The Importance of Supply-Side Effects in Antitrust Analyses

D. Lee Heavner and Peter P. Simon, Analysis Group

ANALYSIS GROUP
ECONOMIC, FINANCIAL and STRATEGY CONSULTANTS

The Importance of Supply-Side Effects in Antitrust Analyses

D. Lee Heavner and Peter P. Simon*
Analysis Group, Inc.

Introduction

In our work, we have seen practitioners and academics (collectively, "researchers") draw erroneous conclusions about antitrust-related issues because their analyses ignored the role that supply-side forces play in constraining prices.

Although it is well-accepted that both demand-side and supply-side forces can constrain the prices that producers charge for a product, there is some ambiguity about how to incorporate supply-side substitutes into antitrust analyses. On the one hand, the *Merger Guidelines* state that a relevant market should be defined based solely on demand-side substitution and that firms that produce supply-side substitutes should be added as participants in the relevant market in a later step of the analysis.[1] On the other hand, several courts have ruled that supply-side substitution should be incorporated into the definition of the relevant market.[2]

Performed correctly, both approaches generally lead to the same conclusion about whether a firm possesses monopoly power as long as they are performed correctly.[3] However, we have been involved in cases where the incorrect application of the *Merger Guidelines* approach has led researchers to draw erroneous conclusions about the competitiveness of a market. One error that we have seen on multiple occasions is that a researcher follows the *Merger Guidelines* and defines the market based on demand substitutes, and then implicitly assumes that the market definition step has identified all market participants. That is, the researcher did not follow the *Merger Guidelines* and evaluate whether entry and/or supply-side substitution would prevent existing producers from charging supracompetitive prices. In this article, we endeavor to remind the reader of the critical role that these supply-side effects can have in antitrust analyses.

How Supply-Side Effects Influence Market Outcomes

Both demand-side and supply-side forces may constrain the price that a firm can profitably sustain. On the demand side, the constraint comes from the degree to which consumers would reduce their purchases of the product or products at issue in response to a price increase. On the supply side, the constraint comes from the degree to which other firms would initiate or increase production or distribution of the product(s) in response to a price increase.

Under the *Merger Guidelines* approach, supply-side effects are accounted for by defining market participants to include current producers or sellers as well as firms that, in response to a small but significant and non-transitory increase in price ("SSNIP"), would likely begin participating in the relevant market within one year and without incurring significant sunk costs of entry or exit.[4] The *Merger Guidelines* defines such firms as uncommitted entrants. Uncommitted entrants include firms that would enter the market through production substitution or production extension.[5] The *Merger Guidelines* further incorporates supply-side responses through entry analysis, which evaluates whether committed entry would be likely, timely, and sufficient to constrain prices to the pre-merger level.[6]

Unfortunately, even though the *Merger Guidelines* approach clearly requires that a reasearcher account for supply-side effects,

some researchers omit this analysis and erroneously ignore supply-side effects and assume that market power can be inferred from current market shares or concentration.

Example of the Failure to Recognize the Importance of Supply Substitution

Guo Ying Luo's article on the mutual fund industry provides an example of how the failure to analyze supply-side effects can lead to severely flawed conclusions.[7] In this article, Luo attempts to examine the relationship between market structure and price (fee) mark-ups in the mutual fund industry.[8] In her analysis, Luo assumes that an investor first decides how to allocate his or her investments across the different investment objective categories. Then, within each investment objective category, the investor chooses the funds that possess the preferred combination of product attributes and fees.[9] Luo assumes that demand-side substitution is limited to funds within the same investment objective category. On this basis, she defines each investment objective category as a separate relevant market. Luo's assumptions regarding demand-side substitution may be incorrect; however, solely for the illustrative purposes of this article, we adopt Luo's assumption that demand-side substitution is limited to the funds within an investment objective category, and we focus our analysis on evaluating the role that supply-side substitutes can have in constraining fees.

As is generally done in antitrust analyses, Luo uses the Herfindahl-Hirschman Index ("HHI") to measure concentration. However, Luo appears to ignore the Guidelines' instructions to treat producers of supply-side substitutes as market participants when evaluating market concentration. For each investment objective category, Luo bases her HHI calculations on the mutual funds' 1997 shares of mutual fund assets within an investment objective category. According to her calculations, 6 of the 38 investment categories that she examines exceed the *Merger Guidelines* threshold for classifying a market as highly concentrated.

