plans both to wind down its own e-cigarette business and to acquire a 35% stake in JUUL, a fast-growing electronic cigarette company, and the agreement included a non-compete agreement. [45] The FTC challenged the transaction, alleging that Altria "*withdrew its existing e-cigarettes from the market and halted its innovation on future products*" for the purposes of the transaction, which "*eliminat*[ed] *current and future innovation competition*" between the parties. [46] The administrative law judge ruled in favour of the parties, finding that Altria had likely exited the e-cigarette market for reasons other than the transaction and that it lacked the ability to compete: "*Even if it is assumed that Altria has the financial resources, economic incentive, and the interest to compete in the e-cigarette market, the evidence fails to prove that Altria had the capability to do so in the near future*." [47] The FTC appealed, but later dropped the case after Altria unwound the transaction and terminated all related agreements with JUUL. [48]

25. The *Sabre/Farelogix* merger, which was reviewed by both the DOJ in the US and the CMA in the UK, illustrates the regulators' use of both the killer acquisition and reverse killer acquisition theories of harm, with mixed success.

- *Sabre/Farelogix*. In 2018, Sabre, a leading travel technology company, announced an agreement to acquire Farelogix, a technology company with a more flexible merchandising solution compliant with the emerging New Distribution Capability (NDC) standard. [49] The DOJ alleged a killer acquisition theory, opening its complaint with the statement, "*Sabre's proposed acquisition of Farelogix is a dominant firm's attempt to eliminate a disruptive competitor after years of trying to stamp it out*." [50] A US district judge ruled in favour of the parties. With respect to innovation and the killer acquisition theory, the judge found that "*Sabre seeks to integrate FLX OC into its platform, not eliminate it*." [51] In contrast, the CMA alleged that in the absence of the merger, Sabre would have an incentive and ability to create its own product to compete with Farelogix and others—a reverse killer acquisition theory. [52] The merger was blocked by the CMA due to the assessment that the merger would lead to "*a loss of innovation in merchandising solutions, resulting in reduced customer choice, fewer new features and upgrades being released more slowly*." [53]

26. These examples show that the theories of harm involving nascent competitors can vary depending on the industry and context. However, the foundational themes that come through the academic literature discussed in section II are still evident: the extent of overlap or complementarities in the merging firms' products (regardless of whether those products already exist or are in development), and the know-

44. CMA, Anticipated acquisition by Amazon of a minority shareholding and certain rights in Deliveroo, Final report, 4 August 2020, https://assets.publishing.service.gov.uk/media/5f297aa18fa8f57ac287c118/Final_report_pdf_a_version_-----.pdf.

45. FTC Complaint, *Altria Group, Inc. and JUUL Labs, Inc*., docket No. 9393 (Apr. 1, 2020), ¶¶ 5–6.

46. Ibid. ¶ 62.

47. Initial Decision, *Altria Group, Inc. and JUUL Labs Inc*., docket No. 9393 (Feb. 23, 2022), at 109.

48. Order to Return Case to Adjudication, Vacate Initial Decision, and Dismiss Complaint, *Altria Group, Inc. and JUUL Labs, Inc*., docket No. 9393 (June 30, 2023).

49. Sabre, press release, Sabre enters agreement to acquire Farelogix, expanding its airline technology portfolio and accelerating its strategy to deliver next-generation retailing, distribution and fulfillment capabilities, 14 November 2018, https://investors.sabre.com/news-releases/news-release-details/sabre-enters-agreement-acquire-farelogix-expanding-its-airline.

50. Complaint, *United States v. Sabre Corporation, et a*l., case 1:19-cv-01548-UNA (D. Del. Aug. 20, 2019), at 1.

51. Opinion, *United States v. Sabre Cor*p., C.A. No. 19-1548-LPS PUBLIC VERSION (D. Del. Apr. 7, 2020), at 45.

52. J. B. McDonald and M. Rastello, The Future of Airline Booking: A Bumpy Ride for the Sabre-Farelogix Merger, *The Air & Space Law*yer, Vol. 33, No. 4, 2020.

