

# Presumptions in Vertical Mergers:

## The Role of Evidence<sup>1</sup>

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### Abstract:

Vertical mergers have attracted much attention in recent years. In this paper, we assess the role of presumptions and likelihoods in vertical merger analysis and guidelines. We focus in particular on the role that we believe statistical evidence in general, and retrospective analyses more specifically, should play in determining presumptions. We also discuss how horizontal merger guidelines provide frameworks to analyze the horizontal issues that can be associated with vertical mergers. We conclude that while some vertical mergers may raise concerns, the evidence at this point does not provide sufficient guidance to develop presumptions related to strictly vertical issues.

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# 1 Introduction

High profile vertical mergers such as the acquisition of Ticketmaster by LiveNation, the CVS/Aetna merger, and the merger of AT&T and Time Warner, as well as the growth of large technology companies, have generated much renewed interest in vertical mergers. With horizontal mergers, which involve substitute products, economic theory is relatively unambiguous in predicting that higher prices are likely to result from a reduction in the number of competitors, due to unilateral (or possibly coordinated) effects. However, vertical mergers involve complements. For that reason, they are often thought to be benign: specifically, from a theoretical perspective, there is not a direct expectation that vertical mergers will lead to higher prices for consumers. Nevertheless, vertical mergers in imperfectly competitive industries almost always involve a tradeoff between potential efficiencies — which include the lower transaction costs and better aligned incentives that are emphasized in the organizational economics literature, as well as the elimination of double marginalization — and potential competitive harm due to, for example, foreclosure or the elimination of potential entrants.

The antitrust treatment of vertical mergers has changed considerably over time in the U.S. Back in 1962, the U.S. Supreme Court prohibited a vertical merger between Brown Shoe (the fourth largest shoe manufacturer with a 4% share, and third in retail sales of shoes) and Kinney (the largest retailer, with a 1 to 2 percent share, and the twelfth largest manufacturer).<sup>4</sup> The argument used by the Court was mostly about rival access: "The primary vice of a vertical merger or other arrangement tying a customer to a supplier is that, by foreclosing the competitors of either party from a segment of the market otherwise open to them, the arrangement may act as a clog on competition, which deprive(s) . . . rivals of a fair opportunity to compete."<sup>5</sup> This view was reflected in the DOJ's 1968 Merger Guidelines, which indicated that a vertical merger could be challenged if the supplier had a 10 percent market share and the buyer accounted for 6 percent of demand upstream.

In the late 70s and through the 1980s, courts moved towards more of a consumer welfare focus and began to consider the potential efficiencies associated with vertical arrangements and mergers. U.S. antitrust enforcement policy, as reflected in the 1982 and then 1984

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<sup>4</sup> Brown Shoe Co. v. United States, 370 U.S. 294 (1962).

<sup>5</sup> Id. at 323-24

merger guidelines, moved away from explicit concerns of access and foreclosure and towards a greater focus on barriers to entry.<sup>6</sup>

Starting with the development of theoretical models of exclusion, entry deterrence, foreclosure, and raising rivals' costs in the late 1980s and early 1990s, however, antitrust practitioners began to question again the proper treatment of vertical mergers (and vertical restraints). Some years later, the EU issued its 2008 Non-Horizontal Merger Guidelines. And this year, more than 25 years after the Department of Justice's (DOJ) put forward the 1984 Non-Horizontal Guidelines, the DOJ and Federal Trade Commission (FTC) have produced Vertical Merger Guidelines (VMG) that supersede the 1984 Guidelines.<sup>7</sup> These new Guidelines were the results of increased questioning related to the treatment of vertical mergers, and have themselves led to further heated discussions about their consequences among academics, regulators, and consultants.

In this paper, we focus on the role of presumptions and likelihoods in vertical merger analysis and guidelines. In particular, we discuss the role that statistical evidence should play in establishing presumptions. However, our analysis is more general and includes a discussion of the sort of evidence that can guide conclusions concerning the consequences of vertical mergers.

## 2 Presumptions in Merger Guidelines

A legal presumption uses a known fact to infer another. For example, the existence of a cartel can be used to infer anticompetitive behavior leading to consumer harm. Furthermore, in a merger case, where the antitrust authorities are the plaintiffs, a rebuttable presumption reallocates the burden of proof from the authorities to the parties. In contrast, a likelihood merely states that a named practice is likely or unlikely to be of concern.

To illustrate, the 2010 U.S. Horizontal Merger Guidelines (HMG) specify one presumption, the structural presumption, that states that "Mergers resulting in highly concentrated markets that involve an increase in the HHI of more than 200 points will be presumed to be likely to enhance market power," (p. 19) where highly concentrated is defined as an HHI greater than 2500. In contrast, on the same page, those Guidelines state that "Mergers in-

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<sup>6</sup> See, e.g., Church (2008).