We were not able to locate data on the Weisenberger categories used by Luo,[10] so we use other data for the purposes of this example. Specifically, we use Morningstar investment objective categories to compute within category HHIs.[11] For 2007, these computations result in 25 of 67 investment categories having an HHI above the *Merger Guidelines* highly concentrated threshold.[12] One of these "highly concentrated" categories is the Long Term Bond ("LTB") category, which had a category HHI of 4,065.[13]

However, there is reason to believe that these HHIs do not accurately reflect probable supply responses to a SSNIP. Many mutual fund families offer mutual funds in a variety of investment style categories, and these fund families could in a relatively short period of time establish a new fund or change the investment objective of an existing fund without incurring significant sunk costs.[14] In fact, fund families frequently create new funds and change funds' investment strategies in an attempt to increase their profits. For example, in 2007, 126 bond mutual funds appeared in an investment objective for the first time. Thus, a proper analysis of concentration in the mutual fund business should account for the likely supply responses that would occur in response to a SSNIP in a given objectivetegory.

The data show that only 16 mutual fund families offered LTB funds in 2007.[15] However, given the low costs of entering the LTB marketplace, we would like to know whether other fund families would likely enter the LTB category in response to a

SSNIP. In 2007, LTB mutual funds had approximately $14.2 billion in assets under management, which was less than 1 percent of the assets under management for all bond mutual funds.[16] Furthermore, there were 69 fund families managing at least $1 billion in bond mutual fund assets and offering bond mutual funds in at least 5 separate Morningstar categories.[17] Thus, it seems reasonable to assume capacity constraints would not prevent supply responses from these fund families from constraining prices.

These facts, combined with the low costs of entering the mutual fund industry, lead us to conclude that if LTB fund fees were to exceed the competitive level, then the other suppliers, including fund families that offer bond mutual funds in other investment categories, would begin offering LTB funds. Thus, fund families that produce funds in the other investment objective categories should be treated as participants in the assumed market for LTB funds.[18]

For present purposes, we assume that the capacity that a fund family would likely devote to LTB funds is proportional to the total bond mutual fund assets it manages. This assumption means that each fund family's ability to offer LTB funds is correlated with its total bond mutual fund assets under management, and computing HHIs on fund families' shares of bond mutual fund assets gives the HHI for market participants in the LTB market. Under this calculation, the HHI for LTB funds would be 558.

This HHI is well within the range that the *Merger Guidelines* defines as unconcentrated. Recall that when supply-side substitutes were excluded from the analysis, the HHI was 4,065. Thus, the example shows the substantial impact that supply-side substitutes can have on antitrust analyses.

Other examples

For confidentiality reasons, we have limited discussion here to a published article; however, we see similarly flawed approaches being used to assess monopoly power in the context of litigation. For example, we have been involved in multiple cases in which plaintiffs' experts have tried to evaluate concentration in the mutual fund industry without accounting for likely supply-side substitution. We have also been involved in a case in which antitrust claims were dropped after the defendant showed that the supply-side forces would prevent the existing providers of a given investment management service from charging excessive fees.

Conclusion

A proper antitrust analysis evaluates the role of both demand-side and supply-side forces in possibly constraining firms from exercising monopoly power. Unfortunately, some researchers fail to evaluate the effects that probable supply-side responses have on the ability of current producers to exercise monopoly power. This fundamental error can dramatically alter the results of antitrust analyses.

---

* We are grateful to Michael Beauregard, Neil Imus, Stanley Ornstein, and Seth Sacher for helpful comments on earlier drafts. We also thank Sheryl Aguiling, Jennifer Cooke, and David Lin for valuable research assistance.

[1] U.S. Dep't of Justice & Fed. Trade Comm'n, *Horizontal Merger Guidelines* §1 (1992, rev. 1997).

[2] See ABA Section of Antitrust Law, 2007 ANNUAL REVIEW OF ANTITRUST LAW DEVELOPMENTS 576-78 (6th ed. 2007) for several examples, including *Rebel Oil Co. v. Atlantic Richfield Co.*, 51 F.3d 1421 (9th Cir. 1995), in which the Ninth Circuit ruled that full-serve gasoline should be included in the market with self-serve gasoline because service stations could

convert their full-serve pumps to self-serve pumps with relative ease and at little cost.