53. CMA, Anticipated acquisition by Sabre Corporation of Farelogix Inc., Final report, 9 April 2020, at 346, https://assets.publishing.service.gov.uk/media/5e8f17e4d3bf7f4120cb1881/Final_Report_-_Sabre_Farelogix.pdf.

how, technology and capabilities of the merging firms, are crucial to assessing the likely effects on innovation of a merger involving nascent competitors.

IV. Innovation in vertical mergers

27. Vertical mergers often involve evaluation of both potential benefits and harms to innovation. In this section, we discuss two key arguments related to innovation in vertical mergers—foreclosure and synergies—and provide examples to illustrate how competition authorities and merging parties have brought these arguments to bear in recent cases.

1. Foreclosure

28. Competition agencies have raised concerns regarding vertical mergers and innovation in recent cases, particularly in cases where the vertically integrated merged entity may have an incentive and ability to disadvantage rivals in either an upstream or downstream market. This concern has been especially salient when one of the merging firms has a dominant position, either upstream or downstream. For example, competition concerns in the *Illumina/Grail* merger were raised by both the FTC and the EC, largely centred on Illumina's alleged dominant position in the upstream market and the possibility that downstream rivals would be unable to innovate without access to Illumina's product.

- *Illumina/Grail*. In March 2021, the FTC challenged DNA-sequencer Illumina's proposed acquisition of multi-cancer early detection (MCED) test manufacturer Grail. [54] The FTC alleged that the acquisition would stifle innovation among developers of MCED tests because Illumina would have "*no incentive to provide the DNA sequencing to Grail's rivals*." [55] The FTC reasoned that because Illumina was the only supplier of sequencing required to run MCED tests, the merged entity could increase price, reduce quality or refuse to supply DNA sequencing to other test providers. [56] While the administrative law judge ruled in favour of the parties, [57] the FTC appealed to the U.S. Court of Appeals for the Fifth Circuit, which concluded that "*substantial evidence supported the Commission's finding that the merger would increase Illumina's incentive to foreclose against Grail's rivals such that competing MCED tests either never make it to market or the costs of bringing such tests to market increase*." [58] The EC also blocked the merger based on innovation concerns. [59] In December 2023, in response to the Fifth Circuit's decision, Illumina announced that it would divest Grail. [60]

29. While the concerns in *Illumina/Grail* focused on Illumina's position as an allegedly dominant upstream supplier, the *Microsoft/Activision Blizzard* merger provides insight into how competition authorities view potential foreclosure arguments in

54. FTC Redacted Complaint, *Illumina, Inc. and GRAIL, Inc.*, docket No. 9401 (Mar. 30, 2021); FTC, press release, Administrative Law Judge Dismisses FTC's Challenge of Illumina's Proposed Acquisition of Cancer Detection Test Maker Grail, 12 September 2022, https://www.ftc.gov/news-events/news/press-releases/2022/09/administrative-law-judge-dismisses-ftcs-challenge-illuminas-proposed-acquisition-cancer-detection.

55. D. Bartz and D. Shepardson, U.S. judge backs Illumina deal for Grail in blow to FTC, Reuters, 1 September 2022, https://www.reuters.com/business/healthcare-pharmaceuticals/illumina-says-judge-rules-grail-deal-will-not-hurt-competition-2022-09-01/.

56. E. Raedts and S. Evans, The long and (un)winding road of 'killer acquisition' Illumina/Grail, Stibbe, 2022, https://www.stibbe.com/publications-and-insights/the-long-and-unwinding-road-of-killer-acquisition-illuminagrail.

57. FTC press release, *supra* note 52.

58. Opinion, *Illumina, Inc. and Grail, Inc. v. FTC*, case 23-60167-CV0 (Dec. 15, 2023) at 31.

59. Eur. Comm., press release IP/22/5364 of 6 September 2022, Mergers: Commission prohibits acquisition of GRAIL by Illumina, https://ec.europa.eu/commission/presscorner/detail/es/ip_22_5364.

60. FTC, Statement Regarding Illumina's Decision to Divest Grail, 18 December 2023, https://www.ftc.gov/news-events/news/press-releases/2023/12/statement-regarding-illuminas-decision-divest-grail.