<sup>7</sup> Per footnote 1 of the new VMG, "These Guidelines supersede the extant portions of the Department of Justice's 1984 Merger Guidelines, which are now withdrawn and superseded in their entirety."

volving an increase in the HHI of less than 100 points are unlikely to have adverse competitive effects and ordinarily require no further analysis” and “Mergers resulting in unconcentrated markets are unlikely to have adverse competitive effects and ordinarily require no further analysis,” where unconcentrated markets are described as those with an HHI below 1500.

Vertical merger guidelines rarely contain presumptions. In contrast, likelihoods are common. For example, the U.S. Non-Horizontal Merger Guidelines of 1984 stated that mergers are unlikely to be challenged if the HHI in the acquired firm’s market is less than 1800 and the acquired firm’s market share is less than 5%. However, they did not contain upper market-share or concentration thresholds over which a merger would be presumed to enhance market power.

Similarly, the EU’s 2008 Non-Horizontal Merger Guidelines provide thresholds under which a merger is considered unlikely to be problematic, namely an HHI smaller than 2000 and market shares post merger in both markets of less than 30%. These are then supplemented with a list of circumstances that can lead to exceptions (e.g. cross shareholding, likely expansion, disruptive firm).

Finally, the U.S. Draft Vertical Merger Guidelines that were circulated in January of 2020 proposed lower thresholds or safety zones. The official Vertical Merger Guidelines (VMG), however, do not mention lower thresholds or any type of safe harbor.

While structural types of presumptions, namely presumptions on market shares and concentration indices, have been absent from vertical merger guidelines, other sorts of presumptions have been proposed. Indeed a recent article (Baker et. al. 2019) advocates the adoption of anticompetitive presumptions when vertical mergers meet any of seven conditions. The authors refer to those presumptions as the Input foreclosure, Customer foreclosure, Elimination of potential entry, Disruptive or maverick seller, Disruptive or maverick buyer, Evasion of regulation, and Dominant platform presumptions.<sup>8</sup>

To presume or not to presume is therefore an important question for vertical merger guidelines. The OECD Background Note on Safe Harbours and Presumptions in Competition Law (2017) advocates basing presumptions on experience, economic theory, and common sense. Unfortunately, in the context of vertical mergers, those principles are difficult to apply. Specifically, we have little experience of litigated vertical mergers, especially when

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<sup>8</sup> The Stigler Committee on Digital Platforms (2019) also recommends the Dominant platform presumption.

it comes to the application of more recent theories of harm; economic theory provides little guidance, instead it offers tradeoffs that can, in net, go either way; and most vertical mergers that are investigated are highly complex transactions where what constitutes common sense is apt to be highly subjective.

In this paper, we take a step back to discuss what we consider to be conditions that presumptions should satisfy before they can be considered for policy purposes. We argue that these are particularly important in the context of vertical mergers exactly because, compared to horizontal mergers, economic theory provides much less guidance.<sup>9</sup>

### 3 Our Thoughts on Antitrust Presumptions

To reiterate, a presumption means that if we observe A (the observed circumstances) we can infer B (the anticompetitive outcome), which is a strong causal statement. In this section, we discuss what might be called presumptions on presumptions. More specifically, we discuss conditions that we believe presumptions should satisfy before they can be embedded into policy. The first and most important condition is:

**1: There should be a body of empirical evidence that shows that the observed circumstances (A) do indeed lead to the anticompetitive outcome (B).**

We believe that this rule is important generally, but especially in the context of vertical mergers. Indeed, with a horizontal merger, theory suggests strong reasons why the merging parties and the industry equilibrium would involve increased prices and consumer harm unless important marginal cost reductions are realized. When it comes to vertical mergers, which involve the combination of complementary products or activities, theory suggests a much more nuanced set of results, with a number of scenarios exhibiting potential strong benefits and others highlighting potential harms to consumers. Given this, we argue that the best approach is to rely on what can be learned from empirical analyses in general, and in specific circumstances as well.

**2. The problem that is addressed in the presumption should be intrinsically vertical and not be covered by horizontal merger policy.**

Vertical mergers involve two relevant markets — one upstream and one downstream —

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<sup>9</sup> See e.g. Church (2008) for an overview.

and an interface between the two. There can be horizontal problems arising from the merger that take shape in either of those markets and, in those cases, the more familiar horizontal guidelines can be relied upon. Indeed, the U.S. vertical guidelines refer to the horizontal guidelines for treatment of several concepts and analyses, including market definition, shares, and entry considerations.

We discuss each of these two conditions in more detail below.

## 3.1 Discussion

### 3.1.1 Condition 1

*There should be a body of empirical evidence that shows that the observed circumstances (A) do indeed lead to the anticompetitive outcome (B).*

For clarity, we must specify what we mean by a body of empirical evidence. Although the condition above is general, given our focus, we discuss this in the context of vertical mergers.

