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**Testing Vertical Mergers for Input Foreclosure - Note by Carl Shapiro**

**Roundtable on Vertical mergers in the technology, media and telecom sector**

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<http://www.oecd.org/daf/competition/vertical-mergers-in-the-technology-media-and-telecomsector.htm>

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## *Testing Vertical Mergers for Input Foreclosure\**

Professor Carl Shapiro

1. Investigating mergers is like auditing tax returns. We expect (hope?) that most taxpayers honestly pay their taxes, but some do not. Detecting deficient tax returns is important, to fairly collect the taxes that are owed and to deter tax evasion. Likewise, most mergers do not pose a threat to competition, but some would cause substantial harm to competition if allowed to proceed.<sup>1</sup> Identifying those mergers is important, both to protect the competition process and to deter anti-competitive mergers. This is true of vertical mergers, even though as a category they threaten competition less than do horizontal mergers.
2. This submission explains a practical procedure for analyzing vertical mergers to identify those that are most likely to lessen competition and harm customers based on “input foreclosure.” The input foreclosure theory of harm is identified and described in the Background Note by the Secretariat, “Vertical Mergers in the Technology, Media, and Telecom Sector.”<sup>2</sup> The distinct “customer foreclosure” theory of harm is economically analogous and can be developed and applied in suitable cases a parallel fashion to the one outlined here. This submission does not address theories of horizontal collusion or loss of potential competition that can arise in vertical mergers.<sup>3</sup>
3. The analysis here should prove useful even for a competition authority that considers almost all vertical mergers to be pro-competitive, because it is applicable to whichever vertical mergers the competition authority believes raise sufficient concerns about input foreclosure to warrant some investigation. The analysis is deliberately

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\* Prepared for the OECD Competition Committee session “Vertical Mergers in the Technology, Media, and Telecom Sectors, 7 June 2019. This is a preliminary draft subject to revision. Please send comments to [cshapiro@berkeley.edu](mailto:cshapiro@berkeley.edu). Carl Shapiro is a Professor at the University of California at Berkeley. He served as the chief economist at the Antitrust Division of the U.S. Department of Justice during 1995-1996 and 2011-2013, and as a Member of the President’s Council of Economic Advisers during 2011-2012. He also has served as an economic consultant for the government and for private parties on a variety of antitrust matters over the years. His papers and his curriculum vitae are available at his web site, <http://faculty.haas.berkeley.edu/shapiro>.

1 According to the Fiscal Year 2017 FTC/DOJ Hart-Scott-Rodino Annual Report, 2052 transactions were reported that year, of which 51 (2.6%) received a Second Request for additional information and 39 (1.9%) involved an enforcement action.

2 See [https://one.oecd.org/document/DAF/COMP\(2019\)5/en/pdf](https://one.oecd.org/document/DAF/COMP(2019)5/en/pdf), especially in Section 4.1 “Foreclosure (unilateral effects).”

3 If the merging firms may become direct rivals in the foreseeable future, their merger is (also) a horizontal merger involving the loss of potential competition. For a recent discussion of how to handle mergers that may eliminate a potential competitor to a dominant firm, see Carl Shapiro, “Protecting Competition in the American Economy: Merger Control, Tech Titans, Labor Markets,” at <http://faculty.haas.berkeley.edu/shapiro/protectingcompetition.pdf>. For an analysis of potential competition cases focused on innovation, see Giulio Federico, Fiona Scott Morton, and Carl Shapiro, “Antitrust and Innovation: Welcoming and Protecting Disruption,” available at <http://faculty.haas.berkeley.edu/shapiro/disruption.pdf>.

structured to provide “off-ramps,” so a vertical merger investigation can quickly be closed if the evidence indicates that harm to competition is unlikely.