(i) more competitive markets and (ii) nascent markets.

- *Microsoft/Activision Blizzard*. Competition authorities in multiple jurisdictions investigated Microsoft's USD 69 billion acquisition of Activision Blizzard, citing potential concerns that the merged entity could disadvantage rivals, resulting in harm to innovation. The investigations considered multiple downstream markets, including: (i) gaming consoles (e.g. Sony's PlayStation and Microsoft's Xbox), and (ii) cloud gaming.

In the gaming console market, where Microsoft faces substantial competition from Sony, potential concerns about foreclosure were limited. The FTC alleged that the merged firm would have an incentive to pull Activision's popular game *Call of Duty* from PlayStation and make it exclusive to Xbox. [61] However, a federal judge disagreed, citing the importance of cross-platform play, among other factors. [62] The EC also found that "*Microsoft would have no incentive to refuse to distribute Activision's games to Sony*," given Sony's large share of the console market—and that even if it did, Sony would still be able to compete. [63]

In contrast, several jurisdictions have raised concerns about foreclosure and harm to innovation in the nascent cloud gaming market. The EC found that Activision's popular games were likely to promote growth in this "*innovative market segment*" and was concerned that if Activision's games became exclusive to Microsoft, competition would be harmed. [64] The EC approved the transaction, conditional on a set of comprehensive licensing commitments in cloud gaming. [65] The CMA also alleged that the merger would strengthen Microsoft's position in the innovative cloud gaming market, resulting in "*reduced innovation and less choice for UK gamers over the years to come*." [66] To address these concerns, Microsoft committed to divest global cloud streaming rights for all current and future Activision games. [67] The restructured deal was finalised on 13 October 2023, following approval from the CMA. [68]

30. These examples illustrate that concerns about foreclosure as it relates to innovation depend crucially on the competitive context—and even so, competition authorities around the world may have different views on the same transaction and any proposed remedies depending on their enforcement approach and the specifics of the market and transaction in their own jurisdiction.

2. Synergies

31. Like horizontal mergers, vertical mergers can also increase the merged firm's ability to innovate through cost savings or other synergies. To the extent a merger allows two firms to combine complementary technology, know-how or other assets to create something new—for example, by bringing scientists into alignment or providing access to certain intellectual property—such synergies may foster continued innovation. [69] Merging parties in vertical mergers have often made these types of arguments.

61. Redacted Preliminary Injunction Opinion, *FTC v. Microsoft Corporation, et al.*, case 23-cv-02880-JSC (N.D. Cal. July 10, 2023).

62. Ibid.

63. Eur. Comm., press release IP/23/2705 of 15 May 2023, Mergers: Commission clears acquisition of Activision Blizzard by Microsoft, subject to conditions, https://ec.europa.eu/commission/presscorner/detail/en/ip_23_2705.

64. Ibid.

65. Ibid.

66. CMA, press release, Microsoft/Activision deal prevented to protect innovation and choice in cloud gaming, 26 April 2023, https://www.gov.uk/government/news/microsoft-activision-deal-prevented-to-protect-innovation-and-choice-in-cloud-gaming. *See also* CMA, Anticipated acquisition by Microsoft of Activision Blizzard, Inc., Final report, 26 April 2023, at 412, https://assets.publishing.service.gov.uk/media/644939aa529eda000c3b0525/Microsoft_Activision_Final_Report_.pdf ("*We expect the* [substantial lessening of competition] *we have found to result in substantial adverse effects for UK consumers, which may take the form of higher prices, worse quality or lower innovation in cloud gaming*.").

67. B. Smith, Microsoft and Activision Blizzard restructure proposed acquisition and notify restructured transaction to the UK's Competition and Markets Authority, Microsoft, 21 August 2023, https://blogs.microsoft.com/on-the-issues/2023/08/21/microsoft-activision-restructure-acquisition/.

68. K. Browning and D. McCabe, Microsoft Closes $69 Billion Activision Deal, Overcoming Regulators' Objections, *The New York Times*, 13 October 2023, https://www.nytimes.com/2023/10/13/technology/microsoft-activision-blizzard-deal-closes.html.

