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# MARKET DEFINITION IN COMPLEX INTERNET MARKETS

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*Peter T. Barbur, Kyle W. Mach and Jonathan J. Clarke  
Cravath, Swaine & Moore LLP  
New York, NY*

## I. INTRODUCTION

Over the last decade, the growth of internet and other technology industries characterized by complex markets, rapid innovation and unstable market shares has made the prevailing analytical structure used in antitrust cases, which focuses predominantly on short-run price and output as measures of competitive effects, begin to seem anachronistic. Many feel that greater emphasis on complex and dynamic markets is “what’s next,” and there exists a growing and substantial body of academic literature and informal regulatory guidance heading in that direction. At the same time, there is a striking lack of case law in this area, and the newly-released Horizontal Merger Guidelines, while presenting the broadest parameters of the regulators’ approach, are themselves short on specific guidance.

This is a source of frustration for antitrust counselors, who must tell clients that antitrust policy is a generation behind the times in identifying the very competitive threats most likely to keep them up at night—continuing to employ analytical tools more appropriate to an assessment of the competitive dynamics of aluminum smelting or lysine production. At the same time, the relative absence of binding precedent or even firm analytical norms presents an enormous opportunity. The next decade in antitrust could result in a legal regime much different and even more effective than the current structure. The central question will be whether the traditional approach to market definition that has prevailed at least since the release of the 1968 Horizontal Merger Guidelines will continue to dominate the analysis.

Although market definition is critical to the enforcement of many of our antitrust laws<sup>1</sup> there has long been debate among academics, practitioners and regulators about the proper means of defining a relevant market, and whether the same means are appropriate, accurate or effective in every case. Since the rise of the “Chicago School” of economic theory in the late 1970s, American antitrust authorities have approached market definition with a reasonably simple and straightforward method. Although this method was undoubtedly appropriate given the then prevalent understanding of markets—and remains so for many applications—it is increasingly out of synch with modern economic thinking, which recognizes that markets are both more complex and more dynamic than the traditional approach to market definition implies.<sup>2</sup>

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1 See, e.g. Sherman Act Section 2, 15 U.S.C. Section 2; Clayton Act Section 7, 15 U.S.C. Section 18; FTC Act Section 5, 15 U.S.C. Section 45.

2 See generally J. Gregory Sidak, & David J. Teece, *Dynamic Competition in Antitrust Law*, 5 J. COMPET. L. & ECON. No. 4, 581-631 (Dec. 2009), available at <http://ssrn.com/abstract=1479874>.

In this paper, we review some of the particular market conditions faced by many internet-based companies and consider whether the traditional approach to market definition is adequate in the face of such market conditions. Using the search-engine provider Google as an example, we focus on two specific aspects of the markets in which such companies compete, and conclude that a different approach may be appropriate when determining the market served by such companies.

We focus here on government enforcement as opposed to private suits, recognizing that regulatory enforcement likely will be particularly important in the development of any revised competition policy because of the significant pleading and proof burdens faced by private antitrust plaintiffs. Among other things, strong economic evidence of the effects of dominant firm conduct may be elusive, making proof of injury and damages difficult.<sup>3</sup> Government enforcers, by contrast, have several advantages: subpoena power; no requirement that they prove injury or damages; and the use of Section 5 of the FTC Act, which may reach conduct that would not violate the Sherman or Clayton Acts.

## II. TRADITIONAL U.S. APPROACHES TO MARKET DEFINITION

In the history of U.S. antitrust litigation, market definition has surely decided more cases than any other substantive issue. In merger cases, plaintiffs (typically the FTC or the Antitrust Division, but sometimes private parties) must define the relevant product and geographic markets at the pleading stage, and they bear the burden of proving that the evidence supports their definition. The plaintiff will of course typically claim that the market is relatively narrow and that the defendant has a substantial share of that market. The defendant, on the other hand, will seek to define the market more broadly, so as to demonstrate that its share is relatively modest. In Sherman Act Section 2 cases, plaintiffs must, as a threshold matter, prove that the defendant possesses market power in the relevant antitrust market, which logically requires defining that market. In order to have market power, the monopolist must be able to preserve its market share even when it raises prices, so a defendant that has a large market share may nonetheless defeat the claim that it has market power if it can show that barriers to competitor entry are low.<sup>4</sup>

### Demand Substitution and the SSNIP Test

Product market definition is typically determined by reference to the “hypothetical monopolist test”:

The hypothetical monopolist test requires that a product market contain enough substitute products so that it could be subject to post-merger exercise of market power significantly exceeding that existing absent the merger. Specifically, the test requires that a hypothetical profit-maximizing firm, not subject to price regulation, that was the only present and future seller of those products (“hypothetical monopolist”) likely would impose at least a small but significant and non-transitory increase in price (“SSNIP”) on at least one product in the market[.]<sup>5</sup>

3 See, e.g., *Kloth v. Microsoft Corp.*, 444 F.3d 312, 324 (4th Cir. 2006) (private plaintiffs held not entitled to damages where proof of harm from Microsoft’s suppression of Intel’s Java chip was “entirely speculative” and it was “beyond the competence of a judicial proceeding to create in hindsight a technological universe that never came into existence”).

4 Simply put, the theory is that the mere threat of competitor entry in a market where barriers to entry are low serves to constrain the dominant firm from raising prices to capture monopoly rents.

5 Horizontal Merger Guidelines Section 4 (“Market Definition”).

“Substitute” products can be found by estimating the cross-elasticity of demand for the relevant product. The cross elasticity of demand measures the change in demand for one good when the price of another good changes. A high cross elasticity of demand suggests that products are ready substitutes.<sup>6</sup>

The Agencies’ approach to market definition has not changed significantly since the release of the 1968 Merger Guidelines, which formalized what has come to be known as the “structural paradigm.” Briefly, the structural paradigm assumes that market structure is strongly correlated with the relative robustness of competition among the individual firms within that market. A plaintiff that can demonstrate that concentration within the relevant market is high is entitled to a rebuttable presumption (known as the *Philadelphia National Bank* presumption, after the 1963 Supreme Court case<sup>7</sup>) that a merger of firms that substantially increases market concentration will harm competition.