First, to be taken as relevant evidence, the empirical studies should evaluate the sorts of industries where vertical mergers have raised competitive concerns. Those industries are not a random sample. In particular, the industries that raise vertical–merger concerns are often characterized by high concentration in at least one market (upstream or downstream), economies of scale or scope, two–sided markets, multiproduct firms, and/or networks.<sup>10</sup> Studies that illuminate the effects of mergers in those sorts of industries are therefore apt to provide useful evidence to guide policy and enforcement.

Second, we believe that ex ante merger simulations of the sort that are used to predict the effects of a merger are important: they inform our understanding of markets and of potential antitrust issues and they supplement other evidence that can be used by the agencies to both flag potential anticompetitive mergers and to perform more formal analyses of those that are challenged. In the vertical context, this includes the analyses described in Rogerson (2014) and Shapiro (2019), who use bargaining models to predict the consequences of proposed mergers between Comcast and NBCU and AT&T and Time Warner, respectively.<sup>11</sup>

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<sup>10</sup> Salop and Culley (2018a), which enumerates all U.S. vertical merger actions in the past 25 years, can be used to determine the characteristics of the industries that have caused concern.

<sup>11</sup> Sheu and Taragin (2017) provide a general framework for simulating vertical mergers under various of assumptions concerning upstream and downstream markets and the link between the two.

Those models are the state of the art for predicting vertical merger consequences using only the limited data that is available when a merger is challenged. However, due to data constraints, they are often calibrated not estimated. Moreover, since they do not tell us what actually happened ex post, we think that they should not be relied on as *evidence* to develop presumptions. Finally, in a horizontal context, which is much simpler than a vertical context, retrospective studies have shown that ex ante simulations often perform poorly ex post.<sup>12</sup> This is especially the case when considering the magnitudes of effects, which are an important consideration in antitrust cases generally.<sup>13</sup>

Third, tailored purely hypothetical merger simulations where, for example, a researcher has estimated a structural model of an industry and then asks: What would happen if two firms were to merge or if a certain practice were banned? should also not be relied on as evidence. Studies of this sort usually rely on excellent data and some represent the state of the art in academic research on vertical mergers.<sup>14</sup> Furthermore, they are very valuable in furthering our understanding of vertical markets. Unfortunately, however, like vertical merger theories, the results are almost always ambiguous. In particular, even when under the preferred set of parameter values the researcher reaches a definite conclusion, an alternative set of plausible parameter values almost always exists under which the conclusion is reversed.

Because we argue that the above sorts of studies, and thus a major portion of the empirical literature, cannot be relied on as evidence to develop presumptions about vertical mergers, it is now incumbent upon us to describe what we do consider to be the type of evidence that can guide vertical merger policy.

We believe that retrospective case studies of mergers are the best source of evidence and should be considered when available. Unfortunately, such studies are very resource intensive and, as a result, not many mergers are analyzed, particularly in the vertical context.

The difference in differences technique is the most common, and perhaps most appropriate, method to use for a retrospective case study. Such an analysis compares outcomes,

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<sup>12</sup> See e.g., Peters (2006); Slade (2009); Weinberg and Hosken (2013); Bjornersyedt and Verboven (2016).

<sup>13</sup> In the AT&T/Time Warner case, for example, the judge indicated that under U.S. law, harms have to be probable or likely, an assessment of which often hinges on estimates and their variance across models. Similarly, in Canada, the Supreme Court "has ruled that the government has the burden to provide *quantitative* evidence of a lessening of competition whenever quantification is possible (Ross and Winter, this issue.)

<sup>14</sup> Excellent examples of this sort of analysis include Crawford et. al. (2018) and Cuesta et. al. (2019).

say price changes, before and after the merger, in two sets, control and treated. It then looks at the difference between the two to answer the question: what would have happened absent the merger? When the firm produces multiple products and/or operates in multiple markets, it is often the case that only some of those products or markets are affected by the merger. When that is true, the unaffected set can be used as the control set. In addition, in terms of outcomes of interest, downstream prices to consumers, rather than upstream prices to downstream rivals, are more important since the authorities are interested in protecting competition, not competitors.

Suzuki's 2009 study of the merger between Turner Broadcasting, a TV program provider, and Time Warner, a distributor, is an example of this sort of case study. The treated set is assumed to be all Time Warner distributors in different geographic markets while the control set is similar distributors that were not affected by the merger. Subscription prices, i.e. the prices consumers pay, and the quantity of subscriptions pre and post merger, are the outcomes that are compared. Suzuki finds evidence that prices fell. However, the bundles that were sold changed post merger. Specifically, Time Warner shifted the bundle contents towards its own newly integrated channels. Since the quantity of subscriptions did not rise, there is evidence that consumers preferred the old bundles. This combination of results (lower price and same quantity) suggests that the merger had little net effect on consumer welfare.