4. I use the recent merger between AT&T and Time Warner to illustrate how one can perform this type of analysis.<sup>4</sup> I testified on behalf of the Department of Justice in that merger.<sup>5</sup> AT&T, primarily through its DirecTV service, was a major distributor of video content to households. Time Warner owned a valuable collection of video content, the “Turner Content.” AT&T distributed the Turner Content to Pay TV Households, as did AT&T’s major competitors, which are referred to as “multichannel video program distributors” or MVPDs. The leading MVPDs were the cable companies Comcast and Charter and the Dish direct broadcast satellite service. The input foreclosure theory of harm involved the merged entity weakening its downstream MVPD rivals by raising the price of Turner Content.<sup>6</sup>

5. Vertical mergers differ fundamentally from horizontal mergers in that they do involve a loss of direct competition between the merging the parties. In the United States, as a practical matter, it is much harder for the DOJ and the FTC to challenge a vertical merger in court than a horizontal one, because there is no simple route by which they can establish a presumption that a vertical merger is likely to harm competition. In horizontal mergers, the structural presumption plays that role.

6. Vertical mergers are inherently more complex to analyze than horizontal mergers because one must consider two levels of competition. The step-by-step analysis described below is based on well-established economic principles, and the elements of this analysis have been used in previous cases. I believe the framework offered here is as simple as possible while providing reliable and useful results. Nonetheless, the judge in the AT&T/Time Warner case mocked the analysis as overly complex

## 1. Elements of the Analysis of Input Foreclosure

7. The analysis in this submission seeks to determine whether a proposed vertical merger is likely to lessen downstream competition due to input foreclosure and thus harm final consumers. The mechanism of harm to competition is that the merged entity would use its control over the acquired upstream input to weaken its downstream rivals, either by denying them access to that input – “total foreclosure” – or by raising the price charged for

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4 The AT&T/Time Warner merger is very briefly described in the Background Note (p.17).

5 My detailed expert report is available at <https://www.justice.gov/atr/case-document/file/1081336/download>. My rebuttal expert report is available at <https://www.justice.gov/atr/case-document/file/1081321/download>. The District Court sharply criticized my analysis; *United States v AT&T*, Case 1:17-cv-02511 (DDC, 2017). On appeal, the District Court decision was found not to be clearly erroneous; *United States v. AT&T*, Case 18-5214, (DC Circuit, 2019). My intention here is not to re-litigate that case, but rather to use it to illustrate how the input foreclosure theory of harm can be developed in practice. Rather obviously, the AT&T/Time Warner case also illustrates some of the difficulties and risks facing a competition authority seeking to challenge a vertical merger.

6 In the language of the Background Note (¶41), the case involved partial foreclosure. Economic analysis indicated that it would not be profitable for the merged entity to engage in total foreclosure by refusing to license the Turner Content to rivals.

that input – “partial foreclosure.” For simplicity, I will refer to both of these effects in terms of “raising rivals’ costs” (RRC).

8. Figure 1. displays the elements of the analysis of vertical mergers in which the competition concern involves the input foreclosure theory of harm. (All figures are at the end of the submission.). The term “EDM” refers to “elimination of double marginalization,” a common efficiency from vertical mergers.

9. Figure 2. shows these elements as they presented themselves in the AT&T/Time Warner merger.

## 2. Step-by-Step Analysis: Ability and Incentive

10. The rest of this submission describes a step-by-step analysis to identify and analyze the input foreclosure theory as applied to a proposed vertical merger. The step-by-step analysis outlined here fits comfortably within the three-step *ability-incentive-effect framework* described in Section 3 of the Background Note.

11. Figure 3. provides a flow chart for the “ability “and “incentive” parts of the analysis.

12. The first step is to ask whether the upstream input involved in the merger is competitively significant to the downstream rivals that have been using that input.<sup>7</sup> An input is competitively significant to a downstream rival if that firm’s ability to compete would be substantially impaired if were to lose access to the input. In this step, one should consider these rivals’ best response to that lack of access, which could involve using a substitute input or modifying their products or services. These responses will generally leave the rivals with higher costs and/or lower quality products or services.

