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# Structural Presumptions for Non-Horizontal Mergers in the 2023 Merger Guidelines: A Primer and a Path Forward\*

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## Abstract

The 2023 Merger Guidelines (MGs) change the Agencies' narrative regarding non-horizontal mergers. They follow a four-pronged approach: (1) They blend horizontal and non-horizontal mergers. (2) They simplify the narrative about non-horizontal mergers. (3) They consolidate and broaden the theories of harm in non-horizontal mergers. (4) They blend economics and law analysis. In this article, we elaborate on these points. We discuss how the MGs' anticompetitive presumptions apply to non-horizontal mergers, relate them to the economics literature, and provide examples. We finish discussing the economic rationale of the structural presumption involving rivals' exit concerns due to the exercise of market power and propose a path forward.

**JEL Codes:** K21, K41, L42, L44, L52.

**Keywords:** Antitrust, 2023 Merger Guidelines, Vertical Mergers, Rivals' Exit, Double Marginalization, Merger Evaluation, Competition Policy.

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# 1 Introduction

The 2023 Merger Guidelines (MGs) change the Agencies’ narrative with regard to non-horizontal mergers.<sup>1</sup> They follow a four-pronged approach: First, they blend horizontal and non-horizontal mergers.<sup>2</sup> Second, they simplify the narrative about non-horizontal mergers, emphasizing that the Agencies do not need to prove the anticompetitive results with certainty.<sup>3</sup> Third, they consolidate and broaden the theories of harm in non-horizontal mergers; they leverage on the latest advances from the economics literature. Finally, they blend economics and law analysis.

In this article, we elaborate on these points. We discuss how the MGs’ anticompetitive presumptions apply to non-horizontal mergers, relate them to the economics literature, and provide examples. We finish by discussing in more depth the economic rationale of the structural presumption against non-horizontal mergers that cause harm due to rivals’ exit and propose a path forward.<sup>4</sup>

The words “*may be substantially to lessen competition, or to tend to create a monopoly*”<sup>5</sup> are the common denominator of the novel four-path narrative. These words, from Section 7 of the Clayton Act, are the words that were used by Congress in 1914.<sup>6</sup> According to the Supreme Court, they “indicate that its concern was with probabilities, not certainties.”<sup>7</sup> Congress’ probability approach “creates a relatively expansive definition of antitrust liability: To show that a merger is unlawful, a plaintiff need only prove that its effect “may be substantially to lessen competition.””<sup>8</sup> The antitrust liability is expanded when bundled with the words “in

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<sup>1</sup>U.S. Department of Justice and the Federal Trade Commission (2023) (henceforth, MGs). We use the term *Agencies* to refer collectively to all government agencies and regulators that might review a merger.

<sup>2</sup>Non-horizontal mergers include vertical, complementary, product-extension, conglomerate, and platform mergers, inter alia.

<sup>3</sup>“No person engaged in commerce or in any activity affecting commerce shall acquire, directly or indirectly, the whole or any part of the stock or other share capital and no person subject to the jurisdiction of the Federal Trade Commission shall acquire the whole or any part of the assets of another person engaged also in commerce or in any activity affecting commerce, where in any line of commerce or in any activity affecting commerce in any section of the country, the effect of such acquisition may be substantially to lessen competition, or to tend to create a monopoly.” 15 U.S.C. §18.

<sup>4</sup>We define the term *structural presumption* as a proposition that the results of a merger (horizontal or non-horizontal) are likely to be anticompetitive and thus the merger should be deemed illegal unless the presumption is rebutted. “The structural presumption is so named because the likely anticompetitive effects of such mergers are in some sense presumed to follow from the *change in market structure* involved in such consolidations.” (Emphasis added; Sullivan 2016, p. 405, referring to horizontal mergers. Also related to horizontal mergers, see Kaplow and Shapiro 2007, pp. 17-83.) For discussions, see Baker and Shapiro (2008), Salop (2015), Sullivan (2016), and the references therein. We use the terms *structural* and *anticompetitive* presumptions interchangeably.

<sup>5</sup>Emphasis added; 15 U.S.C. §18.

<sup>6</sup>The original 1914 text reads: “SEC. 7. That no corporation engaged in commerce shall acquire directly or indirectly, the whole or any part of the stock or other share capital of another corporation engaged also in commerce, where the effect of such acquisition *may be to substantially lessen competition* between the corporation whose stock is so acquired and the corporation making the acquisition, or to restrain such commerce in any section or community, *or tend to create a monopoly of any line of commerce.*” (Emphasis added; Sixty-Third Congress 1914, Clayton Act, Sess, II, Ch. 323, §7, ¶1, pp. 731-732.) See Collins (2016) for a discussion.

<sup>7</sup>*Brown Shoe Co. v. U.S.*, 370 U.S. 294 (1962), p. 323.

<sup>8</sup>*California v. American Stores Co.*, 495 U.S. 271 (1990), p. 284.

*any* line of commerce or in *any* activity affecting commerce in *any* section of the country.”<sup>9</sup> In economic words, in any market.

For example, in a recent decision that blocked the JetBlue-Spirit (horizontal) merger, the District Court stated: “Section 7 does not require proof that a merger or other acquisition has caused higher prices in the affected market. All that is necessary is that the merger create an appreciable danger of such consequences in the future.”<sup>10</sup> The same principles apply to all mergers because *lessening competition is horizontal in nature*—regardless of the merger label, harm theory, market, and industry. The structural presumptions in the MGs reflect the expansive definition of antitrust liability from the probability approach in the Clayton Act. They may also reflect a response to the decline in antitrust enforcement in the United States since the 1960s.<sup>11</sup>

**Merger label removal.** The first point is that the MGs remove the horizontal and non-horizontal merger labels. The label removal is consistent with the wording in the law that the Agencies enforce. The blending helps the Agencies develop new lines to challenge anticompetitive mergers. The MGs are broader than the 2010 Horizontal Merger Guidelines.<sup>12</sup> They incorporate and update the 2020 Vertical Merger Guidelines.<sup>13</sup>

This approach is helpful for the Agencies for three reasons. First, whereas the distinction between horizontal and non-horizontal mergers is clear in the textbooks and theoretical models, it is less obvious in the real-world cases that are challenged by the Agencies. The difficulty is widespread in the modern economy and digital markets, where dominant firms may participate in several markets, product lines, platforms, and ecosystems.

Second, vertical and complementary-product mergers have an intrinsic efficiency, the elimination of the double marginalization (EDM).<sup>14</sup> Starting with such an efficiency presumption

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<sup>9</sup>Emphasis added; 15 U.S.C. §18.

<sup>10</sup>*United States and Plaintiff States v. JetBlue Airways Corporation and Spirit Airlines, Inc.* (2024), p. 63 (quoting *Saint Alphonsus Med. Ctr.-Nampa Inc.*, 778 F.3d, 788 quoting *Hospital Corp. of Am. v. F.T.C.*, 807 F.2d 1381, 1389, 7th Cir. 1986).

<sup>11</sup>See Lancieri, Posner and Zingales (2022). Kwoka (2015) presents a thorough analysis of merger retrospectives and finds unambiguous evidence that most of the studied mergers resulted in higher prices and competitive harm. For additional discussions, see Shapiro (2018, 2019), and the references therein.

<sup>12</sup>U.S. Department of Justice and the Federal Trade Commission (2010) (henceforth, HMGs).

<sup>13</sup>U.S. Department of Justice and the Federal Trade Commission (2020) (henceforth, VMGs).

<sup>14</sup>For complementary mergers, the result dates back to Cournot (1838). Intuitively, consider the case where one firm, the acquirer, merges with another firm, the acquiree. Before the merger, the acquirer and acquiree do not account for the effect of their markup on the other firm, thus reducing the demand for the other firm’s complementary product. After the merger, the merged firm internalizes the reduction in the demand for the acquirer’s products caused by the increase in the price of the acquiree’s products, and vice versa. The resulting increase in efficiency is similar to the one resulting from the elimination of double marginalization in a vertical merger. See Alderman, Blair and Donna (2024) for a recent discussion.

hinders the Agencies’ efforts to investigate the specific details of the merger.<sup>15</sup> Rather than focusing on the label and starting with a procompetitive efficiency—which may not necessarily be merger-specific nor benefit consumers—the MGs focus on harm and the likelihood that the merger might substantially lessen competition. This point is useful for the Agencies in mergers that feature both horizontal and non-horizontal elements.

The third is perhaps the most fundamental point: “All so-called vertical merger cases should be handled through the application of horizontal merger standards.”<sup>16</sup> The basic principle that governs the Agencies’ concern in non-horizontal mergers is their horizontal harm. Thus, merging horizontal and non-horizontal guidelines is sensible from a policy standpoint to enhance antitrust enforcement.<sup>17</sup>

**Simplified narrative and risk assesment.** The second point is that the MGs simplify the narrative with regard to non-horizontal mergers. Non-horizontal mergers are notoriously complex. The Agencies have faced difficulties in the courts defending the theories of anti-competitive harm in non-horizontal mergers. Examples include proving raising rivals’ costs, foreclosure, and bargaining leverage effects.<sup>18</sup> The simplified approach allows the Agencies to deal with the uncertain nature of the merger effects in non-horizontal markets. The Agencies specified this approach at the beginning of the MGs:

“To show that a merger is unlawful, a plaintiff need only prove that its effect ‘*may be* substantially to lessen competition’” or to tend to create a monopoly.<sup>19</sup> Accordingly, **the Agencies do not attempt to predict** the future or calculate precise effects of a merger **with certainty. Rather** the Agencies examine the totality of the evidence available **to assess the risk** the merger presents. (Emphasis in original; bold added; MGs, pp. 1-2; footnote included.)

It is a subtle but fundamental change relative to the HMGs and the VMGs. It has consequential implications for economic modeling. The role of the models is not to predict a number

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<sup>15</sup>To be sure, we are not saying that the EDM is not present in vertical or complementary mergers. Instead, we are emphasizing the point made by the Agencies. “The Agencies examine whether elimination of double marginalization satisfies the approach to evaluating procompetitive efficiencies in Section 3.3, including examining: (a) whether the merged firm will be more vertically integrated as a result of the merger, for example, because it increases the extent to which it uses internal production of an input when producing output for the relevant market; (b) whether contracts short of a merger have eliminated or could eliminate double marginalization such that it would not be merger-specific, and (c) whether the merged firm has the incentive to reduce price in the relevant market given that such a reduction would reduce sales by the merged firm’s rivals in the relevant market, which would in turn lead to reduced revenue and margin on sales of the related product to the dependent rivals.” (MGs, footnote 31.) See [Kwoka and Slade \(2019\)](#) for a discussion.

<sup>16</sup>[Bork \(1978\)](#), pp. 244-245).

<sup>17</sup>Why is the focus of this article on non-horizontal mergers? Whereas the blending (of horizontal and non-horizontal mergers) is useful for antitrust enforcement policy, the distinction is helpful from a modeling standpoint in economic theory. It allows the development and isolation of specific anticompetitive effects and theories of harm, as we show in Section 5.

<sup>18</sup>See [Salop and Scheffman \(1983\)](#), [Rogerson \(2020\)](#) [Shapiro \(2021\)](#), [Donna et al. \(2024\)](#), [Alderman, Blair and Donna \(2024\)](#), and the references therein.

<sup>19</sup>Footnote 6, MGs: “quoting *California v. Am. Stores Co.*, 495 U.S. 271, 284 (1990) (quoting 15 U.S.C. §18 with emphasis) (citing *Brown Shoe*, 370 U.S. at 323).”

with certainty—a specific price increase or quantity decrease—but to perform a risk assessment. The focus on risk assessment allows the Agencies to evaluate all of the evidence that they have. For example, the evidence could be a theoretical model that is combined with an empirical analysis and qualitative evidence. Simultaneously, the Agencies recognize the difficulty of performing detailed merger simulations in some instances. This avenue could help assess the harm from future events that are difficult to predict with certainty—such as innovation and rivals’ entry and exit decisions.

**Expansion of harm theories.** The third point relates to expanding the harm theories in non-horizontal mergers. A significant innovation in the (withdrawn) 2020 VMGs was to replace the obsolete portions of the 1984 (Non-Horizontal) Merger Guidelines. The VMGs included theories of anticompetitive harm in vertical mergers. The VMGs recognized that a vertical merger might harm competition due to firm conduct—such as foreclosure, raising rivals’ costs, and rivals’ exit. Notably, these theories of harm were absent in the 1984 Guidelines.

The MGs preserve and broaden this path. They take advantage of the theoretical and empirical advances in the economics literature.<sup>20</sup> As we will discuss in Sections 2 and 5, the MGs expand the breadth and depth of the harm theories in non-horizontal markets. They now include the VMGs’ traditional harm theories and modern ones, such as entrenchment, dynamics, serial acquisitions, and platforms.<sup>21</sup> Notably, the extent to which rivals’ exit may produce horizontal harm in non-horizontal mergers is prominently featured.<sup>22</sup>

**Blending of economic and law analysis.** The final point is that the MGs combine economic and law technical analyses. Nevertheless, the MGs are centered on antitrust enforcement policy: The MGs highlight how the Agencies enforce current law. They present the prevailing statutory and case law and describe how the Agencies use the analytical, economic, and evidentiary tools. The Agencies use modern economic analysis to articulate harm theories and to discuss how they enforce antitrust law.

However, the MGs do not include references to the economics literature. This approach reflects the Agencies’ position: Merger enforcement policy belongs in the policy domain, not in the technical domain.

