



# Vertical Mergers and Input Foreclosure Lessons from the *AT&T/Time Warner* Case

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## Abstract

This article offers a practical guide to analyzing vertical mergers using the general approach to input foreclosure and raising rivals' costs that is described in the 2020 Vertical Merger Guidelines that were issued by the U.S. Department of Justice and the Federal Trade Commission. The step-by-step analysis described here draws lessons from how that theory of harm played out in the lone vertical merger case that has been litigated by the antitrust agencies in recent decades: the 2018 challenge by the Department of Justice to the merger between AT&T and Time Warner. I testified in court as the DOJ's economic expert in that case. I explain here how to quantify the increase in rivals' costs and the elimination of double marginalization that are caused by a vertical merger and how to evaluate their net effect on downstream customers. I also explain how this economic analysis fits into the three-step burden-shifting approach that the courts apply to mergers under Section 7 of the Clayton Act. Based on my experience in the *AT&T/Time Warner* case, I identify a number of shortcomings of the 2020 Vertical Merger Guidelines.

**Keywords** Antitrust · Mergers · Vertical mergers · Input foreclosure

## 1 Introduction

The 2020 Vertical Merger Guidelines (“2020 Guidelines” or VMGs) are a major improvement over the 1984 Non-Horizontal Merger Guidelines that they replaced, which had become a “dead letter.” The topic that forms the centerpiece of the 2020 Guidelines—“Foreclosure and Raising Rivals’ Costs” (Section 4a), which is the most common theory of harm that has been explored by the U.S. Department of

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This article may be found at <http://www.faculty.haas.berkeley.edu/shapiro/verticalmergers.pdf>.

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Justice (DOJ) and the Federal Trade Commission (FTC) in recent years in vertical merger cases—was entirely absent from the 1984 Guidelines. A large majority of the enforcement actions that are highlighted in the FTC’s Commentary on Vertical Merger Enforcement involve foreclosure and raising rivals’ costs. See Federal Trade Commission (2020).

This article offers a practical guide to analyzing vertical mergers that is based on the approach to input foreclosure and raising rivals’ costs that is described in the 2020 Vertical Merger Guidelines.<sup>1</sup> The step-by-step analysis that is described here draws lessons from how that theory of harm played out in the lone vertical merger case that has been litigated by the antitrust agencies in recent decades: the DOJ’s unsuccessful challenge to the merger between AT&T and Time Warner.<sup>2</sup> I testified as the DOJ’s economic expert in that case.<sup>3</sup>

The approach taken to input foreclosure in the 2020 Guidelines shares much in common with the approach that I took in the AT&T/Time Warner case. Inasmuch as that approach was roundly rejected by Senior Judge Leon, and his decision was upheld on appeal, that experience must serve as a warning about the difficulties that the antitrust agencies will face in future challenges to vertical mergers that are based on this core theory of harm. Of course, the analysis that was presented in the *AT&T/Time Warner* case was highly fact-specific, and the evidence in another case may prove to be much more favorable to the government. Still, the *AT&T/Time Warner* case can teach us a great deal about how to structure an input foreclosure inquiry to obtain the most accurate results and how best to present those results in court when necessary. The *AT&T/Time Warner* case also reveals a number of shortcomings of the 2020 Vertical Merger Guidelines.

<sup>1</sup> As is pointed out in the 2020 Guidelines, vertical mergers can also lead to distribution foreclosure, when the “related product” involves distribution rather than an input. With distribution foreclosure, the merged firm impedes the ability of its upstream rivals to reach downstream customers. See Example 5 in the 2020 Guidelines. Studying distribution foreclosure involves an analogous inquiry to the one that is developed in this article. This article does not address theories of harm associated with vertical mergers other than unilateral input foreclosure.

<sup>2</sup> *United States vs. AT&T Inc.*, 310 F. Supp. 3d 161 (DC District Court, June 2018) (henceforth, “District Court”) and *United States vs. AT&T, Inc.*, 916 F.3d 1029 (DC Circuit Court, February 2019) (henceforth, “Appeals Court”).

<sup>3</sup> My expert testimony in the *AT&T/Time Warner* case was supported by Keith Waehrer and Nitin Dua at Bates White. I thank them while absolving them of any responsibility for the views that are expressed here. My expert report (“Shapiro Report”) is available at <https://www.justice.gov/atr/case-document/file/1081336/download>. My rebuttal expert report (“Shapiro Rebuttal Report”) is available at <https://www.justice.gov/atr/case-document/file/1081321/download>. Finding in favor of AT&T, District Court Senior Judge Leon sharply criticized my analysis. The Appeals Court recognized serious problems with Judge Leon’s decision. “Undoubtedly the district court made some problematic statements, which the government identifies and this court cannot ignore.” (Appeals Court at 1038) However, the Appeals Court did not find Judge Leon’s decision to be clearly erroneous. As explained by the Appeals Court: “This is a deferential standard. . . . Findings that are *plausible* in light of the entire record are not clearly erroneous.” (Appeals Court at 1032, emphasis added).

## 2 Foreclosure and Raising Rivals' Costs

Section 4 in the 2020 Guidelines, “Unilateral Effects,” explains how a “vertical merger may diminish competition between one merging firm and rivals that trade with, or could trade with, the other merging firm.” The central theory of harm is developed in Section 4a, “Foreclosure and Raising Rivals’ Costs,” which begins with this explanation:

A vertical merger may diminish competition by allowing the merged firm to profitably use its control of the related product to weaken or remove the competitive constraint from one or more of its actual or potential rivals in the relevant market. For example, a merger may increase the vertically integrated firm’s incentive or ability to raise its rivals’ costs by increasing the price or lowering the quality of the related product. The merged firm could also refuse to supply rivals with the related products altogether (‘foreclosure’).

This article explains how to analyze whether a vertical merger will cause the vertically integrated firm to raise the price that it charges downstream rivals for an acquired input.<sup>4</sup> In the language of the 2020 Guidelines, this involves “raising rivals’ costs” (RRC). For clarity, I reserve the term “total foreclosure” for a flat refusal to sell the input to downstream rivals, not merely raising the price of the input. I use the term “foreclosure” to encompass both RRC and total foreclosure.

The central ideas behind an inquiry into input foreclosure involve three steps, which can easily be described in non-technical terms. This inquiry can be qualitative or quantitative.

- First, one asks about the *ability* of the merged firm to weaken its rivals through input foreclosure. The key question here is whether the input being acquired is important to the downstream rivals, in the sense that their ability to compete would be meaningfully weakened if they were denied access to that input or faced higher prices for that input. This inquiry studies: (a) the extent to which downstream rivals have been using the input that is being acquired or are expected to need it in the future; and (b) how much their costs would go up, or quality go down, if they lacked access to that input or faced higher prices for it. The central economic question here is whether the downstream rivals have good substitutes for the input in question.
- Second, one asks about the *incentive* of the merged firm to weaken its rivals by raising the input price or denying them access to the input. The central question here is whether weakening these downstream rivals would enhance the profits of the merged firm due to diverted downstream sales. This inquiry includes two

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<sup>4</sup> Much of the analysis here assumes that the input is sold using linear pricing. A different analysis may apply if market participants generally use two-part tariffs or other nonlinear pricing schemes. The possibility of non-linear pricing is explicitly considered in Sect. 3 below as part of the analysis of whether the elimination of double marginalization is merger-specific.

more variables: the “diversion ratio” from the rivals to the merged firm; and the merged firm’s downstream price/cost margins.

- Third, one asks whether the merger will generate significant *efficiencies*, including those that are due to the “elimination of double marginalization” (EDM).

Figure 1 displays the elements of the analysis of vertical mergers in which the competition concern involves the RRC theory of harm, which is my focus here.<sup>5</sup>

Readers who are accustomed to studying horizontal mergers may wonder where market definition and market shares fit into this framework. The short answer is that market shares are less informative for studying vertical mergers than they are for studying horizontal mergers, so using market shares as a *screen* does not work well. The 2020 VMGs implicitly recognize this.

The implications of a large market share for the downstream merging firm are ambiguous. A merger that involves a firm with a larger downstream share tends to strengthen the RRC effect (due to higher downstream diversion to the merged firm), and naturally raises greater concerns about enhanced market power downstream. But a larger downstream share also tends to offer the potential for a larger EDM efficiency in cases where EDM is a cognizable efficiency.

What about the merged firm’s upstream share? A key issue in cases that involve input foreclosure is whether the downstream rivals have good alternatives to the acquired input. Inputs with higher upstream market shares tend to be more important to rivals, but defining an upstream market and measuring shares in that market may not be the best way to assess the importance of the acquired input. Worse yet, doing so can lead to false negatives. As discussed below, there often is a more direct way of evaluating the importance of the acquired input.

#### A. Application to the AT&T/Time Warner merger: theory.

The analysis in Section 4a of the 2020 Guidelines explains the theory that formed the basis for my testimony in the *AT&T/Time Warner* case. In particular, Example 3, “Raising the input costs of rivals with bargaining,” accurately describes the theory of harm that I presented in court.

In the *AT&T/Time Warner* case, the relevant product was the distribution of video content to households. AT&T, primarily through its DirecTV service, was a major distributor of video content to households throughout the United States. The “related product” was a popular collection of video content: the “Turner Content,” which was owned by Time Warner. Prior to the merger, Turner licensed its content to DirecTV and to DirecTV’s leading rivals, which are referred to as “multichannel video program distributors” (MVPDs). Some of the largest rival MVPDs were the cable companies Comcast and Charter and the Dish direct broadcast satellite

<sup>5</sup> For a further discussion of these elements of the analysis of vertical mergers, including the treatment of other cognizable efficiencies, see Shapiro (2019).

service. My analysis also included “Virtual MVPDs” such as Dish Sling and Sony Vue.<sup>6</sup>

Figure 2 shows the elements from Fig. 1 as they arose in the *AT&T/Time Warner* merger.

The primary theory of harm advanced by the government was that the merged firm would raise the costs of rival MVPDs by charging them more for the Turner Content.<sup>7</sup> Perhaps the simplest way of articulating the raising rivals’ cost theory of harm is as follows: Prior to the merger, when Turner licensed its content to an MVPD such as Dish, Turner incurred certain incremental costs, which influenced its pricing in the usual way.<sup>8</sup> After the merger, the merged firm would bear an *additional* incremental cost of licensing the Turner Content to Dish (for example) because access to the Turner Content would enable Dish to win some subscribers from DirecTV. That additional incremental cost will cause the merged entity to raise the price it charges Dish for the Turner Content. The resulting higher price for Turner Content weakens Dish by raising its costs.

This theory was not novel. To the best of my knowledge, it was first applied in Rogerson (2003), who studied partial vertical integration between News Corporation (an owner of content) and DirecTV (an MVPD). The theory was developed much more extensively by the Federal Communications Commission (FCC) in the Comcast/NBCU transaction in 2011.<sup>9</sup> For an excellent recent explanation of this theory and its application, see Rogerson (2020).<sup>10</sup>

This article explains how to quantify this RRC effect in an industry where input prices are set through bilateral bargaining. Quantification is a natural topic of interest for economists. To be clear, however, requiring the government to quantify the RRC effect in court in order to establish its *prima facie* case would lead to underenforcement of vertical mergers—given the very real challenges of doing so in a litigation setting.<sup>11</sup> Nonetheless, quantifying the RRC effect is desirable in cases where the data are available to do in a reliable manner. Fortunately, the necessary data are

<sup>6</sup> Shapiro Report, p. 81.

<sup>7</sup> I first tested to see if the merged firm would have an incentive to stop licensing the Turner Content to rival MVPDs, i.e. “foreclosure” in the language of the 2020 Guidelines. My calculations indicated that the merged entity would not have an incentive to foreclose Turner Content totally from MVPDs, so I focused my attention on RRC.

<sup>8</sup> Advertising revenue that is earned by Turner acts like a negative marginal cost that is associated with incremental subscribers.

<sup>9</sup> See Federal Communications Commission (2011), plus commentary by Baker (2011) and Rogerson (2014).

<sup>10</sup> Rogerson (2020) refers to this theory as “bargaining leverage over rivals” (BLR). He distinguishes this from the older theory of raising rivals’ costs that is due to Salop and Scheffman (1983), which studies the incentive of the merged firm unilaterally to raise the input price “because it recognizes that increasing the input price it charges to downstream rivals will raise these rivals’ costs in the downstream game.” (p. 408) While I agree with Rogerson about this theoretical distinction, I apply the more commonly-used RRC label to what he calls BLR.

