

Unilateral Competitive Effects of Mergers Between Firms with High Profit Margins

BY ELIZABETH M. BAILEY, GREGORY K. LEONARD, AND LAWRENCE WU

WHILE THE 1992 HORIZONTAL Merger Guidelines mention profit margins only once, and only in passing, the 2010 Horizontal Merger Guidelines have brought profit margins to the center of attention in merger review. Indeed, the 2010 Guidelines state that “if a firm sets price well above incremental cost, that normally indicates either that the firm believes its customers are not highly sensitive to price (not in itself of antitrust concern . . .) or that the firm and its rivals are engaged in coordinated interaction.”¹ This new emphasis on gross profit margins (i.e., the percentage margin of price over marginal or incremental cost) raises the important question of what inferences may be drawn about the competitive effects of a merger from information about the merging parties’ profit margins.

In this article, we focus on high margins in the context of unilateral effects analysis.² We give guidance to antitrust practitioners who, when faced with a merger between firms that have high profit margins, must evaluate the antitrust risk associated with the merger or analyze the merger’s competitive effects. A crucial point is that high margins on their own are not definitive indicators of adverse post-merger unilateral price effects. In particular, margins by themselves do not imply anything about the degree of substitution between the merging firms’ products, the existence of barriers to entry and/or repositioning, or the efficiencies that are likely to be generated by the proposed transaction. In addition, pre-merger margins may appear high simply because margins based on financial accounting measures fail to equate to the economic margins used in merger analysis.

As we discuss with reference to closing statements recently issued by the antitrust Agencies in Google’s 2010 acquisition of AdMob, Microsoft Corporation and Yahoo! Inc.’s 2010 advertising and Internet search agreement, and the 2008 merger between XM Satellite Radio Holdings Inc. and

Sirius Satellite Radio Inc., profit margins alone reveal very little about the competitive impact of a proposed merger. Rather, only through a careful development of facts related to buyer substitution patterns, entry, repositioning, and efficiencies, can an antitrust practitioner provide a unified and more complete and informative analysis of unilateral competitive effects.

The Relationship Between Pricing and Profit Margins

We start with three initial points about high profit margins. First, the 2010 Guidelines state that, coordinated interaction aside, a high margin normally means the firm perceives that it has a low own-price elasticity of demand. This statement is grounded in the unilateral effects framework familiar to antitrust practitioners. The intuition is that a firm sets its price at the point where a further increase in price would not lead to greater profit.³ Based on this intuition, when a firm sets a price that results in a high margin, it can be inferred that the firm was expecting to lose relatively few sales by increasing its price further (which it chooses not to do, however, because the profit margin on those few lost sales would be large). Losing relatively few sales in response to an increase in price means the price-sensitivity of demand, or the own-price elasticity of demand, is relatively low.

The second point is that one must distinguish between what the 2010 Guidelines say and do not say about profit margins. The 2010 Guidelines do not say that a firm with a high profit margin necessarily has antitrust market power.⁴ As we discuss further below, in an industry with substantial fixed costs, price will exceed incremental cost even if the industry is competitive. As the 2010 Guidelines note, high margins “can be consistent with incumbent firms earning competitive returns” and “are not in themselves of antitrust concern.”⁵

The third point is that, in the economic models commonly used by the antitrust Agencies to assess likely unilateral effects,⁶ the predicted adverse unilateral effects (if any) are generally greater if the merging parties’ pre-merger profit margins are higher, everything else being equal. For example, to evaluate the competitive effects of a merger of firms A and B, the gross upward pricing pressure (UPP) approach that is

The authors are economists at NERA Economic Consulting. Elizabeth Bailey is an Associate Editor of ANTITRUST.

mentioned in the 2010 Guidelines involves calculating gross UPP (i.e., before consideration of efficiencies) for product A as the pre-merger per unit margin of price over incremental cost for product B multiplied by the diversion ratio from product A to product B.⁷ In this model, holding the diversion ratio constant, there will be greater pressure to raise price as the margin increases. Similarly, most merger simulation models will predict larger post-merger price increases the larger the merging firms' pre-merger margins, everything else being equal. Again, the intuition flows from the basic model of unilateral effects familiar to antitrust practitioners. The merged firm has an incentive to increase the price of product A (whereas the independent firm A did not before the merger) if the merged firm is able to "recoup" a portion of the resulting decrease in sales of product A with increased sales of product B (where the extent of the recoupment is determined by the diversion ratio from A to B). The financial recoupment is larger, and thus the incentive to increase the price of product A is larger, when the profit margin on product B is higher.