Jonathan Baker writes that the *Merger Guidelines* approach is preferable because incorporating both supply-side and demand-side substitutes into the market definition step can be difficult and confusing. Baker recognizes that some courts have ruled that supply-side substitution should be incorporated into the market definition step, and he suggests that in the context of Sherman Act litigation, courts may favor incorporating supply-side and demand-side substitutes into the market definition step because doing so may allow courts to apply a "quick look analysis" to dismiss cases in which supply-side substitution would obviously prevent the alleged harm to competition. See Jonathan B. Baker, *Market Definition: An Analytical Overview*, 74 ANTITRUST L. J. 129 (2007).

In what follows, our comments apply to market definition, whether in the context of Section 1 or Section 2 cases.

[3] *See* Dennis W. Carlton, *Market Definition: Use and Abuse*, 3 COMPETITION POL'Y INT'L 3 (2007).

[4] *Merger Guidelines, supra* note 1, § 1.3.

[5] Production substitution occurs when a firm shifts from using assets used to produce (or to distribute) one good (or service) to using the assets to produce another good. Production extension occurs when a firm extends the use of its assets to produce a second good along with the good currently being produced. *See Merger Guidelines, supra* note 1, § 1.321.

Although this article discusses supply-side effects only in the context of product markets, supply-side effects also arise in the context of geographic markets. In the geographic market context, supply-side substitution involves producers in one geographic area initiating or expanding production in another geographic area.

[6] *See Merger Guidelines, supra* note 1, § 3. The *Merger Guidelines* defines *committed entry* as "entry that requires expenditures of significant sunk costs of entry or exit."

[7] Guo Ying Luo, *Mutual Fund Fee-setting, Market Structure and Mark-ups*, 69 ECONOMICA 245 (2002).

[8] In the mutual fund industry, the "prices" at issue are the fees investors pay mutual fund providers for operating mutual funds.

[9] The fund attributes which Luo assumes investors choose over are historical performance and fund age.

[10] Weisenberger appears to have been a research firm focused on mutual funds. We have seen reference to their data through the early 2000s, but we have not found any evidence of their continued existence. The names of the investment objective categories that Luo used are similar to the category names currently used by mutual fund research firms, such as Morningstar.

[11] Our calculations are based on data from the Strategic Insight SimFund database, a database of detailed information on mutual funds.

[12] These calculations exclude money market funds because the Morningstar investment objective was missing for most money market funds.

[13] Luo calculated her HHI's based on the share of investment objective category assets held in each mutual fund; whereas, we calculate HHI's based on a fund family's share of assets. The HHIs are different when a fund family (for example, Vanguard) offers more than one mutual fund within a single investment objective category. This correction increases HHIs, and is not the focus of this article.

[14] John C. Coates IV and R. Glenn Hubbard discuss the relatively low costs of entering the mutual fund business. *See* John C. Coates IV & R. Glenn Hubbard, *Competition in the Mutual Fund Industry*, 33 J. CORP. L. 151 (2007), at pp. 167-170 as well as the sources cited therein.

[15] The relatively high HHI is driven primarily by Vanguard, which had an approximately 61 percent share of all LTB mutual fund assets. However, this share is not indicative of Vanguard's presence among all bond mutual funds. Vanguard's 2007 share of all mutual fund bond assets was approximately 15 percent.

[16] In 2007, bond mutual funds assets under management were approximately $1.5 trillion. This total excludes funds of funds, money market mutual funds and bond exchange traded funds.

[17] This result does not change if one limits the analysis only to non-LTB bond assets and categories.

[18] It is possible that limiting our analysis to asset shares of bond mutual fund excludes many market participants. Other potential market participants include firms that offer equity or money market mutual funds but do not currently offer bond mutual funds. Expanding the analysis to include all mutual fund advisors as market participants does not change the nature of our results.

"The Importance of Supply-Side Effects in Antitrust Analyses," by D. Lee Heavner and Peter P. Simon, published in *Economics Committee Newsletter*, Volume 8, No.2, Fall 2008.