<sup>11</sup> The Appeals Court in the *AT&T/Time Warner* case made it clear that the government is not required to quantify anti-competitive effects in order to prevail. “Preliminarily, the court does not hold that quantitative evidence of price increase is required in order to prevail on a Sect. 7 challenge.” Appeals Court at 1045. See Sect. 4.C below.

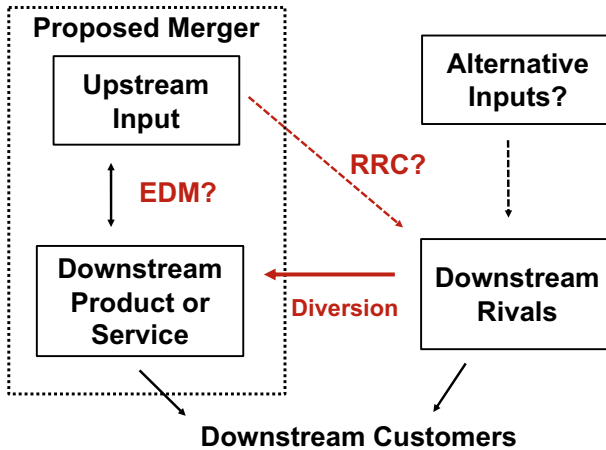


Fig. 1 Elements of raising rivals' costs analysis

not overly extensive—at least if one is prepared to make some simplifying assumptions, notably by performing the necessary calculations with downstream prices taken as fixed at their pre-merger levels.<sup>12</sup> The analysis presented here will surely be valuable during the investigative phase of vertical mergers—notwithstanding the added challenge of presenting these ideas effectively in a courtroom setting.

Here is the basic economic logic. Prior to the merger, Dish licenses the Turner Content. Denote by  $N$  the (fixed) number of Dish subscribers. Suppose Dish would lose a share  $L$  of those subscribers if Dish did *not* have access to the Turner Content. We refer to  $L$  as the “Turner Subscriber Loss Rate” at Dish.<sup>13</sup> Denote by  $D$  the share of those lost subscribers who would switch to DirecTV. We refer to  $D$  as the “DirecTV Diversion Ratio” at Dish.<sup>14</sup> Denote by  $M$  the (fixed) margin between price and marginal cost for DirecTV subscribers. We refer to  $M$  as the “DirecTV Margin,” which was measured on a per-subscriber, per-month (PSPM) basis.<sup>15</sup>

The profits that are lost at DirecTV as a result of Dish having access to the Turner Content are thus given by  $N * L * D * M$ . We can divide this amount by  $N$  to convert it into a per-subscriber opportunity cost to the merged firm of licensing the Turner Content to a Rival MVPD, which is equal to

<sup>12</sup> Below I discuss how the analysis would be modified if one sought to predict how the merger would change both upstream and downstream prices based on a full merger simulation at both levels. As explained in Rogerson (2020), the formula for RRC developed below applies in a merger simulation model if prices at both levels are set simultaneously, but then one must use the equilibrium values of the variables, not their pre-merger values. Rogerson (2020, Sect. 6) shows that the analysis becomes far more complex in a sequential model in which upstream prices are set first, with the bargaining parties accounting for their influence on downstream prices and quantities.

<sup>13</sup> See Shapiro Report, Sect. 8.1, p. 50.

<sup>14</sup> See Shapiro Report, Sect. 8.2, p. 56.

<sup>15</sup> See Shapiro Report, Sect. 8.3, p. 58.

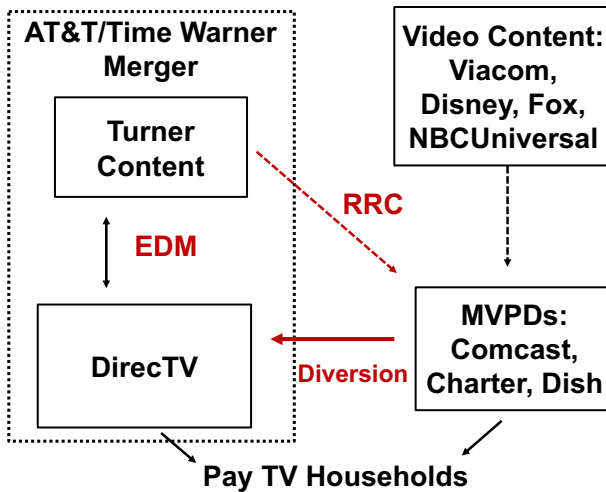


Fig. 2 Elements of AT&T/Time Warner analysis

$$\text{Per - Subscriber Opportunity Cost to Merged Firm} = L * D * M.$$

This opportunity cost is the product of three variables, each of which can be estimated using available documents and data: (1) the Turner Subscriber Loss Rate at the Rival MVPD; (2) the DirecTV Diversion Ratio at the Rival MVPD; and (3) the DirecTV Margin.<sup>16</sup> The first two of these variables will typically vary across rivals, but the third will not. In the *AT&T/Time Warner* case, due to data limitations I assumed that the Turner Subscriber Loss Rate was uniform across Rival MVPDs. So only the DirecTV Diversion Ratio varied across Rival MVPDs. I assumed that Diversion Ratios were proportional to local shares of MVPD subscribers. As a result, the RRC effect was larger in geographic areas where DirecTV had a larger market share and larger for Rival MVPDs that themselves had larger market shares.

The remaining variable needed to quantify how much the merger would raise rivals' costs is the rate at which these higher costs associated with licensing the Turner Content would be passed through to higher licensing fees paid by MVPDs for the Turner Content. In this industry, license fees are set through intricate bilateral negotiations. I utilized a split-the-difference bargaining model, which implies that the rate negotiated between Turner and Rival MVPDs for the Turner Content would go up by half as much as the increase in Turner's opportunity costs.<sup>17</sup> I offered both

<sup>16</sup> The FCC took this same approach in analyzing the Comcast/NBCU transaction. Federal Communications Commission (2011, p. 156) displays this same expression for the increase in the opportunity cost to the merged firm of licensing its content to a rival MVPD. Rogerson (2020) also provides a derivation of this formula and discusses its application in Comcast/NBCU.

<sup>17</sup> The analysis can be done using other parameters for how the gains from trade are split. Murphy (2010) empirically estimated that split in his analysis of the Comcast/NBCU merger. Crawford and Yurukoglu (2012, p. 673) also estimate the split in this industry; they find that the split is usually between 0.25 and 0.75.

a theoretical and an empirical basis for assuming that the gains from trade would be split equally.<sup>18</sup>

Applying a split-the-difference bargaining model, the increase in the cost of licensing the Turner Content to a Rival MVPD is equal to  $L * D * M/2$  per subscriber per month. This cost increase was not uniform across Rival MVPDs, because the DirecTV Diversion Ratio,  $D$ , varied from one MVPD to another. This model generated predictions for how much the merger would raise each Rival MVPD's costs, taking downstream prices as given. Further analysis was required to estimate the effect of these higher MVPD costs on Pay TV Households. See Sect. 4 below.

In this industry, bargaining impasses can and do lead to temporary blackouts, but these rarely last long. This is similar to union strikes in a labor context, which are usually temporary. In the video industry, the impact of a blackout varies over time in a manner that is very different for the content provider than for the MVPD. The immediate impact of a blackout is that the content provider loses licensing fees and advertising revenue from subscribers who continue to use the MVPD despite the blackout, while the MVPD loses revenue from subscribers who drop its service. In some situations, the content provider can strategically time the start of the blackout to coincide with programming that many consumers are keen to watch—such as a major sports event—and announce the impending blackout in advance to induce subscribers to switch to another MVPD. Over time, as more subscribers drop the MVPD's service in response to the blackout (or fail to sign up for it), the MVPD's losses mount while the content provider's audience size is partially restored as other MVPDs gain subscribers from the blacked-out MVPD.

These asymmetric dynamics make it important to consider the *timing* of negotiations and the duration of threatened blackouts for the purpose of measuring the Turner Subscriber Loss Rate. The simple logic that was presented above—which yields the  $L * D * M/2$  expression—applies if Turner and Dish (say) engage in *once-and-for-all* split-the-difference bargaining, with the threat points being a permanent blackout of the Turner Content on Dish. In that case, the Turner Subscriber Loss Rate that we need to measure is the one that would be associated with a *permanent* blackout.

My testimony was indeed based on measuring the Turner Subscriber Loss Rate that would be associated with a permanent blackout. Importantly, I was able to show that this method is theoretically correct—even though in the real world Turner and the MVPDs bargain repeatedly through time, not once-and-for-all. There are two ways to see why. The first is theoretically more attractive, at least to purists, but I thought that the second might be more clearly connected to split-the-difference bargaining and easier to explain in court.<sup>19</sup>

First, Rubinstein (1982) provided conditions under which the Nash Bargaining outcome is the unique subgame perfect equilibrium in a game in which the two parties make alternating, take-it-or-leave-it offers. Coles and Muthoo (2003) extended his result to cases with time-varying payoffs. They prove that in an alternating-move

<sup>18</sup> Shapiro Report, p. 42. I also performed sensitivity analysis on this bargaining-skill parameter.

<sup>19</sup> In this setting, there is no difference between split-the-difference bargaining and Nash Bargaining.



bargaining game, as the time interval between offers goes to zero, the unique subgame perfect Nash Equilibrium gives each party a payoff that is equal to the payoff that the party gets in the one-shot Nash Bargaining game where each party's disagreement payoff is the present discounted value of that party's payoff if the parties never agree.

Second, to see what happens if the parties actually bargain repeatedly over time, consider the concept of *recursive Nash Bargaining*. Under recursive Nash Bargaining, when the two parties engage in Nash Bargaining on any given day, they recognize that if they disagree one day, they will meet again at the bargaining table the next day.<sup>20</sup> With recursive Nash Bargaining, a party's disagreement payoff in any given period is equal to that party's flow payoff from disagreement plus the (discounted) value of that party's payoff from bargaining next period. The "Appendix" shows that the payoffs under recursive Nash Bargaining, as the time interval between bargaining sessions goes to zero, are equal to the payoffs from once-and-for-all Nash Bargaining.

In the courtroom, my analysis was not based on the assumption that Turner and a rival MVPD would have only one chance to reach an agreement. Instead, it was based on the assumption that they bargain over time. They anticipate both the short-term effects of a temporary blackout and how their bargaining leverage would change following any temporary blackout. I showed that the proper variable to use to measure the importance of the Turner Content was that Turner Subscriber Loss Rate that would be associated with a permanent blackout of Turner Content.

Once one thinks in terms of repeated bargaining, it becomes all too clear just how flawed was Judge Leon's notion (see below) that a blackout threat by Turner would be "incredible" because a permanent blackout would be very costly for Turner. Neither party's "threat" during any one period is to walk away from the table forever and cause a permanent blackout. Instead, its threat is to stay tough "today" and then come back to bargain again "tomorrow." The cost to any one party of not agreeing today is only its share of *one day* of lost gains from trade.

All of this fits nicely with the 2020 VMGs. Section 4a in the 2020 Guidelines uses the language of "ability" and "incentive" to articulate this basic theory of RRC. The Guidelines ask whether the merged firm will have the ability and incentive to weaken its downstream rivals through foreclosure or raising rivals' costs. The "ability" prong asks whether rivals will lose significant sales if they are unable to purchase the acquired input; that corresponds to the variable  $L$  in my analysis. The "incentive" prong involves the variables  $D$  and  $M$  as well as  $L$ , because all three influence the merged firm's newfound bargaining leverage.

## B. District court rejection of basic antitrust economics and law.

AT&T attacked this basic theory in two distinct ways. First, they boldly argued that the merger would not increase Turner's bargaining leverage because any impact on

<sup>20</sup> Yu and Waehrer (2019) use a similar concept of recursive equilibrium that involves multiple bargaining dyads.

DirecTV of a Turner blackout at a Rival MVPD would not be taken into consideration by the Turner executives who were negotiating carriage agreements with those MVPDs. Judge Leon credited this argument. Relying on the testimony of executives at vertically integrated firms, he concluded that “vertically integrated corporations have previously determined that the best way to increase company wide profits is for the programming and distribution components to separately maximize their respective revenues.”<sup>21</sup> Put simply, Turner would leave money on the table by not taking advantage of the increased bargaining leverage that it would gain as a result of the merger.

At this point, Senior Judge Leon departed from the standard working assumption of antitrust economists that for-profit firms will be operated to maximize the profits of the firm as a whole. I consider this assumption fundamental and indispensable to antitrust economics, as it forms the basis for evaluating economic incentives. More important in a litigation context, antitrust *law* presumes that “a business with multiple divisions will seek to maximize its total profits.” In particular: “Companies with multiple divisions must be viewed as a single actor, and each division will act to pursue the common interests of the whole corporation.”<sup>22</sup> Judge Leon did not properly respect this fundamental precept of antitrust law.