In light of these initial observations, it is important to understand how to address the unilateral competitive concerns that antitrust Agencies may raise in mergers between firms that have high pre-merger gross profit margins. In our experience, there are four general areas of analysis to consider, which are discussed below.

Calculate the Margin of Price Over Incremental Cost

Measuring a firm's margin of price over incremental cost can be difficult. As a result, margins may appear high simply because they have been measured incorrectly. There is a long literature on how one should estimate or calculate incremental cost and the margin of price over incremental cost. The central issue is that the economic cost concepts that underlie incremental cost rarely equate to the accounting cost concepts that underlie companies' financial reporting.⁸

In practice, it is common in a merger analysis for antitrust practitioners to use a measure readily available from the merging companies' financial data, such as the margin of price over the "cost of goods sold" (COGS), as a proxy for the profit margin of price over incremental cost. COGS, however, may or may not be a reasonably accurate measure of incremental cost in a given situation. For example, consider a pharmaceutical manufacturer that has a long-term, fixed-price per unit contract to purchase a particular petroleum-related input. For financial accounting purposes, the firm may use this fixed price when calculating the cost of goods sold. For the purpose of calculating the economic margins relevant to merger analysis, however, using this fixed price per unit as a component of incremental cost may substantially underestimate the true incremental cost of the input (and thus overestimate the margin of price over incremental cost) if the spot-market price of the product has increased substantially since the long-term contract was signed. The error in simply relying on COGS as a measure of incremental cost

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in this example comes from ignoring an important economic component of incremental cost, namely opportunity cost.⁹ As this example illustrates, there can be a fundamental problem of measurement when drawing inferences from a high profit margin: an observed "high" profit margin based on accounting cost measures such as COGS may not accurately reflect the true economic profit margin of price over incremental cost.

In addition to properly accounting for opportunity costs, there are other issues that affect how to measure incremental cost. For example, it is important to determine the appropriate increment of output for which to calculate the incremental cost (e.g., the incremental cost of the next airline seat sold is not the same as the incremental cost of operating another flight). Similarly, it is important to determine the appropriate time frame for the analysis (e.g., long run versus short run). In addition, it is important to consider accounting for a risk-adjusted rate of return. If these issues are not dealt with appropriately, a firm's profit margin may appear high simply because it has been measured incorrectly.

Measuring margins correctly is an important and sometimes quite complex task. For the remainder of this article, however, we will assume that a firm's profit margin can be and has been measured correctly, and thus the issue facing the antitrust practitioner is how to develop an informative analysis of the post-merger unilateral price effects when the margin is, in fact, high.

Determine Whether the Merging Parties Are Close Competitors

The economic models commonly used by the antitrust Agencies to evaluate the potential for adverse competitive effects do not depend solely on margins. As a result, high margins alone are not determinative of the unilateral competitive effects of the merger. For example, in the context of UPP, if the diversion ratio is zero, there will be zero UPP, even if profit margins are high. More generally, a lower diversion ratio offsets the effects of a higher margin in the UPP formula. The same is true in more complex merger simulation models.

For the same reason, evidence that the merging firms have low pre-merger margins does not, by itself, imply that the

proposed transaction is either procompetitive or competitively neutral. This is because, even if the margins are low, a unilateral effects model could predict a post-merger price increase if the diversion ratio between the merging firms' products is sufficiently large. For example, if the reason that the merging firms have low margins is the strength of the competition between them, the diversion ratio between them would be high, and as a result the combined entity might have a substantial incentive to increase prices.

A flawed line of reasoning may lead some to draw the unwarranted inference, based on profit margins alone, that a merger between firms with high pre-merger margins is presumptively or highly likely to be anticompetitive. This line of thought proceeds as follows: (1) the merging firms have high margins, which means that each has a low own-price elasticity of demand; (2) as a result, the relevant market in which the firms participate must be narrow because

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the market elasticity of demand for a narrowly defined market also must be low; (3) in a narrow relevant market comprised of relatively few participants, the merging firms' shares of this relevant market may be relatively large; and (4) with the firms' market shares used as proxies for diversion ratios,¹⁰ both the pre-merger margin and the diversion ratio may be large in the UPP formula (or a merger simulation model), which, as described above, is more likely to generate a prediction of a positive UPP (or a merger-induced anticompetitive effect), all else equal.¹¹ This reasoning breaks down because, in general, there is no link between profit margins, market shares, and diversion ratios in economic models.¹² For this reason, the profit margin and the diversion ratio must be separately quantified and analyzed before they are incorporated into a UPP analysis or any other unilateral effects model.