13. In the AT&T/Time Warner case, there was extensive evidence about the importance of the Turner Content for MVPDs. For starters, every major MVPD distributed Turner Content to almost all of its subscribers, and Turner had been able to significantly raise the price it charged for its content over time, notwithstanding the movement of some customers away from Pay TV packages and toward streaming. Turner Content was generally seen as one of the most important packages of content for MVPDs to carry. There was some hotly disputed evidence specifically about the impact on an MVPD of losing access to the Turner Content. However, there was no such evidence from an actual, long-term blackout of Turner Content on an MVPD. In the end, the District Court was not convinced by the estimates I used about the share of subscribers an MVPD would lose due to the absence of the Turner Content.

14. The next step is to ask whether the merged entity’s downstream operations would gain a substantial volume of business if one or more downstream rivals lost customers because they were denied access to the input in question or raised their price due to higher

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<sup>7</sup> The Background Note describes a similar concept at ¶25, asking if the merging parties control as asset that is important to rivals and unique, meaning it is difficult to replace with alternatives.

input costs.<sup>8</sup> The key metric in this step is the diversion ratio from these downstream rivals to the merged entity.<sup>9</sup>

15. In the AT&T/Time Warner case, I used local market shares to estimate the diversion from an MVPD losing access to the Turner Content toward DirecTV. I also accounted for the fact that some of these lost subscribers would not sign up with any MVPD. In the end, the District Court was not convinced by the estimates I used about the diversion ratio from rival MVPDs to DirecTV.

16. The third step is to ask whether the business diverted from the downstream rivals to the downstream operations of the merged firm generates significant profit margins for the merged entity. The key metric in this step is the pre-merger price/cost margin at the downstream merging firm.

17. In the AT&T/Time Warner case, the downstream Pay TV packages sold by DirecTV to consumers were generally large bundles that had substantial margins. The DOJ had difficulty obtaining accurate and timely margin information from AT&T. I used the best data available to me, which was a moving target during the litigation. In the end, the District Court was not convinced by the margin estimates I used.

18. If quantitative analysis is possible, the calculations performed will vary from case to case, depending on whether total foreclosure or partial foreclosure is being considered. But these are relatively minor details. From an economic perspective total foreclosure is just a special (and extreme) case of partial foreclosure. The quantification also will vary depending on whether (a) the upstream suppliers set the input prices and downstream firms respond, or (b) the input prices are negotiated. But again these are relatively minor details, variations to fit and reflect the institutional facts of the case.

19. The core, robust economic principle is that a vertical merger raises the economic cost to the merged firm of selling the input to its rivals, because access to the input, or lower prices for that input, make them stronger competitors. This core idea is intuitive to business executives. As customers, business executives often are wary and feel vulnerable when they must buy an important input from a rival. Likewise, as integrated suppliers, business executives commonly are tempted to use a key input strategically to advantage their downstream operations. In many cases, business documents will reflect these basic economic and strategic ideas. The analysis above seeks to assess, on a case-by-case basis, whether these anti-competitive incentives, which are inherent to vertical mergers, are substantial. This is not unlike using the upward pricing pressure (UPP) metric to assess, on a case-by-case basis, whether the inherent anti-competitive incentives in a horizontal merger are substantial.

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<sup>8</sup> The rival downstream firms also can experience cost increases because alternative upstream input suppliers raise their prices in response to the input foreclosure by the merged firm.

<sup>9</sup> The Background Note describes a similar concept at ¶29, with reference to the diversion ratio from the rival to the merged firm and to the price/cost margin at price/cost margin of the merged firm. Vertical merger analysis is similar to horizontal merger analysis in that both involve the multiplicative product of a diversion ratio and a price/cost margin.

### 3. Step-by-Step Analysis: Efficiencies and Effects

20. In cases where a proposed vertical merger would create significant incentives for input foreclosure, the analysis then proceeds to consider efficiencies that might offset these incentives. Figure 4. provides a flow chart for this “effects” part of the analysis. If some efficiencies are cognizable, meaning that they are merger-specific and verified, then some balancing is needed to determine the merger’s effects.