69. *See* e.g. Shapiro, *supra* note 13. Synergies that facilitate innovation are distinct from pure efficiencies that result from leveraging existing technology, such as implementing an existing medical records system to make an acquired firm operate more efficiently.

- *TomTom/Tele Atlas*. In 2008, TomTom, a leading manufacturer of car navigation systems, acquired Tele Atlas, a main supplier of digital map databases. While the EC raised some concerns about whether the merged firm would disadvantage downstream rivals by raising costs or restricting access to maps, those concerns were alleviated by the existence of upstream competition. [70] The EC also found that the merger was likely to create both cost efficiency from the elimination of double marginalisation and a synergy resulting from the merged firm's ability to use TomTom's user feedback data to improve the quality and update speed of Tele Atlas's map databases, and to "*create new features such as daily map updates and predicting traffic jams*." [71]

32. Similar arguments about the innovation benefits of combining complementary assets have been made in other recent vertical mergers. For example, in AT&T's 2018 acquisition of Time Warner, a federal judge agreed with the merging parties that "*with the Time Warner assets, and without the interference of bargaining friction, AT&T will be able to deliver content to its customers in more innovative ways*." [72] In Amazon's 2022 acquisition of movie and television studio MGM, the merging parties claimed that the combined human capital from the two firms would allow the merged firm to "*reimagine and develop* [MGM's] *IP for the 21st century*." [73]

70. D. Lawsky, TomTom wins EU permission to buy Tele Atlas, Reuters, 14 May 2008, https://www.reuters.com/article/us-tomtom-teleatlas-eu/tomtom-wins-eu-permission-to-buy-tele-atlas-idUKBFA00063720080514.

71. Comm. EC, decision C(2008) 1859 of 14 May 2008, *TomTom/Tele Atl*as, case No. COMP/M.4854, at 52, https://ec.europa.eu/competition/mergers/cases/decisions/m4854_20080514_20682_en.pdf; Lawsky, *sup*ra note 68.

72. Memorandum Opinion, *United States v. AT&T Inc., et a*l., case No. 17-2511 (RJL) (D.D.C. June 12, 2018), at 38.

73. B. Barnes, N. Sperling and K. Weise, James Bond, Meet Jeff Bezos: Amazon Makes $8.45 Billion Deal for MGM, *The New York Time*s, 6 July 2021, https://www.nytimes.com/2021/05/26/business/amazon-MGM.html; A. Palmer, Jeff Bezos assures shareholders they're in good hands at final meeting as CEO, CNBC, 26 May 2021, https://www.cnbc.com/2021/05/26/jeff-bezos-final-shareholder-meeting-as-amazon-ceo-highlights-.html.

V. Conclusion

33. In this article, we have reviewed academic literature and case examples that illustrate the growing attention that innovation has received in the review of both horizontal and vertical mergers. Recent actions and commentary from antitrust authorities around the globe signal that this attention is likely to continue. Acquisitions of nascent competitors are one area of particular focus for competition authorities. For example, in 2020, the FTC reported that it would examine past acquisitions by large technology companies, with a focus on "*whether large tech companies are making potentially anticompetitive acquisitions of nascent or potential competitors that fall below HSR filing thresholds and therefore do not need to be reported to the antitrust agencies*." [74] Similarly, the EC's Article 22 Guidance, discussed above, allows the Commission to review mergers that previously would not have met the threshold for review—and the likely targets of this policy are mergers of nascent competitors in innovative industries.

34. In this evolving merger landscape, economic analysis of the effects of a merger on innovation will play an important role, with synergies and efficiencies being a central part of that analysis. The merging parties will need to identify synergies and efficiencies that would not only lower costs but also reinforce and increase their incentives and ability to innovate. A careful analysis of these types of synergies or efficiencies is critical to evaluate what effect, if any, a merger would have on innovation.

74. FTC, press release, FTC to Examine Past Acquisitions by Large Technology Companies, 11 February 2020, https://www.ftc.gov/news-events/news/press-releases/2020/02/ftc-examine-past-acquisitions-large-technology-companies.

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