Of course, retrospective studies do not get to the issue of why the firms have merged. Instead, they look at effects conditional on the mergers, which raises endogenous selection issues. Despite this limitation, we believe that retrospective analyses provide useful information as to the type of mergers that might cause concern. This is especially the case in the present context where some suggest that two few vertical mergers are challenged. In a permissive environment, the data should reveal that a number of consummated mergers have had detrimental effects.<sup>15</sup>

When many mergers have been studied, an alternative, simpler sort of analysis can be used to gain further insights. That type of study looks at a set of proposed mergers that were extensively studied by competition authorities, and either cleared or allowed to proceed with

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<sup>15</sup> Indeed, assessing the effect of horizontal mergers of hospitals in a context where the courts had been allowing such mergers was part of the goal of the health care retrospective merger program at the FTC in the early 2000's. See Ashenfelter, Hosken, Vita and Weinberg (2011) for more on this program and the resulting studies.

some form of remedy, and asks how the firms have performed post merger. The outcome of interest is often price but other consequences can be examined.<sup>16</sup>

To our knowledge, this latter sort of analysis has not been used to study vertical mergers, perhaps because there are so few of them. However, it has been applied in the horizontal context. To get a feel for how retrospective analysis of many mergers can be used to evaluate presumptions, we consider Kwoka's (2017) study of presumptions in horizontal merger analysis. That research assesses U.S. mergers in which the post-merger HHI was greater than 2500 and its change was greater than 200 — the structural presumption in the HMG — and finds that mergers that satisfied those criteria led to price increases 86 percent of the time.

Kwoka also assesses the safe harbor criterion of a post merger HHI below 1500 and concludes that the evidence in favor of that rule is weak. He reaches this conclusion for two reasons. First, very few mergers in this HHI range have been studied. And second, those that have been studied are apt to be ones that cause concern for some other reason.

This finding for the safe harbor in the Horizontal Merger Guidelines points to the necessity of distinguishing between two meanings of no evidence. The first is that the researcher has lots of data and that an analysis of that data shows that there is no robust relationship between A and B. In other words we feel confident that A does not cause B. The second is that the data are sparse, nonrandom, and/or of such poor quality that robust conclusions cannot be drawn. Under those circumstances, even if A did cause B, it might not be possible to demonstrate it.

This distinction is especially important when discussing vertical merger presumptions because, due to the fact that few vertical mergers are investigated or studied, the literature is much thinner. Without sufficient evidence, although one might believe that mergers are harmful under certain conditions, there might be no basis for a presumption.

Finally, there is a third type of study that can shed light on effects of many vertical mergers that involve publicly traded firms. In that case, one can use an event study that relies on share prices to assess changes in *expected profit flows*. Such studies evaluate abnormal returns that are generated by an event, where an abnormal return compares a security's or portfolio's risk-adjusted returns to the performance of the overall market or a benchmark

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<sup>16</sup> Ashenfelter, Hosken, and Weinberg (2009) and Kwoka (2015) review the horizontal merger retrospective literature. Also see Vita and Osinski (2018) for a critique of Kwoka's review.

index. With that sort of study, ideally one would evaluate returns of the acquirer, acquired, rivals, and downstream customers.

Stock market event studies can be difficult to interpret, however, since they are designed to determine if an event creates value for investors. For example, the finding that rivals are expected to become less profitable post merger could mean that investors expect the merged firm to be more efficient and thus a stronger opponent. However, it could also mean that they expect rivals to be foreclosed in the future. For that reason, from a competition perspective, downstream customer firm returns are most relevant.

Mullin and Mullin's 1997 assessment of U.S. Steel's acquisition of Great Northern Railroad's iron ore properties in 1906 illustrates the use of a stock market event study to evaluate a vertical merger. The authors assess abnormal returns of acquirer, acquired, downstream rivals, and downstream customer firms. However, as just noted, from a competition perspective, the downstream buyers are the most important. The authors conclude that the merger was efficient because it promoted relationship specific investment while not harming downstream buyers.

From our point of view, the most important problem with this sort of analysis is that stock market studies evaluate expectations, not realizations. Unfortunately, expectations are not always realized. For example, Meeks (1977), Ravenscraft and Scherer (1989), and Straub (2007) have shown that many mergers that are expected to increase profits are in fact disappointing ex post, with some even resulting in divestitures. Nonetheless, event studies can prove informative in some cases.

### **3.1.2 Condition 2**

*The problem that is addressed in the presumption should be intrinsically vertical and not be covered by horizontal merger policy.*

Vertical mergers involve two markets, one upstream and one downstream, as well as an interface between the two. With respect to the two horizontal markets, the VMG rely on the HMG for guidance on market definition and the calculation of shares and concentration within those markets.