Especially helpful to AT&T in achieving this result was the self-serving testimony from NBC/Universal and Turner executives who asserted that they had not gained any bargaining leverage as a result of their previous vertical mergers. As explained by the Appeals Court: “The district court also credited the testimony of several industry executives—e.g., Madison Bond, lead negotiator for NBCU, and Coleman Breland and Richard Warren, lead negotiators for Turner Broadcasting, that vertical integration had not affected their affiliate negotiations in the past. By contrast, the testimony from third-party competitors that the merger would increase Turner Broadcasting’s bargaining leverage was, the district court found, ‘speculative, based on unproven assumptions, or unsupported.’”<sup>23</sup>

Because the Appeals Court did not find Judge Leon’s opinion here to be clearly erroneous, we are left with a very worrisome line of reasoning. Evidently, two companies that engage in a vertical merger can argue that any anti-competitive effects will not arise because the merged firm will choose to operate the two merging companies as though they were still independent. Presumably, the lawyers making this argument will support it by eliciting testimony to this effect from the company’s own executives.<sup>24</sup>

What will now happen when this same argument is made in the context of a horizontal merger? Will the courts accept that anticompetitive effects will not arise

<sup>21</sup> District Court at 222-23.

<sup>22</sup> Appeals Court at 1043, citing *Copperweld Corp. versus. Independence Tube Corp.* 467 U.S. 752 at 770 (1984).

<sup>23</sup> Appeals Court at 1037.

<sup>24</sup> In a similar fashion, in the *T-Mobile/Sprint* merger, T-Mobile executives testified that they would continue to compete vigorously, even after eliminating Sprint as an independent company and thus achieving a much larger market share, because that was their corporate culture. The judge in that case was swayed by that testimony. I testified on behalf of the states that unsuccessfully challenged that merger.

because the parent company will instruct the two merging companies to compete as if they were still independent? Furthermore, Judge Leon was flatly inconsistent in his treatment of the merged entity. He brushed aside RRC by assuming that each of Turner and DirecTV would maximize their own profits, but did not then dismiss EDM for the very same reason. Why that was not a clear error in logic eludes me.

### C. District court rejection of basic bargaining theory.

AT&T also challenged the validity and applicability of the basic theory of bargaining that is described above and is now clearly articulated in the 2020 Vertical Merger Guidelines. The complete absence of the basic RRC theory of harm from the 1984 Non-Horizontal Merger Guidelines surely made it easier for AT&T's unprincipled attack to succeed. This absence was especially unfortunate given the lack of any case law on vertical mergers in recent decades.

At trial, AT&T's lawyers and executives mocked the basic bargaining theory that I used as detached from reality. They insisted that when the post-merger AT&T would be bargaining with rival MVPDs over the licensing of the Turner Content, any resulting effect on DirecTV would have no influence on the negotiated rates, because Turner would still benefit by licensing its content to Rival MVPDs. This argument amounts to rejecting the RRC theory of harm in cases where total foreclosure is unprofitable. Inasmuch as RRC is often profitable when total foreclosure is not, accepting AT&T's argument on this point would greatly narrow vertical merger enforcement, with no valid basis. Yet that is precisely what Judge Leon did.

After emphasizing that I was not predicting that Turner would actually benefit from a blackout after the merger, Judge Leon stated:

In view of that evidence on the prospects of a long-term blackout, the lynchpin of Professor Shapiro's testimony (and, accordingly the Government's increased-leverage theory) is the assumption that a post-merger Turner would gain increased leverage by wielding a blackout threat that will only be somewhat less incredible. *That does not make sense as a matter of logic* and, more importantly, that has not been supported by sufficient real-world evidence. [Footnote:] The Court finds Time Warner CEO Jeff Bewkes' response to a question regarding the increased-leverage theory to be particularly persuasive: "And the way I—I think it's best the way to understand it, is if we have a risk that a thousand pound weight might fall on us—we hope it doesn't, but if that's always there, then if you said to me, well, don't worry; it might be a 950-pound weight instead of a thousand pounds, are you going to think about it differently, feel differently? Are you going to take more risk that any of that might happen to you? Absolutely not." Tr. 3120:23–3121:7 [Bewkes (Time Warner)].<sup>25</sup>

<sup>25</sup> District Court at 224, emphasis added. "Witnesses such as a Turner Broadcasting president Coleman Breland, AT&T executive John Stankey, and Time Warner CEO Jeff Bewkes, whom the district court credited, testified that after the merger blackouts would remain too costly to risk and that any change in that cost would not affect negotiations as the government's theory predicted." Appeal Court at 1041. Having looked at real-world evidence with regard to carriage negotiations, not to mention the fact that

Judge Leon was convinced that a party gains no negotiating leverage if its fall-back position improves, so long as there are significant gains from trade. As a matter of logic, I beg to differ.

AT&T's ability successfully to challenge this basic theory was especially brazen, as well as plainly opportunistic and inconsistent, given that DirecTV itself had put forward this theory in 2010 in objecting to the Comcast/NBCU merger and AT&T itself had put forward this theory in comments to the FCC with regard to its program access rules.<sup>26</sup> The Appeals Court stated:

During licensing and rulemaking proceedings before the FCC, DirecTV stated 'a standard economic model' (i.e., the Nash bargaining theory) predicts that the proposed Comcast-NBCU merger 'would significantly increase the prices other MVPDs pay for NBCU programming,' and two years later stated, similar to AT&T Inc. comments, that 'vertically integrated MVPDs have an incentive to charge higher license fees for programming that is particularly effective in gaining MVPD subscribers than do non-vertically integrated MVPDs'.<sup>27</sup>

Oddly, presented with these prior filings, Judge Leon stated: "When AT&T and DirecTV made many of the proffered regulatory filings, they acted as competitors to (or customers of) distributors whose competitive positions would be affected by FCC review. For that reason alone, I am hesitant to assign any significant evidentiary value to those prior regulatory filings."<sup>28</sup> As the Appeals Court pointed out "FCC rules require all regulated parties ... to provide only '[t]ruthful and accurate statements to the Commission' in adjudicatory proceedings."<sup>29</sup> There is little hope for effective antitrust enforcement if the executives of large companies can contradict prior statements their companies made to regulators and face no meaningful repercussions.

Complementing the testimony of AT&T's executives, AT&T's chief economic expert witness, Professor Dennis Carlton, asserted that the bargaining model that I employed was "theoretically unsound," despite the fact that it was a simple application of standard bargaining theory which reflected two familiar concepts from Econ 101: opportunity cost and the pass-through of higher costs to higher prices.<sup>30</sup> Hopefully, such a brazen litigation strategy will no longer be able to succeed, now that the 2020 Vertical Merger Guidelines have been issued.<sup>31</sup>

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Footnote 25 (continued)

very costly temporary blackouts sometimes occur, I find the notion that "blackouts would remain too costly to risk" to be economically incoherent.

<sup>26</sup> See especially Murphy (2010), who developed the RRC theory in a bargaining context on behalf of DirecTV. AT&T fought vigorously to exclude Murphy's prior testimony from the proceeding.

<sup>27</sup> Appeals Court 1041–42. The Appeals Court cited comments by DirecTV and AT&T at the FCC in the Comcast/NBCU merger (2010) and regarding the FCC's Program Access Rules (2012).

<sup>28</sup> District Court at 205–206.

<sup>29</sup> Appeals Court at 1042.

<sup>30</sup> "Professor Shapiro's model, the one he explained yesterday, is just theoretically unsound." AT&T/Time Warner Trial Transcript at 2442 (Carlton).

<sup>31</sup> When horizontal mergers are challenged in court, both the government and the merging parties consistently accept and employ the HMGs and argue that they should win if those Guidelines are properly applied to the case at hand. See Shapiro and Shelanski (2021).

#### D. Empirical implementation in the AT&T/Time Warner case.

I now discuss some of the practical challenges that the government will face in litigation in attempting to measure by how much a proposed vertical merger will raise rivals' costs. Based on my experience in the *AT&T/Time Warner* case, I believe that these challenges will be substantial in many litigated cases. The agencies' much more extensive experience litigating *horizontal* mergers further supports this view. While the DOJ and the FTC often win when they challenge horizontal mergers, those victories are typically achieved in significant large part by measuring market shares and establishing the structural presumption—and not just by quantifying unilateral effects or proving coordinated effects independently of market structure.<sup>32</sup>

In the *AT&T/Time Warner* case, as explained above, the predicted cost increase for a rival MVPD was equal to  $L * D * M/2$ . A significant portion of my testimony involved estimating the likely values for these three variables:  $L$ ,  $D$ , and  $M$ . AT&T vigorously disputed my estimate of each of the three variables, as well as the 50 percent passthrough rate that embedded in this expression. AT&T was able to convince Judge Leon that my estimates were not sufficiently reliable to support the DOJ's challenge to the merger. While the specifics of that back-and-forth are not of general interest, I believe some lessons do emerge for future cases. Those lessons are my focus below.

##### 1. How important is the input being acquired?

The 2020 Vertical Merger Guidelines ask whether “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.”<sup>33</sup> In the *AT&T/Time Warner* case, answering this question involved measuring the Turner Subscriber Loss Rate,  $L$ .

In some cases, we will observe some downstream rivals that do not use the input that is being acquired. In those cases, one can ask how those rivals have fared and whether the lack of that input has significantly weakened them as competitors. The defense will point to any successful rivals that do not use the input in question. The strongest cases for the government will arise when all major rivals *do* use the input that is being acquired. That was true in the *AT&T/Time Warner* case. All major MVPDs licensed the Turner Content and made it available to the vast majority of their subscribers, and there was no comparable package of content that MVPDs could add to soften the blow if they lost Turner Content. This was a strong point in the government's case.

In cases where all of the major rivals use the input that is being acquired and have done so for years, how can the government measure the impact on these rivals of losing access to that input? The natural place to look for such evidence is in the contemporaneous documents of the downstream rivals and the downstream merging

<sup>32</sup> See Hovenkamp and Shapiro (2019).

<sup>33</sup> 2020 Vertical Merger Guidelines, p. 4.

firm to see how they viewed the (unobserved) consequences of losing access to the input in question. Downstream firms may well create such documents during their negotiations to purchase the input in question. This is what I did in the *AT&T/Time Warner* case. However, AT&T was successful in calling into question the reliability of a study that was conducted for Charter, one of DirecTV's rivals, that I relied upon to quantify the Turner Subscriber Loss Rate. One also can look at the documents of the upstream merging party to see how the input owner viewed its own bargaining leverage in negotiations with downstream firms.

Another approach to estimating the impact on downstream rivals of losing access to the input that is being acquired, in cases where all major rivals use that input, is to examine how those rivals were affected by the loss of access to a *similar* input, if one exists. I also took this approach in the *AT&T/Time Warner* case by looking at an episode where an MVPD (Suddenlink) had lost access to content that was provided by Viacom. That episode underestimated the Turner Subscriber Loss Rate because the evidence indicated that the Turner Content was more important to subscribers than was the Viacom Content. However, AT&T was again successful at convincing Judge Leon that evidence from the Suddenlink/Viacom blackout did not support the Turner Subscriber Loss Rate that I was using. I expect that such evidentiary challenges will arise in future cases as well.

The *AT&T/Time Warner* case nicely illustrates why measuring the upstream "share" of the acquired input often will be of little value in cases that involve input foreclosure. As explained above, the importance of the Turner Content was best evaluated by estimating the Turner Subscriber Loss Rate. Yet AT&T's economic expert (Dennis Carlton) argued otherwise. He observed that Pay TV Households watch many shows other than the Turner Content and stated<sup>34</sup>:

Plaintiff's theory of harm is based on a claim that a programmer that accounts for only about 6.4% of television video content consumption can be used to substantially harm competition in video distribution markets (Carlton Report, 53).

Unless a firm controls a substantial share of the capacity for producing video content (or of the existing stock of relevant content), any attempt to limit access to content in an attempt to harm competition in distribution markets is likely to cause distributors to turn to other content producers (Carlton Report, 55).

The universe of "television video content consumption" that Carlton used to assign a 6.4% share to the Turner Content included a wide range of highly diverse content. The low Turner share using this metric reflects the fact that households value having the ability to watch many different channels. Indeed, that is the primary appeal of the large packages of programming that are offered by MVPDs.

<sup>34</sup> Shapiro Rebuttal Report, p. 8, providing quotes and citations to the Carlton Report. The Shapiro Rebuttal Report (p. 9) develops an example that involves Spotify and "must-have" music labels to show how using "play shares" as a measure of the market power of content providers is highly misleading when "must-have" content is involved.