To complement the MGs’ contributions to antitrust enforcement policy, we provide: (1) An introduction to the economic literature that underlies the MGs, with a focus on non-horizontal mergers; and (2) an economic analysis of the structural presumption against non-horizontal mergers that could lead rivals’ exit due to market power. By covering the latter aspect in more detail, we illustrate how economic analysis highlights critical issues for future developments in antitrust policy.

On the one hand, the theories of harm for horizontal mergers focus on the potential of

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<sup>20</sup>See [Rey and Tirole \(2007\)](#), [Lee, Whinston and Yurukoglu \(2021\)](#), and [Asker and Nocke \(2021\)](#) for surveys. See [Salop \(2018\)](#) for a discussion.

<sup>21</sup>Guidelines 6, 7, 8, and 9.

<sup>22</sup>See Appendix A.



the transaction to increase the *ability and incentive* of the merging firms to exercise market power. There are many tools and extensive experience to evaluate this possibility and quantify its impact on prices and social welfare. On the other hand, the theories of harm for vertical mergers have focused on the potential of the transaction to increase the *ability and incentive* of the firms to foreclose rivals or raise rivals' costs, which can be subsumed in exclusionary behavior.<sup>23</sup> This circumstance creates a schism between the review of horizontal and vertical mergers.

Such dichotomy is unnecessary to evaluate one specific type of non-horizontal mergers: Those that may be particularly harmful due to exit concerns.<sup>24</sup> The mentioned schism complicates the harm narrative in these mergers. First, vertical mergers may increase the ability and incentive of the merging firms to exercise market power through the vertical-diversion effect, as we show in Section 5. Foreclosing rivals can be seen as a limiting case of the exercise of market power. Even if a vertically integrated firm is unable or unwilling to foreclose rivals, it may still be able and willing to cause harm through the exercise of market power. However, establishing the ability and incentive to foreclose rivals is harder than establishing the ability and incentive to exercise market power. This is one of the difficulties that the Agencies have faced in non-horizontal mergers, as was discussed above.

Second, the exercise of market power and the efficiencies that are enabled by vertical mergers may cause—perhaps unintentionally—rivals to exit the market.<sup>25</sup> This possibility can considerably increase the harmful nature of a vertical merger. A vertical merger that causes rivals' exit might reduce welfare even if it is a welfare-enhancing merger absent exit. However, an evaluation of a vertical merger that is based only on the ability and incentive for exclusionary behavior might miss the probability of rivals' exit that is caused by the exercise of market power or efficiencies.

To be sure, we do not advocate against the exclusionary theories of harm. On the contrary, these theories of harm are and should remain central in the Agencies' toolkit. Our theory of harm does not preclude foreclosure nor raising rivals' costs effects. Both theories are complementary in our view. Because the presence of exclusionary or predatory conduct might raise rivals' costs, it further increases the probability that a rival might exit.

Thus, both theories of harm ought to be considered by the Agencies as appropriate in the industries and cases under consideration. We propose that, for the mentioned mergers, the Agencies shift the emphasis of the evaluation to an easier-to-prove theory of harm with a focus on the possibility and consequences of rivals' exit. This harm theory makes it easier for the Agencies to establish harm and explain it to the courts. It provides a unified approach to evaluating horizontal and vertical mergers and blends the four points above.

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<sup>23</sup>For concreteness, we focus our discussion here on vertical mergers, noting that the discussion applies to non-horizontal mergers with the appropriate differences.

<sup>24</sup>Rivals' exit is not required to establish harm in non-horizontal mergers. Nevertheless, if exit occurs, the possibility of harm increases substantially. See [Donna and Pereira \(2023a\)](#) for examples and a discussion.

<sup>25</sup>That a vertical merger may reduce competition *even absent any specific anticompetitive intent* is missing in the MGs.



The rest of this article is organized as follows. Section 2 discusses how the MGs’ structural presumptions fit non-horizontal mergers, relates them to the economic literature, and presents examples. Then, the article focuses on the structural presumptions that involve rivals’ exit concerns. Section 3 discusses these concerns in the MGs and presents the terminology. Section 4 presents the model. Section 5 discusses the theories of benefit and harm. Section 6 concludes.

## 2 Structural Presumptions for Non-Horizontal Mergers

We now discuss how the MGs’ structural presumptions fit non-horizontal mergers. As we mentioned in the Introduction, the structural presumptions apply to all mergers: Horizontal and non-horizontal.

The economics literature has identified several paths through which non-horizontal mergers may harm competition.<sup>26</sup> The MGs incorporate recent developments from this literature and open doors for future expansion.<sup>27</sup> We elaborate below.

The MGs are structured as follows: Sections 1 and 2 present and discuss the application of 11 Guidelines. The Guidelines identify mergers that might harm competition. The purpose of the Guidelines is “to assist the Agencies in assessing whether a merger presents sufficient risk to warrant an enforcement action. [...] Guidelines 1-6 describe distinct frameworks the Agencies use to identify that a merger raises prima facie concerns, and Guidelines 7-11 explain how to apply those frameworks in several specific settings.”<sup>28</sup> Crucially, “[t]hese Guidelines are not mutually exclusive” and “they are not exhaustive.”<sup>29</sup>

The Guidelines focus on situations when “companies propose a merger that raises concerns,”<sup>30</sup>—not on the positive aspects of the merger. The Guidelines can be rebutted, as explained in Section 3 about rebuttal evidence. According to the MGs, it is the firms’ burden to rebut the anticompetitive presumptions. The analytical, economic, and evidentiary tools are presented in Section 4.

In the remainder of this section, we discuss each of the Guidelines as follows: First, we introduce and relate the Guideline to the underlying economics literature. Second, we discuss how the Guidelines may incorporate a structural presumption in non-horizontal mergers and how the Agencies may apply it. Finally, we present examples of its application.

The MGs introduce modern economics theories using current law. Nevertheless, the MGs do not include references to the economics literature—just references to statutory and case law.

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<sup>26</sup>See Salop (1981), Salop and Scheffman (1983), Salinger (1988), Bernheim and Whinston (1998), Segal and Whinston (2000), Motta (2004, Chapter 6), Rey and Tirole (2007), Scheffman and Higgins (2014), and the references therein. See also the vertical integration studies in Chipty (2001), Hastings (2004), Hortaçsu and Syverson (2007), and Houde (2012); and the more recent discussions by Salop (2018), Beck and Scott Morton (2021), and Moresi and Salop (2021). For a recent survey of the academic literature on antitrust economics, see Asker and Nocke (2021).

<sup>27</sup>Inter alia, Crawford et al. (2018), Luco and Marshall (2020), Donna and Pereira (2023 a).

<sup>28</sup>MGs, p. 2.

<sup>29</sup>Ibid., p. 2 and p. 29, respectively.

<sup>30</sup>Ibid., p. 2.

We fill this gap by providing an introduction to the economics literature that underlies the MGs centered on non-horizontal mergers. Our focus is on a short introductory piece to this literature rather than a comprehensive review of a few prominent papers. Thorough analyses and comprehensive literature reviews can be found in the references. Similarly, a discussion on horizontal mergers, rebuttal evidence, and the analytical, economic, and evidentiary tools is beyond the scope of this article.

**Guideline 1** states that “Mergers Raise a Presumption of Illegality When They Significantly Increase Concentration in a Highly Concentrated Market.”<sup>31,32</sup> Guideline 1 targets mergers that are particularly harmful: For example, a 3-to-2 horizontal merger or a vertical merger that poses a similar risk because it may cause a rival’s exit in such a concentrated market.<sup>33</sup> Guideline 1 alone might raise anticompetitive concerns in non-horizontal mergers: *E.g.*, “if the merger threatens to cause the exit of a current market participant.”<sup>34</sup>

Therefore, Guideline 1 introduces a structural presumption for non-horizontal mergers in highly concentrated markets.<sup>35</sup> But Guideline 1 may also be combined with any (or multiple) of the other guidelines. For example, Guideline 1 may be combined with Guideline 5 in the case of a vertical merger in a highly concentrated market where there is a concern that the merging companies may “limit access to products or services that its [horizontal] rivals use to compete.”<sup>36</sup> We discuss the other guidelines in turn, noting that they may be combined among themselves due to their non-exclusive nature.

Examples of applications of the language of Guideline 1 include: *United States v. Philadelphia Nat’l Bank*, 374 U.S. 321 (1963); *United States v. Alcoa*, 377 U.S. 271 (1964); *Federal Trade Commission v. Hackensack Meridian Health Inc.*, No. 21-2603 (3d Cir. 2022); and *United States v. AT&T, Inc.*, 916 F.3d 1029 (2019).

**Guideline 2** introduces an anticompetitive presumption for mergers that “Eliminate Substantial Competition Between Firms.”<sup>37,38</sup> In the case of non-horizontal mergers, where the merging firms may not be directly competing, this situation may arise through the effect on the merging firms’ rivals. An example would be a vertical or product-extension merger, where the merging firms may take “competitive actions to attract customers [...] at the expense of

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<sup>31</sup>*Ibid.*, p. 5.

<sup>32</sup>There has been a growing concern in recent years about rising prices, increases in industry concentration, and rising markups. For discussions, see Gutiérrez and Philippon (2017), Berry, Gaynor and Scott Morton (2019), De Loecker, Eeckhout and Unger (2020), Autor et al. (2020), Eeckhout (2022)), and the references therein. Also related to Guideline 1, see the investigations in Ashenfelter, Hosken and Weinberg (2013), Kwoka (2016), Fan and Yang (2020), Cooper et al. (2019), Wollmann (2019), Benkard, Yurukoglu and Zhang (2021), Nocke and Whinston (2022), and the references therein.

<sup>33</sup>Donna and Pereira (2023a) present a theoretical framework and examples for these vertical mergers.

<sup>34</sup>MGs, footnote 11.

<sup>35</sup>“Markets with an HHI greater than 1,800 are highly concentrated, and a change of more than 100 points is a significant increase.” (*Ibid.*, p. 5.)

<sup>36</sup>*Ibid.*, p. 3.

<sup>37</sup>*Ibid.*, p. 6

<sup>38</sup>For references in the economic literature, see Wollmann (2019), Wollmann (2020), and Bhattacharya, Illanes and Stillerman (2023).

its rivals.”<sup>39</sup>

Examples include: *Brown Shoe Co. v. U.S.*, 370 U.S. 294 (1962); *United States v. First Nat’l Bank of Lexington*, 376 U.S. 665 (1964); and *FTC v. Procter & Gamble Co.*, 386 U.S. 568 (1967).<sup>40</sup>

**Guideline 3** focuses on a structural presumption for mergers that “Increase the Risk of Coordination.”<sup>41,42</sup> For instance, this situation may occur when a vertical merger “eliminates a maverick or significantly changes its incentives increas[ing] the susceptibility to coordination.”<sup>43</sup>

Examples of mergers that may facilitate the risk of coordination are *Brooke Group Ltd. v. Brown & Williamson Tobacco Corp.*, 509 U.S. 209 (1993), and joint ventures, as is discussed in Guideline 11.

**Guideline 4** incorporates a structural presumption for mergers that “Eliminate a Potential Entrant in a Concentrated Market.”<sup>44,45</sup> The argument is that such a “merger can also eliminate current competitive pressure exerted on other market participants by the mere perception that one of the firms might enter”,<sup>46</sup> which is supported by economic theory.

Guideline 4 is relevant for mergers that involve non-horizontal markets. An example triggering this presumption in non-horizontal mergers may arise when a dominant firm acquires several small, innovative competitors in those markets potentially offending Section 7 of the Clayton Act, but also a potential unlawful monopolization of the market in violation of Section 2 of the Sherman Act.<sup>47</sup>

Some examples include: *United States v. Penn-Olin Chemical Co.*, 378 U.S. 158 (1964); *Ford Motor Co. v. United States*, 405 U.S. 562 (1972); and *United States v. Marine Bancorporation, Inc.*, 418 U.S. 602 (1974); inter alia.

Recent examples include: *Federal Trade Commission v. Facebook* (2021), the first amended complaint against Facebook, where the FTC argued that “Facebook’s strategy to prevent innovative entrants from gaining scale and benefiting from network effects has consisted of acquiring innovators and—where possible—transforming their products into integral parts of the company’s competitive ‘moat’ ”;<sup>48</sup> and *Federal Trade Commission v. Meta Platforms et al. (2022)*,

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<sup>39</sup>MGs, p. 7.

<sup>40</sup>Ibid, p. 7. See Donna and Pereira (2023a) for additional examples.

<sup>41</sup>MGs, p. 8.

<sup>42</sup>Studies in the economic literature include, e.g., Nocke and White (2007), Miller and Weinberg (2017), Grieco, Pinkse and Slade (2018), Federico, Langus and Valletti (2018), Salop (2018), Miller, Sheu and Weinberg (2021), Igami and Sugaya (2022), and Aryal, Ciliberto and Leyden (2022).

<sup>43</sup>MGs, p. 9. For a discussion of coordinated effects in vertical mergers, see the VMGs (Section 5) and Salop (2020, Section 5).

<sup>44</sup>MGs, p. 10.

<sup>45</sup>There is a large economic literature investigating potential competition, entry deterrence, limit pricing, and killer acquisitions. See Kwoka and Shumilkina (2010), Li et al. (2015), Cunningham, Ederer and Ma (2021), Caradonna, Miller and Sheu (2023), Ciliberto, Murry and Tamer (2021), Fan and Yang (2022), and the references therein.

<sup>46</sup>MGs, p. 11.