In our experience, firms in high-technology industries tend to have high profit margins, often reflecting the firms' substantial fixed costs. As we discussed above, a low diversion ratio can offset the effect of a high margin in the typical economic models used by the antitrust Agencies to assess unilateral effects. The DOJ's 2010 closing statement in its investigation of Microsoft's agreement with Yahoo! illustrates that a low diversion ratio can overcome a potential unilateral effects concern in a high-technology industry.¹³ In announcing its decision to close its investigation, the DOJ indicated

an important component of its analysis was that the diversion ratios between Microsoft and Yahoo! were low. In particular, the DOJ stated that "[m]ost customers view Google as posing the most significant competitive constraint on both Microsoft and Yahoo! . . ."¹⁴

Similarly, the DOJ's closing statement in the merger between XM and Sirius suggests that evidence of low diversion ratios was an important reason why the DOJ decided to close its investigation.¹⁵ As noted by the DOJ in its closing statement, "there has never been significant competition between [XM and Sirius] for customers who have already subscribed to one or the other service . . . [and] competition for new subscribers is likely to be substantially more limited in the future than it was in the past."¹⁶

Evaluate the Competitive Impact of Entry and Repositioning

There is a second reason why a high profit margin should not lead to a presumption of an anticompetitive effect. Most unilateral effects models—including the UPP approach and many merger simulation models—explicitly or implicitly are "static" in that they assume that no entry or repositioning is possible. Without first analyzing the likelihood that entry or repositioning would defeat an attempt by the merged firm to raise price after the merger, it would be premature to rely solely on the predictions of an anticompetitive effect from a static model.

To assess whether entry or repositioning would defeat such an attempt by the merged firm, it is useful to think about the relationship between margins and the potential existence of barriers to entry and repositioning. Profit margins may be higher in markets that are characterized by entry barriers or factors that make repositioning more difficult. However, if there are other potential reasons why profit margins are high, high margins would not, by themselves, imply the existence of some impediment to entry or repositioning. Thus, if the merging firms have high profit margins, it is important that the antitrust practitioner understand why they are high, as the explanation will have implications for whether the merger will create market power for the merged firm.

For example, one potential explanation for high profit margins is the presence of significant ongoing fixed costs that a firm must incur to participate in the market. Ongoing fixed costs are expenses that remain at the same level regardless of how much output the firm produces and that can be eliminated only if the firm shuts down. In such an environment, it is not a sustainable outcome for price to equal incremental cost (for a small increment of output) because firms would lose money and have no incentive to continue operations. In the long run, the firm would rather exit than incur losses. With "free entry," the competitive equilibrium would be reached when a sufficiently large number of firms had entered such that each firm earns zero total profits. In equilibrium, each firm charges a price sufficiently above incre-

mental cost to just cover its fixed costs. Generally speaking, the greater the ongoing fixed costs incurred by each of the firms in the industry, the greater the pre-merger profit margin even in a competitive equilibrium.

On the other hand, profit margins may be high due to the existence of barriers to entry.¹⁷ For example, if incumbent firms have already incurred substantial up-front fixed costs, and those costs are unrecoverable (i.e., sunk), entry by a new firm that did not yet sink those fixed cost may be deterred and, as a result, the incumbent firms may earn high profit margins and positive total profits.

Because high profit margins can exist with and without barriers to entry, high margins by themselves do not imply the existence of significant barriers to entry or repositioning. Thus, when the merging parties have high profit margins and a non-trivial diversion ratio, the antitrust practitioner should examine why margins are high in the first place. If margins are high due to the need for firms to incur substantial ongoing fixed costs, but entry is easy, the merger may well have no anticompetitive effect because, in the language of the 2010 Guidelines, entry or repositioning may be timely, likely, and sufficient. Similarly, even if the parties to a merger have high margins, a high diversion ratio between them, and compete in a market in which de novo entry is unlikely, one must still evaluate existing competitors' ability and incentive to reposition their products post-merger to compete more closely with the merging parties' products.