When the VMG discuss the connection between the upstream and downstream markets, which is unique to vertical mergers, they define a related product as "a product or service that

is supplied or controlled by the merged firm and is positioned vertically or is complementary to the products and services in the relevant market.” They then go on to say “For example, a related product could be an input, a means of distribution, access to a group of customers, or a complement. The same transaction can give rise to more than one vertical concern, and different concerns may affect different relevant markets.”<sup>17</sup> Even though a related product is unique to vertical mergers, if the problems that its acquisition cause are vertical, the HMG should apply.

The VMG then state that vertical mergers raise some unique and distinct issues that are the focus of the new guidelines. Similarly, we believe that, to be considered for vertical merger policy, a presumption should also have such a focus. In other words, unless there is something that is specifically vertical about the problems raised by a merger, from an enforcement perspective, they should be considered and managed as horizontal issues.

To illustrate, there are cases in which a vertically integrated firm that operates in both upstream and downstream markets acquires another firm that operates in one of those markets, say the downstream market. Although the merger is vertical, without further complications, the fundamental problem is that concentration will increase in the downstream market, a problem that horizontal merger policy is well equipped to deal with. Similarly, issues related to the loss of potential competition, which are often associated with vertical mergers because vertically related firms can be seen as potential entrants, are intrinsically a horizontal concern that is discussed in the Horizontal Merger Guidelines.<sup>18</sup>

Houde’s (2012) study of the 1996 transaction between Sunoco and Ultramar in Canada, which involved an exchange of service stations, is a case that comes under this heading.<sup>19</sup> The exchange was motivated by the following facts: Ultramar wanted to increase its dominance in Quebec by acquiring 127 Sunoco stations. In exchange, it gave up 88 stations to

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<sup>17</sup> The VMG also state that: “Many of the principles and analytic frameworks used to assess horizontal mergers apply to vertical mergers. For example, Section 1 of the Horizontal Merger Guidelines — describing in general terms the purposes and limitations of the Horizontal Merger Guidelines and the goals of merger enforcement — is also relevant to the consideration of vertical mergers. Other topics addressed in the Horizontal Merger Guidelines, but not addressed herein — such as the analytic framework for evaluating entry considerations, the treatment of the acquisition of a failing firm or its assets, and the acquisition of a partial ownership interest — are relevant to the evaluation of the competitive effects of vertical mergers as well.”

<sup>18</sup> See also Brennan (2021) on this issue.

<sup>19</sup> Hasting’s (2004) study of the merger between Tosco and Unocal is another example of a vertical merger where the competitive problems were horizontal.

Sunoco in Ontario. Sunoco did not have a refinery in Quebec and wanted to concentrate its retail activities in Ontario. In the Quebec market, the exchange was equivalent to a merger of the retail gasoline activities of Sunoco and Ultramar. The Canadian Competition authority studied the transaction and decided that it was “unlikely to result in substantial prevention or lessening of competition.”

Houde uses a difference in differences approach to investigate whether, contrary to claim, the transaction resulted in higher retail gasoline prices. The treatment group consists of former Sunoco stations in Quebec and their immediate competitors in a local market (the merged firm and its rivals), and the control group consists of stations that were outside of those local markets.

The analysis reveals that prices were indeed higher in the treated neighborhoods, which suggests that the anticompetitive effect dominated any efficiencies. Furthermore, most of that effect was due to Ultramar posting higher prices post merger. The merger therefore appears to have been anticompetitive. However, the problem did not stem from the vertical structure. Instead, local retail gasoline markets became less competitive as a result of the merger, which is a horizontal issue.

## 4 The Evidence

### 4.1 A Caveat

In this section, we ask the questions: Is there a body of evidence that supports a particular set of vertical merger presumptions? Or, at the opposite extreme: Are vertical mergers inherently efficient and, as a consequence, do not warrant further analysis?

Many researchers have used the analysis in Lafontaine and Slade (2007) as evidence that vertical mergers are efficient. And indeed, we stated that: “[c]onsistent with the large set of efficiency motives for vertical mergers that we have described so far, the evidence on the consequences of vertical mergers suggests that consumers mostly benefit from mergers that firms undertake voluntarily.” (p. 663) In other words, given the important set of potential benefits that theory, including organizational economics theory, mentions in relation to vertical integration, and the support that we found in the empirical literature for the existence of efficiency motives, we were not surprised that, in looking at the evidence about the

consequences of vertical integration, most studies showed benefits to consumers.