<sup>47</sup>15 U.S.C. §18 and 15 U.S.C. §2, respectively

<sup>48</sup>*Federal Trade Commission v. Facebook* (2021), ¶66. See also Scott Morton and Dinielli (2022).

where the complaint challenged Meta acquisition of Within.<sup>49</sup>

**Guideline 5** states that “Mergers Can Violate the Law When They Create a Firm that May Limit Access to Products or Services That Its Rivals Use to Compete.”<sup>50</sup> The structural presumption in Guideline 5 incorporates well-known theories of harm from mergers in non-horizontal markets, including: Raising rivals’ costs;<sup>51</sup> foreclosure;<sup>52</sup> exclusion;<sup>53</sup> quality degradation;<sup>54</sup> and rivals’ exit.<sup>55</sup>

In particular, the structural presumption with regard to rivals’ exit is more prominently featured relatively to the VMGs: “Rivals or potential rivals may be excluded from the relevant market if limiting their access to the related product *could lead them to exit the market* or could deter them from entering.”<sup>56</sup> This structural presumption is similar to the one suggested by Donna and Pereira (2023a), Donna and Pereira (2023b), and Donna and Pereira (2023c). The Agencies acknowledge the difficulty of predicting these events with certainty and note that “the Agencies focus on the overall risk that the merged firm will do so, and do not necessarily identify which precise actions the merged firm would take to lessen competition.”<sup>57</sup>

The Agencies inquire about the incentive and ability of the merging firms to foreclose rivals by assessing four factors: (i) “[T]he availability of substitutes for the related product”;<sup>58</sup> (ii) “how important the related product is for the dependent firms”;<sup>59</sup> (iii) “the importance of the dependent firms for competition in the relevant market”;<sup>60</sup> and (iv) “the competition between the merged firm and the dependent firms.”<sup>61</sup>

Notably, footnote 30 introduces an anticompetitive presumption with regard to the structure of the related market in non-horizontal mergers: “The Agencies will generally infer, in the absence of countervailing evidence, that the merging firm has or is approaching *monopoly power in the related product if it has a share greater than 50% of the related product market*. A

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<sup>49</sup>The Court accepted the potential competition argument but imposed an “excessive evidentiary burden,” according to Salop (2023). See also the discussion by Singer (2023), who was the FTC’s economic expert.

<sup>50</sup>MGs, p. 13.

<sup>51</sup>Salop and Scheffman (1983) and Scheffman and Higgins (2014).

<sup>52</sup>Allen (1971), Hart and Tirole (1990), Ordover, Saloner and Salop (1990), Hortaçsu and Syverson (2007), Asker (2016), inter alia. Rey and Tirole (2007) provide a thorough analysis and review of the literature on foreclosure. For a recent case, see *Illumina, Inc. v. FTC*, No. 23-60167, (5th Cir. Dec. 15, 2023).

<sup>53</sup>See Marvel (1982), Rasmusen, Ramseyer and Wiley (1991), the subsequent comment by Segal and Whinston (2000), the extension by Fumagalli and Motta (2006), Nocke and Rey (2018), and the references therein.

<sup>54</sup>See Choi and Kim (2010) and Allain, Chambolle and Rey (2016).

<sup>55</sup>Donna and Pereira (2023a) present a model and examples. Alderman, Blair and Donna (2024) discuss the recent Microsoft-Activision acquisition and present a theoretical model for the case of complement mergers. As discussed by Donna and Pereira (2023a), the idea that vertical integration might induce rivals’ exit is not new. It dates back, at least, to Brown Shoe (1962). Mainstream antitrust and economic scholars have long recognized that non-horizontal schemes may harm horizontal rivals (*e.g.*, see Areeda and Hovenkamp 2015-2021, ¶1000-¶1041, ¶1600-¶1619, ¶1800-¶1823; Bork 1978, pp. 152-164 and 237-252; Motta 2004, Chapter 6; and Rey and Tirole 2007). See Donna and Pereira (2023a) for details.

<sup>56</sup>Emphasis added; MGs, p. 14.

<sup>57</sup>Ibid., p. 14.

<sup>58</sup>Ibid., p. 14.

<sup>59</sup>Ibid., p. 14.

<sup>60</sup>Ibid., p. 14.

<sup>61</sup>Ibid., p. 14.

merger involving a related product with share of less than 50% may still substantially lessen competition, particularly when that related product is important to its trading partners.”<sup>62</sup>

Guideline 5 is comprehensive in that it includes “products rivals currently or may in the future use as inputs,”<sup>63</sup> complements,<sup>64</sup> “access to competitively sensitive information,”<sup>65</sup> and bargaining situations “[where product availability] enables rivals to obtain better terms from other providers in negotiations,”<sup>66</sup> in cases “whether or not they involve a traditional vertical relationship.”<sup>67</sup>

Examples of application of Guideline 5 include: *Brown Shoe Co. v. U.S.*, 370 U.S. 294 (1962); *FTC v. Procter & Gamble Co.*, 386 U.S. 568 (1967); and *Fruehauf Corp. v. FTC*, 603 F.2d 345 (2d Cir. 1979); inter alia. A recent example is provided by *Illumina v. FTC*, No. 23-60167 (5th Cir. 2023).

The MGs highlight that Guideline 5 may be combined with Guidelines 2, 3, 4, and 8 (Series of Multiple Acquisitions).<sup>68</sup>

**Guidelines 6, 7, and 8** incorporate dynamics into merger evaluation. Rather than assessing a one-shot industry picture, the Agencies open the door to investigate competition as a dynamic phenomenon, inquiring about where the industry is coming and where it is going.<sup>69</sup>

**Guideline 6** introduces a structural presumption for mergers that “Entrench or Extend a Dominant Position.”<sup>70,71</sup> The MGs explain that such mergers may not only offend Section 7 of the Clayton Act but may also offend Section 2 of the Sherman Act.<sup>72</sup> What type of mergers are behind this guideline?

In Guideline 6, the Agencies aim for mergers that *entrench market power*. The basic principle

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<sup>62</sup>Emphasis added; *Ibid.*, p. 16.

<sup>63</sup>*Ibid.*, p. 13.

<sup>64</sup>Federal Trade Commission Complaint (2022). A theoretical model and a discussion are provided in Alderman, Blair and Donna (2024).

<sup>65</sup>MGs, p. 13. “A merger that gives the merged firm increased visibility into competitively sensitive information could undermine rivals’ ability or incentive to compete aggressively or could facilitate coordination.” (MGs, p. 17.) See *U.S. Department of Justice v. Agri Stats Inc.* (2023) and the discussion by Donna and Walsh (2023). Brown and MacKay (2023) study the implications for competition of pricing algorithms; Cho and Williams (2024) build an algorithmic pricing model that generates collusive outcomes after shutting down all explicit and implicit collusion channels; see also the references therein.

<sup>66</sup>MGs, p. 13. See Shapiro (2021) for a discussion on quantifying the raising rivals’ costs effect in a bargaining setting for the 2018 AT&T and Time Warner merger that was challenged by the Department of Justice. Rogerson (2020) and Rogerson (2021) incorporate bargaining between upstream and downstream firms to investigate the competitive effect of vertical mergers. Rogerson (2020) shows that a vertical merger allows the merged firm to increase the price that it charges rival downstream firms for inputs by increasing its bargaining leverage over these downstream rivals. Donna et al. (2024) estimate a structural bargaining model to quantify the bargaining leverage effect and discuss the implication for vertical mergers.

<sup>67</sup>MGs, p. 13.

<sup>68</sup>*Ibid.*, pp. 15-16.

<sup>69</sup>Nocke and Whinston (2010) study the dynamic horizontal merger review problem by the Agencies.

<sup>70</sup>*Ibid.*, p. 18.

<sup>71</sup>Related literature includes the study of “killer acquisitions” (*e.g.*, Kamepalli, Rajan and Zingales 2020; Cunningham, Ederer and Ma 2021; Cabral 2021; and Letina, Schmutzler and Seibel 2021), and the study of the effect of switching cost on elasticities (*e.g.*, Donna 2021) and competition (*e.g.*, Klemperer 1987a, Klemperer 1987b, Shum 2004, Farrell and Klemperer 2007, Dubé, Hitsch and Rossi 2009, Dubé, Hitsch and Rossi 2010, Shcherbakov 2016, and Hortaçsu, Madanizadeh and Puller 2017).

<sup>72</sup>*United States v. Grinnell Corp.*, 384 U.S. 563 (1966).



is that a dominant firm may extend its market power through mergers and acquisitions. The Agencies may use this presumption to enforce Section 7 or Section 2 violations in non-horizontal mergers that involve complementary-product or product-extension mergers.<sup>73</sup>

Imagine that we are at the year-end of 2022. Google tries to develop its own chatbot with artificial intelligence (AI) capabilities and fails.<sup>74</sup> Now Google wants to buy the AI chatbot company Anthropic. Will the Agencies challenge Google’s acquisition of Anthropic? The answer is likely “yes” on the basis of Guideline 6, because the merger will entrench Google’s market power in this market. However, this is a non-horizontal merger.

Examples of Guideline 6 application include: The previously cited *United States v. Grinnell Corp.*, 384 U.S. 563 (1966); *Fruehauf Corp. v. FTC*, 603 F.2d 345 (2d Cir. 1979); and *U.S. v. Microsoft Corp.*, 253 F.3d 34 (D.C. Cir. 2001).

**Guideline 7** states that “the Agencies Consider Whether [a Trend Toward Consolidation] Increases the Risk a Merger May Substantially Lessen Competition or Tend to Create a Monopoly.”<sup>75,76</sup> This guideline states that the *trend* toward vertical integration can be used as a structural presumption in non-horizontal mergers due to “implications for the *competitive dynamics* of the industry.”<sup>77</sup>

The trend toward consolidation widens the concerns in Guideline 5.<sup>78</sup> The trend may also increase the bargaining leverage of the merging firms and thereby increase the risks that are discussed in Guidelines 1-6.<sup>79</sup>

Examples of Guideline 7 application include: *Brown Shoe Co. v. U.S.*, 370 U.S. 294 (1962); *United States v. Pabst Brewing Co.*, 384 U.S. 546 (1966); and *United States v. Von’s Grocery Co.*, 384 U.S. 270 (1966).

**Guideline 8** is also concerned with dynamic considerations when it states that “When a Merger is Part of a Series of Multiple Acquisitions, the Agencies May Examine the Whole Series.”<sup>80,81</sup> Guideline 8 can be used as an anticompetitive presumption in non-horizontal mergers.

Consider Google’s acquisition activity during the years that preceded the DOJ’s 2020 lawsuit.<sup>82</sup> *Bet, Blair and Donna (2022)* report that “Google merger-and-acquisition activity was hectic during the years prior to the DOJ lawsuit. Between 2003 and 2018, Google engaged in 225 mergers and acquisitions, an average of 15 per year.”<sup>83</sup> Google’s acquisition of nascent

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<sup>73</sup>For a recent example, see the 2020 DOJ lawsuit against Google, which alleges a §2 Sherman Act violation. See *Bet, Blair and Donna (2022)* for a discussion.

<sup>74</sup>For a recount of the AI race inside Silicon Valley, see *Weise et al. (2023)*.

<sup>75</sup>MGs, p. 22.

<sup>76</sup>Related papers include, *e.g.*, *Ashenfelter, Hosken and Weinberg (2015)*, *Wollmann (2019)*, *Wollmann (2020)*, and *Prager and Schmitt (2021)*.

<sup>77</sup>Emphasis added; MGs, p. 22.

<sup>78</sup>*Ibid.*

<sup>79</sup>See *Donna et al. (2024, Section 6)*.

<sup>80</sup>*Ibid.*, p. 23.

<sup>81</sup>For references to the economic literature, see footnotes 32, 38, and 71.

<sup>82</sup>*United States of America et al. v. Google LLC (2020)*.

<sup>83</sup>*Bet, Blair and Donna (2022, p. 32)*.

vertical search providers may foreclose competition and create barriers to entry.<sup>84</sup> These are not horizontal mergers but may be challenged using Guideline 8.

**Guideline 9**, about platforms, can be used as a structural presumption in non-horizontal “[m]ergers involving platforms [...], even when a platform merges with a firm that is neither a direct competitor nor in a traditional vertical relationship with the platform.”<sup>85,86</sup> For example, a platform that offers its own products on the platform may favor them to the detriment of the rivals’ product “with rivals of the advantaged product *exiting* or becoming less attractive.”<sup>87</sup>

Some anticompetitive practices may include self-preferencing; misappropriation of vertical search content; use of scale as a barrier to entry; and anticompetitive exclusivity agreements.<sup>88</sup> In a platform setting, switching costs, network effects, and scale economies may exacerbate the effects of anticompetitive practices.

There have been many antitrust cases that involve platforms in recent years. Examples include: The mentioned lawsuits against Google<sup>89</sup> and Facebook;<sup>90</sup> the Amazon lawsuit;<sup>91</sup> the challenge of Sabre’s acquisition of Farelogix (digital platforms that provide booking services to airlines);<sup>92</sup> the complaints against Ticketmaster and Live Nation;<sup>93</sup> the concerns with regard to rideshare platforms and the gig economy;<sup>94</sup> and the complaint against Visa and Mastercard from Block (formerly Square);<sup>95</sup> inter alia. These examples show how Guideline 9 may be combined with Guidelines 1-6 depending on the industry specifics.<sup>96</sup>

**Guideline 10** states that “When a Merger Involves Competing Buyers, the Agencies Examine Whether It May Substantially Lessen Competition for Workers, Creators, Suppliers, or

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<sup>84</sup>Ibid.