Furthermore, the idea that a blackout of Turner Content would “cause distributors to turn to other content producers” is nonsensical in this setting because the major MVPDs generally carry all of the leading content packages. They cannot “turn to other content providers” to make up for the loss of the Turner Content.

I strongly disagree with Carlton that the 6.4% share he calculated is informative, much less that it implies that the Turner Content was unimportant to MVPDs. The Turner Subscriber Loss Rate is clearly a much better metric for assessing the competitive significance of the Turner Content. Carlton’s 6.4% share of video consumption for Turner is quite consistent with a Turner Subscriber Loss Rate of around 10%: the figure that I was using.<sup>35</sup> This requires only that 10% of subscribers find it worthwhile to switch to another MVPD to restore their access to the missing Turner Content. There was abundant evidence that the Turner Content was unique and highly valued by many households, including evidence of what MVPDs paid for the Turner Content. The fact that households also watched a great deal of other content was beside the point.

## 2. Diversion from the downstream rival to the merged firm.

The 2020 VMGs state: “The merged firm, as a result of the merger, would likely find it profitable to foreclose rivals, or offer inferior terms for the related product, because it benefits significantly in the relevant market when rivals lose sales or alter their behavior in response to the foreclosure or to the inferior terms.”<sup>36</sup>

A key factual issue is just how much the merged firm benefits when rivals lose sales as a result of paying more for the input that is being acquired or losing access to that input entirely. This analysis naturally breaks into two parts: (1) how many of those lost sales would be captured by the merged firm; and (2) what profits the merged firm would earn on those incremental sales. These two parts correspond to the applicable Diversion Ratio,  $D$ , and Price/Cost Margin,  $M$ . Unfortunately, the 2020 Guidelines do not identify these key variables to be measured. These are familiar objects from the HMGs. I now address these two elements.

For any given downstream rival, one can ask what alternatives its customers would turn to if they switched suppliers in response to their supplier’s losing access to the input that is being acquired. This type of evaluation of next-best alternatives for customers is familiar from horizontal merger analysis. Again, direct evidence of customer responses to input foreclosure will be hard to find if all significant rivals use the acquired input—the fact pattern under which the proposed vertical merger is most likely to harm competition. But one can look more generally at customer switching patterns, or one can base Diversion Ratios on downstream market shares.

<sup>35</sup> Shapiro Report, p. 55. In an industry where distributors are aggregating content for consumers, the “Power Ratio” is an important measure that is associated with a collection of content. The Power Ratio is the ratio of the subscriber loss rate associated with that content to the share of viewing or listening that is accounted for by that content.

<sup>36</sup> 2020 Vertical Merger Guidelines, p. 5.

In the *AT&T/Time Warner* case, I used market shares in local MVPD markets to derive Diversion Ratios from Rival MVPDs to DirecTV.<sup>37</sup> These estimates included some diversion to an outside good. Pushing for lower Diversion Ratios, AT&T argued that there would be more substitution to the outside good than I estimated.<sup>38</sup> Judge Leon was receptive to that argument as well.

### 3. Downstream price/cost margins.

Measuring downstream price/cost margins is conceptually straightforward but can be intricate in practice. As with Diversion Ratios, we have a great deal of experience measuring price/cost margins in the context of horizontal merger analysis.

In the *AT&T/Time Warner* case, AT&T erected many obstacles to the DOJ's efforts to obtain reliable and up-to-date measures of DirecTV's price/cost margins, both during the investigative phase and during the litigation phase. As a result, I was forced to rely on certain AT&T documents to measure margins, which AT&T then challenged as inaccurate and out of date. The only general lesson I am able to take away from this particular experience is that the government needs to be assertive during both the investigative and the litigation phases in compelling the merging parties to provide timely and accurate information about the key variables needed to quantify RRC, including price/cost margins.

### 4. Accounting for existing contracts.

All of this analysis applies when the merged entity is negotiating with a Rival MVPD over the terms on which the Turner Content will be available to that MVPD. In reality, those negotiations would arise only at some point in the future, because Rivals MVPDs had already entered into carriage agreements with Turner with various durations. Turner would have the ability to set higher prices for these MVPDs only over time, as their contracts expired and were renegotiated.

My model of carriage negotiations between Turner and Rival MVPDs abstracted away from Turner's existing carriage agreements. I pointed out that Turner's

<sup>37</sup> In measuring the market shares of the various MVPDs, there were some complications that arose from the fact that market shares varied by geography, and because AT&T also owned another distribution service, U-verse, which was available only in some geographies. Still, measuring market shares was not an especially complex exercise, and certainly not a novel one. Market shares are often used as proxies for Diversion Ratios in horizontal mergers, and the corresponding logit model of demand with an outside good is a workhorse in that setting.

<sup>38</sup> This debate involved the issue of how many customers would drop MVPD service entirely in response to a Turner blackout. I relied on analysis done by Charter to obtain a value for diversion to the Outside Good. Shapiro Report p.145. I used a share for the Outside Good of around 10%. Shapiro Report p. 67. I explained that diversion to the Outside Good in response to a blackout of Turner Content would be small because customers who dropped their MVPD in response to a blackout of Turner Content would be strongly inclined to switch to another MVPD so as to maintain access to the Turner Content. I consider that a very strong point notwithstanding that in recent years an increasing number of households have been "cutting the cord" and dropping MVPD service entirely, which was AT&T's and Carlton's main point. Cord cutters have revealed that they do not highly value the Turner Content.



post-merger incentives to raise price would tend to be manifest in non-price forms, given the inevitable incompleteness of the existing contracts.<sup>39</sup> I also pointed out that, in present value terms, the lack of harm for a year or two would not change my conclusions about overall harm to consumers, even after taking into account the short-run benefits that would arise from EDM.

AT&T criticized me for abstracting away from Turner's existing carriage contracts with Rival MVPDs. Judge Leon agreed, writing: "I conclude that the model's predictions of harm are not 'sufficiently probable and imminent' to be probative in view of the facts of this case."<sup>40</sup> The Appeals Court likewise stated: "Whatever errors the district court may have made in evaluating the inputs for Professor Shapiro's quantitative model, the model did not take into account long-term contracts, which would constrain Turner Broadcasting's ability to raise content prices for distributors."<sup>41</sup>

As a general rule, it seems short-sighted to approve mergers that will lessen competition and harm customers after current contracts expire, just because one cannot demonstrate customer harm until then. However, courts are naturally interested in the real-world effects of a proposed merger, and existing contracts often are a feature of the real world. This tension strikes me as a major challenge for effective merger enforcement, especially because merging parties will not be shy about strategically entering into contracts to undermine the ability of the government to challenge their merger. This problem applies with equal or greater force to horizontal mergers.<sup>42</sup>

The challenge that is created by existing long-term contracts with customers is especially acute for vertical mergers where EDM is credited as merger-specific. For those mergers, the presence of long-term contracts that protect downstream rivals will reduce the near-term RRC effects, but those contracts need not similarly reduce the near-term EDM effects. Unfortunately, the 2020 VMGs are silent on how to treat existing long-term contracts.

One solution is for the courts to interpret Section 7 of the Clayton Act as prohibiting mergers that reduce competition, even if customers are protected from that reduction in competition for some period of time. Under this natural and plain reading of the statute, mergers that "may substantially lessen competition" would be illegal, abstracting away from extant contracts that temporarily protect customers from that loss of competition. That is what my model did. However, the courts in the *AT&T/Time Warner* case did not welcome that approach.<sup>43</sup>

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<sup>39</sup> I was not able to quantify these non-price RRC effects. This observation should serve as a reminder of the difficulties of quantifying harms to competition that arise from vertical mergers, even when they may be substantial.

<sup>40</sup> District Court at 240–241.

<sup>41</sup> Appeals Court at 1046.

<sup>42</sup> Signing up customers under multi-year contracts is a well-known strategy that is used by firms that seek to consummate a horizontal merger. This strategy can serve two functions, neither of which serves the public interest: (1) removing a customer as a witness for the government; and (2) weakening the government's ability to demonstrate harm to customers, and especially to quantify harm to customers, even if the merger likely will lessen competition.

<sup>43</sup> This is a good example of how the "consumer welfare standard" has been distorted by the courts in a manner that undermines effective antitrust enforcement. I have called for instead applying the "protecting competition standard" to emphasize that while demonstrating harm to customers based on reduced com-

## 5. Summary and next steps.

Based on this analysis, I concluded that the merger would cause an increase in the price of Turner Content of \$1.00 per subscriber per month, taking a weighted average across all rival MVPDs. That represented an 18.4 percent price increase for the Turner Content. I estimated that this price increase would raise rivals' costs by \$731 million per year in the aggregate.<sup>44</sup>

Even in cases where one can quantify RRC, as I did in the *AT&T/Time Warner* case, one must recognize that such measurements do not and cannot fully incorporate longer-term harms to rivals. In general, as rivals' costs go up and their sales decline, their profits will fall, which will make future investments less attractive.<sup>45</sup> For this reason, the longer-term exclusionary effects of a vertical merger can be greater than the short-term effects.<sup>46</sup> Furthermore, my bargaining model did not account for other ways in which the merger would raise the costs of Rival MVPDs.<sup>47</sup>

## 3 Accounting for the Elimination of Double Marginalization

The natural next question to ask is how the merger would affect *downstream customers*. The 2020 VMGs evaluate input foreclosure concerns based on their impact on downstream customers. I followed that approach in the *AT&T/Time Warner* case. I believe there is a consensus that this is the proper way to evaluate vertical mergers.<sup>48</sup> In general, evaluating the effect of the merger on downstream customers requires two additional steps of analysis.<sup>49</sup>

First, one must consider and account for the possibility that the merger will cause the merged firm to lower its own downstream price due to the elimination of double

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Footnote 43 (continued)

petition is a sufficient condition for finding a lessening of competition, it is not necessary. Harm to the competitive process should be sufficient in some circumstances. See Shapiro (2018, 2021).

<sup>44</sup> Shapiro Rebuttal Report, Fig. 9, p. 55.

<sup>45</sup> See Slaughter (2020). Quantifying these longer-term effects will typically be very difficult if not impossible.

<sup>46</sup> In forecasting over a longer period of time, the downstream rivals may also have more options for developing alternatives to the input that is being acquired. That is very much a factual issue that will vary across cases.

<sup>47</sup> The Shapiro Report, Sect. 7.5, offers two additional incentives for the merged firm to raise the fees that are charged to Rival MVPDs for the Turner Content. The first is caused by the diversion from the Rival MVPD to DirecTV when the rival raises its downstream prices in response to the higher fees charged by Turner. The second is that my model underestimates Turner's negotiating leverage by not accounting for the higher fees that a Rival MVPD will pay to *other* content providers in the event of a Turner blackout by virtue of becoming more dependent on their content.

<sup>48</sup> Rogerson (2020, p. 425), for example, states that downstream prices are "what we are ultimately interested in when we evaluate the welfare impact of vertical merger".

<sup>49</sup> The type of vertical merger that is discussed in this article will predictably raise rivals' costs, at least to some degree. However, if the merger's impact on competition is evaluated based how it affects downstream customers, that finding is not sufficient to conclude that the merger will harm competition.

marginalization. This Sect. 3 addresses the treatment of EDM.<sup>50</sup> In the *AT&T/Time Warner* case, EDM would give the merged firm an incentive to lower the price that DirecTV charges Pay TV Households. Second, if possible, one would like then to combine the estimates of RRC and EDM to predict the effects of the merger on the prices that are charged to downstream customers by the merged firm and by its downstream rivals.<sup>51</sup> However, as noted above, quantification may not be possible and is not required. Section 4 below discusses how to evaluate the RRC and EDM effects together.

#### A. EDM and the post-merger maximization of combined profits.

The elimination of double marginalization 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 merged entity will have a new incentive to lower its downstream price, to the extent that the extra customers that are attracted by that lower price generate extra profits for the upstream operations of the merged firm. This incentive arises because the merger *internalizes the positive pecuniary externality* between the two merging firms that is associated with attracting more downstream customers. Section 6 in the 2020 Guidelines, “Procompetitive Effects,” recognizes this, stating: “The elimination of double marginalization is not a production, research and development, or procurement efficiency; it arises directly from the alignment of economic incentives between the merging firms.”

Of course, EDM applies only to sales by the downstream merging firm that use the input from the upstream merging firm. In so-called “diagonal” mergers, there are no such sales, and hence no EDM that is based on pre-merger trading patterns. Atalay et al. (2014) find that the upstream and downstream divisions of vertically integrated firms often do not trade with each other. The first step in analyzing EDM is to determine whether such trading is likely to take place after the merger. The analysis in this section applies only if such trading will predictably take place.