### Changes in the 2010 Guidelines

The 2010 iteration of the Horizontal Merger Guidelines contains new language suggesting that the Agencies will no longer rely as heavily on formal market definition in conducting merger analysis. The clearest statement of this shift in emphasis is in Section 4 (“Market Definition”):

The measurement of market shares and market concentration is not an end in itself, but is useful to the extent it illuminates the merger’s likely competitive effects. The Agencies’ analysis need not start with market definition. Some of the analytical tools used by the Agencies to assess competitive effects do not rely on market definition . . . Evidence of competitive effects can inform market definition, just as market definition can be informative regarding competitive effects . . . Such evidence also may more directly predict the competitive effects of a merger, reducing the role of inferences from market definition and market shares.

This move was foreshadowed by the 2006 Commentary, which observed that direct evidence of changes in price and output might be more relevant than market concentration in predicting unilateral effects from a merger. The Agencies have long incorporated such evidence into the early stages of their merger analyses. Indeed, the new Guidelines language is simply the latest step in a “long march” away from the structural presumption.<sup>8</sup>

One tension that the revised Guidelines largely ignore, however, is that both Section 7 of the Clayton Act and nearly fifty years of precedent clearly require that an antitrust plaintiff define the relevant market. The revised Guidelines are thus hard to reconcile with the case law, and the case law will continue to exist even if the Guidelines

6 See, e.g., *United States v. E.I. du Pont de Nemours & Co.*, 351 U.S. 377, 400 (1956) (“If a slight decrease in the price of cellophane causes a considerable number of customers of other flexible wrappings to switch to cellophane, it would be an indication that a high cross-elasticity of demand exists between them; that the products compete in the same market.”). See also *Cellophane Paradox*, Wikipedia.org, [http://en.Wikipedia.org/wiki/Cellophane\\_Paradox](http://en.Wikipedia.org/wiki/Cellophane_Paradox) (last visited May 2, 2011).

7 *United States v. Philadelphia Nat'l Bank*, 374 U.S. 321 (1963).

8 See Deborah A. Garza, *Market Definition, the New Horizontal Merger Guidelines, and the Long March Away from Structural Presumptions*, THE ANTITRUST SOURCE, Oct. 2010 (describing the evolution of the Guidelines approach from a relatively rigid toward a more flexible analysis).

change.<sup>9</sup> The Agencies and practitioners are, of course, acutely aware of judicial precedent and will proceed in their litigated matters accordingly. But we can expect the Agencies to rely more and more heavily on direct effects evidence in their internal analyses and pre-litigation process, while continuing to plead standard market definition when they bring merger challenges in federal court. Indeed, the Agencies likely will “back into” their market definitions, using direct effects evidence to suggest the contours of the market rather than the more traditional analysis contemplated by the Clayton Act Section 7 precedents. How the federal courts will react to the Agencies’ increasing reliance on direct effects evidence remains to be seen.

A controversial passage in the new Guidelines concerns the evidentiary value of high profit margins. Section 2.2.1 (“Merging Parties”) states 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 . . . or that the firm and its rivals are engaged in coordinated interaction.” As discussed elsewhere, while this proposition might be persuasive in markets characterized by static competition (in which, consistent with traditional price theory, one would expect the price of goods to converge with average marginal cost), it has virtually no relevance in many internet markets, which tend to be characterized by high fixed costs associated with R&D and very low marginal costs.

This passage has been a source of alarm among some, who express concern that it reflects a “thumb on the scale” approach to evaluating internet markets. It is certainly true that the Agencies have made new economy industries an enforcement priority. And the language here is disconcertingly broad. The Guidelines recognize elsewhere, however, that margins are not necessarily conclusive regarding the likelihood of a post-merger price increase and that other factors need to be considered. It is far from clear, then, that the Agencies intend to rely on price and/or cost margins in characterizing the state of competition in internet markets.

### III. THE PROBLEM OF COMPLEX MARKETS

The traditional U.S. approach to market definition fares poorly when applied to more complex or dynamic markets. Although many types of businesses operate in complex or dynamic markets, these problems are especially common and acute in the markets of internet-based technology companies, such as Google, which we discuss herein by way of example. In this section, we consider two features of these markets that make them particularly difficult to assess under the traditional method, and review the current American approaches to these issues.

As most readers will know, Google provides a nearly ubiquitous internet search portal as well as a variety of other web-based applications and services.<sup>10</sup> In the “online search engine market”—if such a thing exists—Google is a major player. Recent data from comScore shows Google’s share of basic internet searches<sup>11</sup> at 65.8 percent, with its closest competitors Yahoo! and Microsoft languishing far behind at 17.1 and 11 percent,

9 See Sidak & Teece, *supra* note 2 (observing that “[T]he static view of competition is, by dint of the imprimatur of the federal judiciary, the law.”)

10 We use Google’s search engine here only by way of a stylized example, and do not pretend to offer a complete or accurate description of the market faced by that or any other aspect of Google’s business.

11 “Explicit Core Searches”, defined by comScore as searches excluding “contextually driven searches that do not reflect specific user intent to interact with the search results.” See 2010 U.S. Search Engine Rankings, [http://comscore.com/Press\\_Events/Press\\_Releases/2010/9/comScore\\_Releases\\_August\\_2010\\_U.S.\\_Search\\_Engine\\_Rankings](http://comscore.com/Press_Events/Press_Releases/2010/9/comScore_Releases_August_2010_U.S._Search_Engine_Rankings) (last visited Oct. 10, 2010).

respectively.<sup>12</sup> As a result, it is fair to say that Google would have a difficult case to make if it attempted to acquire a rival of any significance and the traditional market definition rules were applied. However, the simple figure cited above—Google’s 65.8 percent share of the market for basic searches—may significantly overstate any threat that such a merger would actually pose to competition or consumers.