<sup>85</sup>MGs, p. 23.

<sup>86</sup>For recent studies about platforms and two-sided markets concerning market power, competition policy, anticompetitive practices, and regulation see, *e.g.*, Hovenkamp (2018), De Corniere and Taylor (2019), Bet, Blair and Donna (2022), Reimers and Waldfogel (2023), Waldfogel (2024), and the references therein. See Rysman (2009) and Jullien, Pavan and Rysman (2021) for surveys.

<sup>87</sup>Emphasis added; MGs, footnote 48.

<sup>88</sup>For definitions and a discussion see Bet, Blair and Donna (2022, Section IV).

<sup>89</sup>*United States of America et al. v. Google LLC* (2020) and the related discussion in Bet, Blair and Donna (2022). Athey and Scott Morton (2022, p. 703) recommend an anticompetitive presumption regarding platform annexation by a dominant firm, where they define *platform annexation* as the situation where a “platform annexes multi-homing tools and manipulates them to reduce multi-homing and competition.” Hovenkamp (2023) develops a competition model between two-sided search platforms with a dominant player.

<sup>90</sup>*Federal Trade Commission v. Facebook* (2021).

<sup>91</sup>*Federal Trade Commission and Plaintiff States v. Amazon.com, Inc.* (2023).

<sup>92</sup>*United States v. Sabre Corporation, Sabre Gbl Inc., Farelogix, Inc., and Sandler Capital Partners V, L.P.* (2019).

<sup>93</sup>See Andrzejewski (2023) for a summary.

<sup>94</sup>See Peterson and Steinbaum (2023) for a discussion.

<sup>95</sup>*Block, Inc. v. Visa Inc. et al.*, U.S., Eastern District of New York, case 1:23-cv-05377.

<sup>96</sup>*Ohio v. American Express Co.*, 585 U.S. (2018) provides an example for “platforms with the “key feature ... that they cannot make a sale to one side of the platform without simultaneously making a sale to the other.” MGs, footnote 47 citing *Ohio v. American Express Co.*, 138 S. Ct. 2274, 2280 (2018).



Other Providers.”<sup>97,98</sup> Guideline 10 is among the most notable antitrust developments in the MGs.<sup>99</sup> It introduces a structural presumption in buyer markets by saying that “a merger’s harm to competition among buyers [notably, employers in labor markets] is not saved by benefits to competition among sellers.”<sup>100</sup>

This structural presumption may apply to non-horizontal markets when the merger increases bargaining leverage in the vertical market or when combined with other guidelines; for example, with Guideline 5 (a merger of employers that may limit access to products that are used by the rivals) or Guideline 7 (a merger between buyers that displays a trend toward vertical integration).

Examples include: *Mandeville Island Farms v. American Crystal Sugar*, 334 U.S. 219 (1948); and the recent cases of *Nat’l Collegiate Athletic Ass’n v. Alston*, 141 S. Ct. 2141, 210 L. Ed. 2d 314 (2021); and *U.S. v. Bertelsmann SE & CO. KGaA, et al.* (2022): the Penguin Random House’s proposed acquisition of Simon & Schuster, which was blocked by the District Court.<sup>101</sup>

**Guideline 11** states that “When an Acquisition Involves Partial Ownership or Minority Interests, the Agencies Examine Its Impact on Competition.”<sup>102,103</sup> This guideline refers to partial mergers that do not completely eliminate the horizontal rival but may nevertheless cause horizontal harm. It introduces an anticompetitive presumption in non-horizontal mergers for “both cross-ownership [...] as well as common ownership” partial acquisitions that may substantially lessen competition using, *e.g.*, the presumptions in any of the previous guidelines.<sup>104</sup>

Crucially, the “Agencies recognize that cross-ownership and common ownership can reduce competition by softening firms’ incentives to compete, *even absent any specific anticompetitive act or intent.*”<sup>105</sup> The emphasized novel part is backed up by the mentioned academic literature.

Examples may include: Common ownership and coordination in the U.S. airline industry (Azar, Schmalz and Tecu 2018, Park and Seo 2019, and Bet 2021); the MillerCoors joint venture in the U.S. beer industry (Miller and Weinberg 2017); and the merger request of Spirit Super

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<sup>97</sup>MGs, p. 26.

<sup>98</sup>For investigations about market power, competition policy, antitrust, and mergers in labor markets see, *e.g.*, Naidu (2010), Naidu, Nyarko and Wang (2016), Naidu, Posner and Weyl (2018), Azar, Marinescu and Steinbaum (2022), Naidu and Posner (2022), Marinescu and Hovenkamp (2019), Azar et al. (2020), Azar, Berry and Marinescu (2022), Bassier, Dube and Naidu (2022), Berger et al. (2023), Naidu, Nyarko and Wang (2023), and the references therein. See also Hemphill and Rose (2017).

<sup>99</sup>A summary and some prominent cases are discussed by ProMarket Writers (2024).

<sup>100</sup>MGs, p. 27.

<sup>101</sup>*United States v. Bertelsmann Se & Co. KgaA, Penguin Random House, Llc, Viacomcbs, Inc., and Simon & Schuster, Inc.* (2022). See Athey et al. (2023) for discussions.

<sup>102</sup>MGs, p. 28.

<sup>103</sup>The literature that investigates the competitive effects of common ownership is relatively recent and has experienced an explosion in recent years. An early investigation in the airline industry is provided by Azar, Schmalz and Tecu (2018). Antón et al. (2023) “show that managerial incentives can serve as a mechanism that connects common ownership to softer competition.” Antón et al. (2024) investigate theoretically and empirically the effect of common ownership on innovation. There are several surveys that focus on economics and finance (Schmalz 2018; Schmalz 2021), industrial organization (Backus, Conlon and Sinkinson 2019), and law and economics (Elhauge 2020), *inter alia*.

<sup>104</sup>See OECD (2017) and Moss (2020) for discussions and examples.

<sup>105</sup>Emphasis added; MGs, p. 28.

and Palisade Investment Partners Consortium, which was withdrawn after the concerns released by the Australian Competition and Consumer Commission (ACCC).<sup>106</sup> Additional examples include *United States v. E. I. du Pont de Nemours & Co.*, 353 U.S. 586 (1957), *Denver & Rio Grande Western R. Co. v. United States*, 387 U.S. 485 (1967), and *U.S. v. Dairy Farmers of America, Inc.*, 426 F.3d 850 (6th Cir. 2005).

In sum, the anticompetitive presumptions in the MGs are consistent with the latest developments from the economics literature, and in particular with respect to the theories of harm in non-horizontal markets. The MGs pave the way to challenge mergers that may pose anticompetitive concerns in markets that involve platforms, digital ecosystems, labor markets, common ownership, and rivals’ exit that might substantially lessen competition.

### 3 A Path Forward

The remainder of this article discusses the economic rationale for a structural presumption in non-horizontal mergers that may cause rivals’ exit due to the exercise of market power. We proceed in three steps. In this section, we summarize the exit concerns in the MGs and present the terminology. Section 4 presents a model that is used to discuss the economic rationale for the anticompetitive presumptions. The structural presumptions are discussed in Section 5.

#### 3.1 Exit concerns in the 2023 Merger Guidelines

The (withdrawn) VMGs expressed exit concerns in only one instance.<sup>107</sup> By contrast, the MGs incorporate several anticompetitive presumptions and concerns with regard to mergers that may cause rivals’ exit, consistent with [Donna and Pereira \(2023a\)](#), [Donna and Pereira \(2023b\)](#), and [Donna and Pereira \(2023c\)](#). A summary is available in [Appendix A](#).

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<sup>106</sup>The ACCC website notes: “The ACCC was concerned that the proposed acquisition may substantially lessen competition in the supply of port services for long-term bulk cargo customers in Victoria by reducing competition between the Port of Portland and Port of Geelong. [...] “*We were concerned the common fund management and ownership interests between the Port of Geelong and the Port of Portland would reduce competition for customers between the ports over the medium to long term,*” ACCC Chair Gina Cass-Gottlieb said.” (Emphasis added; [Australian Competition and Consumer Commission 2022](#).) We thank Martin Schmalz for the pointer.

<sup>107</sup>“In identifying whether a vertical merger may diminish competition due to unilateral foreclosure or raising rivals’ costs, the Agencies generally consider whether the following conditions are satisfied: (1) Ability: By altering the terms by which it provides a related product to one or more of its rivals, the merged firm would likely be able to cause those rivals (a) to lose significant sales in the relevant market (for example, *if they are forced out of the market*; if they are deterred from innovation, entry, or expansion, or cannot finance those activities; or if they have incentives to pass on higher costs through higher prices) or (b) to otherwise compete less aggressively for customers’ business.” (Emphasis added; VMGs, §4.a.)

## 3.2 Terminology

We now discuss the economic rationale for these structural presumptions. We focus on concentrated industries where firms sell differentiated products.<sup>108</sup> We use the expressions *merger* and *integration* interchangeably. Two products are (*gross*) *substitutes* if the increase in the price of one of them raises the demand for the other. Two products are (*gross*) *complements* if the increase in the price of one of them reduces the demand for the other.

We refer to the activity level that is closest to final consumers as the *downstream level*—the level of distribution or retail—and to the activity level furthest from final consumers as the *upstream level*—the level of supply or manufacture. We refer to an upstream firm as a *manufacturer* and a downstream firm as a *retailer*.<sup>109</sup> The product of a manufacturer is a manufactured product, and the product of a retail firm is a retail product. We adopt the corresponding terminology for the other elements of industry activity, such as price, marginal cost, and profit. We define a *product* as a combination of manufacturer and retailer. Hence, products of a manufacturer that are sold through two distinct retailers are two different manufactured products, and the products of two distinct manufacturers that are sold by the same retailer are two different retail products.<sup>110</sup>

A *horizontal merger* combines firms that compete at the same level of production or distribution. A *vertical merger* combines firms that operate at different production and distribution levels.<sup>111</sup> Firms are *rivals* if they produce substitute products.<sup>112</sup>

The increase in the price of a product decreases the sales of that product and increases the sales of the alternative products, as consumers substitute their purchases from the former product. We employ the term *diversion of sales* to describe the replacement of the sales of a product by sales of the substitute products that is caused by the increase in the product's own price.<sup>113</sup> *Market power* is the ability to maintain prices profitably above marginal costs. *Unilateral effects* are the exercise of market power that is enabled by a merger when firms act independently of their rivals.

Below, we make several statements about whether a merger might enable the exercise of market power. These statements refer to the sign or direction of the effect. To establish harm, it is also necessary to show the risk of the likely substantial magnitude of the effect. Merger

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<sup>108</sup>Competition problems usually arise in concentrated industries. Most of our analysis applies regardless of whether products are homogeneous or differentiated. However, focusing on the latter simplifies the exposition. In most concentrated industries, brands matter.

<sup>109</sup>Alternatively, a manufacturer is a firm that produces a production factor, and a retailer is a firm that uses a manufactured product to produce a final product.

<sup>110</sup>For example, the same brand of soda that is sold through two distinct supermarket chains are two different manufactured products, and two distinct brands of soda that are sold by the same supermarket chain are two different retail products.

<sup>111</sup>Alternatively, a horizontal merger combines firms that produce substitute products, and a vertical merger combines firms that produce complementary products.

<sup>112</sup>Alternatively, firms are rivals if they operate in the same relevant market.

<sup>113</sup>For example, the increase in the price of Coca-Cola reduces its demand because some consumers stop purchasing cola beverages altogether, while others switch to alternative cola brands, such as Pepsi-Cola. Thus, a fraction of the decreased demand for Coca-Cola switches to Pepsi, a substitute product for Coca-Cola.

evaluation involves considering the facts of the industry, such as the relative size of the firms and diversion ratios, or, when possible, the use of computational models. The exercise of market power and the efficiencies that are induced by a merger may affect prices, quality, product variety, and innovation.

To simplify the exposition, we focus exclusively on prices. However, the conclusions extend to other measures of performance.

The following assumptions provide the basis of our theories of benefit and of harm.

**(A1)** Before and after the merger, the manufacturer of the merged firm supplies products to the retailer of the merged firm.

**(A2)** The merged firms sell manufactured products to rival retailers.

**(A3)** The merged firms buy manufactured products from manufacture rivals.

Assumption (A1) is necessary for a vertical merger to enable strategic efficiencies. Assumptions (A2) and (A3) are necessary for a vertical merger to cause harm, *i.e.*, enable the exercise of market power, upstream and downstream, respectively.

## 4 Model

### 4.1 Setup

This section presents a model that is used to discuss the economic rationale for the anticompetitive presumptions in Section 5. The model includes the basic elements of the analysis in the simplest possible setting, so that the discussion can focus on policy.<sup>114</sup>

Let  $x_i$ ,  $i = 1, \dots, N$ , be some real variables. Denote the  $N \times 1$  vector by  $\mathbf{x} := (x_1, \dots, x_N)'$ . Consider the differentiable function  $f(\mathbf{x}): \mathbb{R}^J \rightarrow \mathbb{R}$ . Let  $\nabla_x f := \frac{\partial f(\mathbf{x})}{\partial \mathbf{x}'}$  be the  $J \times J$  Jacobian matrix of  $f(\cdot)$  with respect to  $\mathbf{x}$ . Let  $\odot$  be the Hadamard product.

Consider an industry with a two-layered vertical structure: The manufacture and retail layers. In the manufacturer layer, manufacturers produce manufactured products, which they sell to firms in the retail layer. In the retail layer, firms called retailers use manufactured products to produce retail products that they sell to final consumers. Let  $v$  denote *manufacture* and  $r$  denote *retail*.