As the 2020 Guidelines recognize, EDM is different from other claimed merger synergies because a vertical merger inherently gives the merged firm an incentive to set its downstream prices on the basis of the merged firm’s combined upstream and downstream profits. Put differently, EDM follows logically from the normal and essential working assumption of antitrust economists that for-profit firms are run to maximize their overall profits.<sup>52</sup> This is directly analogous to our normal working assumption that a horizontal merger eliminates competition between the merging parties and typically creates at least some upward pricing pressure. The difference is that a horizontal merger internalizes a *negative* pecuniary externality that

<sup>50</sup> The evaluation of cognizable efficiencies other than EDM is beyond the scope of this article.

<sup>51</sup> I believe there is a consensus that this type of modeling is desirable when it is feasible and can be done in a reliable manner. Rogerson (2020, p. 413), for example, states that “a full assessment of the welfare impact of a vertical merger requires one to assess the net impact of both effects [RRC and EDM] in a single model”.

<sup>52</sup> As noted above, antitrust law also makes this presumption. See *Copperweld Corp. versus. Independence Tube Corp.* 467 U.S. 752 (1984).

is associated with expanding output, while a vertical merger internalizes a *positive* pecuniary externality that is associated with expanding downstream output. This basic difference reflects the fact that a horizontal merger combines substitutes, while a vertical merger combines complements.

## B. Assessing whether EDM is a cognizable merger efficiency.

Section 6 of the 2020 Guidelines addresses EDM. That section begins by stating:

The Agencies evaluate efficiency claims by the parties using the approach set forth in Section 10 of the Horizontal Merger Guidelines, as elaborated here. *Cognizable efficiencies are merger-specific efficiencies that have been verified and do not arise from anticompetitive reductions in output or service.* The Agencies do not challenge a merger if cognizable efficiencies are of a character and magnitude such that the merger is unlikely to be anticompetitive in any relevant market. [emphasis added]

How does one determine whether EDM satisfies the three conditions that are required for an efficiency to be cognizable? Two of those requirements are usually automatic for EDM. Conceptually, EDM is automatically “verified” because vertical merger will (by assumption) cause the downstream division to set prices to maximize the combined profits of the upstream and downstream divisions of integrated firm.<sup>53</sup> Furthermore, by its nature, EDM also does not “arise from anticompetitive reductions in output or service.” To the contrary, EDM is associated with an *increase* in downstream output. That leaves merger-specificity.

As with all efficiencies, EDM must be shown to be merger-specific to be credited. While we must assume that a vertical merger will lead to the elimination of double marginalization, that certainly does not imply that EDM is merger-specific. Merger-specificity is a factual question that must be assessed on a case-by-case basis. In court, the burden of proof of establishing the merger-specificity of EDM rests upon the defendant, as it does for all claimed efficiencies.

In an influential and timely speech in November 2016, then Deputy Assistant Attorney General Jonathan Sallet emphasized the importance of merger-specificity, stating: “Indeed, I think it is fair to say that an omni-present question in the recent completed reviews of vertical transactions is whether benefits are merger-specific or whether the same efficiencies can be gained through contracting.”<sup>54</sup>

Section 10 of the 2010 HMGs states the following about merger-specificity:

The Agencies credit only those efficiencies likely to be accomplished with the proposed merger and unlikely to be accomplished in the absence of either the

<sup>53</sup> I state “conceptually” to emphasize that *quantifying* EDM is quite another matter, as that will depend on the specific evidence put forward, which must be verified. The next subsection discusses how to quantify EDM, which includes such issues as whether the upstream merged firm faces capacity constraints and whether the downstream merging firm has entered into contracts with other input suppliers that limit the short-term magnitude of EDM.

<sup>54</sup> Sallet (2016, pp. 5–6).

proposed merger or another means having comparable anticompetitive effects. These are termed merger-specific efficiencies. *Only alternatives that are practical in the business situation faced by the merging firms are considered in making this determination. The Agencies do not insist upon a less restrictive alternative that is merely theoretical* (emphasis added).

The 2020 VMGs adopt a very similar approach. They explicitly indicate how the agencies will evaluate the merger-specificity of EDM:

In assessing the merger-specificity of the elimination of double marginalization, the Agencies typically examine whether it would likely be less costly for the merged firm to self-supply inputs following the merger than for the downstream firm to purchase them from one or more independent firms absent the merger. The merging parties' evidence about existing contracting practices is often the best evidence of the price the downstream firm would likely pay for inputs absent the merger. The Agencies also consider other evidence, such as contracts between similarly situated firms in the same industry and contracting efforts considered by the merging firms. The Agencies do not, however, reject the merger specificity of the elimination of double marginalization solely because it could theoretically be achieved but for the merger, if such practices are not reflected in documentary evidence.

Following the 2020 Guidelines, 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 would not be merger-specific and would not be credited as an efficiency in the merger analysis.

In the *AT&T/Time Warner* case, I followed the approach to the merger-specificity of EDM that is described in the 2010 HMGs, which is very similar to the one now articulated in the 2020 VMGs. Based on that analysis, I credited some EDM associated with the integration of the Turner Content and DirecTV as merger-specific. I made that determination on the basis of a review of the licensing contracts between providers of basic cable content (including Turner) and MVPDs (including DirecTV).

That review indicated that the norm in the industry was for MVPDs to pay for basic cable content on a per-subscriber basis.<sup>55</sup> In addition, I looked in vain for evidence that these common contracting practices were likely to change in the near future, either in general or specifically as between Turner and DirecTV, which might have supported a conclusion that the elimination of double marginalization between the Turner Content and DirecTV was not merger-specific.

AT&T was, of course, quite willing to accept EDM as a cognizable efficiency while denying that DirecTV's interests would have any impact on the negotiations between Turner and rival MVPDs. I made clear to Judge Leon that crediting EDM

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<sup>55</sup> These licensing agreements also specified how the associated advertising slots and revenue would be treated.

went hand-in-hand with RRC, because both of these effects follow from the standard assumption that the merged firm will be operated to maximize the combined profits of its various divisions, namely Turner and DirecTV.<sup>56</sup>

Nonetheless, I was criticized in some quarters for “conceding” that the merger would most likely generate some vertical efficiencies in the form of EDM. I stand by my analysis of the merger-specificity of EDM between Turner and DirecTV, which relied on real-world evidence about contracting practices. My approach was consistent with the 2010 HMGs and is consistent with the 2020 VMGs as well. Of course, the DOJ might have argued against crediting EDM between Turner and DirecTV as merger-specific. However, that would have required applying a stricter standard to merger-specificity for EDM than the HMGs generally apply to efficiencies (see the passage quoted and emphasized above). That would have been very challenging in court.

Looking ahead, the 2020 VMGs announce that the agencies will apply this same basic approach to the merger-specificity of EDM. Of course, the agencies could modify the VMGs and adopt a more skeptical approach, as is advocated by Salop (2019). Salop (2021) proposes the following specific language for guidelines: “The Agencies will not presume merger-specificity simply because it was not achieved in the pre-merger market, but will expect the parties to provide credible evidence of pre-merger impediments and how the merger will eliminate the impediments. The existence of some bargaining frictions is not sufficient evidence since all negotiations involve bargaining frictions.”<sup>57</sup> Salop’s approach gives far less weight to evidence that industry participants had been unable to solve EDM by contract. Meeting his requirements could be difficult if not impossible for the merging parties in many cases.

Whether the stricter standard that is advocated by Salop would serve to promote competition or to hinder competition is a difficult judgment call. Greater skepticism about the merger-specificity of EDM could usefully offset the overly favorable treatment of EDM that necessarily results from assuming for methodological reasons that EDM will be achieved after the merger. However, it might also lead the agencies to block deals that in fact would generate substantial merger-specific efficiencies. In any event, it is doubtful that the courts would readily accept this stricter standard, because it puts much less weight on real-world evidence and because it is more stringent than the approach that has been taken toward efficiencies since 1997 by the HMGs.

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<sup>56</sup> *AT&T/Time Warner* Trial Transcript at 2250–2251 (Shapiro).

<sup>57</sup> Salop (2021, p. 18) with footnote. Salop adds: “Impediments to elimination of double marginalization arising from pre-merger coordination or anticompetitive agreements will not be credited by the Agencies”.

### C. Quantifying EDM.

In cases where EDM is merger-specific, it is desirable to measure EDM, a necessary steps to perform a quantitative analysis integrating EDM and RRC, as discussed in Sect. 4 below.<sup>58</sup>

The 2020 VMGs state the following about quantifying EDM:

While it is incumbent upon the merging firms to provide substantiation for claims that they will benefit from the elimination of double marginalization, the Agencies may independently attempt to quantify its effect based on all available evidence, including the evidence they develop to assess the potential for foreclosure or raising rivals' costs. In verifying the elimination of double marginalization, the agencies typically examine the likely *cost saving to the merged firm from self-supplying inputs* that would have been purchased from independent suppliers absent the merger. Creditable quantifications of the elimination of double marginalization are generally of similar precision and reliability to the Agencies' quantifications of likely foreclosure, raising rivals' costs, or other competitive effects. [emphasis added]

One of the shortcomings of the 2020 Guidelines is that they do not provide further explanation for how to quantify EDM. The starting point is to measure the gap between (a) the per-unit price that is charged by the upstream firm to the downstream firm, and (b) the upstream firm's true economic marginal cost. The term "true economic marginal cost" is important here; it includes opportunity cost and accounts for other factors, such as limited upstream capacity. In the case of Turner and DirecTV, the relevant "unit" was a subscriber, and this gap was equal to the incremental revenue that Turner would earn from a subscriber that DirecTV would attract by reducing its price.<sup>59</sup>

Importantly, when measuring Turner's revenue from an incremental DirecTV subscriber, one must account for the *opportunity cost* to Turner when DirecTV gains a subscriber, which comes in the form of reduced Turner licensing revenue from that subscriber's alternative MVPD. To see why this opportunity cost is so important, consider the polar case in which all incremental DirecTV subscribers are switching from rival MVPDs where they also had access to the Turner Content. In that case, Turner gains *zero* incremental revenue when DirecTV attracts an additional subscriber by reducing its price, because Turner viewership does not rise.<sup>60</sup> In that polar case, the magnitude of the EDM effect is zero.

<sup>58</sup> This section also does not discuss the rate at which EDM is passed through in the form of lower downstream prices. Downstream prices are addressed in Sect. 4 below.

<sup>59</sup> This statement assumes that having an incremental DirecTV subscriber would not cause Turner to incur any incremental out-of-pocket costs. The revenue that was earned by Turner on an incremental DirecTV subscriber had two components: (1) the per-subscriber fee that was paid by DirecTV to Turner; and (2) the advertising revenue that was earned by Turner from that subscriber. See "Appendix" K to the Shapiro Report, pp. 147–149.

<sup>60</sup> This statement relies on the simplifying assumption that the per-subscriber rate that rival MVPDs pay to Turner is the same as the rate that DirecTV pays to Turner. My testimony accounted for any differences in these rates.

More generally, if the upstream firm's price/cost margin for sales to the downstream firm is  $M$ , and if a fraction  $\theta$  of customers attracted by the downstream firm's lower price were already generating that same margin for the upstream firm, then the opportunity cost to the upstream merging firm when the downstream merging firm expands output is equal to  $\theta M$ . As a result, the magnitude of EDM is not  $M$  but only  $(1 - \theta)M$ .

In the *AT&T/Time Warner* case, I calculated EDM as \$1.20 per subscriber per month, which corresponded to about \$370 million per year.<sup>61</sup> Purely for illustrative purposes, this \$1.20 PSPM figure would result if the price/cost margin on the Turner Content ( $M$ ) were \$6 PSPM and if 20% of the new subscribers that would be attracted to DirecTV by a price decrease would be new Turner viewers. It would have been a major error to use the Turner price/cost margin of \$6 PSPM as the magnitude of EDM; that would have overstated EDM by a factor of five.

Notably, this opportunity cost of  $\theta M$  arises even if the downstream merging firm does not purchase the input from the upstream merging firm. Such "diagonal" mergers internalize the lost margins experienced by the upstream merging firm when the downstream merging firm expands output. As a result, the merged firm experiences an additional incremental cost that is equal to  $\theta M$  of expanding downstream output. That creates an incentive for the merged firm to *increase* its downstream price.<sup>62</sup> Diagonal mergers therefore increase the marginal cost of the downstream merging firm *and* the marginal costs of its rivals. Absent other cognizable efficiencies, this implies that diagonal mergers lead to higher downstream prices, which harm downstream customers. The methods explained in Sect. 4 can be used to quantify their effects on downstream prices.