### A. Two-Sided Markets

Google’s search engine business caters to a classic two-sided market. While most every market has two sides (sellers and their customers), here we use the term to describe a market in which each individual seller must serve two distinct groups of customers, which we will call groups A and B.<sup>13</sup> In a two-sided market, A and B are connected through indirect network effects; in short, greater demand for the product by A stimulates greater demand by B.<sup>14</sup> Greater demand by B, in turn, further stimulates demand by A. Conversely, decreased demand by A causes a corresponding decrease in demand by B. Accordingly, two-sided networks are those in which the volume of transactions depends not merely on the price charged for the product but also on whether the seller has managed to simultaneously attract another set of customers to the related product.<sup>15</sup>

Although the economic description is a bit arcane, consumers encounter such markets on a regular basis. In their prominent paper on the subject, Evans and Schmalensee<sup>16</sup> analyze several common examples:

- Exchanges that bring together buyers and sellers must simultaneously cater to both types of customers in order to succeed, and the addition of more buyers is likely to attract more sellers (and vice-versa) because it increases the probability of a match between the two. Although securities exchanges such as the NYSE or NASDAQ come most readily to mind as examples of this type, it also includes a variety of brokerage services and similar services that bring buyers and sellers together.
- Transaction systems, such as those used for credit and debit cards, must simultaneously cater to both cardholders and merchants if they are to be successful.
- Advertising supported media, such as newspapers, must attract both readers (with content) and advertisers (with readers).

In terms of market structure, Google’s search engine business is roughly analogous to that of other advertising supported media, such as newspapers. While Google is most well-known for its search engine, it also caters to its advertisers, who pay through Google’s

<sup>12</sup> See *id.*

<sup>13</sup> “Two-sided markets” are also referred to in the literature as “markets with two-sided platforms.” See Janusz A. Ordover, *Comments on Evans and Schmalensee’s “The Industrial Organization of Markets with Two-Sided Platforms”* 3 J. COMPET. POL’Y INT’L 181, 181 (2007), available at <http://ssrn.com/abstract=987839>.

<sup>14</sup> In contrast, “direct” network effects occur where greater demand from customers within A stimulate demand within that same group. For example, as more users join an online social networking community the more valuable membership in the community will become for some users. See generally *id.* at 182.

<sup>15</sup> See Jean-Charles Rochet & Jean Tirole, *Two-Sided Markets: A Progress Report*, 37 RAND J. ECON. 645, 646 (2006) (“We define a two-sided market as one in which the volume of transactions between end-users depends on the structure and not only on the overall level of the fees charged by the platform. A platform’s usage or variable charges impact the two sides’ willingness to trade once on the platform and, thereby their net surpluses from potential interactions; the platforms’ membership or fixed charges in turn condition the end-users’ presence on the platform.”).

<sup>16</sup> David S. Evans & Richard Schmalensee, *The Industrial Organization of Markets with Two-Sided Platforms*, 3 J. COMPET. POL’Y INT’L 151, 153-57 (2007) available at <http://ssrn.com/abstract=987341>.

“AdWords” system to have their material presented when users enter particular search terms. Google provides its search engine without charge because users of the search engine benefit Google’s advertising revenue through indirect network effects, just as a newspaper might charge subscribers rates below the marginal cost of printing the paper (or even free) in order to increase readership. The presence of advertisements probably benefits users to a point as well, although less substantially.<sup>17</sup>

However, the nature of the internet has enabled Google and similar internet companies to enter two-sided markets differently and in some ways more successfully than more traditional businesses. For one thing, the digital nature of the internet has enabled Google to provide its search engine service without meaningful geographic limits, and the rise of e-commerce and commercial websites has increased the value of Google’s click-through advertising model. Accordingly, Google has avoided many of the practical limitations that have until recently prevented most other players in two-sided markets from expanding beyond their local geography. This, among other things, has enabled Google to capture vast indirect network effects and to grow its search engine business to astounding proportions: Google’s search engine is now regularly used more than ten billion times per month in the U.S. alone.<sup>18</sup>

\* \* \*

Google’s substantial share of the internet search business and its sheer size, among other things, make it a potential subject of antitrust scrutiny. As a recent New York Times article colorfully explained, Google “is in the midst of a treacherous rite of passage for powerful technology companies — regulators are intensely scrutinizing its every move, as they once did with AT&T, I.B.M., Intel and Microsoft . . . [G]overnment opposition, here or in Europe, could pose the biggest threat to Google’s continued success.”<sup>19,20</sup> But for a number of reasons, the two-sided nature of any supposed “search engine product market” makes Google and similar internet companies difficult to assess under the traditional approach to market definition. Perhaps most importantly, the traditional approach does not answer the critical question of *which* market is the relevant one for antitrust purposes: that for the use of its search engine, or for its related online advertising business?

For companies in two-sided markets, this question can be tremendously important. Google, for example, has a considerably smaller share of any supposed “online advertising market” than that for internet searches and has only a tiny share of the advertising market overall. So supporters of the company may rightly argue that if the company has any market power at all it is limited to the search engine market, where Google gives its product away for nothing and where many readily substituted search products exist. As Google claims, competition in that market “is a click away.”<sup>21</sup>

However, in many cases the relevant antitrust inquiry is not what a company *does*, but what it *could do* if a proposed transaction were to take place. A key purpose of market

17 See Evans & Schmalensee, *supra* note 15 at 155-56 (“[T]he extent to which viewers value advertisers is the subject of more debate, but we suspect that viewers value advertisers more than they might admit.”) (citing research).