Let  $v_j$  be manufactured product  $j$ , and  $r_j$  be retail product  $j$ . Manufactured product  $v_j$  is used to produce retail product  $r_j$ . Let  $\mathcal{J}^\tau$  be the set of type  $\tau = v, r$  products. There are two manufactured products  $\mathcal{J}^v = \{v_1, v_2\}$ , and two retail products  $\mathcal{J}^r = \{r_1, r_2\}$ . Let  $\mathcal{F}$  be the set of firms. There are 4 firms:  $\mathcal{F} = \{f_1, \dots, f_4\}$ . The firms own the manufactured and retail products.

Let  $\mathcal{J}_f^\tau$  be the set of type  $\tau = v, r$  products of firm  $f$ . We defer the presentation of particular property structures until Section 5. Let  $\Omega^{\tau\tau'}$  be a matrix with generic element  $\{\omega_{jj'}^{\tau\tau'}\}$ , where

<sup>114</sup>For additional details about the model, see Donna and Pereira (2023a) and Donna, Pereira and Pu (2024).

$j \in \mathcal{J}^\tau$  and  $j' \in \mathcal{J}^{\tau'}$ , with  $\tau, \tau' = v, r$ , and:

$$\omega_{jj'}^{\tau\tau'} = \begin{cases} 0 & \Leftarrow j \in \mathcal{J}_f^\tau, j' \in \mathcal{J}_{f'}^{\tau'}, f' \neq f \\ 1 & \Leftarrow j \in \mathcal{J}_f^\tau, j' \in \mathcal{J}_{f'}^{\tau'}, f' = f \end{cases}.$$

Matrices  $\Omega := \{\Omega^{\tau\tau'} \mid \tau, \tau' = v, r\}$  represent the property structure of the industry. Let  $\mathbb{I}_N$  be an  $N$ -dimensional identity matrix, and  $\mathbb{O}_N$  be an  $N$ -dimensional square all-zeros matrix.

For  $j = 1, 2$ , let  $p_j$  be the price of retail product  $j$ ,  $w_j$  be the price of manufactured product  $j$ , and  $c_j = \theta$  be the marginal cost of manufactured product  $j$ .<sup>115</sup> Without loss of generality, the only marginal cost that is associated with the production of a retail product is the price of the associated manufactured product.<sup>116</sup> For  $j = 1, 2$  and  $\mathbf{p} \in (0, +\infty)^2$ ,  $D_j(\mathbf{p})$  is the demand of retail product  $j$ . Let function  $D_j(\cdot)$  be twice continuously differentiable. Let  $\varphi_f \in (0, +\infty)$  be the fixed cost of firm  $f$ .

Consider the following assumptions:

**(A4a)** Retail products have downward-sloping demand curves.

**(A4b)** Retail products are (gross) substitutes.

**(A4c)** The demand for retail products is log-concave.<sup>117</sup>

**(A4c')** The slopes of the demand retail functions are increasing in the other retail prices.<sup>118</sup>

Assumption (A4a) means that retail firms have market power, a natural occurrence in concentrated markets. Assumption (A4b) means that retailers compete with each other. We defer the discussion of assumptions (A4c) and (A4c') until Section 4.2.

Let  $\bar{\theta}$  and  $\bar{p}$  be such that  $0 < \bar{\theta} < \bar{p} < \infty$ . Let  $(\mathbf{w}, \mathbf{p}) \in [\bar{\theta}, \bar{p}]^4$ . The profit of  $r_j$  is:

$$\pi_j^r(\mathbf{p}; w_j) := (p_j - w_j)D_j(\mathbf{p});$$

the profit of  $v_j$  is:

$$\pi_j^v := (w_j - c_j)D_j;$$

and the profit of a firm  $f$  is:

$$\Pi_f := \sum_{\tau=v,r} \sum_{j \in \mathcal{J}_f^\tau} \pi_j^\tau - \varphi_f.$$

The game unfolds in two stages: In stage 1, the owners of manufactured products choose their prices. In stage 2, the owners of retail products choose their prices.<sup>119</sup> At the end of each stage, all firms observe the actions taken. The equilibrium concept is subgame perfection.

<sup>115</sup>The symmetry of marginal costs only simplifies exposition.

<sup>116</sup>Other possible types of retail marginal costs play no role in our analysis.

<sup>117</sup>Each product's own-price elasticity of demand decreases with the prices of the other products.

<sup>118</sup>For  $j \neq j'$ ,  $\frac{\partial^2 D_j}{\partial p_{j'} \partial p_j} > 0$ .

<sup>119</sup>In other words, at each stage, firms play a Bertrand-Nash game.

## 4.2 Equilibrium

In this subsection, we compute the equilibrium by backward induction. We present the equilibrium conditions in a way that encompasses all possible property structures. Denote equilibrium values with a superscript “\*”.

### 4.2.1 Second-Stage Game: Retail Price Competition

In matrix form, the equilibrium conditions for  $\mathbf{p}$  are:

$$\Phi^r(\mathbf{p}^*; \mathbf{w}, \Omega) := \mathbf{D}(\mathbf{p}^*) + (\Omega^{rr} \odot [\nabla_p D]')(\mathbf{p}^* - \mathbf{w}) + (\Omega^{rv} \odot [\nabla_p D]')(\mathbf{w} - \mathbf{c}) = 0. \quad (1)$$

Equation (1) defines, implicitly, the best-response function:

$$\mathbf{p} = \mathbf{B}^r(\mathbf{p}, \mathbf{w}) = \begin{pmatrix} b_1^r(p_2; \mathbf{w}) \\ b_2^r(p_1; \mathbf{w}) \end{pmatrix}.$$

Best-response function  $b_j^r(\cdot)$  is increasing in  $p_{j'}, j' \neq j$ . Retail prices are strategic complements.<sup>120</sup> Assume that:<sup>121</sup>

$$\frac{\partial b_j^r}{\partial p_{j'}} < 1, \quad j' \neq j. \quad (2)$$

Then, the second-stage game has a Nash equilibrium in pure strategies.<sup>122</sup> Denote it by:

$$\mathbf{p}^* = \mathbf{P}(\mathbf{w}) = \begin{pmatrix} p_1^*(\mathbf{w}) \\ p_2^*(\mathbf{w}) \end{pmatrix} = \begin{pmatrix} b_1^r(p_2^*; \mathbf{w}) \\ b_2^r(p_1^*; \mathbf{w}) \end{pmatrix}.$$

### 4.2.2 First-Stage Game: Manufacturer Price Competition

Given  $\mathbf{P}(\mathbf{w})$ , let  $\tilde{D}_j(\mathbf{w}) := D_j(\mathbf{p}^*)$ , and call  $\tilde{D}_j(\cdot)$  the demand function of  $v_j$ . Consider the following assumption:

**(A5a)** Each manufactured product has a downward-sloping demand curve.

Let:

$$\begin{aligned} \tilde{\pi}_j^v(\mathbf{w}; c_j) &:= (w_j - c_j) \tilde{D}_j(\mathbf{w}), \\ \tilde{\pi}_j^r(\mathbf{w}) &:= (p_j^*(\mathbf{w}) - w_j) \tilde{D}_j(\mathbf{w}), \end{aligned}$$

<sup>120</sup>This follows from assumptions (A4b) and (A4c) for some property structures, and from assumptions (A4b) and (A4c') for other property structures. For the concept of strategic substitutes and strategic complements, see *e.g.*, Bulow, Geanakoplos and Klemperer (1985).

<sup>121</sup>This follows from standard stability conditions.

<sup>122</sup>Existence follows from, *e.g.*, Topkis (1998, Theorem 4.2.1). The equilibrium may not be globally unique. However, given enough differentiability, it is locally unique. See Debreu (1970).

and

$$\tilde{\Pi}_f := \sum_{\tau=v,r} \sum_{j \in \mathcal{J}_f^\tau} \tilde{\pi}_j^\tau - \varphi_f.$$

Let:

$$\frac{d\tilde{D}_j(\mathbf{w})}{dw_{j'}} := \sum_k \frac{\partial D_j}{\partial p_k} \frac{p_k^*}{\partial w_{j'}}.$$

Let:  $\bar{\mathbf{P}} := \mathbf{P} - \mathbf{w}$ . In matrix form, the equilibrium conditions for  $\mathbf{w}$  are:<sup>123</sup>

$$\begin{aligned} \Phi^v(\mathbf{w}^*; \Omega) = \tilde{\mathbf{D}}(\mathbf{w}^*) + \left( \Omega^{vv} \odot [\nabla_w \tilde{\mathbf{D}}]' \right) (\mathbf{w}^* - \mathbf{c}) + \\ \left( \Omega^{vr} \odot [\nabla_w \bar{\mathbf{P}}]' \right) \tilde{\mathbf{D}} + \left( \Omega^{vr} \odot [\nabla_w \tilde{\mathbf{D}}]' \right) (\mathbf{P} - \mathbf{w}^*) = 0. \quad (3) \end{aligned}$$

Equation (3) defines, implicitly, the best-response function:

$$\mathbf{w} = \mathbf{B}^v(\mathbf{w}, \mathbf{c}) = \begin{pmatrix} b_1^v(w_2; \mathbf{c}) \\ b_2^v(w_1; \mathbf{c}) \end{pmatrix}.$$

Then, an equilibrium exists.<sup>124</sup> Denote it by:

$$\mathbf{w}^* = \mathbf{W}(\mathbf{c}) = \begin{pmatrix} w_1^*(\mathbf{c}) \\ w_2^*(\mathbf{c}) \end{pmatrix} = \begin{pmatrix} b_1^v(w_2^*; \mathbf{c}) \\ b_2^v(w_1^*; \mathbf{c}) \end{pmatrix}.$$

A subgame-perfect equilibrium is:  $(w^*, p^*) = (\mathbf{W}(\mathbf{c}), \mathbf{P}(\mathbf{W}(\mathbf{c})))$ .

## 5 Theories of Benefit and Harm

This section discusses the *benefits* and *harms* of vertical mergers: Social-welfare increasing and diminishing effects, respectively.<sup>125</sup> Appendix B presents a complementary case.

### 5.1 Backdrop

We start by presenting a version of the model that is neutral in terms of efficiencies and market power: Assumptions (A1)-(A3) do not hold. This case will serve as a reference.

Consider the model of Section 4: Let firms  $f_1$  and  $f_2$  own manufactured products  $v_1$  and

<sup>123</sup>Where  $\nabla_w \tilde{\mathbf{D}} := \nabla_p \mathbf{D} \nabla_w \mathbf{P}$ .

<sup>124</sup>Existence follows from standard arguments given continuity and compactness; see, *e.g.*, [Fudenberg and Tirole \(1991, Theorem 1.1\)](#). The conditions for  $\tilde{\mathbf{D}}(\cdot)$  to be log-concave are more stringent than those for  $\mathbf{D}(\cdot)$ . Furthermore, conditions that ensure log-concavity of  $\tilde{\mathbf{D}}(\cdot)$  for some property structures may fail for others.

<sup>125</sup>The discussion in this section involves direct and indirect effects. Given our focus on policy, we restrict attention to the direct, dominating effects. See [Donna and Pereira \(2023a\)](#) and [Donna, Pereira and Pu \(2024\)](#) for details.



$v_2$ , respectively, and firms  $f_3$  and  $f_4$  own retail products  $r_1$  and  $r_2$ , respectively.<sup>126</sup> Figure 1 represents the situation. Note that  $v_1$  is sold only to  $r_1$  and  $v_2$  is sold only to  $r_2$ . Denote equilibrium values by superscript “ $s$ ”.

For  $f = f_3, f_4$  and  $j = 1, 2$ , the equilibrium conditions for  $p_j$  are:

$$\frac{\partial \Pi_f}{\partial p_j} = \underbrace{D_j}_{\text{margin effect} > 0} + \underbrace{(p_j^s - w_j) \frac{\partial D_j}{\partial p_j}}_{\text{volume-of-sales effect} < 0} = 0. \quad (4)$$

The  $p_j$  equilibrium condition balances two effects: First is the *margin effect*: Given the quantity sold of  $r_j$ , an increase in  $p_j$  increases the margin at which each unit of  $r_j$  is sold. This effect increases profit. Second is the *volume-of-sales effect*: An increase in  $p_j$  decreases the quantity demanded of  $r_j$ . This effect reduces profit. These two effects can be interpreted as the *marginal benefit* and the *marginal cost* of raising  $p_j$ , respectively.

For  $f = f_1, f_2$  and  $j = 1, 2$ , the equilibrium conditions for  $w_j$  are:

$$\frac{\partial \tilde{\Pi}_f}{\partial w_j} = \underbrace{\tilde{D}_j}_{\text{margin effect} > 0} + \underbrace{(w_j^s - c_j) \frac{d\tilde{D}_j}{dw_j}}_{\text{volume-of-sales effect} < 0} = 0. \quad (5)$$

These equilibrium conditions have a similar interpretation as those for  $p_j$ . Denote by  $(\mathbf{w}^s(\mathbf{c}), \mathbf{p}^s(\mathbf{c}))$  the subgame-perfect equilibrium for this case.

## 5.2 Benefits

A merger may generate efficiencies that result in lower marginal costs, and thereby in lower prices and higher social welfare.