This analysis nicely illustrates why vertical mergers that involve an input that is widely used by downstream firms are the ones that are most likely to harm downstream customers. In cases such as *AT&T/Time Warner*—where the input that is being acquired is widely used by downstream firms—EDM will be small for the reasons just given. At the same time, the more widely the input is used, the more likely will downstream rivals have difficulty competing effectively without it, and hence the larger the RRC effects.

## 4 Effects on Downstream Customers

Quantifying the effect of a vertical merger on downstream customers requires an integrated analysis that accounts for both RRC and EDM effects. See Fig. 1 above. The need for an integrated analysis is recognized in the 2020 VMGs, which state (p. 5):

For mergers that warrant scrutiny, the Agencies will determine whether, based on an evaluation of the facts and circumstances of the relevant market, the merger may substantially lessen competition. This evaluation will generally

<sup>61</sup> Shapiro Report, p. 63.

<sup>62</sup> See the vGUPPId1 metric in Moresi and Salop (2013). Chen (2001) provides a related analysis.



include an assessment of the likely *net effect* on competition in the relevant market of all changes to the merged firm's unilateral incentives. The merged firm may foreclose its rivals or raise their costs by changing the terms offered for the related product, but a vertical merger can also change other incentives. The elimination of double marginalization, for example, can confer on the merged firm an incentive to set lower downstream prices. The price that a downstream firm pays for an input supplied by an independent upstream firm may include a markup over the upstream firm's marginal cost. If a downstream and an upstream firm merge, and the merged firm supplies itself with its own related product, it will have access to the input at cost. (See Sect. 6.) *The likely merger-induced increase or decrease in downstream prices would be determined by considering the impact of both these effects*, as well as any other competitive effects. [emphasis added]

The 2020 Guidelines then state: "Where sufficient relevant data are available, the Agencies may construct economic models designed to quantify the net effect on competition." That is what I did in the *AT&T/Time Warner* case.

Importantly, some quantification is needed to compare the size of the RRC and EDM effects and to assess fully their combined impact. As discussed below, the need for quantification presents significant challenges for the government in court because any quantification will rely on documents, testimony, and modeling assumptions that are subject to challenge by the merging parties. The allocation of the burden of proof thus becomes quite important in practice.

#### A. Integrated analysis of RRC and EDM.

If the RRC effect and the EDM effects can be quantified, they can be compared. The goal of this analysis is to estimate the net effect of the merger on downstream customers. The basic tradeoff is clear enough: the downstream merging firm will experience a cost reduction, and its rivals will experience a cost increase.<sup>63</sup> This analysis applies when EDM is found to be merger-specific.

The modeling decisions that I made in the *AT&T/Time Warner* case may be instructive for those who seek to offer an integrated analysis of RRC and EDM, as is called for in the 2020 VMGs. In this Sect. 4A, I explain what I did in the *AT&T/Time Warner* case and why. Section 4B discusses more broadly the challenges that are faced by antitrust economists when presenting these types of economic models and calculations in court. Section 4C discusses how this analysis of RRC and EDM can play out in court under the legal burden-shifting approach that applies when mergers are litigated.

As a first step, it is worth emphasizing that the formula that was used above to quantify RRC, namely  $L * D * M/2$ , takes as given the price that is charged by the

<sup>63</sup> If the cognizable EDM effect is less than the opportunity cost effect that was discussed in Sect. 3C above, then the downstream merging firm will experience a cost increase, and there is no need to engage in this balancing.

downstream merging firm, which enters into its pre-merger downstream margin,  $M$ . The variables  $L$  and  $D$  also are estimated based on pre-merger conditions. Likewise, the expression for EDM was derived taking as given the pre-merger prices that are charged by the upstream merging firm. Using pre-merger variables here is akin to calculating upward pricing pressure in horizontal mergers based on pre-merger diversion ratios and price/cost margins.

In my view, this type of analysis is highly informative and often practical, even though it does not constitute a full equilibrium analysis such as one obtains using a full-blown merger simulation. As with horizontal merger analysis, there is a tradeoff between a simpler and more transparent analysis and one that is more complex and relies on more assumptions but purports to give a more accurate answer.

In the *AT&T/Time Warner* case, the calculations that were performed using pre-merger upstream and downstream prices indicated that DirecTV's rivals would experience an aggregate cost increase of \$731 million per year and DirecTV would experience a cost decrease of \$370 million per year. The fact that the estimated size of RRC was roughly double the estimate size of EDM gave me confidence that the merger would increase MVPDs' costs in the aggregate. The aggregate (net) increase in MVPDs' costs was \$361 million per year, adding up across their diverse geographies.

These calculations nicely illustrate why downstream market shares do not provide good screens in vertical merger cases that involve possible input foreclosure. My model predicted *greater* harm to consumers in local areas where DirecTV's downstream market share was *smaller*. This resulted because the RRC effect that was associated with the Turner Content was greater in those areas.<sup>64</sup>

In my opinion, the aggregate increase in MVPDs' costs served as a useful and relatively simple metric that was well worth reporting as part of my testimony. In the interests of simplicity and transparency (salient issues in a litigation setting) it would not be unreasonable to conclude that a merger would likely harm downstream customers if it would lead to a large aggregate (net) cost increase at the downstream firms. I offered an estimate of harm to consumers that was based on applying a passthrough rate of 75% to 100% to this aggregate (net) increase in MVPD costs. But I noted that this simple methodology "is equivalent to assuming that the same passthrough rate applies to the cost changes experienced by all of the MVPDs."<sup>65</sup>

Preferring not to rely too much on that assumption, and recognizing the theoretical problems with defining and applying a single passthrough rate to the aggregate increase in MVPDs' costs, I looked for a better way to estimate the impact of the merger on downstream prices. I gave two approaches the most serious consideration: (1) building a model of downstream competition and using that model to calculate the impact on downstream prices of the vector of RRC and EDM cost changes that

<sup>64</sup> Section 6 of the Shapiro Report, "Impact on Consumers in Local Areas," states: "All else equal, subscribers in Zones with more rival MVPDs are likely to observe higher post-merger prices because of the greater impact of the increase in rivals' costs." See p. 68 and Fig. 18.

<sup>65</sup> Shapiro Report, p. 66. I based the 75% to 100% passthrough rate on empirical evidence with regarding to the rate at which AT&T had historically passed through content price increases to households.

were measured as described above (based on pre-merger prices); and (2) performing a full merger simulation in which RRC and EDM are calculated based on equilibrium prices rather than pre-merger prices.

My testimony was based on the first approach. This had the major advantage of allowing me to calculate RRC and EDM with the use of pre-merger variables. That in turn allowed me to start my testimony by explaining the basic RRC logic in a bargaining context as described above, using the available, pre-merger data. AT&T was vigorously attacking the bargaining model and the whole RRC concept, so I wanted to make this first step as clear and as well-grounded as possible in the evidence. Explaining RRC in a bargaining context was a predicate before I could even talk about any effect on downstream prices. I also realized that quantifying the RRC/bargaining effect in front of a generalist judge would be a challenge. That challenge proved to be especially grave in the case of Judge Leon, who made it clear that he had little interest in economic models and wanted to keep the presentation of quantitative evidence to a minimum.<sup>66</sup>

The approach that I took still required me to put forward a model of downstream competition. I used a basic logit model with an outside good, which was calibrated using pre-merger market shares in local MVPD markets and pre-merger margins.<sup>67</sup> Rogerson (2020) correctly notes that the approach that I took “was not fully correct” in the sense that I calculated RRC and EDM based on pre-merger prices rather than equilibrium prices.<sup>68</sup> Even though I took the simplest approach that in my view gave a reliable estimate of downstream price effects, Judge Leon mocked my model as overly complex:

After hearing Professor Shapiro’s bargaining model described in open Court, I wondered on the record whether its complexity made it seem like a Rube Goldberg contraption. Professor Carlton agreed at the trial that that was a fair description. See Tr. 2447:2–7 (Carlton).<sup>69</sup>

<sup>66</sup> I continue to urge judges in complex antitrust cases to admit the expert reports into evidence. That did not happen in the *AT&T/Time Warner* case. Only my live testimony was admitted into evidence, and Judge Leon sharply limited my ability to present figures and charts. I favor an approach where economic experts submit their direct testimony in written form. That written direct testimony can be much shorter than the long and detailed expert reports that are commonly submitted in major antitrust cases, which tend to be comprehensive because the expert is precluded from offering testimony that is not disclosed in those reports.

<sup>67</sup> Shapiro Report pp. 66–68. An additional complication arose because downstream competition varied from one geographic area to another. While DirecTV and Dish were present across the country, cable companies only compete as MVPDs in their service areas. I used 1174 Local Footprint Overlap Zones in which residents had access to video offerings from the same set of MVPDs. See Shapiro Report p. 36.

<sup>68</sup> Rogerson (2020, p. 428). Rogerson further explains: “This procedure essentially ignored equilibrium feedback effects and is not equivalent to the fully correct procedure of calculating the new equilibrium conditions determining both upstream and downstream prices and finding a vector of upstream and downstream prices that simultaneously satisfies all of the new conditions. Since the equilibrium feedback effects can be complex it is difficult to say how the Department of Justice’s estimate of the consumer harm generated by the merger would have changed had it used the fully correct procedure”.

<sup>69</sup> District Court Opinion in *AT&T/Time Warner*, p. 149.

The lesson here from the *AT&T/Time Warner* case is crystal clear: the government will face great difficulty winning a vertical merger challenge by constructing “economic models designed to quantify the net effect on competition,” as called for under the 2020 VMGs, if the merging companies have no incentive to engage honestly with those models and especially if they face a judge as innumerate as Judge Leon. The burden-shifting approach in Sect. 4C incentivizes the merging parties to put forward quantitative models to rebut the government’s *prima facie* case. That encourages more informative issue joinder.

## B. Complexity and robustness.

What does all of this imply about the role of economists in evaluating vertical mergers?

The perspective that I have offered here is based on my testimony in the *AT&T/Time Warner* case. Of course, that was only one case in front of one judge. Looking ahead and anticipating how expert economic testimony in vertical merger cases will be greeted in court, I am concerned that proper enforcement will be crippled if the agencies are required by the courts to quantify net harm to downstream customers in order to establish their *prima facie* case. We can see from the *AT&T/Time Warner* case that such an approach would give the merging parties little or no incentive to engage honestly with the necessary economic modeling. If the 2020 VMGs are applied in that manner when vertical mergers are litigated, they will undermine rather than promote effective merger enforcement. But that is not necessary. See Sect. 4C.

Very different considerations apply during the investigative phase. Sophisticated analyses can be performed when the agencies investigate vertical mergers, and these analyses can influence enforcement decisions even if they would be difficult to present in court. These analyses can be conducted by the economists at the Economic Analysis Group at the DOJ Antitrust Division or at the FTC’s Bureau of Economics. They also can be put forward by economists who appear in front of the agencies, either for the merging parties or for interested third parties.

From this perspective, the 2020 VMGs are a missed opportunity to articulate more fully how the agencies will conduct these types of analyses and how they will evaluate analyses presented to them by outside economists. Economists at both agencies have extensive experience analyzing vertical mergers, including performing “vertical arithmetic” to assess the profitability of full input foreclosure, using bargaining models, calculating vertical upward pricing pressure indices, and running vertical merger simulations. Very little of that learning and experience is reflected in the 2020 VMGs.

Hopefully, we will learn more in the years ahead about which types of quantitative vertical merger analysis are most reliable and robust, just as we have learned in recent years about upward pricing pressure and merger simulation in the context of horizontal mergers. Rogerson (2020, p. 425) favors full-blown merger simulation: “At the moment it appears that the only method of assessing the full equilibrium impact of a vertical merger, taking both the BLR/RRC effects and the EDM

effect into account, is to try to directly estimate demand and cost functions and then conduct a full-blown simulation.” The legal burden-shifting approach that will be described below promotes the use of the most reliable methods in litigation as well as at the agencies. How often economists can offer reliable and robust equilibrium models remains to be seen.

Referring to the relevant literature, Rogerson (2020, p. 426) states: “These papers collectively show that the net welfare impact of a vertical merger can be positive or negative and that the results hinge sensitively on the specific functional form assumption on demand.” He explains that the literature contains various models in which the direction of the net effects depends on the parameters, sometimes in a delicate manner. Lu, Moresi, and Salop (2007) offer a simple but very special equilibrium model in which vertical mergers always benefit downstream customers.<sup>70</sup> Das Varma and De Stefano (2020) offer a more general analysis that is highly informative as we seek to understand just how RRC and EDM interact in a full equilibrium model. Domnenko and Sibley (2020) usefully provide Monte Carlo simulations for the cases of linear and logit demand systems.