18 See 2010 U.S. Search Engine Rankings, *supra* note 10.

19 See Miguel Helft, *Google Makes a Case That It Isn't So Big*, N.Y. TIMES, June 28, 2009.

20 The public debate over Google involves two competing narratives. Those who argue for caution in assessing dynamic markets point to historical examples (including the DOJ’s 1969 complaint in *U.S. v. IBM*) in which the market power of apparently dominant technology firms has turned out to be far less durable than antitrust enforcers predicted. By contrast, FTC senior advisor Tim Wu recently described a long “cycle” in which open information systems (such as the Internet) become consolidated and closed over time, in part through strategic exclusion by a dominant firm. TIM WU, *THE MASTER SWITCH: THE RISE AND FALL OF INFORMATION EMPIRES* (2010).

21 *Id.*

definition is to determine whether, with increased market share, a firm could exercise market power and thereby increase prices to the detriment of consumers. Here again, the presence of a two-sided market complicates the inquiry. In a traditional (i.e., “one-sided”) market, monopoly power allows the monopolist to increase prices and restrict output to the extent that its profits are maximized. The monopolist achieves this by simply increasing the price of the product until the decrease in the quantity of the product demanded becomes too great to make up for the increased revenue per unit it receives. Thus the elasticity of demand for the product in response to a change in price will determine the extent to which a monopolist can profitably increase prices.

The same is not true in two-sided markets. A monopolist that serves consumer groups A and B faces competition in both, and monopoly power in a market serving group A could easily be “competed away” in the market serving B. Moreover, while it is relatively easy to identify competitors in one-sided markets, two-sided markets present a broader range of competitors that must be considered. Two-sided markets exist because of indirect network effects between the two sides of the market—customers in group A benefit customers in group B, and vice versa, so it is natural to assume that serious competitors will have no choice but to enter both sides of the market themselves. But this is not necessarily so; potential competitors may participate on only one side of the relevant two-sided market where the indirect network effects between the two sides are not strong enough to seriously impede one-sided competitors. Or a new entrant may create an innovative product that does away with the need for such networks effects at all; for example, a search engine popular enough to earn paying users could do away with the need for advertising completely, much like some cable television channels did away with commercials by creating premium content.

Additionally, even where strong indirect network effects prevent one-sided competitors from taking market share from an incumbent, there is no reason why the same network effects cannot be captured by a two-sided competitor competing on only one side of the market engaged by the incumbent. For example, Google’s search engine is not a direct competitor nor readily substitutable with social networking sites, such as Facebook, for search engine users. But Facebook is also in a two-sided market; it competes for social network users and for online advertising. In effect, Google and Facebook are in distinct two-sided markets that overlap on one side—that for online advertising. To meaningfully describe Google’s market, one must consider even very different companies that nonetheless compete with Google in at least one side of Google’s market.

Moreover, even where a participant in a two-sided market does have market power, the nature of the indirect network effects in the two-sided market may decrease the monopolist’s power to increase prices. The two-sided market participant must be concerned with not only with the price elasticity of demand (how many buyers will leave group A if the price of A’s desired product is increased, the traditional monopolist’s concern), but also with the loss of the indirect network effects from decreased membership in A. Where a decrease in A’s numbers affects the desirability of membership in B, even market power on A’s side of the market may not enable the monopolist to increase prices because of its vulnerability on B’s side of the market.<sup>22</sup>

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<sup>22</sup> See also Evans & Schmalensee, *supra* note 16 at 173 (“The link between the customers on the two-sides affects the price elasticity of demand and thus the extent to which a price increase on either side is profitable. It therefore necessarily limits market power all else equal.”).

We use Google here as a recurring example because most readers will be familiar with Google's search engine business, but the two-sided market phenomenon is surprisingly common among prominent internet companies. For example, eBay (sellers and bidders); Facebook (members and advertisers) and match.com (men and women) all cater to such markets. Other internet companies may compete in three- or even four-sided markets. Youtube, for example, must appeal to viewers, advertisers and content providers.<sup>23</sup> For any such company, the unique nature of the two-sided market must be considered before any reasoned conclusion can be drawn about the definition of the market in which it competes. The degree to which U.S. regulators have done so is considered in a later section of this paper.

### B. Dynamic Competition

We now turn to another feature of the markets faced by internet companies such as Google—that of dynamic competition. The conventional approach to merger enforcement in the U.S. is static in nature; that is, it is based on the implicit assumption that consumer surplus is created largely by shifts in price and output of a particular good or service, and it focuses analytically on whether the merger or practice under review will result in decreased output or increased prices. Mergers are challenged when an agency concludes that the merged party will have the ability to control price and output of the product or service in the relevant market. Current market share is thought to be a reasonably reliable indicator of market power, and a merger that increases market concentration in an already concentrated market is presumed to pose a threat to competition.

For purposes of Sherman Act Section 2 analysis, the inference of market power is generally drawn from a combination of high present market share and significant barriers to entry. The world contemplated by the static model, which is more notional than it is realistic, is of firms that produce commodity products: stable, slow-moving and dull, with long-run prices tending to converge with marginal costs. Although subject to certain caveats and criticisms, the relationship between market concentration and consumer welfare assumed by the static approach is generally reliable for analyzing price concerns in such markets.

By contrast, dynamic competition is associated with cycles of innovation, in which firms compete for temporary dominance of the market through the introduction of consumer welfare-enhancing technology and, potentially, entirely new products that make the existing market obsolete. Market shares in markets characterized by dynamic competition tend to be unstable, and new entrants to the market may rapidly capture large shares if they introduce a superior product. The relationship between price and marginal cost may not be a significant indicator of market power, because dynamic competition markets are often characterized by high fixed costs of product development and *de minimis* marginal costs of production. An internet company, for example, may invest considerable capital in the development of its online service, but the marginal cost of each additional user may be extremely small.<sup>24</sup>

23 Similarly, if Google develops an advertising platform for its Android cellular phone operating system, it will have to serve at least three customer groups: the cellular end-users, advertisers, and Android application developers.