The FTC's 2010 statement regarding the closing of its investigation of Google's acquisition of AdMob provides a useful illustration of the importance of entry in defeating the potential for unilateral effects in a transaction where the merging parties have potentially high margins and high diversion ratios.¹⁸ While the FTC stated that its investigation "yielded evidence that each of the merging parties viewed the other as its primary competitor," which suggests that the diversion ratios between Google and AdMob were high, the FTC also indicated that the entry by Apple into mobile advertising networks "should mitigate the anticompetitive effects of Google's AdMob acquisition."¹⁹

Assess the Potential for the Transaction to Achieve Cost Savings and Other Efficiencies

As with entry and repositioning, efficiencies resulting from a merger can offset the effect of a high margin and a non-trivial diversion ratio. Cost savings, as well as output-enhancing activities, such as the introduction of new and improved products, are as much a competitive effect of the merger as is any adverse unilateral price effect. For example, the net UPP approach weighs an index of possible adverse unilateral price effects (the gross UPP) against the likely incremental cost savings that would result from the transaction.²⁰ This net UPP approach makes clear that the presence of substantial cost savings can offset potential adverse competitive concerns resulting from high margins and high diversion ratios even when entry and repositioning are unlikely post-merger.

Similarly, even if the firms are assumed to have high margins and high diversion ratios, most merger simulation models will typically predict small or negative post-merger price increases with sufficiently high incremental cost savings. Merger simulation models will also predict overall consumer welfare gains from a merger between firms with high margins and diversion ratios if the merger will lead to sufficiently large increases in demand due to improvements in product quality or the introduction of new products.

For this reason, when faced with a transaction involving firms with high gross profit margins, the antitrust practitioner should seek to understand the procompetitive rationale for the transaction. In our experience, the antitrust Agencies have given weight to efficiencies when credible analyses quantify the likely magnitude of such efficiencies, demonstrate that the efficiencies derive from complementarities between the parties to the transaction (or are more generally merger-specific), and document the necessary steps and costs associated with achieving such efficiencies.

The DOJ's 2010 closing statement in its investigation of Microsoft's agreement with Yahoo! and the DOJ's 2008 closing statement in its investigation of XM's merger with Sirius demonstrate that efficiencies can overcome unilateral effect concerns when the merging parties have potentially high margins. For example, in the Microsoft/Yahoo! closing statement, the DOJ states that the transaction may result in "more rapid innovation of potential new search-related products" and that "[t]his enhanced performance, if realized, should exert correspondingly greater competitive pressure in the marketplace."²¹ Similarly, in the XM/Sirius closing statement, the DOJ stated that the proposed merger is not likely to substantially lessen competition for several reasons, including the "efficiencies likely to flow from the transaction that could benefit consumers."²²

Conclusion

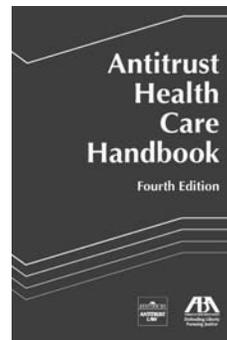
The 2010 Guidelines place a greater emphasis on analyzing the merging firms' profit margins when evaluating the unilateral competitive effects of a proposed merger. As the 2010 Guidelines point out, in a differentiated products setting where unilateral effects may be the central competitive issue, high profit margins generally imply that the merging firms each face a relatively low own-price elasticity of demand. By themselves, profit margins do not imply anything about the degree of substitution between the merging firms, the existence of barriers to entry and/or repositioning, or the efficiencies likely to be generated by the proposed transaction. Thus, margins—high or low—are not definitive indicators of post-merger competitive effects. A careful analysis of diversion ratios, conditions for entry and repositioning, and efficiencies, in conjunction with the proper measurement of pre-merger profit margins, is necessary to reach a reliable conclusion about a merger's competitive effects, and it is the approach that is described in the 2010 Horizontal Merger Guidelines. ■