### 5.2.1 Two Types of Benefits

A vertical merger combines complementary assets at different levels of production and distribution. This feature may enable two types of efficiencies: technological and strategic. We discuss them in turn.<sup>127</sup>

*Technological efficiencies* refer to technology—or organizational—induced efficiencies. A vertical merger might eliminate contractual frictions, improve communication flows, and align incentives within the merged firm, which facilitate the rationalization of investments, inventory management, and production. Consequently, marginal costs might fall. See, *e.g.*, [Williamson \(1968\)](#) and [Farrell and Shapiro \(2000\)](#).<sup>128</sup>

<sup>126</sup>Hence, if  $\tau = v, r$ , then  $\Omega^{\tau\tau} = \mathbb{I}_2$ , and if  $\tau \neq \tau'$ ;  $\tau, \tau' = v, r$ , then  $\Omega^{\tau\tau'} = \mathbb{O}_2$ .

<sup>127</sup>The MGs discuss procompetitive efficiencies in the rebuttal Subsection 3.3.

<sup>128</sup>A system of quotas, interpreted as a vertical integration, ameliorates transaction costs and could be more efficient than a vertical market in the presence of frictions, as is shown by [Donna and Espín-Sánchez \(2024\)](#).

*Strategic efficiencies* refer to efficiencies that are induced by strategic behavior. Before the merger, the manufacturer and the retailer of the merged firm maximize their profits independently. If there is market power upstream and downstream, both firms charge prices above their marginal costs. After the merger, the merged firm maximizes the joint profit of its manufactured and retail products. Given assumption (A1), it appropriates the increase in retail sales that is caused by a decrease in the manufacture’s price. Thus, the merged firm sets the manufacturer price that is charged to its retail unit at the manufacture’s marginal cost: The merged firm eliminates the manufacture’s margin on these internal “sales.” The decrease in the manufacture’s price (the retail marginal cost) leads the merged firm to reduce the retail price. The elimination of the manufacture margin is usually referred to as the *elimination of double marginalization* (EDM). See, e.g., Cournot (1838) and Spengler (1950).

Both horizontal and vertical mergers may generate technological efficiencies. Only vertical mergers generate strategic efficiencies.

### 5.2.2 Vertical Merger and Efficiency Benefits

Next, we present a version of the model that allows technological and strategic efficiencies but enables no exercise of market power: Assumption (A1) holds; but assumptions (A2) and (A3) do not hold.

Consider the model of Section 4: Let firm  $f_1$  own products  $\{v_1, r_1\}$ ; firm  $f_2$  owns product  $v_2$ ; firm  $f_4$  owns product  $r_2$ ; and firm  $f_3$  be inactive.<sup>129</sup> The merged (integrated) firm— $f_1$ —owns two complements. See Figure 2. Note again that  $v_1$  is sold only to  $r_1$  and  $v_2$  is sold only to  $r_2$ . Denote equilibrium values by superscript “ $e$ ”.

For  $f = f_4$ , the equilibrium condition for  $p_2$  is as in equation (4). For  $f = f_1$ , the equilibrium condition for  $p_1$  is:<sup>130</sup>

$$\frac{\partial \Pi_{f_1}}{\partial p_1} = \underbrace{D_1}_{\text{margin effect} > 0} + \underbrace{(p_1^e - c_1) \frac{\partial D_1}{\partial p_1}}_{\text{volume-of-sales effect} < 0} = 0.$$

For  $f_2$ , the equilibrium condition for  $w_2$  is as in equation (5). For  $f_1$ ,  $w_1^e = c_1 = \theta$ . Denote by  $((c_1, w_2^e(\mathbf{c})), (p_1^e(\mathbf{c}), p_2^e(\mathbf{c})))$  the subgame-perfect equilibrium for this case.

Firm  $f_1$ —a vertically integrated firm—takes the manufacturer’s marginal cost— $c_1$ —as its opportunity cost. It is equivalent to setting the manufacturer’s price at the marginal cost:  $w_1^e = c_1 < w_1^s$ .<sup>131</sup> The decrease in  $w_1$  — the marginal cost of  $r_1$  — due to the EDM causes a decrease in the price of  $r_1$ :  $p_1^e < p_1^s$ . Since retail products are strategic complements, firm  $f_4$  responds by also reducing its retail price, but by less than the merged firm:  $p_1^e < p_2^e < p_2^s$ , where the first inequality follows from equation (2).

In turn, this leads firm  $f_2$  to decrease its manufactured price, but by less than does the

<sup>129</sup>Hence, if  $\tau = \tau'$ ,  $\tau, \tau' = v, r$ , then  $\Omega^{\tau\tau'} = \mathbb{I}_2$ ; and if  $\tau \neq \tau'$ ,  $\tau, \tau' = v, r$ , then  $\Omega^{\tau\tau'} = (1, 1)' \cdot (1, 0)$ .

<sup>130</sup>Now, retail prices are strategic complements if (A4b) and (A4c) hold.

<sup>131</sup>The inequality follows from assumption (A5a).

merged firm:  $\theta = w_1^e < w_2^e < w_2^s$ . Thus, if the firms that own  $v_1$  and  $r_1$  merge, due to the EDM, manufacturer and retail prices decrease:  $\mathbf{w}^e < \mathbf{w}^s$  and  $\mathbf{p}^e < \mathbf{p}^s$ . Social welfare increases.

A vertical merger may also generate technological efficiencies, *i.e.*, reduce the merged firm’s marginal cost by  $\Delta_\theta \in (0, \theta]$ . Then,  $c_1^e = \theta - \Delta_\theta < c_1^s = \theta = c_2^e$ . In this case, the price decreases and the resulting social welfare increase that is due to the merger will be larger than those that are generated by the EDM alone.

### 5.2.3 Challenges to Prove Benefits

Procompetitive efficiencies are credited in the merger review if they are merger-specific, verifiable, benefit consumers, and are not anticompetitive (MGs, Subsection 3.3). The EDM raises two issues with regard to whether it is a cognizable efficiency.<sup>132</sup> First, assumption (A1) may not hold in a specific merger. In such a case, the merger involves no EDM (MGs, footnote 31).

Second, the EDM may be attainable contractually. For example, if the manufacture supplier and the retail client agree on a two-part tariff as a pricing schedule, where the variable price is set at the manufacturer’s marginal cost, the EDM might be attained without the merger. Thus, the EDM might not be merger-specific.

However, even if the parties agree on a two-part tariff as a pricing schedule, it is unlikely that the pricing schedule will yield the efficient outcome that was described above. Information asymmetries and conflicting interests may prevent it.<sup>133</sup> Hence, even in the presence of such contractual arrangements, there might still be room for some EDM.

Whether a merger generates strategic efficiencies should be evaluated on case-by-case basis, grounded on the specificities of the industries, transactions, and agents that are involved—instead of being assumed *a priori*.

## 5.3 Harms

A merger may allow firms to cause price increases (directly or indirectly) that reduce social welfare.

### 5.3.1 Four Types of Harms

A vertical merger combines firms that operate at different production and distribution levels. This circumstance may give a vertically integrated firm the ability and incentive to engage in harmful conduct that is either unavailable or unprofitable for non-integrated firms. This conduct can be grouped into the *exercise market power*: The *induction of one or more rivals’ exit*; the *foreclosure of rivals*; and *raising rivals’ costs*. We will discuss them in turn.

With regard to the exercise of market power, let a firm own a manufacturer and a retailer

<sup>132</sup>For a broader discussion see see Kwoka and Slade (2019).

<sup>133</sup>With regard to how information asymmetry might hinder efficient contracts between manufacturers and retailers, see, *e.g.*, Gal-Or (1991), Corbett, Zhou and Tang (2004), Wang, Lau and Lau (2012), and Tamayo and Tan (2021).

product—obtained possibly through a merger. If assumption (A2) ((A3)) holds, the increase in the firm’s upstream (downstream) price causes downstream (upstream) a diversion of sales from the rivals’ products to the firm’s product. The profit of the firm’s downstream (upstream) product increases. Hence, due to the diversion of retail (manufacture) sales, a manufacturer (retail) price increase—which might be unprofitable for an independent manufacturer (retailer)—may be profitable for a vertically integrated firm.

With regard to the induction of rivals’ exit, the exercise of market power—which is enabled by a vertical merger—aside from directly reducing social welfare, also has an indirect negative effect on social welfare: A price increase diverts sales to substitute products. This *horizontal*-diversion of sales increases the profits of substitute products. Nevertheless, the exercise of market power that is caused by a horizontal merger shifts business *to* the merged firm’s rivals. A price increase upstream (downstream) causes a diversion of sales from its downstream (upstream) complement to its substitute products. This *vertical*-diversion of sales decreases the profit of the downstream (upstream) complement.

Hence, if assumptions (A2) or (A3) hold, the exercise of market power that is caused by a vertical merger shifts business *from* the merged firm’s rivals. This profit decrease may cause rivals to exit. Similarly, the efficiencies that are enabled by vertical mergers, which we discussed in Subsubsection 5.2.2, also divert sales *from* rivals.

With regard to the foreclosure of rivals, if assumption (A2) ((A3)) holds, the refusal by a firm to supply a manufactured (acquire a retail) product to a retailer (manufacturer) rival may foreclose that rival. The exit of the retail (manufacture) rival diverts sales to the firm’s products downstream (upstream), whose profit increases. Hence, due to the vertical-diversion of retailer (manufacturer) sales, foreclosing a retailer (manufacturer), which might be unprofitable for an independent manufacturer (retailer), may be profitable for a vertically integrated firm. See, *e.g.*, Hart and Tirole (1990), Ordober, Saloner and Salop (1990), Riordan and Salop (1995), and Salop (2018).

With regard to the raising rivals’ costs, if assumption (A2) ((A3)) holds, it may be profitable for a vertically integrated firm to change the terms by which it transacts with retailer (manufacturer) rivals: Increase the price, or lower the quality, of the inputs that are supplied to rivals, which thereby raises rivals’ costs (RRC). See, *e.g.*, Salop and Scheffman (1983) and Scheffman and Higgins (2014).

Input foreclosure is the limiting case of the exercise of market power upstream, whereby the merged firm sets a prohibitive manufacturer price.<sup>134</sup> With such a price—a price that no retail rival is willing to pay—the merged firm makes no sales of the manufactured product to the retail rivals. Similarly, customer foreclosure is the limiting case of the exercise of market power downstream, where the merged firm sets a prohibitive retail price for the rival’s manufactured

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<sup>134</sup>*Input foreclosure* refers to the situation where the merged firm refuses to sell a manufactured product to a retail rival. *Consumer foreclosure* refers to the situation where the merged firm refuses to acquire a manufactured product from a manufacturer rival. Formally, a price is prohibitive if it chokes off demand, *e.g.*, an infinite price.

product. With such a price, the merged firm makes no retail sales of the rival’s manufactured product and, therefore, makes no purchases of the associated manufactured product.

In the remainder of this section, we focus on the two first types of harm, the exercise of market power and the induction of rivals’ exit. For the two other types of harm—the foreclosure of rivals and raising rivals’ costs—we refer the reader to the references that were indicated above.

### 5.3.2 Vertical Merger and Market Power Harm

Next, we present a version of the model that allows the exercise of market power but involves no EDM: Assumptions (A2) and (A3) hold; but assumption (A1) does not hold.

Consider the model of Section 4: Let firm  $f_1$  own products  $\{v_1, r_2\}$ ; firm  $f_2$  owns product  $v_2$ ; firm  $f_3$  owns product  $r_1$ ; and firm  $f_4$  is inactive.<sup>135</sup> The merged firm— $f_1$ —owns a manufactured product and a retail product that is a substitute of the complement of its manufactured product. See Figure 3. Denote equilibrium values by superscript “ $m$ ”.

For  $f = f_3$ , the equilibrium condition for  $p_1$  is as in equation (4). For  $f = f_1$ , the equilibrium condition for  $p_2$  is:<sup>136</sup>

$$\frac{\partial \Pi_{f_1}}{\partial p_2} = \underbrace{D_2}_{\text{margin effect} > 0} + \underbrace{(p_2^m - w_2) \frac{\partial D_2}{\partial p_2}}_{\text{volume-of-sales effect} < 0} + \underbrace{(w_1 - c_1) \frac{\partial D_1}{\partial p_2}}_{\text{vertical-diversion effect} > 0} = 0.$$

The equilibrium condition for  $p_2$  includes the margin effect, the volume-of-sales effect, and an additional effect: The *vertical-diversion effect*.<sup>137</sup> An increase in  $p_2$  diverts sales from  $r_2$  to  $r_1$ . It causes larger sales and profits for  $v_1$ . Since firm  $f_1$  owns both  $r_2$  and  $v_1$ , it appropriates this profit increase. Hence, the vertical-diversion effect decreases the marginal cost of increasing  $p_2$ , which puts upward pressure on  $p_2$ .

For  $f = f_2$ , the equilibrium condition for  $w_2$  is as in equation (5). For  $f = f_1$ , the equilibrium condition for  $w_1$  is:

$$\frac{\partial \tilde{\Pi}_{f_1}}{\partial w_1} = \underbrace{\tilde{D}_1}_{\text{margin effect} > 0} + \underbrace{(w_1^m - c_1) \frac{d\tilde{D}_1}{dw_1}}_{\text{volume-of-sales effect} < 0} + \underbrace{\frac{\partial b_2^r}{\partial w_1} \tilde{D}_2}_{\text{pass-through effect} > 0} + \underbrace{(p_2^m - w_2^m) \frac{d\tilde{D}_2}{dw_1}}_{\text{vertical-diversion effect} > 0} = 0.$$

The equilibrium condition for  $w_1$  includes the margin effect, the volume-of-sales effect, and

<sup>135</sup>Hence, if  $\tau = \tau'$ ,  $\tau, \tau' = v, r$ , then  $\Omega^{\tau\tau'} = \mathbb{I}_2$ , furthermore:

$$\Omega^{vr} = \begin{pmatrix} 0 & 1 \\ 0 & 0 \end{pmatrix} \quad \text{and} \quad \Omega^{rv} = \begin{pmatrix} 0 & 0 \\ 0 & 1 \end{pmatrix}.$$

<sup>136</sup>Now, retail prices are strategic complements if (A4b) and (A4c') hold. Condition (A4c') strengthens condition (A4c).