21. The analysis of efficiencies begins by considering the elimination of double marginalization (“EDM”). EDM is a well-known economic aspect of vertical mergers. One good way to think about EDM is to recognize that, after the merger, starting from pre-merger prices, the downstream division of the merged entity will have some incentive to lower price, if that lower price will attract more customers and if those extra customers generate extra profits at the upstream division of the merged firm.

22. EDM is treated differently from other claimed merger synergies because a vertical merger inherently gives the merged firm an incentive to set the downstream price based on the merged firm’s combined upstream and downstream profits. Put differently, EDM follows logically from the normal working assumption of antitrust economists that for-profit firms are run to maximize their overall profits. This is directly analogous to our normal working assumption that a horizontal merger eliminates competition between the merging parties and typically creates some upward pricing pressure. In econ-speak, the difference is that a horizontal merger internalizes a *negative* pecuniary externality from lower prices while a vertical merger internalizes a *positive* pecuniary externality from lower prices.

23. However, it is important to recognize that, while we must assume that a vertical merger will lead to the elimination of double marginalization, this does not imply that EDM is *merger-specific*. That is a factual question that must be assessed on a case-by-case basis. For example, if other firms in the industry have managed to eliminate double marginalization through contract, perhaps by using two-part tariffs or other non-linear pricing schemes, the merging firms might well be able to do likewise. In that case, EDM is not merger specific and should not be credited as an efficiency in the merger analysis. In the AT&T/Time Warner case, my analysis credited EDM as merger-specific.

24. In cases where EDM is determined to be merger-specific, one may be able to estimate the magnitude of EDM. EDM can be measured as the gap between the pre-merger price that the downstream merging firm is paying for the input and the economic marginal cost to the upstream firm of providing that input to the downstream firm. Critically, this economic marginal cost includes opportunity cost. The key question is how the upstream division is affected when the downstream division lowers its price to attract more customers. To see how this works, consider the polar case in which all of these extra customers were previously purchasing from downstream rivals who were using the upstream division’s input. In that case, the upstream division gains no new sales when the downstream firm lowers its price, so the magnitude of the EDM effect is zero. More generally, if the upstream division’s price/cost margin is  $M$  and if a fraction  $X$  of customers attracted by the downstream firm were not already using the upstream input, then the EDM is not  $M$  but only  $M$  times  $X$ . In the AT&T/Time Warner case, I calculated EDM as \$1.20 per subscriber per month. Purely for illustrative purposes, this figure would result if the price/cost margin on the Turner Content was \$6 and if 20% of the new subscribers attracted to DirecTV by a price decrease would be new Turner customers. It would be a major error

to use the Turner price/cost margin of \$6 as the magnitude of EDM; that would overstate EDM by a factor of five.

25. If the RRC effect and the EDM effects can be quantified, they can be compared. This amounts to asking whether the merger will raise or lower the costs of the input for the downstream firms collectively. The merging downstream firm enjoys an input cost reduction, due to EDM, but the rivals downstream firms suffer from higher input costs. In the AT&T/Time Warner merger I determined that RRC was greater than EDM.<sup>10</sup> This conclusion was hotly disputed, and the District Court judge did not find my analysis reliable enough to conclude that the merger would lead to higher costs and thus harm competition and consumers. Since the burden of proof was on the DOJ, this proved fatal to the DOJ's case.

26. If RRC is greater than EDM, the proposed merger could still promote competition and benefit customers if the merger would lead to significant cognizable synergies. As with horizontal mergers, some healthy skepticism about claimed efficiencies is warranted, and the burden rests on the merging parties to establish that they are merger specific and verified and ultimately will lead to consumer benefits.