- ¹ U.S. Dep't of Justice & Fed. Trade Comm'n, Horizontal Merger Guidelines § 2.2.1 (2010), available at <http://ftc.gov/os/2010/08/100819hmg.pdf>.
- ² As the 2010 Guidelines point out, a high profit margin could be due to the existence of pre-merger coordinated interaction. No conclusions can be drawn from margins alone as to whether high margins are indicative that firms will be better able to coordinate their pricing post-merger. It is the interaction of margins with other factors that are changed by the merger that determines whether coordinated interaction will be more likely or more effective post-merger.
- ³ An incremental increase in price has two effects—the firm receives a higher price on each sale that it makes, but it loses the entire profit margin on each sale that it loses. A firm will choose to set its price where the two effects offset each other so that an additional incremental change in price does not lead to higher profits.
- ⁴ We use the term “antitrust market power” to distinguish this concept from the concept of “economic market power,” which is often interpreted as price above marginal cost. See DENNIS CARLTON & JEFFREY PERLOFF, MODERN INDUSTRIAL ORGANIZATION 93 (4th ed., 2005).
- ⁵ 2010 Guidelines, *supra* note 1, at nn.3 & 6.
- ⁶ The 2010 Guidelines discuss the Agencies' reliance on upward pricing pressure and merger simulation methods to evaluate unilateral price effects that may result from a proposed merger. See *id.* § 6.1.
- ⁷ See Joseph Farrell & Carl Shapiro, *Antitrust Evaluation of Horizontal Mergers: An Economic Alternative to Market Definition*, 10 B.E. J. THEORETICAL ECON. art. 9 (2010); see also Elizabeth M. Bailey, Gregory K. Leonard, G. Steven Olley & Lawrence Wu, *Merger Screens: Market Share-Based Approaches Versus “Upward Pricing Pressure,”* ANTITRUST SOURCE, Feb. 2010, <http://www.abanet.org/antitrust/at-source/10/02/Feb10-Leonard2-25f.pdf>; Serge Moresi, *The Use of Upward Pricing Pressure Indices in Merger Analysis*, ANTITRUST SOURCE, Feb. 2010, <http://www.abanet.org/antitrust/at-source/10/02/Feb10-Moresi2-25f.pdf>; Gopal Das Varma, *Will Use of the Upward Pricing Pressure Test Lead to an Increase in the Level of Merger Enforcement?* ANTITRUST, Fall 2009, at 27.
- ⁸ See, e.g., Franklin M. Fisher & J.J. McGowan, *On the Misuse of Accounting Rates of Return to Infer Monopoly Profits*, 73 AM. ECON. REV. 82 (1983).
- ⁹ Opportunity costs are the costs associated with opportunities that are foregone by not putting the firm's resources to their best alternative use.
- ¹⁰ For example, a proxy for the diversion ratio from firm A to firm B might be $B/(1 - A)$, where B is the share of firm B and A is the share of firm A. This will be incorrect on its face in most cases as it assumes a zero “market” elasticity of demand (i.e., no diversion to any goods outside of the relevant market).
- ¹¹ As we discuss further below, a prediction of an anticompetitive effect may be offset by entry, repositioning, and/or sufficiently large efficiencies.
- ¹² For a general discussion of the issue and additional references, see Elizabeth M. Bailey, Gregory K. Leonard & Lawrence Wu, *Comments on the 2010 Proposed Horizontal Merger Guidelines* (June 3, 2010), available at <http://www.ftc.gov/os/comments/hmgrevisedguides/548050-00012.pdf>.
- ¹³ Press Release, U.S. Dep't of Justice, Statement of the Department of Justice Antitrust Division on Its Decision to Close Its Investigation of the Internet Search and Paid Search Advertising Agreement Between Microsoft Corporation and Yahoo! Inc. (Feb. 18, 2010) [hereinafter DOJ Statement in Microsoft/Yahoo!], available at http://www.justice.gov/atr/public/press_releases/2010/255377.htm.
- ¹⁴ *Id.* at 1.
- ¹⁵ Press Release, U.S. Dep't of Justice, Statement of the Department of Justice Antitrust Division on Its Decision to Close Its Investigation of XM Satellite Radio Holdings Inc.'s Merger with Sirius Satellite Radio Inc. (Mar. 24, 2008) [hereinafter DOJ Statement in XM/Sirius], available at http://www.justice.gov/atr/public/press_releases/2008/231467.htm.
- ¹⁶ *Id.* at 2.
- ¹⁷ It is important to note that barriers to entry are not a sufficient condition for a high margin. For example, two competitors that sell homogeneous products in Bertrand competition will have zero profit margins. This is

because in this environment, firms will compete by lowering their prices to marginal cost, even if there are barriers to entry. For this reason, some other mechanism must be combined with barriers to entry to produce high profit margins, such as product differentiation, capacity constraints, or some degree of oligopoly interaction.

- ¹⁸ Statement of the Commission Concerning Google/AdMob, FTC File No. 101-0031 (May 21, 2010), available at <http://www.ftc.gov/os/closings/100521google-admobstmt.pdf>.
- ¹⁹ *Id.* at 1.
- ²⁰ See Farrell & Shapiro, *supra* note 7.
- ²¹ DOJ Statement in Microsoft/Yahoo!, *supra* note 13, at 1.
- ²² DOJ Statement in XM/Sirius, *supra* note 15, at 1.

Antitrust Health Care Handbook FOURTH EDITION



Product Code: 5030550
Publication Date: 2010
Page Count: 300
Trim Size: 6 x 9
Format: Paper
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