While it is flattering to be cited for this finding, we take this opportunity to clarify what our goal was, and what we did and did not find. Our objective in that particular paper was to explain the choice between vertical integration, vertical separation, and some intermediate arrangement. We devoted the bulk of the paper to the literature on the incidence of vertical integration, specifically the motives that firms have to vertically integrate or to use the market. As a result, most of the theoretical models that we discuss in the article are about the reasons why firms integrate or not. In addition, they are mostly single agent models that do not incorporate strategic behavior. Furthermore, many of the empirical studies that we discuss in assessing the question of incidence are concerned with workably competitive industries. Indeed, few of those studies involve the sorts of industries that antitrust authorities concern themselves with, or the type of markets where vertical mergers raise concerns.

Moreover, with respect to forward integration studies in Tables 1 through 6, many involve exclusive dealing: e.g., manufacturers and exclusive sales forces, wholesale distributors, or retail outlets; franchisors and franchisees; and so on. In the context of exclusive dealing, a merger motive such as foreclosure cannot be present given that rivals are already foreclosed via contract.

As for the studies of backward integration, in Tables 7 to 14, many of them assess decisions related to inputs that are specific to one firm: e.g., purchases by aerospace, apparel, auto, or engineering firms that involve physical or human capital specificity or colocation. By definition, specificity means that the value of an asset is higher in its intended use, which implies that other firms are already partially foreclosed.<sup>20</sup>

In sum, in reviewing this empirical literature, we found substantial evidence that many of the motives that underlie vertical integration had little to do with market power.

Having established this fact, we then examined the consequences of those decisions. When we assessed the consequences of vertical integration rather than the choice to integrate, the industries that authors have studied are more apt to be the sort that concern competition authorities.

Looking in particular at studies that focus on the possibility of foreclosure or raising rival

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<sup>20</sup> Brennan (2021) makes the more general statement that parties should be able to achieve many of the benefits of vertical merger via contract, and so vertical merger analysis should focus on why the behavior and theory of harm requires a merger. Our statement about foreclosure here is a specific version of that more general point.

costs, we noted that the empirical findings from those studies are mixed. Moreover, only two studies examined the net effect, i.e. the trade-off between foreclosure and the efficiency gains from vertical integration and those two studies concluded that the efficiency benefits outweigh foreclosure costs.

As for studies that evaluate other potential consequences of vertical integration, such as the behavior of price, cost, profit, or investment post merger, we found that results usually were favorable to integration.

Nevertheless, the number of relevant studies was (and still is) small, and we also cautioned readers that the data and methodologies available to researchers had limitations. Still, given the evidence, we concluded that “The data appear to be telling us that efficiency considerations overwhelm anticompetitive motives in most contexts.” While we stand by that conclusion, it is also true that the literature on this topic has grown and, with more of the type of retrospective analyses that assess outcomes of vertical mergers, it is important to revisit the evidence.

## 4.2 Retrospective Studies of Vertical Mergers

As described in subsection 3.1.1, we believe that findings from retrospective merger studies provide the most relevant evidence that can be brought to bear on merger policy because they involve actual, not hypothetical, consequences. Although the number is small, there are several retrospective case studies of individual vertical mergers and a few forward-looking stock market event studies as well. In this section, we look at that literature to see what we can learn from it.

To be included in our list, a vertical merger or divestiture study must involve an industry that might create competitive concerns. In addition, the study must assess outcomes that are either post merger or post merger announcement. Finally, the outcomes that are studied must be relevant for a determination of efficiency or lack thereof, that is an assessment of net consumer welfare effects. Table 1 contains a list of such work. We have tried to be comprehensive to the extent possible.<sup>21</sup>

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<sup>21</sup> Our criterion, that a study be a retrospective that examines net effects, excludes many important empirical contributions to the literature. Specifically, it excludes many studies of vertical mergers in the health care industry either because net effects are unclear or because the observed effects are due to institutional factors such as Medicare payment rules that are specific to this industry (e.g. Koch, Wendling and Wilson (2017) and Capps, Dranove, and Ody (2018)). We also exclude hypothetical simulation exercises (e.g. Craw-

The table, which contains 12 studies, lists the authors, the publication date, the empirical method that is used, the event that is studied, the outcome that is examined, the finding with respect to that outcome, and the overall consumer welfare effect.

The industries that have been studied, which are from the mining, energy, beverage, cable TV, media, and health care sectors, are industries that tend to be concentrated, particularly in local markets. In addition, all of the studies use empirical methods that are suitable for retrospective analysis: nine employ difference in differences (DiD) techniques and three are stock market event studies.

The final column in the table shows the effect of the event from a competition policy point of view, which can be good (+), bad (-), or neutral (0). When the event is a divestiture, the first symbol, which is in parentheses, indicates the effect of the divestiture, whereas the second is the negative of the first, since a divestiture is disintegration, which is the opposite of a merger.

Looking at the full list of studies, we see that four are classified as having an overall positive effect on consumer welfare, one has a negative effect, and seven are basically neutral. Neutrality, however, does not necessarily mean that the merger had no consequences. Instead it can mean that the positive and negative effects offset one another.