<sup>137</sup>This type of effect occurs in different contexts, upstream and downstream. To avoid terminology proliferation, we will refer to this set of effects as the *vertical-diversion effect*. Similarly, for the *horizontal-diversion effects*, in Appendix B.

two additional effects: The third effect is the the *vertical-diversion effect*.<sup>138</sup> An increase in  $w_1$ —the marginal cost of  $r_1$ —increases  $p_1$ . This diverts sales from  $r_1$  to  $r_2$ , which causes larger sales of and profits for  $r_2$ . Since firm  $f_1$  owns both  $v_1$  and  $r_2$ , it appropriates this profit increase. Hence, the vertical-diversion effect decreases the marginal cost of raising  $w_1$ , which puts upward pressure on  $w_1$ .

The fourth effect is the the *pass-through effect*. Given the quantity sold of  $r_2$ , and that retail prices,  $p_j^*(\cdot)$ , are increasing in  $\mathbf{w}$ ,<sup>139</sup> an increase in  $w_1$  raises  $p_2$ . The margin at which each unit of  $r_2$  is sold, and thereby the profit, increases. Since firm  $f_1$  owns both  $v_1$  and  $r_2$ , the firm appropriates this profit increase. Hence, the pass-through effect increases the marginal benefit of raising  $w_1$ , which puts upward pressure on  $w_1$ .

If  $v_1$  and  $r_2$  are vertically integrated, then—due to the vertical-diversion effect—the price of retail product 2 increases:  $p_2^s < p_2^m$ . Since retail products are strategic complements, firm  $f_3$  responds by also increasing its retail price, but by less than the retail price of the merged firm:  $p_1^s < p_1^m < p_2^m$ , where the second inequality follows from equation (2). In addition, due to the vertical-diversion and the pass-through effects, firm  $f_1$  increases manufacturer’s price 1:  $w_1^s < w_1^m$ .<sup>140</sup> Thus, due to the exercise of market power, if there is a vertical merger, retail prices increase:  $\mathbf{p}^s < \mathbf{p}^m$ . Social welfare decreases.

In this theory, harm occurs if the vertical merger enables the exercise of market power, just as in a horizontal merger. A necessary condition for harm to occur is that the merged firm transacts with downstream (upstream) rivals: Assumption (A2) ((A3)) holds. This perspective unifies the theories of harm for horizontal and non-horizontal mergers, as we discussed in the Introduction.

### 5.3.3 Vertical Merger and Exit Harm

A firm exits if it has negative profits: If its revenues minus variable costs do not cover its fixed costs. Both the exercise of market power and the efficiencies that are enabled by a vertical merger may cause rivals’ exit.

With regard to exit that is caused by efficiencies, as was discussed in Subsection 5.2.2, the EDM causes a decrease in  $w_1$  and a smaller decrease in  $w_2$ , which results in a decrease in  $p_1$  and a smaller decrease in  $p_2$ :  $\theta = w_1^e < w_2^e < w_2^s$  and  $p_1^e < p_2^e < p_2^s$ . These relative retail price variations divert demand from  $r_2$  to  $r_1$ :  $D_2(\mathbf{p}^e) < D_2(\mathbf{p}^s)$  and  $D_1(\mathbf{p}^s) < D_1(\mathbf{p}^e)$ .<sup>141</sup> In addition, the decrease in  $w_2$  reduces the profit margin of  $v_2$ . Hence, the profit of firm  $f_2$  decreases.

Consequently, firm  $f_2$  might no longer be able to cover its fixed costs and might exit the industry:

$$\tilde{\pi}_2^v(\mathbf{w}^e; c_2) - \varphi_{f_2} < 0 \leq \tilde{\pi}_2^v(\mathbf{w}^s; c_2) - \varphi_{f_2}.$$

<sup>138</sup>This vertical-diversion effect flows in the opposite direction of the effect that is caused by an increase in  $p_2$ .

<sup>139</sup>This follows from  $b_j^r(\cdot)$  being increasing in  $p_{j'}$ ,  $j' \neq j$ , and  $\frac{\partial^2 \Pi_{f_1}}{\partial w_1 \partial p_2} > 0$ .

<sup>140</sup>Firm  $f_2$  may respond by increasing or decreasing  $w_2$ .

<sup>141</sup>See [Luco and Marshall \(2020\)](#).

A similar outcome could occur for firm  $f_4$ .

If a vertical merger also generates technological efficiencies, then the decrease of  $w_1$  and  $p_1$ —and thereby of the profits of  $v_2$  and  $r_4$ —is larger. It increases the likelihood that firms  $f_2$  or  $f_4$  may exit after a vertical merger.

With regard to exit that is caused by the exercise of market power, as was discussed in Subsubsection 5.3.2, the exercise of market power causes an increase in  $w_1$ , an increase in  $p_2$ , and a smaller increase in  $p_1$ :  $w_1^s < w_1^m$  and  $p_1^s < p_1^m < p_2^m$ . The increase in retail prices reduces the quantity demanded:  $\max\{D_1(\mathbf{p}^m), D_2(\mathbf{p}^m)\} < D_j(\mathbf{p}^e)$ ,  $j = 1, 2$ . The increase in  $w_1$  reduces the margin of  $r_1$ . Hence, the profit of firm  $f_3$  decreases. Firm  $f_3$  might no longer be able to cover its fixed costs and might exit the industry. A similar outcome could occur for firm  $f_2$ .<sup>142</sup>

Hence, the efficiencies and the market power that are enabled by a vertical merger reduce the profits of the merged firm’s rivals—upstream and downstream—which may cause rivals to exit. If exit occurs, product variety is reduced.<sup>143</sup> The decrease in product variety might have significant social welfare consequences for consumers.<sup>144</sup> Exit that is caused by the exercise of market power reinforces the direct negative impact of price increases on social welfare.

Exit that is caused by efficiencies reduces, and may reverse, the direct positive effect on social welfare of the price decreases.

Indeed, with exit, *ex-post*-merger prices—even with efficiencies—may not be lower than *ex-ante*-merger prices: On the one hand, *ex-post*-merger, the merged firm has lower marginal costs than do the non-merging firms. On the other hand, with exit, the industry is more concentrated.

### 5.3.4 Challenges to Prove Market Power and Rivals’ Exit Harm

Conditions (A2) and (A3) establish the ability of a merged firm to exercise market power upstream and downstream, respectively. However, to prove harm, it is also necessary to establish the likely substantial magnitude of the exercise of market power.

Horizontal merger review provides many tools and extensive experience from which one can draw to perform this evaluation. By using their legal powers to obtain information, and properly adjusted standard methods of analysis, the Agencies can predict both the exercise of market power and exit, and furthermore, evaluate its impact on social welfare.

These methods of analysis cover a wide range of approaches. At one extreme are soft quantitative methods. They involve using qualitative information or simple data. With information about margins, fixed costs, and expected sale losses, it is possible to evaluate the exercise of market power and identify firms that are at risk of exiting. With data on market shares and diversion ratios, it is possible to obtain rough estimates of the associated price and social welfare

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<sup>142</sup>Price  $w_2$ —and thereby the margin of  $v_2$ —may decrease or increase.

<sup>143</sup>When products are differentiated, additional variety increases consumer welfare through better segmentation. In such cases, a reduction in product variety could generate a large decrease in consumer surplus. For a quantification, see, *e.g.*, Donna et al. (2024).

<sup>144</sup>See, *e.g.*, Donna, Pereira and Pu (2024).



variations.

At the other extreme are hard quantitative methods. They involve estimating and simulating economic equilibrium models.<sup>145</sup> These methods enable estimating equilibrium prices, profits, and consumer surplus variations, with and without exit. With this information, it is possible to credibly: Quantify price variations; identify firms that are at risk of exiting; and compute the associated social welfare variations.

These are the tools and standards that are used to establish market power harm in horizontal mergers. Hence, this perspective provides a unified approach to evaluating horizontal and vertical mergers.

### 5.3.5 Challenges to Prove Exclusionary Harm

To determine whether a vertical merger may diminish competition due to foreclosure or raising rivals' costs, it is necessary to establish ability and incentive.

With regard to ability, the issue is whether by refusing to transact with rivals or changing the terms by which it transacts with rivals, the merged firm can cause rivals to lose significant sales, or become less competitive, and eventually to exit the industry. It may depend on whether the rivals have access to equally capable alternative suppliers or clients.<sup>146</sup>

With regard to incentive, the issue is whether refusing to transact with rivals—or changing the terms by which it transacts with rivals—is profitable for the merged firm.

These tasks are non-trivial: Identifying alternative suppliers or clients might seem straightforward. However, it depends on the firm's ability and efforts, which are unobservable to outsiders. In turn, evaluating profitability requires enough information to conduct counterfactual exercises. While our theories of harm do not preclude foreclosure or raising rivals' costs effects, they make establishing harm easier. Our analysis above applies also, with the due changes, to mergers of firms that offer complementary products.

Finally, for mergers that involve benefits and harms, computational methods can be useful for a quantification and risk assessment.

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<sup>145</sup>The industrial organization literature has made substantial progress in the past decades with regard to the development of these methods to quantify, *ex ante*, the likely effect of a merger on prices and social welfare. See, *e.g.*, Nevo (2000), Villas-Boas (2007), Bonnet and Dubois (2010), Crawford et al. (2018), Pereira and Ribeiro (2018), Donna et al. (2022), and Donna et al. (2024).

<sup>146</sup>See the discussion of Guideline 5 in Section 2 above.

## 6 Concluding Remarks

The 2023 Merger Guidelines (MGs) started a much-needed debate about competition and antitrust enforcement policy in the modern economy.<sup>147</sup>

Even scholars who disagree about the direction of antitrust enforcement policy might value the outcome of such discussions. Two objectives that were put forward by the drafting team of the MGs are, first, to modernize the Guidelines for current markets and the digital economy, and, second, to address the difficulties that the Agencies faced when challenging mergers in modern markets.

Market definition is a key element that has posed problems for the Agencies in the past decades. The MGs address this difficulty with Guideline 2.<sup>148</sup> Guideline 2 can be used in cases where a precise market definition may be too difficult or where performing a “Hypothetical Monopolist/Monopsonist Test” may not be feasible.<sup>149</sup>

The Agencies might nevertheless challenge such mergers based only on Guideline 2 (or combining Guideline 2 with other Guidelines as was discussed in Section 2 above). The Agencies will still have to define the (antitrust) market, perhaps broadly, to comply with the law requirement. However, the challenge’s focus will not be based on market definition.<sup>150</sup>

The approach is novel and the application is relevant for non-horizontal mergers and vertical markets because the Clayton Act prohibits mergers that may substantially lessen competition or tend to create a monopoly “in any line of commerce and in any section of the country.” If the Agencies prove that harm may be substantial in one market, then the merger is illegal.<sup>151</sup>

We discussed the MGs four-pronged contribution to antitrust enforcement policy in non-horizontal markets. The MGs remove the horizontal and non-horizontal merger labels. They simplify the narrative with respect to non-horizontal mergers. They expand the breadth and depth of the harm theories in non-horizontal markets. Notably, the MGs expand the reach through which rivals’ exit may harm competition in non-horizontal mergers. Finally, they combine economics and law analyses. We provided an introduction to the economics literature that underlies the MGs and showed that the two are consistent.

Overall, the MGs signal an inflection point in the Agencies’ antitrust law enforcement. The review and modernization of the merger guidelines equip the Agencies to apply the recent developments in economic analysis to current industries and the digital economy.

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<sup>147</sup>There were about 1,600 public comments with regard to the Draft Merger Guidelines that were released on July 19, 2023, according to (accessed January 11, 2024): <https://www.regulations.gov/docket/FTC-2023-0043/comments>). They include comments from ordinary people, business owners, policymakers, and academics. DOJ and FTC staff participated in a number of panels and conference discussions.

<sup>148</sup>“Guideline 2: Mergers Can Violate the Law When They Eliminate Substantial Competition Between Firms.” (MGs, p. 2.)

<sup>149</sup>These could occur due to a variety of reasons. See [Kaplow \(2010\)](#), [Werden \(2012\)](#), and [Kaplow \(2013\)](#) for discussions.

<sup>150</sup>Note that one can still estimate demand, perform a merger simulation, and provide a risk assessment of the merger, even without a precise definition of the relevant antitrust market.

<sup>151</sup>The recent labor market case—where the Court blocked Penguin Random House’s proposed acquisition of Simon & Schuster—provides an example.

It is an open question as to the extent to which the plaintiffs will use these new arguments and whether courts will be convinced. Recent challenges already reflect the Agencies' new approach.

In the forthcoming years, we expect to see more challenges along these lines, a deterrence effect that is signaled by stronger enforcement, and an expansion of the theories of harm in non-horizontal markets.

We have proposed one path forward in this direction, which is consistent with the MGs' economic analysis and current statutory and case law:<sup>152</sup> We discussed the details of the MGs' structural presumptions that involve rivals' exit concerns due to the exercise of market power in non-horizontal mergers. We proposed a structural presumption that recognizes that, in some cases, a vertical merger may reduce competition *even absent any specific anticompetitive intent*.