#### 4. Conclusions and Lessons

27. This submission has sketched out a practical, step-by-step analysis for evaluating vertical mergers to see whether they pose a threat to competition based on input foreclosure. This approach could form an important part of updated Vertical Merger Guidelines, which are badly needed in the United States.

28. The core economic idea behind this approach is intuitive: when one firm acquires an important input, that firm will have an incentive to use that input to favor itself over its rivals. Business executives understand this point well. Offsetting this, the merger may allow for greater vertical coordination. The framework here provides a structural method of assessing those two basic effects.

29. Nothing in this analysis hinges on market definition, market shares, or measures of market concentration. In this respect, the analysis of vertical mergers is entirely unlike the analysis of horizontal mergers, where these elements, and the structural presumption, can be critical.<sup>11</sup>

30. For vertical mergers that generate significant merger-specific efficiencies, the best outcome for competition and for consumers may be for the merger to proceed with suitable remedies, which may include behavioral remedies. The efficacy of structural and behavioral remedies should be assessed on a case-by-case basis. Ruling out behavioral

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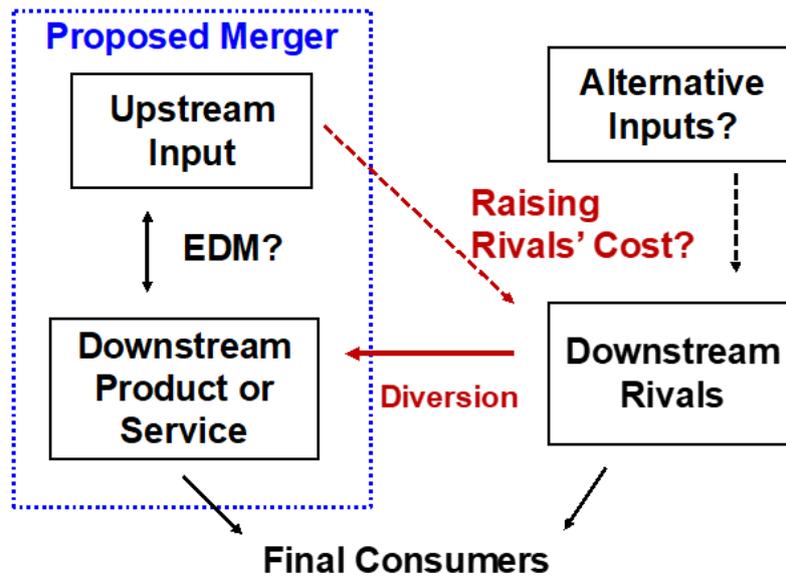
10 I also developed a downstream merger simulation model to estimate how these cost changes for the Turner Content would be passed through to final consumers. I used that model to predict consumer harm. That model also was disputed.

11 In fact, in the AT&T/Time Warner merger, I did not find greater harms in geographic markets where DirecTV had a larger share of the MVPD market. To see why, consider the polar case in which the downstream firm has 100% of the downstream market. In that case, if EDM is merger specific, the merger will generate benefits for consumers and will not raise rivals' costs, because there are no rivals. Of course, such a merger may still harm competition by raising downstream entry barriers.

remedies in vertical mergers *a priori* is unwarranted. Adopting such a rigid approach may force a competition authority to accept one of two inferior outcomes: allowing the merger to proceed without any remedy or trying to block the merger in its entirety.<sup>12</sup>

Figure 1.

### Input Foreclosure: Elements of the Analysis



<sup>12</sup> For example, in the NBC/Universal merger, the DOJ and the FCC allowed the merger to proceed subject to behavioral remedies. I was the chief economist at the DOJ when that merger was reviewed. In the AT&T/Time Warner case, AT&T argued that the remedy in the NBC/Universal merger had been effective. The DOJ was unable to rebut that argument.

Figure 2.