One might argue that some of the effects should be reclassified, particularly those that are listed as neutral.<sup>22</sup> Nevertheless, regardless of how one classifies the neutral studies, our view is that the evidence in those studies is not strongly positive or negative. Thus, it appears that vertical merger retrospectives at this point do not provide the type of evidence needed to support particular presumptions regarding such mergers.

Three of the papers, Rosengren and Meehan (1994), Mullin and Mullin (1997), and Shenoy (2012), are stock market event studies, which are market forecasts of outcomes, not realized effects. However, as mentioned earlier, studies have shown that expectations are

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ford, Lee, Whinston and Yurukoglu (2018) and Cuesta, Norton and Vatter (2019)), contributions that focus on the effect of vertical integration as opposed to the effect of a merger (e.g. Goolsbee (2007)), and those that examine only either benefits or costs rather than net effects (e.g. Boehem and Sontag (2019)). Again, while we view all these as important contributions, they do not, in our view, provide the type of information that is best suited to develop presumptions.

<sup>22</sup> For example, Luco and Marshall (2020) find that the average soft drink price rose, which is bad. However, that increase is not statistically significant, which is our reason for classifying the acquisition as neutral. In addition, although Hortacsu and Syverson (2007) find that vertical integration is good, changes in vertical integration (i.e., mergers) have little effect.

often not fulfilled and financial returns are apt to be disappointing. For that reason, one might want to drop the stock market studies. The result then is two positive, one negative, and six neutral outcomes.

Finally, two of the studies, Slade (1998) and Gil (2015), assess forced divestiture of assets rather than voluntarily undertaken sales, whereas all of the others involve actions that were proposed by the parties.<sup>23</sup> Since forcing a firm to do something might have different consequences from allowing it to do something, one might also want to drop that research. When this is done, we are left with no positive outcomes, one negative and six neutral.

In sum, however one cuts the data, the results do not provide clear evidence either in favor or against the efficiency of vertical mergers. Since the number of studies is small, it remains possible that vertical mergers could have a robust tendency to be either beneficial or harmful. However, we cannot draw that conclusion from the evidence that is available at this time. And of course, the limited number of studies also prevents us from making inferences about specific sets of circumstances under which vertical mergers might be beneficial or harmful. This, in turn, makes it difficult to devise presumptions based on that information.

## 5 Concluding Remarks

The first sentence of the new Vertical Merger Guidelines indicates that the guidelines “outline the principal analytical techniques, practices, and enforcement policies of the Department of Justice and the Federal Trade Commission (the Agencies).” In other words, the goal of putting together this document was to identify and describe existing agency practice with respect to vertical mergers. The new guidelines were also an occasion for the agencies to withdraw the 1984 guidelines officially, thereby providing a clearer sense to the business community and antitrust practitioners of the likely treatment of such mergers by the Agencies. Finally, those guidelines reference the 2010 Horizontal Merger Guidelines extensively, making clear the many ways in which the analyses and approaches used for vertical mergers are the same or similar to practices associated with horizontal merger enforcement.

In discussing what we view as the best empirical evidence to inform vertical merger

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<sup>23</sup> There is a literature, the divorcement literature, that involves forced divestiture of company owned gasoline service stations. That literature, which is not included in table 1, is summarized in Table 17 of Lafontaine and Slade (2007), concludes that the required disintegration was a bad idea. In other words, they are all + studies.

policy, we focused on merger retrospectives. And indeed, retrospective studies are the tool that the FTC relied on in developing a convincing record demonstrating to the courts that horizontal hospital mergers were not innocuous. Hospital mergers had proved difficult to challenge in court essentially because of the notion that mergers of non-profit institutions could not lead to higher prices or other detrimental outcomes for patients. Ashenfelter et al. (2011) write: “Then-FTC Chairman Timothy Muris commenced the hospital merger retrospective project both to assess the impact of this period of enforcement dormancy on competitive performance in hospital markets, and to generate evidence that would help guide and inform renewed enforcement efforts in this economic sector...” Armed with the new evidence generated by those studies, the FTC has since successfully challenged a number of hospital mergers.

We recognize that vertical mergers are complex, and it is not obvious that the evidence garnered via retrospectives will provide clear answers in the context of such mergers. In fact, since, in contrast to the horizontal case, theories of vertical mergers are almost always ambiguous, we expect that it will be difficult to arrive at conclusions that will warrant the use of presumptions. Still we believe that the combination of insights from a number of careful retrospective studies provides the kind of information that can be relied upon to clarify likelihoods as well as the desirability of any particular presumption.

