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Reevaluating Merger Guidelines for the New Economy

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Abstract: The inherent dynamic competitiveness of the new economy brings about novel challenges to antitrust enforcements. We evaluate the appropriateness of the 1992 Horizontal Merger Guidelines in light of this new environment. We show that the Guidelines relies too heavily on market concentration measures that are bound to be overstated for new-economy industries. To properly address the dynamic competitiveness of the market, we suggest that the Guidelines should (i) explicitly consider innovation markets in the market-defining process, (ii) pay attention to entry conditions as the most important standard for assessing competitiveness, (iii) examine demand-side volatilities when assessing likeliness of entries, and (iv) use less strict standards for substantiating efficiency gains.

Keywords: horizontal merger, antitrust, new economy

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1. Introduction

"[T]here is indeed a problem with the application of antitrust law to the new economy ... the enforcement agencies and the courts do not have adequate technical resources and do not move fast enough, to cope effectively with a very complex business sector that changes very rapidly." Posner, *Antitrust in the New Economy*, pp.925.

During the past couple of decades, businesses or industries that are markedly distinct from the old, smokestack industries have emerged. These industries mutually possess several characteristics that are uncommon in traditional economies, which have lead to a creation of an industry category often termed the new, digital, or knowledge-based economy. The salient feature of these industries is that firms engage in *dynamic* competition *for* the market, as opposed to static price/quantity competition *in* the market.

To survive in such a dynamically competitive environment, firms of the new economy invest heavily in innovative activities as they compete with the new commodity or new technology to obtain the market. Many aspects of the new economy coincide with the Schumpeter's (1950) pioneering vision of modern capitalism, in which a sequence of temporary monopolies operate to maximize innovation resulting in what he calls a "gale of creative destruction." In these economies, innovation is the most powerful source of spurt to competition.

It is this distinct non-price competitive aspect of the industry that challenges antitrust enforcement in the new economy. The current antitrust policy relies on static market analysis which examines how firms compete on the margin by choosing prices or quantities that maximize their profits given the demand. However, the dynamically competitive industry warrants an economic analysis that is fundamentally different from

the conventional static analysis.

The proper economic analysis should address dynamic productive efficiencies as opposed to static allocative efficiencies, which are far less important in evaluating social welfares of the new economy. The analysis should also acknowledge that a conduct which is anticompetitive in the static context may well be a procompetitive one in the dynamic sense, and should balance the procompetitive benefits of dynamic innovation to any alleged static anticompetitive effects. In sum, while the core of antitrust doctrine remains the same, the analytical tool with which the doctrine is applied should properly adapt to the new environment.

Antitrust enforcement regarding mergers is of no exception to this challenge. The 1992 U.S. Department of Justice/Federal Trade Commission "Horizontal Merger Guidelines" (the Guidelines) relies heavily on the static economic analysis and thus may fail to discern dynamically procompetitive mergers that only appear statically anticompetitive from those that are truly anticompetitive. We examine the Guidelines' applicability to the new economy in detail and identify two critical problems. One is that the Guidelines starts out with a wrong footing. Market concentration is assessed in the first step but the assessment is likely to be overstated as the Guidelines ignores potential substitute products that are vital in dynamic competition. The second problem is the reliance of the rest of the analysis on market concentration measures, which turns a single problem into a recurring one.

While many economic and legal papers have evaluated the current Guidelines in light of the new economy, a few have provided conclusive ways to modify the Guidelines. Assessing competitiveness in terms of innovation is not an easy task and economic literature is just starting to provide solid models of dynamic competition. Here, we suggest a modest

revision to the Guidelines so that it better addresses the dynamic competitiveness of the new economy. We recommend (i) explicit consideration of innovation markets in the market-defining process, (ii) attention on entry conditions as the most important standard for measuring competitiveness, (iii) examination of demand-side volatilities when assessing likelihood of entries, and (iv) less strict standards for substantiating efficiency gains.

We briefly discuss the main characteristics of the new economy and present the structure-conduct-performance analysis in Section 2. In Section 3, we examine in detail the merger analysis provided in the Guidelines and discuss drawbacks in light of the new economy. In Section 4, we provide suggestions to improve the Guidelines so that it better addresses the dynamic competition. Section 5 concludes.

2. Structure-Conduct-Performance of the New Economy

Before we look into the specifics of the Guidelines, we introduce in this section the general features of the new economy by presenting the structure-conduct-performance paradigm.