24 Another classic example of this phenomenon is computer processing chips. Firms like Intel, AMD, and Nvidia invest heavily in research and development, but the cost of manufacturing one more chip is very modest. It would be a mistake to assume that the relatively high sales price of chips as compared to the *de minimis* marginal cost of producing them indicates a monopoly or oligopoly market.

Dynamic competition is associated with the work of Austrian economist Joseph Schumpeter, a trenchant critic of the static approach:

Every piece of business strategy acquires its true significance only against the background of that process [of innovation] and within the situation created by it. It must be seen in its role in the perennial gale of creative destruction; it cannot be understood irrespective of it or, in fact, on the hypothesis that there is a perennial lull . . . In other words, the problem that is usually being visualized is how capitalism administers existing structures, whereas the relevant problem is how it creates and destroys them.<sup>25</sup>

Just as static competition is common in simple, traditional markets (like those for commodities), dynamic competition is a common characteristic of modern technology and information markets. For example:

- Consumer Electronics: competitors in certain consumer electronics markets, such as cellular phones or MP3 players rarely try to achieve market share by merely undercutting the price offered by competitors; instead, they try to create original products that will quickly capture significant market share until further innovation makes such products obsolete.
- Pharmaceuticals: drug manufacturers are precluded from direct competition in many cases by virtue of patent protections, and direct their energy toward “next generation” products instead of head-to-head competition.

Among those technology and information companies, internet based companies are especially vulnerable to dynamic competition. Customers of internet-based companies can often quickly and easily switch from an incumbent service provider to a new, innovative competitor. Users of Google’s search engine, for example, need only to enter a different URL in order to switch products. This makes dynamic competitors better able to capture market share, and encourages new entrants. Also, internet businesses often have low initial start-up and development costs, at least in the early stages of the business. This eases entry into the market for new innovators. (And historically, the capital markets have functioned appropriately to fund internet businesses once they show promise.)<sup>26</sup> Google itself, now worth about 170 billion dollars, was started by two Stanford graduate students and originally operated from a graduate dormitory.<sup>27</sup>

The presence of dynamic competition in these markets complicates merger enforcement in three ways. First, innovation effects can undermine the predictive relationship between the pre- and post-merger markets. Even firms that presently appear to have a dominant market position may find themselves quickly blown away by Schumpeter’s

<sup>25</sup> JOSEPH SCHUMPETER, CAPITALISM, SOCIALISM AND DEMOCRACY 83-84 (1942).

<sup>26</sup> Schumpeter concluded that there was a positive correlation between firm size and innovation in part because he observed that smaller firms were chronically under-capitalized. *See id.* Today, with large amounts of venture capital chasing the outsized returns associated with market-capturing innovation—a phenomenon which has abated only slightly even in unfavorable recent market conditions—it is no longer fair to assume that larger firms have an entrenched funding advantage.

<sup>27</sup> *See* John Battelle, *The Birth of Google*, WIRED MAGAZINE, Aug. 2005, available at <http://www.wired.com/wired/archive/13.08/battelle.html>.

“creative gales” when an innovator introduces a new product. Second, innovation performance itself may be radically changed by a merger, either by combining firms that together will be more efficient and powerful innovators, or conversely, by removing one of the merging firms’ incentives to invest in innovation. The problem has been framed thus: “To assess fully the impact of a merger on market performance, merger authorities and courts must examine how a proposed transaction changes market participants’ incentives and abilities to undertake investments in innovation.”<sup>28</sup> A merger that promises to greatly increase the total innovative capacity of the market may increase dynamic competition even while increasing market concentration. Third, as discussed earlier, sizable revenues coupled with the low marginal costs of each new additional user of an internet service can inaccurately suggest that market power exists.<sup>29</sup>

Dynamic competition also tends to complicate the threshold inquiry of Sherman Act Section 2 enforcement: whether the defendant possesses market power. As noted above, in markets characterized by dynamic competition, market shares are inherently unstable. The analysis of market power in such markets must therefore look beyond current market shares to other indicia of whether the subject firm’s dominant position is likely to be durable, or is merely the temporary result of introducing a game-changing product. In fast-moving, innovative markets, short-term high market share may be a necessary (or at least not harmful) reward for the successful innovator of the moment.

Of course, the sharp conceptual distinction drawn above may be somewhat misleading. Most real-world markets will be a blend of static and dynamic elements, and a proper antitrust analysis will have to account for both. Also, static and dynamic competitive forces are not independent, but rather interact constantly<sup>30</sup>, though the relationship between the two is not well understood.

#### IV. U.S. APPROACHES TO MARKET DEFINITION FOR COMPANIES IN TWO-SIDED AND DYNAMIC MARKETS

In the United States, there is substantial agreement that two-sided and dynamic markets exist and are different than the kinds of markets for which the traditional market definition approach was designed, but little agreement as to whether that requires any different approach by regulators.

##### A. Academic Assessments

A substantial body of academic research discusses both two-sided and dynamic market conditions, but there is little agreement as to whether those conditions require dramatic or modest action on the part of antitrust regulators. On one side of the discussion stands a group of prominent economists who argue forcefully that both the current regulatory approach and the applicable case law are outdated and in need of major reform.<sup>31</sup> Others propose a more measured approach, in part because the two-sided or dynamic nature of a market has an unpredictable effect on antitrust analysis. As Ordoover writes:

28 Michael L. Katz & Howard Shelanski, *Mergers and Innovation*, 74 ANTITRUST L.J. 1, 12 (2007).

29 Conversely, internet companies in two-sided markets might be unfairly accused of predatory pricing where their product is offered below cost or even free to one side of the market. Of course, that does not necessarily show that the product is being offered below its cost to the market as a whole. See Evans & Schmalensee, *supra* note 16 at 27.

30 For example, industrial economists have long recognized the phenomenon known as limit pricing, in which a dominant firm maximizes its profits by choosing a price that is low enough to discourage some (though perhaps not all) entrants into the market. The monopolist thus sacrifices short-term profits in an effort to protect its monopoly from disruptive entrants.