However, so far at least, the gap between theory and practice remains large. Fragile models are of little use in practice. The search for robust findings that are based on observable variables must go on. Robustness and simplicity are at a premium in court.

Economists need to be realistic about what can and cannot be quantified in an informative and reliable manner. The great strength of economists in merger analysis is our ability systematically to track how a merger will alter economic incentives by internalizing the effects between the two merging firms.

But our models are necessarily simplified versions of reality and cannot be expected to give precise estimates of economic effects.<sup>71</sup> The *AT&T/Time Warner* case illustrates the necessity of making simplifications to build a tractable model. For example, my quantification did not account for existing long-term contracts (see above), made certain assumptions about customer switching patterns for MVPD subscription services, and did not account for post-merger adjustments in the prices that would be charged to MVPDs by other content providers. Inevitably, the need to make simplifying assumptions provides fertile ground for hostile cross-examination, especially in front of a skeptical judge who has a distaste for economic models.<sup>72</sup>

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<sup>70</sup> The Lu et al. (2007) model has one upstream firm and two downstream firms. Each downstream product uses one unit of the input, and the downstream demand system is symmetric with linear demand. In this setting they (p. 12) show that a vertical merger will cause both downstream prices to fall.

<sup>71</sup> I am distinguishing here between models that are used to predict effects and more direct empirical evidence of the effects of prior mergers, such as in the form of merger retrospectives. Merger retrospectives need not rely on formal oligopoly models. Of course, the usual econometric issues arise in measuring the effects of prior mergers, and there will always be the question of just what one learns about a currently proposed merger from distinct prior mergers.

<sup>72</sup> Judge Leon made his distaste for economic models plain. He also exhibited open hostility toward experts in general and me in particular. Just minutes before I took the witness stand, he stated: “Experts are notoriously like this. It’s their nature. They think they’re the smartest thing ever and they know all the answers and they know all the nuances and blah, blah, blah.” Trial Transcript at 2164–2165. Regarding me in particular, in response to a scheduling query he had received from Judge Robert Paine in Richmond, Virginia, that related to my testimony, about which I knew nothing and over which I had no con-

### C. Applying the Baker-Hughes burden-shifting approach to EDM.

Antitrust law applies a three-step burden shifting approach in merger cases, which is based on the 1990 *Baker-Hughes* case.<sup>73</sup> The Appeals Court in the *AT&T/Time Warner* case explained<sup>74</sup>:

Under this framework, the government must first establish a *prima facie* case that the merger is likely to substantially lessen competition in the relevant market.... [In a vertical merger,] the government must make a ‘fact-specific’ showing that the proposed merger is ‘likely to be anticompetitive.’ Once the *prima facie* case is established, the burden shifts to the defendant to present evidence that the *prima facie* case ‘inaccurately predicts the relevant transaction’s probable effect on future competition,’ or to ‘sufficiently discredit’ the evidence underlying the *prima facie* case. Upon such rebuttal, ‘the burden of producing additional evidence of anticompetitive effects shifts to the government, and merges with the ultimate burden of persuasion, which remains with the government at all times.’

The above analysis of RRC and EDM fits nicely into this three-step burden-shifting approach.

1. First, the agency seeks to establish its *prima facie* case. The agency could accomplish this by presenting evidence that the merger will substantially raise rivals’ costs. This might be achieved purely through qualitative evidence, but in cases where the necessary data are available, quantitative evidence would be useful to show that the RRC effects are substantial enough to warrant prohibition of the merger under the Section 7 of the Clayton Act. EDM is not considered as part of this first step.

2. Next, if the agency succeeds in establishing its *prima facie* case, then the merging parties have the opportunity to rebut that case. AT&T did this in large part by discrediting the evidence underlying the *prima facie* case. Rebuttal also can involve presenting evidence that the merger is likely to enhance rather than lessen competition. Presumably, the merging parties will claim EDM and other cognizable efficiencies as part of their rebuttal case. The merging parties bear the burden of showing that EDM and other efficiencies are not only cognizable but sufficient in magnitude to rebut the *prima facie* case. This might involve presenting an economic model of the type developed in Sects. 4A, B, which would evaluate the combined impact of RRC and EDM on downstream prices and downstream customers.

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Footnote 72 (continued)

trol whatsoever, he stated: “This man is coming here to testify in one of the largest antitrust cases by the characterization of the government in the last 50 years. He’s come here and he’s scheduled to be in Richmond tomorrow? ... I don’t know this guy. I don’t know what his game plan is or how he does things. ... I can’t believe that he put himself in this position. It’s stunning to me” Trial Transcript at 2165–2166.

<sup>73</sup> *United States v. Baker Hughes*, 908 F.2d 981 (DC Circuit, 1990).

<sup>74</sup> Appeals Court at 1032, citations omitted.

3. If the merging parties are able to rebut the *prima facie* case, the government can then seek to show that, considering the evidence as a whole, including cognizable efficiencies, the merger may substantially lessen competition and harm downstream customers. At this point, the government might well offer economic models of the type that were developed above in Sects. 4A, B and were identified in the 2020 VMGs.

In cases where the government is able to establish its *prima facie* case, this sequencing forces the merging firms to engage seriously in modeling the tradeoffs that are involved when RRC and EDM are both present. A virtue of this burden-shifting approach is that it encourages both the government and the merging parties to engage seriously in balancing RRC and EDM effects when necessary, without imposing an overly high burden of quantification on the government at the first step. Unfortunately, the procedural rules imposed by Judge Leon made it impossible for the DOJ to follow this approach in the *AT&T/Time Warner* case.<sup>75</sup>

## 5 Binding Arbitration as a Remedy

There is yet one more major obstacle to vertical merger enforcement that must be addressed.

Shortly after the DOJ challenged the proposed merger between AT&T and Time Warner, those two merging firms acted to weaken the government's case.

A week after the government filed suit to stop the proposed merger, Turner Broadcasting sent letters to approximately 1000 distributors 'irrevocably offering' to engage in 'baseball style' arbitration at any time within a seven-year period, subject to certain conditions not relevant here. According to President of Turner Content Distribution Richard Warren, the offer of arbitration agreements was designed to 'address the government's concern that as a result of being . . . commonly owned by AT&T, [Turner Broadcasting] would have an incentive to drive prices higher and go dark with [its] affiliates,' Tr. 1182 (April 3, 2018). In the event of a failure to agree on renewal terms, Turner Broadcasting agreed that the distributor would have the right to continue carrying Turner networks pending arbitration, subject to the same terms and conditions in the distributor's existing contract.<sup>76</sup>

<sup>75</sup> The natural way to follow this approach would have been to have three rounds of expert reports, mirroring the law's three-step burden-shifting framework. In the first round, the DOJ's expert would address RRC. In the second round, AT&T's expert would presumably try to rebut that analysis and show that the EDM effects outweigh the RRC effects. In the third, round, the DOJ's expert would try rebut that analysis and address the RRC and EDM effects in an integrated fashion. None of that was possible because Judge Leon allowed just two rounds of expert reports. Each round was submitted simultaneously by the DOJ and AT&T, and the second-round reports were confined to rebutting the other side's first-round reports. These procedural rules forced me to address the RRC and EDM effects in an integrated manner in my initial expert report.

<sup>76</sup> Appeals Court at 1034–35.

This strategic move by AT&T and Turner presented difficulties for the DOJ. At trial, AT&T argued that Turner's offer of binding arbitration would prevent Turner from increasing prices to rival MVPDs. That assertion was especially potent because the DOJ had agreed to a similar provision in allowing the merger between Comcast and NBC/Universal to be consummated, and Judge Leon himself had been supervising that consent decree since 2011. DOJ had repeatedly told Judge Leon that binding arbitration was an effective remedy in the Comcast/NBCU merger. Referring to that merger, the appeals court stated bluntly: "There the government had recognized, 'especially in vertical mergers, that conduct remedies,' such as the ones proposed [in the Comcast case], 'can be a very useful tool to address the competitive problems while preserving competition and allowing efficiencies' that 'may result from the transaction.'" <sup>77</sup>

The DOJ never adequately explained why the arbitration remedy used in the Comcast/NBCU merger was unacceptable for the AT&T/Time Warner merger. There were widespread suspicions that the DOJ was unwilling to settle the case because Donald Trump, as a candidate in 2016, had made the following statement at a campaign rally: "As an example of the power structure I'm fighting, AT&T is buying Time Warner and thus CNN, a deal we will not approve in my administration because it's too much concentration of power in the hands of too few." <sup>78</sup>

The arbitration remedy used in the Comcast/NBCU merger was consistent with the Antitrust Division's 2011 Policy Guide to Merger Remedies. Section II.B of that policy guide, entitled "Conduct Remedies," states: "Conduct remedies can be an effective method for dealing with competition concerns raised by vertical mergers." <sup>79</sup> The Policy Guide made it clear that the Antitrust Division would use conduct remedies in vertical merger cases if they were effective and enforceable. "There is a panoply of conduct remedies that may be effective in preserving competition. No matter what type of conduct remedy is considered, however, a remedy is not effective if it cannot be enforced." <sup>80</sup>

Sallet (2016) reiterated this approach, stating: "To be employed, conduct remedies must be adequate to address identified risks, must be able to be monitored by the Division or a court, and must be capable of being effectively enforced in a timely manner." <sup>81</sup> This policy guidance led numerous observers to predict that the Antitrust Division would settle the *AT&T/Time Warner* case as it had the Comcast/NBCU case.

However, just days before the DOJ filed its complaint against AT&T and Time Warner, Assistant Attorney General Makan Delrahim gave a speech in which he announced that the Antitrust Division would generally *not* accept behavioral remedies, even for vertical mergers. In his speech, Delrahim equated behavioral remedies

<sup>77</sup> Appeals Court at 1041.

<sup>78</sup> Brian Fung, "Why Trump Might Not Block the AT&T-Time Warner Merger, After All," *Washington Post*, November 11, 2016.

<sup>79</sup> Department of Justice (2011, p. 12). The Antitrust Division subsequently updated this policy guide. See Department of Justice (2020).

<sup>80</sup> Department of Justice (2011, p. 13) (footnote omitted).

<sup>81</sup> Sallet (2016, p. 11).



with regulation, which in his view impinge on economic liberty. He stated: “Some economies are centrally planned and others are highly regulated, but in the United States our economy is premised on liberty.”<sup>82</sup> He expressed general antipathy to behavioral remedies, stating: “Instead of protecting the competition that might be lost in an unlawful merger, a behavioral remedy supplants competition with regulation; it replaces disaggregated decision making with central planning.”<sup>83</sup> He added: “Like any regulatory scheme, behavioral remedies require centralized decisions instead of a free market process.”<sup>84</sup>

This sharp policy change at the Antitrust Division with regard to acceptable remedies in vertical merger cases was not well supported, to put it mildly. Worse yet, the timing of this sharp change fueled the belief that Delrahim was acting at the behest of the White House. Furthermore, as we now know, Delrahim’s assertions soon rang hollow when he engineered a far more complex settlement that included extensive and long-lasting behavioral remedies purportedly to resolve the highly concentrating *horizontal* merger between T-Mobile and Sprint.

My analysis addressed the merger between AT&T and Time Warner as originally proposed, not as it was modified in response to the DOJ complaint. Here is a passage from my direct testimony: “Q: Professor, before we leave this particular demonstrative, does the analysis take into account the current contracts of the MVPDs or the proposed arbitration remedy that we’ve heard about? A So, no, it does not. I want to really emphasize this and flag this for Your Honor.”<sup>85</sup>

The appeals court accurately observed that my quantification of harm to consumer “failed to take into account Turner Broadcasting System’s post-litigation irrevocable offers of no-blackout arbitration agreements, which a government expert acknowledged would require a new model.”<sup>86</sup> This was a key factor in the decision by the appeals court not to reverse Judge Leon. “Not to be overlooked, the district court also credited the efficacy of Turner Broadcasting’s ‘irrevocable’ offer of arbitration agreements with a no-blackout guarantee.”<sup>87</sup>

The *AT&T/Time Warner* case thus has established a precedent that will make it even harder for the government to prevail when challenging vertical mergers based on total input foreclosure or raising rivals’ costs. In addition to all of the difficulties of quantifying the RRC effect that were discussed above, the merging parties can unilaterally offer a contractual commitment that will facially limit the ability of the merged firm to raise the price that it charges for the input to its downstream rivals. The Turner offer to engage in binding arbitration had this feature. In other cases, the

<sup>82</sup> Delrahim (2017, p. 3).