There has been a heated discussion about the direction of antitrust enforcement policy during the past years. The MGs indicate that merger policy enforcement belongs to the policy domain. They also show that it is paramount to continue using the latest advances from the economics literature to enhance antitrust enforcement policy.

The putative poor merger policy enforcement from the past decades is not the consequence of the shortcomings of economic analysis. It is the consequence of the policy choices by the enforcers.

Denying that mergers have efficiencies, elimination of the double marginalization, or distributional effects that may benefit some parties and harm others would be a baseless negation. Our reading is that the MGs acknowledge these trade-offs. The weights, however, have shifted.

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<sup>152</sup>15 U.S.C. §18, *Brown Shoe Co. v. U.S.*, 370 U.S. 294 (1962), and *FTC v. Procter & Gamble Co.*, 386 U.S. 568 (1967).

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Figure 1: Separated Firms.

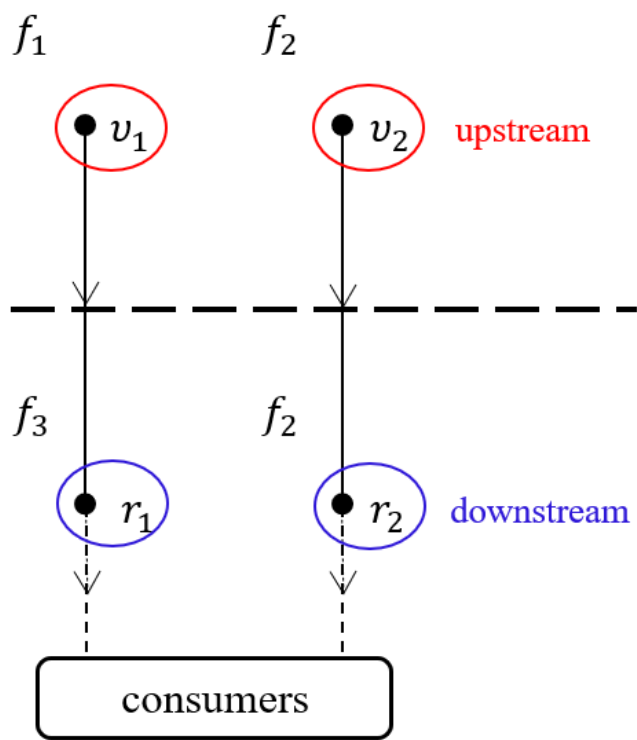


Figure 2: Vertical Merger and Elimination of Double Marginalization.

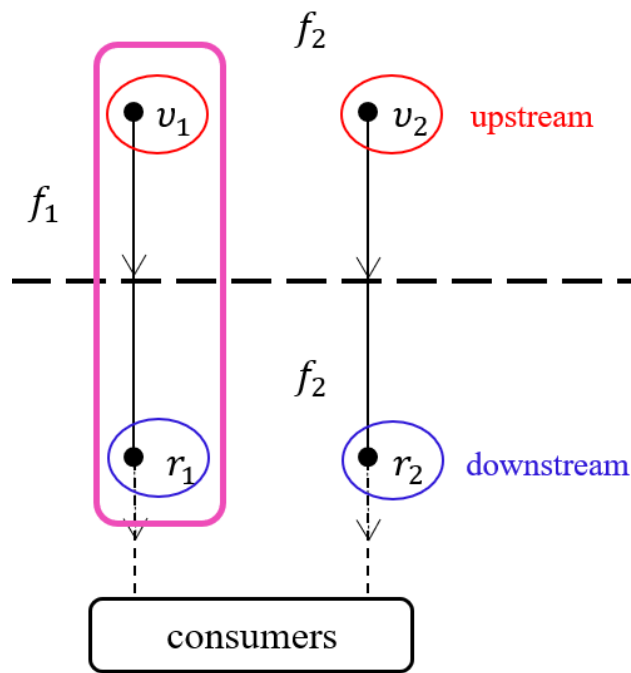
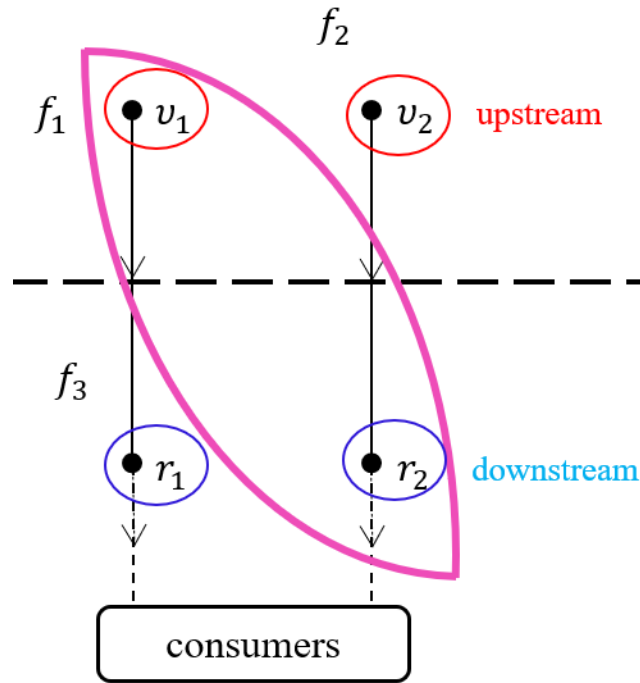


Figure 3: Vertical Merger and Market Power.



# Appendix

## A Exit Concerns in the 2023 Merger Guidelines

The 2023 Merger Guidelines incorporate several anticompetitive presumptions and concerns with regard to mergers that may cause rivals to exit. Below is a summary:

**Guideline 1 (page 5).** “In highly concentrated markets, *a merger that eliminates a significant competitor* creates significant risk that the merger may substantially lessen competition or tend to create a monopoly.” (Emphasis added.)

**Guideline 1 (page 6, footnote 11).** “Similar concerns arise if the merger threatens to *cause the exit of a current market participant*, such as a leveraged buyout that puts the target firm at significant risk of failure.” (Emphasis added.)

**Guideline 2 (page 7).** “Prior Merger, Entry, and *Exit Events*. The Agencies may look to historical events to assess the presence and substantiality of direct competition between the merging firms. For example, the Agencies may examine the competitive impact of recent relevant mergers, entry, expansion, or *exit events*.” (Emphasis added.)

**Guideline 3 (page 9).** “*Elimination of a Maverick*. [...] *A merger that eliminates a maverick* or significantly changes its incentives increases the susceptibility to coordination.” (Emphasis added.)

**Guideline 3 (pages 9-10).** “Aligned Incentives. *Removing a firm* that has different incentives from most other firms in a market can increase the risk of coordination. For example, a firm with a small market share may have less incentive to coordinate because it has more to gain from winning new business than other firms.” (Emphasis added.)

**Guideline 4 (page 12).** “Likely Influence on Existing Rivals. Direct evidence that the firm’s presence or behavior has affected or is *affecting current market participants’ strategic decisions* is not necessary but can establish a showing of a likely influence. Even without such direct evidence, circumstantial evidence that the firm’s presence or behavior *had an effect on the competitive reactions of firms in the market* may also show likely influence.” (Emphasis added.) Whereas the excerpt does not focus on exit events, it encompasses them. For example, see the argument in *FTC v. Procter & Gamble*, 386 U.S. 568, 581 (1967): “Third, the number of potential entrants was not so large *that the elimination of one would be insignificant*.” (Emphasis added.)



**Guideline 5 (page 14).** “Rivals or potential rivals may be excluded from the relevant market if limiting their access to the related product *could lead them to exit the market.*” (Emphasis added.)

**Guideline 6 (page 20).** “*Eliminating a Nascent Competitive Threat.* A merger may involve a dominant firm acquiring a nascent competitive threat—namely, a firm that could grow into a significant rival, facilitate other rivals’ growth, or otherwise lead to a reduction in its power.” (Emphasis added.)

**Guideline 9 (pages 25-26, footnote 48).** “However, few participants will leave if, for example, the switching costs are relatively high or if the advantaged product is a small component of the overall set of services those participants access on the platform. Moreover, in the long run few participants will leave if scale economies, network effects, or entry barriers enable the advantaged product to eventually gain market power of its own, *with rivals of the advantaged product exiting* or becoming less attractive. After these dynamics play out, the platform operator could advantage its own products without losing as many participants, as there would be fewer alternative products available through other channels.” (Emphasis added.)

**Rebuttal evidence (page 31).** “The Agencies evaluate *evidence of a failing firm* consistent with this prevailing law.” (Emphasis added.) Footnote 64: “The Agencies do not normally credit claims that the assets of a division would *exit the relevant market* in the near future unless: (1) applying cost allocation rules that reflect true economic costs, the division has a persistently negative cash flow on an operating basis, and such negative cash flow is not economically justified for the firm by benefits such as added sales in complementary markets or enhanced customer goodwill; and (2) the owner of the failing division has made unsuccessful good-faith efforts to elicit reasonable alternative offers that would keep its assets in the relevant market and pose a less severe danger to competition than does the proposed acquisition. Because firms can allocate costs, revenues, and intra-company transactions among their subsidiaries and divisions, the Agencies require evidence that is not solely based on management plans that could have been prepared for the purpose of demonstrating negative cash flow or the prospect of *exit from the relevant market.*” (Emphasis added.)

**Rebuttal evidence (page 31).** “Entry and repositioning. [...] Moreover, the entry must be durable: an entrant that does not plan to sustain its investment or *that may exit the market* would not ensure long-term preservation of competition.” (Emphasis added.)

**Analytical, Economic, and Evidentiary Tools (Subsection 4.1, page 34).** “Evidence that the merging parties intend or expect the merger to lessen competition, such as plans to coordinate with other firms, raise prices, reduce output or capacity, reduce product quality or variety, lower wages, cut benefits, *exit a market*, cancel plans to enter a market without a

merger, withdraw products or delay their introduction, or curtail research and development efforts after the merger, can be highly informative in evaluating the effects of a merger on competition. The Agencies give little weight, however, to the lack of such evidence or the expressed contrary intent of the merging parties.” (Emphasis added.)

**Analytical, Economic, and Evidentiary Tools (Subsection 4.2, page 36).** “Prior Merger, Entry, and *Exit Events*. The Agencies may look to historical events to assess the presence and substantiality of direct competition between the merging firms. For example, the Agencies may examine the impact of recent relevant mergers, entry, expansion, or exit events on the merging parties or their competitive behavior.” (Emphasis added.)

**Analytical, Economic, and Evidentiary Tools (Subsection 4.3, page 42).** “Benchmark for the SSNIPT. The HMT asks whether the hypothetical monopolist likely would worsen terms relative to those that likely would prevail absent the proposed merger. In some cases, the Agencies will use as a benchmark different outcomes than those prevailing prior to the merger. For example, if outcomes are likely to change absent the merger, *e.g.*, because of innovation, entry, *exit*, or exogenous trends, the Agencies may use anticipated future outcomes as the benchmark. Or, if suppliers in the market are coordinating prior to the merger, the Agencies may use a benchmark that reflects conditions that would arise if coordination were to break down. When evaluating whether a merging firm is dominant (Guideline 6), the Agencies may use terms that likely would prevail in a more competitive market as a benchmark.” (Emphasis added.)

## B Horizontal Concentration and Market Power

Here we present a version of the model that is useful for understanding the relationship between a horizontal merger and market power.

Consider the model of Section 4: Let firms  $f_1$  and  $f_2$  own  $v_1$  and  $v_2$ , respectively; firm  $f_3$  owns  $\{r_1, r_2\}$ ; and firm  $f_4$  is inactive.<sup>153</sup> The merged firm— $f_3$ —owns two substitute retail products. Denote equilibrium values by superscript “h”. For  $f = f_3$  and  $j = 1, 2$ , the equilibrium conditions for  $p_j$  is:

$$\frac{\partial \Pi_{f_1}}{\partial p_j} = \underbrace{D_j}_{\text{margin effect} > 0} + \underbrace{(p_j^h - w_j) \frac{\partial D_j}{\partial p_j}}_{\text{volume-of-sales effect} < 0} + \underbrace{(p_{j'}^h - w_{j'}) \frac{\partial D_{j'}}{\partial p_j}}_{\text{horizontal-diversion effect} > 0} = 0.$$

The equilibrium condition for  $p_j$ ,  $j = 1, 2$ , includes the margin effect, the volume-of-sales effect, and an additional effect: the *horizontal-diversion effect*. An increase in  $p_j$  diverts some sales from  $r_j$  to  $r_{j'}$ , and thereby increases the latter firm’s profit. Since the firm  $f_3$  owns both products, this profit increase is appropriated by the firm. The horizontal-diversion effect decreases the marginal cost of raising  $p_j$ , which puts upward pressure on retail prices.

For  $f = f_1, f_2$  and  $j = 1, 2$ , the equilibrium conditions for  $w_j$  are as in equation (5). As a consequence, retail prices increase:  $\mathbf{p}^e < \mathbf{p}^h$ . Social welfare decreases. A similar process occurs if the same firm owns  $\{v_1, v_2\}$ —the complements of the two substitute retail products.

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<sup>153</sup>Hence,  $\Omega^{vv} = \mathbb{I}_2$ ,  $\Omega^{rr} = \mathbb{U}_2$ , and  $\Omega^{\tau\tau'} = \mathbb{O}_2$  if  $\tau \neq \tau'$ ;  $\tau, \tau' = v, r$ .