31 See generally Sidak & Teece, *supra* note 2.

Invoking a two-sided nature of the business will not get one off the hook in an antitrust case and, in some situations may make the predicament even worse. Thus . . . [two-sided markets] may be a passing concept which calls for analytical vigilance but does not require a policy revolution.<sup>32</sup>

So while there is no consensus on a need for major reform, and little support for a “systematic retreat from [antitrust] enforcement,”<sup>33</sup> even the doubters do not deny that careful analysis is required before traditional market definition concepts can be comfortably applied to more complex markets. The question is whether the current laws and guidelines leave room for such analysis to occur.

## B. Regulatory Approaches

It would be unfair to suggest that the Antitrust Division and the FTC have been unconscious of these concerns. Indeed, the Agencies have considered them, either explicitly or implicitly, in a number of cases dating back to at least 1990. It is also clear that the leadership of both Agencies is familiar with the academic literature discussed above; Antitrust Division head Christine Varney discussed the importance of innovation effects to merger enforcement in an article published in 1995<sup>34</sup> and FTC Commissioner Rosch has demonstrated his willingness to engage these issues in a series of speeches over the past several years addressing various aspects of dynamic competition analysis.<sup>35</sup> The Agencies have also promulgated the Intellectual Property Guidelines (1995)<sup>36</sup> and the Joint Venture Guidelines (2000)<sup>37</sup>, both of which deal implicitly with innovation incentives. There is, however, a glaring absence of formal agency guidance regarding how the Agencies conduct dynamic competition analyses, as well as a somewhat puzzling reluctance to acknowledge the need for new analytical tools.

The Agencies sometimes assert that the analytical framework of the Merger Guidelines is sufficiently flexible to address dynamic competition concerns and that neither a change in approach nor significant new analytical tools are required.<sup>38</sup> Of course, as an institutional and a practical matter it is important to the Agencies that the Merger Guidelines retain their influence, so it would be surprising if they acceded to the view that

32 See Ordovery, *supra* note 13 at 18.

33 See Katz & Shelanski, *supra* note 28, at 27.

34 Christine A. Varney, *Antitrust and the Drive to Innovate: Innovation Markets in Merger Review Analysis*, 9 ANTITRUST, No. 3, Summer 1995.

35 See, e.g., J. Thomas Rosch, *Promoting Innovation: Just How ‘Dynamic’ Should Antitrust Law Be?*, Remarks Before the USC Gould School of Law Intellectual Property Institute, Los Angeles, California, (Mar. 23, 2010), available at <http://www.ftc.gov/speeches/rosch/100323uscremarks.pdf>; J. Thomas Rosch, *The Role of Static and Dynamic Analysis in Pharmaceutical Antitrust*, remarks at the Fifth Annual In-House Counsel Forum on Pharmaceutical Antitrust, (Feb. 18, 2010), available at <http://www.ftc.gov/speeches/rosch/100218pharmaantitrust.pdf>.

36 Antitrust Guidelines for the Licensing of Intellectual Property (1995) (“IP Guidelines”), available at <http://www.justice.gov/atr/public/guidelines/0558.pdf>. The IP Guidelines adopted the “innovation market” concept first introduced by then-Antitrust Division lawyers Richard J. Gilbert and Steven C. Sunshine: “An innovation market consists of the research and development directed to particular new or improved goods or processes, and the close substitutes for that research and development . . . The Agencies will delineate an innovation market only when the capabilities to engage in the relevant research and development can be associated with specialized assets or characteristics of specific firms.” IP Guidelines Section 3.2.3. The innovation market concept has been a target of criticism, principally on the ground that research and development activity does not constitute the whole of dynamic competition and that other factors must be considered. It is also unclear to what extent the innovation market concept has been integrated into the Agencies’ merger analysis.

37 Antitrust Guidelines for Collaborations Among Competitors (2000), available at <http://www.ftc.gov/os/2000/04/ftcdoguidelines.pdf>.

38 As recently as September 2010, the FTC argued in a Congressional hearing on antitrust policy in the digital age that no changes were needed. *Antitrust in the Digital Age: How Enduring Competition Principles Enforced by the Federal Trade Commission Apply to Today’s Dynamic Marketplace*, prepared statement of the Federal Trade Commission before the Subcommittee on Courts and Competition Policy, 111th Cong. 2 (2010), available at <http://www.ftc.gov/os/testimony/100916digitalagetestimony.pdf> (“Some have argued that there should be different rules for markets characterized by rapid technological development, but Congress drafted the antitrust laws in general terms to accommodate changing markets and new products, and the laws are flexible enough to meet the challenges of the high-tech era.”)

the Guidelines were somehow anachronistic. In addition, some observers have suggested that the Schumpeterian model of competition necessarily implies that a significant retreat in antitrust enforcement is called for; it is natural that the Agencies would resist that view, in part because it lacks significant academic and empirical support.

### 1. Regulatory Action

Since 1990, the Agencies have addressed dynamic competition concerns—sometimes explicitly—in a number of cases that were not litigated to a judgment. In the absence of a significant body of case law on dynamic analysis, and given the relative silence of the Merger Guidelines, the Agencies' statements in these matters are an important source of information about the kinds of cases they are likely to bring going forward. A number of these matters have involved the development of branded pharmaceuticals, a classic dynamic competition industry.

The proposed 1990 merger of Roche and Genentech was the first in what became a series of cases in which the FTC opposed pharmaceutical mergers at least in part due to potential innovation effects. The Commission's complaint alleged that Roche and Genentech were R&D competitors in developing therapies for treatment of HIV/AIDS but did not compete in any existing product market for such treatments.<sup>39</sup> The FTC's argument thus rested solely on preserving innovation incentives.