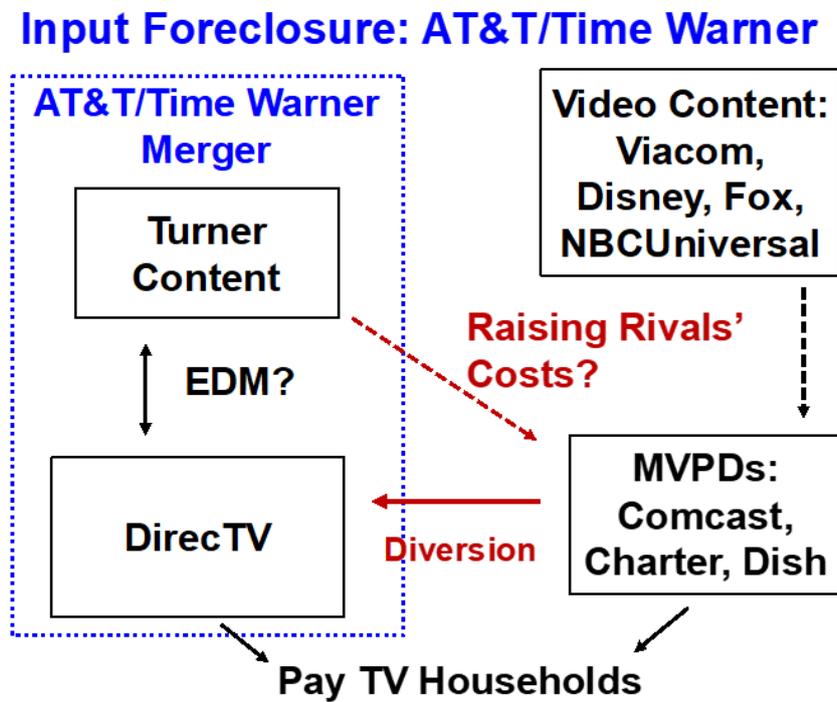


Figure 3.

### Unilateral Ability and Incentive Analysis

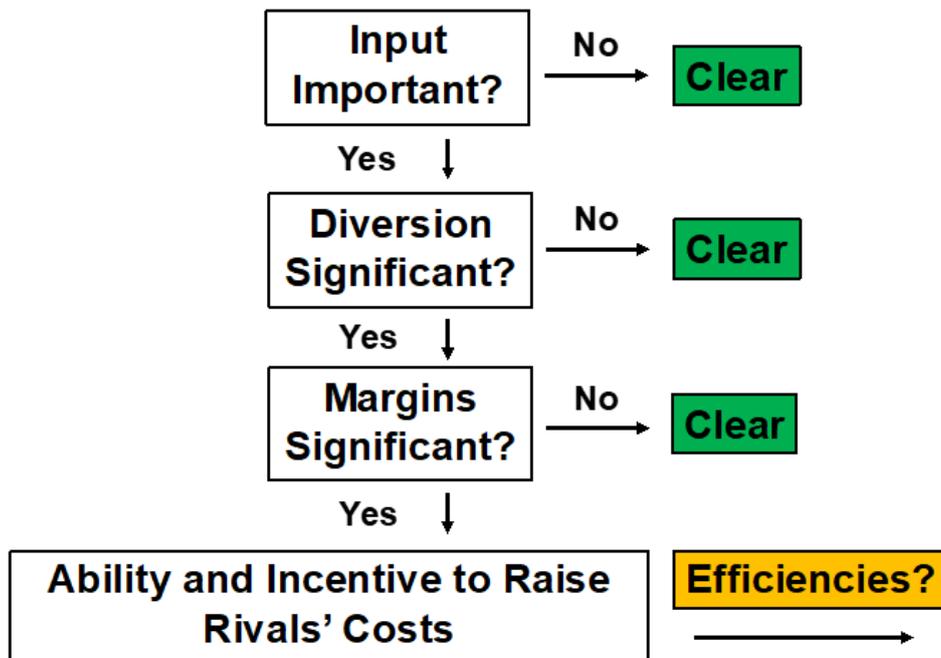


Figure 4.

### Balancing Harms and Benefits