The need for clarification is especially strong in a context where many commentators have argued that the U.S. treatment of vertical mergers by antitrust authorities over the last few decades has been too lax (see for example Salop and Culley (2018b)). As with the horizontal hospital merger retrospective program mentioned above, if there has been a period of “enforcement dormancy,” there will have been many deleterious mergers that have been allowed to proceed. This then means that retrospective studies will be able to uncover those bad mergers.<sup>24</sup>

We are heartened, in that context, to see that the Bureau of Economics at the FTC has

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<sup>24</sup> “Enforcement dormancy” means that (leads to??) the endogenous selection bias that one might worry about when examining retrospective studies as a group (??? needs a verb). This critique of retrospective studies is well articulated by Salop and Culley (2015) in footnote 33: “Studies that examine behavior in settings where anticompetitive conduct would have been deterred by the antitrust laws create a sample is biased towards finding no harm. Thus, they cannot provide reliable information about how the likely effects of the practices if the laws were relaxed to permit these practices by firms better situated to cause competitive harm.” However, when enforcement is lax, this bias is minimized.

announced a revamped program of research focused on retrospectives.<sup>25</sup> We hope that staff at the agencies, but also many academics, will focus a good amount of their attention on the study of vertical mergers, which, per the FTC website devoted to this program, represent only a very small proportion of the studies that they have identified to date.

In spite of the lack of evidence, we have seen from theory and from some empirical analyses, that some vertical mergers can be problematic, and as such, some should be investigated. This means that the agencies, with their limited resources, must have methods to determine which mergers to investigate. Fortunately, the sort of mergers that are more likely to be troublesome are not random but instead have recognizable characteristics. Furthermore, although we feel that legal presumptions for vertical mergers are not warranted at this time, the analyses that are embodied in, for example, Baker et. al. (2019) and Brennan (2021) can prove useful as frameworks for organizing the agencies' thinking about theories of harm and the conditions under which those theories are likely to apply.

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<sup>25</sup> It is also heartening that three of the 12 studies in table 1 have appeared in the last year.

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Table 1: Retrospective Vertical Merger Studies

<i>Author</i>	<i>Year</i>	<i>Type of Study</i>	<i>Industries</i>	<i>Event</i>	<i>Variable Examined</i>	<i>Finding</i>	<i>Effect of Event</i>
Rosengren & Meehan	1994	Stock market event study	Various	Challenged mergers	Returns of downstream rivals	No change	0
Mullin & Mullin	1997	Stock market event study	Iron ore & steel	Long term lease signed	Returns of merging, rival, & customer firms	Net efficiency	+
Slade	1998	D in D	Brewers & pubs	Forced divestiture of pubs	Pub beer price	$\Delta P > 0$	(-) +
Hortacsu & Syverson	2007	D in D	Cement & concrete	Vertical mergers	Prices quantities entry	No change	0
Suzuki	2009	D in D	Programming & distribution	Turner/Time Warner merger	Subscription price & subscriptions	$\Delta P < 0$ $\Delta Q = 0$	0
Baker et al.	2011	D in D	Programming & distribution	News Corp/Hughes merger	Price paid by distributors to programmers	$\Delta P > 0$	-
Shenoy	2012	Stock market event study	Various	Vertical takeovers	Returns of merging, rival, & customer firms	Net efficiency	+
Gil	2015	D in D	Film producers & theaters	Paramount divestiture	Ticket price Ticket sales	$\Delta P = 0$ $\Delta Q < 0$	(-) +
Ford	2017	D in D	Programing & distribution	Comcast/NBCU merger	Price paid by distributors to programmers	$\Delta P = 0$	0

D in D means difference in differences.  $\Delta P$  refers to relative price changes between treated and control.

Outcomes are good, bad, or neutral/ambiguous if the last column contains +, -, 0.

Outcomes that are not statistically significant are reported as zero.

With divestitures, the first symbol in the last column (in parentheses) gives the effect of divestiture and the second gives the effect of integration.

Table 1: Retrospective Vertical Merger Studies (cont.)

<i>Author</i>	<i>Year</i>	<i>Type of Study</i>	<i>Industries</i>	<i>Event</i>	<i>Variable Examined</i>	<i>Finding</i>	<i>Effect of Event</i>
Koch et al.	2020	D in D	Hospitals & physicians	Vertical Mergers	Health outcomes	No change	0
Luco & Marshall	2020	D in D	Soft drinks & bottlers	Coke or Pepsi purchase of bottlers	Retail price	$\Delta P < (>) 0$ integrated (unin.) brands <sup>a</sup>	0
Hosken & Taylor	2020	D in D	Oil companies & service stations	Refiner sale of service stations	Retail price	$\Delta P > (<) 0$ Affiliated (rival) stations	(0) 0

D in D means difference in differences.

Outcomes are good, bad, or neutral/ambiguous if the last column contains +, -, 0.

Outcomes that are not statistically significant are reported as zero.

<sup>a</sup>Unintegrated brands are non Coke or Pepsi brands bottled by integrated (Coke or Pepsi) bottlers.