One of the first high-profile innovation market cases was *United States v. General Motors Corp.*,<sup>40</sup> in which the Antitrust Division challenged General Motors' acquisition of the heavy-duty truck transmission division of German firm ZF Friedrichshafen ("ZF"). GM and ZF did not compete in the United States, but the two firms did compete in Europe, and the government's theory of competitive harm was that a merger of the two companies would result in the loss to U.S. consumers of innovation benefits derived from European competition. This challenge clearly could not have been sustained on a purely static competition analysis, because the two firms were not competitors in the relevant geographic market. The parties abandoned the transaction shortly after the filing of the complaint.

The next high-profile case involved the proposed merger of Lockheed Martin and Northrop Grumman, two of the largest U.S. defense contractors. Lockheed and Northrup competed in a highly-concentrated market for certain Department of Defense contracts, so the transaction arguably presented concerns under a traditional structural analysis. The Antitrust Division also relied, however, on the potential for harm to innovation. The merger would have deprived the market of a potential innovator in the area of high performance fixed-wing aircraft, and while the remaining two competitors would still have had significant innovation incentives, the Antitrust Division concluded that the loss of innovation *diversity* was enough to make the transaction objectionable from a competition standpoint.<sup>41</sup> The transaction was abandoned.

The Agencies have also brought a number of cases involving what might be called the "promising entrant" fact pattern. In this scenario, a dominant firm seeks to maintain the competitive status quo through the acquisition of a firm that constitutes a nascent

39 *In the Matter of Roche Holdings Ltd.*, 113 F.T.C. 1086 (1990).

40 Civ. No. 93-530, 1993 WL 13610315 (D.D.C. 1993).

41 The link between competition and innovation diversity is itself not entirely clear. See Richard J. Gilbert, *Competition and Innovation*, Issues in Competition Law and Policy (Ed. Wayne Dale Collins), American Bar Association Antitrust Section, 2006 ("It is not obvious that reducing the number of firms in an industry reduces the number of independent R&D paths. That follows if each firm takes a single R&D path, but some firms successfully pursue several research paths.")

competitive threat. The most recent such case involved the proposed acquisition of HeartWare International by Thoratec Corp., a monopolist in the U.S. market for a device used to treat end-stage heart failure patients. HeartWare was only one of a number of small companies attempting to develop a competitive product, but its product was more developed than others. The FTC asserted in its administrative complaint that that product was “poised to be the first and most significant threat to Thoratec’s [product] when [it] is approved, as expected, in late 2011 or early 2012.”<sup>42</sup> The parties ultimately abandoned this transaction, as well.

Thoratec/Heartware and other cases involving the “promising entrant” pattern would seem to be both analytically clear, very sound and non-controversial uses of the Agencies’ authority. Of course, Thoratec/Heartware presents a very stark instance of this phenomenon, because the FDA approval process for medical devices gives the product development process clear benchmarks and allows for a greater degree of predictability. In other instances, of course, there may be intense debate as to whether the acquired firm truly has an advantage over other potential entrants. The less clear it is that the acquired company would bring to market the “next generation” product, the more complex the dynamic competition analysis will be.

The relative lack of case law addressing dynamic effects somewhat reduces the predictability of the Agencies’ decision-making in this area, since they are not bound by the interpretive guidance that they issue for the benefit of the public in non-litigated cases. *United States v. Microsoft Corp.*<sup>43</sup> is a significant decision dealing very squarely with the potential exclusionary impact of network effects in two-sided markets; it does not, however, set forth an express framework for assessing dynamic competition over the medium and long term. More recently, Judge Vaughn Walker’s opinion in *U.S. v. Oracle Corp.* examined some of the complexities of market definition in Schumpeterian markets in the context of a proposed acquisition in the software industry.<sup>44</sup> The Antitrust Division did not succeed in *Oracle Corp.* in its attempt to define a market for “high function” software systems, and Judge Walker’s opinion has been read by some to suggest that establishing a market definition in such an industry may be next to impossible. But Judge Walker did not go so far as to suggest, as some have, that determining market definition is an unhelpful exercise in the analysis of dynamic industries.

On the narrower question of two-sided markets, there have been several cases involving credit card and electronic payment markets, including *United States v. First Data Corp.*, in which the Antitrust Division challenged a merger that would have combined two PIN debit networks, STAR and NYCE. The complaint asserted a market definition consisting solely of PIN debit network services, excluding other forms of payment, including cash, checks, money orders, credit cards, and signature debit.<sup>45</sup> As discussed above, the use of the SSNIP test in two-sided markets is complicated both by uncertainty as to which pricing metric should be analyzed and by the need to account for network effects between the two sets of customers. Market definition therefore promised to be a core issue if the case were fully litigated. The matter concluded with a settlement in which the acquiring firm, First Data, agreed to divest its controlling interest in NYCE.<sup>46</sup>

42 Complaint at 3, *In Re Thoratec Corp. & Heartware Int’l Inc.*, No. 9339 (F.T.C. 2009).

43 253 F.3d 34 (D.C. Cir. 2001) (*en banc*).

44 *United States v. Oracle Corp.*, 331 F. Supp. 2d 1098 (N.D. Cal. 2004).

45 Department of Justice, Antitrust Division, *United States v. First Data Corporation and Concord EFS, Inc.*, Federal Register Notice containing Competitive Impact Statement, Proposed Final Judgment, and Complaint (Feb. 10, 2004), available at [http://www.justice.gov/atr/cases/f203700/203728\\_7.pdf](http://www.justice.gov/atr/cases/f203700/203728_7.pdf).