<sup>83</sup> Delrahim (2017, p.5).

<sup>84</sup> Delrahim (2017, p.6).

<sup>85</sup> *AT&T/Time Warner* Trial Transcript at 2208–2209 (Shapiro).

<sup>86</sup> Appeals Court at 1031.

<sup>87</sup> Appeals Court at 1041. The efficacy of the arbitration remedy was especially important because a key part of AT&T’s defense was the assertion that the Comcast/NBCU merger had not led to higher prices for NBCU content. AT&T was claiming that their unilateral arbitration offer would be as effective as the Comcast/NBCU consent decree, which included DOJ and FCC oversight and enforcement.

merged firm might simply promise not to raise the price of the input for some period of time.

Clearly, the use of arbitration as a remedy replaces competition with governmental oversight. No matter how well-designed, behavioral remedies raise risks because (unlike structural remedies) they attempt to curb anticompetitive behavior in which a merged company has a continuing incentive to engage. In the future, faced with a unilateral offer like that made by AT&T, the government will have to focus more on the likely efficacy of the arbitration mechanism as compared to the disciplining impact of competition.

Effective antitrust enforcement would require the merging parties to show that the regulatory patch that they have constructed will effectively protect consumers. My analysis followed that approach. However, based on the appellate decision in the *AT&T/Time Warner* case, it appears that the *government* will bear the burden of proving that harm to customers will arise notwithstanding this type of regulatory patch. That is likely to prove challenging, as it would seem to necessitate delving into the details of how the proposed regulatory patch will operate and how well it will actually protect downstream rivals and downstream customers. Imposing that burden on the government, even for unilateral commitments that are put forward by the merging parties after litigation has been initiated, is a recipe for under-enforcement of vertical mergers that harm competition by creating incentives for input foreclosure.

The 2020 VMGs are silent on how the agencies will handle any of these complications. That is another missed opportunity. Any competent antitrust attorney who seeks to clear their client's vertical merger will prepare a unilateral contractual offer to announce if and when the government files a complaint that challenges the merger. Given the appellate decision in *AT&T/Time Warner*, the agency will not be able to ignore such regulatory patches in court. But the 2020 VMGs tell us nothing about how the agencies will address these complications during the investigation or litigation phases.

## 6 Conclusions

The *AT&T/Time Warner* case serves as a warning of the challenges that the DOJ and the FTC will face when they go to court to block vertical mergers. That merger also serves as a valuable case study in how the agencies can develop the economic analysis described in the 2020 Vertical Merger Guidelines in cases that involve total input foreclosure or raising rivals' costs.

Economists have developed a number of methods for quantifying the net effects of such mergers on downstream customers in cases where the elimination of double marginalization is a cognizable efficiency, but more work is needed to identify the best modeling approaches. Sophisticated models can be used during the investigation phase, so long as the results are reasonably accurate and robust. Simplicity and transparency become especially important during the litigation phase. Unfortunately, the 2020 VMGs leave much unsaid about how the agencies will perform these types of analyses.

The *AT&T/Time Warner* merger also shows how the three-step burden-shifting approach that the courts generally employ in merger cases can be applied to vertical mergers that involve input foreclosure. First, the government seeks to establish its *prima facie* case by putting forward evidence that the merger is likely to raise rivals' costs significantly. The government could quantify the RRC effects at this step, but quantification is not required. The elimination of double marginalization is not considered during this first step.

Next, the merging firms can rebut the government's *prima facie* case. That might involve showing that EDM is a cognizable efficiency and that downstream customers will benefit if one accounts for RRC and EDM effects in an integrated manner. The merging firms could also assert other cognizable efficiencies in this rebuttal step.

If the merging firms' rebuttal is successful, the analysis moves to the third step, which gives the government the opportunity to show that, considering all of the evidence, the merger may substantially lessen competition and harm downstream customers. Both the merging firms' rebuttal and the government's response may well involve the type of integrated analysis of RRC and EDM that I performed in the *AT&T/Time Warner* case and that I have described in this article.

More work is needed for the United States to effectively enforce the antitrust laws in a manner that will prevent vertical mergers that may substantially harm competition. Economists can and should continue the important work of building models of vertical mergers that are as simple and accurate as possible, so that these models can effectively be presented in court.

Ironically, just three years after AT&T told a federal judge that acquiring Time Warner could allow it to unlock tremendous efficiencies through vertical integration, AT&T reversed course and decided to sell Time Warner to Discovery. Hopefully, this stunning retreat by AT&T will serve as a reminder to the courts that merger efficiencies are far easier to claim than to achieve.

Finally, I urge the DOJ and FTC to prepare now for their next challenges to vertical mergers, in part by drawing lessons from the *AT&T/Time Warner* litigation. That preparation also should include continuing improvement of the VMGs along with associated speeches and commentary.

## Appendix : Recursive Nash Bargaining with Time-Varying Payoffs

This "[Appendix](#)" proves that the outcome of recursive Nash Bargaining between a content provider and an MVPD depends on the long-term impact on each of them if they do not reach an agreement. More precisely, the outcome of recursive Nash Bargaining depends upon the *present discounted value* of each party's payoff if they fail to reach an agreement. Xiaowei Yu at Charles River Associates assisted me with this proof.

The two parties are denoted by  $A$  and  $B$ . Payoffs are earned at dates  $t = 1, 2, \dots$ . The one-period discount factor  $\delta < 1$  is the same for both parties. During any period in which the two parties have reached an agreement, their combined payoff is denoted by  $X$ . This simplifying assumption that the flow payoff from agreement

is stationary is not required for the result. The combined present discounted value (PDV) of reaching an agreement is  $W = X(1 + \delta + \delta^2 + \dots)$ .

The payoffs to  $A$  and  $B$  during period  $t$  if they have *not* reached an agreement are denoted by  $a_t$  and  $b_t$  respectively. This structure allows for the possibility that one party may incur the bulk of its disagreement costs soon after an impasse occurs, while the other party incurs the bulk of its disagreement costs further into the future. The present discounted value, starting in period  $t$ , of the payoff to  $A$  if an agreement is never reached is therefore given by

$$A_t = a_t + \delta a_{t+1} + \delta^2 a_{t+2} + \dots$$

and likewise for  $B$ , with

$$B_t = b_t + \delta b_{t+1} + \delta^2 b_{t+2} + \dots$$

We assume that there are gains during every period:  $X > a_t + b_t$  for all  $t$ . We are interested in the Nash Bargaining outcome in which the two parties reach an agreement in the first period and share equally in the gains from trade.

Consider for a moment the outcome of *one-shot* Nash Bargaining at date  $t = 1$ , meaning that the two parties have only one opportunity to reach an agreement. If they fail to reach an agreement at date  $t = 1$ , they will have no further opportunities to do so. In this one-shot Nash Bargaining situation, the walk-away payoffs of the two parties are  $A_1$  and  $B_1$ . Denote by  $U_1$  and  $V_1$  the PDV of the equilibrium payoffs to  $A$  and  $B$  respectively from one-shot Nash Bargaining. Splitting the gains from trade equally means that  $U_1$  and  $V_1$  must satisfy the following pair of equations:

$$U_1 + V_1 = W \quad \text{and} \quad U_1 - A_1 = V_1 - B_1.$$

Solving gives

$$U_1 = \frac{W + (A_1 - B_1)}{2} \quad \text{and} \quad V_1 = \frac{W + (B_1 - A_1)}{2}.$$

These payoffs reflect the impact of an impasse on the two parties measured in PDV terms.

We now prove by induction that this same result applies with *recursive* Nash Bargaining. This means that when the parties bargain at date  $t = 1$ , they recognize and understand that if they fail to reach an agreement at date  $t = 1$ , they will have further opportunities at dates  $t = 2, 3, \dots$

Denote by  $U_t$  and  $V_t$  the PDV of the payoffs to  $A$  and  $B$ , respectively, if they have not reached an agreement by date  $t$  and engage in Nash Bargaining at that date. (Payoffs already earned prior to date  $t$  are not included in these variables because they are unaffected by what happens starting at date  $t$ , and thus are irrelevant for future decisions.) For ease of exposition, we assume that starting at some large but finite date  $T$ , the flow disagreement payoffs to  $A$  and  $B$  stabilize. Formally this means that  $a_t = a$  and  $b_t = b$  for  $t = T, T + 1, \dots$  We now demonstrate that the following PDV payoffs satisfy the requirements of Nash Bargaining at all dates:

$$U_t = \frac{W + (A_t - B_t)}{2} \quad \text{and} \quad V_t = \frac{W + (B_t - A_t)}{2} \tag{1}$$

We begin by considering a date  $t > T$ . Since the environment is stationary after date  $T$ , we know that the PDV of payoffs to  $A$  and  $B$  if they have not reached an agreement by date  $t > T$  and engage in Nash Bargaining at date  $t$  does not vary over time after date  $T$ . Denote by  $\bar{U}$  and  $\bar{V}$  these PDV payoffs to  $A$  and  $B$  respectively.

We now consider Nash Bargaining between  $A$  and  $B$  at date  $t$ . If they fail to reach an agreement at  $t$ , their Nash Bargaining payoffs starting at  $t + 1$  are  $\bar{U}$  and  $\bar{V}$  respectively. Therefore, their walk-away payoffs at date  $t$  are given by  $a + \delta\bar{U}$  and  $b + \delta\bar{V}$ , respectively. Splitting the gains from trade equally requires that their PDV payoffs at date  $t$  solve this pair of equations:

$$\bar{U} + \bar{V} = W \quad \text{and} \quad \bar{U} - (a + \delta\bar{U}) = \bar{V} - (b + \delta\bar{V}).$$

Solving for  $\bar{U}$  and  $\bar{V}$  gives

$$\bar{U} = \frac{W + \left(\frac{a}{1-\delta} - \frac{b}{1-\delta}\right)}{2} \quad \text{and} \quad \bar{V} = \frac{W + \left(\frac{b}{1-\delta} - \frac{a}{1-\delta}\right)}{2}.$$

Since  $A_t = a/(1 - \delta)$  and  $B_t = b/(1 - \delta)$  for  $t > T$ , these equations can be written as

$$\bar{U} = \frac{W + (A_t - B_t)}{2} \quad \text{and} \quad \bar{V} = \frac{W + (B_t - A_t)}{2}.$$

This shows that the claim is true for any  $t \geq T$ .

We now show the claim is also true for  $t < T$ , by inducting on the number of periods remaining until date  $T$ . Suppose that these two equations apply at date  $t \leq T$  and consider Nash Bargaining at date  $t - 1$ . The combined PDV payoff from reaching an agreement is  $W$ . The PDV payoff to  $A$  from *not* reaching an agreement is given by  $a_{t-1} + \delta U_t$ , and likewise for  $B$ . The PDV payoffs to  $A$  and  $B$  from Nash Bargaining at date  $t - 1$  must therefore satisfy:

$$U_{t-1} + V_{t-1} = W \quad \text{and} \quad U_{t-1} - (a_{t-1} + \delta U_t) = V_{t-1} - (b_{t-1} + \delta V_t).$$

Solving for  $U_{t-1}$  and  $V_{t-1}$  gives

$$U_{t-1} = \frac{W + ((a_{t-1} + \delta U_t) - (b_{t-1} + \delta V_t))}{2},$$

$$V_{t-1} = \frac{W + ((b_{t-1} + \delta V_t) - (a_{t-1} + \delta U_t))}{2}.$$

When we substitute the expressions for  $U_t$  and  $V_t$  given in Eq. (1) above (this is the induction step),  $U_{t-1}$  can be written as

$$U_{t-1} = \frac{1}{2} \left\{ W + a_{t-1} + \frac{\delta W + \delta A_t - \delta B_t}{2} - b_{t-1} - \frac{\delta W - \delta A_t + \delta B_t}{2} \right\} =$$

$$\frac{1}{2} \{ W + a_{t-1} + \delta A_t - b_{t-1} - \delta B_t \} = \frac{W + (A_{t-1} - B_{t-1})}{2}.$$

Since  $A_{t-1} = a_{t-1} + \delta A_t$ , and  $B_{t-1} = b_{t-1} + \delta B_t$ . Similarly, we get

$$V_{t-1} = \frac{W + (B_{t-1} - A_{t-1})}{2}.$$

This proves that the outcome of recursive Nash Bargaining at any  $t \geq 1$  is the one-shot Nash Bargaining Solution with the use of the present discounted value of disagreement payoffs.

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