46 *Id.*

## 2. The 2010 Merger Guidelines: A Missed Opportunity

As part of their series of workshops on the revisions to the Merger Guidelines, the Agencies held a panel entitled “Dynamic Markets and Innovation,” hosted by Antitrust Division chief economist Carl Shapiro and featuring economist David Teece along with in-house counsel from Cisco, Microsoft and Apple. There was broad consensus among the panelists that dynamic competition was “the main driver of [the] consumer benefits of economic growth over the medium to long term.” In his opening remarks, Professor Shapiro preemptively rejected the “strawman” argument that the Agencies’ approach is strictly static, noting the existing Guidelines’ acknowledgement that merger analysis is inherently forward-looking. Professor Shapiro also noted that “we’ve got this terribly important dimension of competition that is relevant for merger analysis, but virtually nothing in the Guidelines. So that seems like opportunity for improvement if we’re going to revise the Guidelines.”<sup>47</sup>

Yet when the new Merger Guidelines were finalized in August, there was still very little in the way of firm guidance. The Guidelines do contain new language in Section 6.4 (“Innovation and Product Variety”) regarding the importance of dynamic competition to competitive effects analysis. Here is the first paragraph of that section in its entirety:

Competition often spurs firms to innovate. The Agencies may consider whether a merger is likely to diminish innovation competition by encouraging the merged firm to curtail its innovative efforts below the level that would prevail in the absence of the merger. That curtailment of innovation could take the form of reduced incentive to continue with an existing product-development effort or reduced incentive to initiate development of new products.<sup>48</sup>

The inclusion of the Section 6.4 is a useful step. It lays out the two basic kinds of competitive harm from curtailed innovation incentives<sup>49</sup> (*see* Section III.B , above), recognizes the importance of innovation capability at the enterprise level and acknowledges that a merger has the potential to have positive as well as negative innovation effects. All of this language is consistent with the trends in the academic literature discussed above.

Section 6.4 is also silent regarding several core analytical issues. It does not say what data the Agencies consider relevant to dynamic competition analysis.<sup>50</sup> It does not say whether the traditional structural analysis will remain important even in industries characterized by dynamic competition. It does not address how the Agencies propose to assess mergers in which the static and dynamic competition analyses point in opposite directions. And it does not discuss how longer run competitive effects will be discounted as against shorter-run effects. Each of these omissions is significant.

47 A transcript of the workshop, which took place at Stanford University on January 14, 2010, is available at <http://www.ftc.gov/bc/workshops/hmg/transcripts/100114transcriptstanford.pdf>.

48 Horizontal Merger Guidelines Section 6.4.

49 “The first of these effects is most likely to occur if at least one of the merging firms is engaging in efforts to introduce new products that would capture substantial revenues from the other merging firm. The second, longer-run effect is most likely to occur if at least one of the merging firms has capabilities that are likely to lead it to develop new products in the future that would capture substantial revenues from the other merging firm.” *Id.*

50 As discussed elsewhere, there are a number of potentially relevant data points, including venture capital flows, R&D spending and the diversity of R&D paths, and a given firm’s history of innovation, particularly in adjacent or complementary products. Of course, gathering such data could pose a challenge for Agencies; no such data is presently called for, for example, by the Hart-Scott-Rodino pre-merger notification form. And in private suits, the disclosure of some such data could pose significant confidentiality and trade secret concerns, further encouraging plaintiffs to use the Sherman Act as strategic leverage in commercial disputes and/or market competition.

The Agencies might be reluctant to create firmer guidance in this area for a number of reasons. The most obvious is the incomplete state of our understanding regarding dynamic competition. Much work remains to be done in this area, and it is natural that the Agencies would be inclined toward delay until more is known. Another way to look at it is that by remaining largely silent in the Guidelines, the Agencies retain maximum institutional flexibility. The strong influence of the Merger Guidelines on the federal judiciary could make it difficult for the Agencies to change course once they have addressed an issue in the Guidelines.

The coming shift toward a more innovation-centric competition policy also has implications for the private antitrust bar. First, to the extent they have not already done so, counsel will need to get familiar with the existing literature in this area and become conversant in the jargon of complex markets and dynamic competition.<sup>51</sup> Second, and perhaps more importantly, counsel may need to think differently about their clients' businesses, accepting that product cycles may be short in modern internet and technology markets and focusing less on legacy products and more on both internal R&D efforts, complex markets and external sources of destabilizing change.

## V. CONCLUSIONS AND NEXT STEPS

Naturally, it is far easier to identify problems with the traditional approach to market definition than to propose an effective replacement. But it does seem clear that, in assessing complex internet markets, U.S. regulators need to shift their traditional approach to market definition toward a more flexible method that accounts for alternative forms of markets and competition. Acknowledging that we may not yet have the kind of analytical tools necessary to assess more complex markets, and that it will take some time to develop, it is appropriate to take a measured enforcement approach and proceed cautiously lest regulators unwittingly punish pro-competitive conduct in increasingly important markets. This is not to say that antitrust enforcers must leave the field entirely, as some have suggested, but rather that a degree of modesty is required where traditional approaches are an awkward fit to the facts.

Some may fairly protest that this is precisely the approach U.S. regulators are currently taking. But from the practitioner's perspective, the positive steps that the regulators have taken thus far do not provide much insight into how the Agencies will approach markets that fall outside of the traditional approach to market definition, other than that they will try to do so. This leaves practitioners hampered in providing useful advice to clients pondering potentially critical business decisions. So, while we will all have to live with a measure of uncertainty, clarity and transparency will be at a premium going forward.

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51 For antitrust-oriented analysis, in addition to the articles cited above, see Jonathan B. Baker, *Fringe Firms and Incentives to Innovate*, 63 ANTITRUST L.J. 621 (1995) (describing market structures in which leading firms may have less incentive to innovate than do "fringe" firms). Much of the leading work on the relationship between innovation and market structure, however, is found in the literature of industrial organization. See, e.g., F.M. SCHERER & DAVID ROSS, *INDUSTRIAL MARKET STRUCTURE AND ECONOMIC PERFORMANCE* (1990); and Wesley M. Cohen & Richard C. Levin, *Empirical Studies of Innovation and Market Structure*, in 2 HANDBOOK OF INDUSTRIAL ORGANIZATION 1059-1107 (1989). This learning will need to be ported into antitrust if we are to develop an effective innovation-focused competition policy.