2.1 Structure and Characteristics of the New Economy

Numerous papers have discussed several features as characteristics of the new economy.¹ Among those features, we identify and focus on three common denominators; low marginal and falling average costs, network effects, and high knowledge-intensity. We address each characteristic in turn, in association with the resulting market structure.

Most products of the new economy require initial product development costs that are relatively higher than the costs of producing an

¹ Evans and Shamalensee (2001), Katz and Shapiro (1998) and Posner (2001) are a few prominent papers in this regard.

addition unit. Examples include software programs with high first-copy costs of writing the code and low costs of replicating another copy, or computer chips that are costly to develop but are relatively inexpensive to reproduce and distribute. Two structural aspects arise from this characteristic. First, for any firm to be viable with such cost structure, it should be charging a price higher than marginal costs and earning positive short-run profits in order to recoup its fixed costs. Second, assuming a certain immutable demand for the product, the number of surviving firms will be smaller the higher the fixed costs due to economies of scale.

The second characteristic of the new economy is network effects. A product is said to exhibit network effects if the value of the product to a single consumer increases as there is a larger mass of other consumers using this product. Network effects create a cycle of positive feedback because once a product captures a sufficient number of consumers thereby forming a "network," demand expands as the network size increases. Most software programs and high-tech communications services and equipments as well as internet market-making services such as eBay exhibit network effects.

The existence of network effects has similar influence on the market structure as scale economies, but for different reasons. Network effects also inevitably lead to concentrated markets, but it is because of the demand-side concentration rather than the supply-side concentration as in scale economies. In addition, network effects give rise to technical (not strategic) barriers to entries, enabling the market leader with sufficiently large network to price at a supra-competitive level. Entries in such environment will only be profitable if entrants enter with state-of-the-art products that can defeat the natural advantages granted to the leader through network effects.

Last but not least, products of the new economy are highly knowledge-intensive. Compared to smokestack industries that are often characterized by capacity or price competitions, firms in the new economy depend crucially on human intelligence to develop demand-shifting innovative products. Thus, while the first two characteristics point towards a concentrated market structure with a few firms earning supra-competitive profits, the third characteristic implies that such market leaderships are dynamically contested as firms face rapid technological changes.

2.2. Conduct and Competition *for* the Market

The goal of the antitrust policy is to prevent market conducts that are "likely to substantially lessen competition." To properly uphold this goal, we should first identify the conduct, or the strategy, with which firms compete. Given the market structure previously described, we show in this section that innovation is the major source of competition and that firms dynamically compete *for* the entire market in the new economy.

We first allege that firms rarely engage in price competition given the new-economy market structure and that applying the conventional static market analysis is no longer valid. Network effects imply that, all else being equal, consumers derive higher utilities from products associated with larger networks. This means that if a firm intends to challenge a larger firm by means of prices, it needs to charge a price low enough to compensate consumers for the lost utilities from joining a smaller network. In short, an aggressive price competition, if any, is required. But with average costs well above marginal costs, aggressively low prices are not the preferred form of competition for firms in the new economy.²

² Of course, when the market is in its infancy, a firm may engage in low introductory prices to form its own network knowing that it can take advantage of network effects in the near future. Such behavior is studied by Cabral, Salant and Worock (1999) and is acknowledged by many practitioners including Posner (2001).

In addition, even the market leaders will be careful in exercising their static market power when their status is dynamically challenged by fast-paced innovative activities. Liebowitz and Margolis (1999) notes that, in the new-economy environment, "firms, even monopolistic ones, will end up decreasing their profits if they handicap their products [by restricting output or raising price]." Therefore, the static market analysis which assumes a stationary demand under which firms compete on the margin cannot be directly applied to the new economy.

Then how do firms compete in the new economy? Firms compete in terms of new products or new technologies. That is, firms strive to invent the next-generation "it" product that will take over the market leadership by expanding the existing demand or creating a new demand that will collapse the existing network of consumers as they flee from the old product to the new one. In short, firms compete to obtain the market leadership through product innovation. The vigor of such dynamic competition will be stronger, paradoxically, the larger the supra-competitive static profits secured by network advantages.

2.3. Performance and Dynamically Competitive Market

As previous discussions show, markets of the new economy are likely to be concentrated due to economies of scale and network effects. Moreover, the few leading firms of the market tend to be highly profitable in a static sense as they charge prices well above marginal costs. The conventional static market analysis will view such market structure and conduct as decidedly inefficient because the static analysis uses as its most efficient benchmark a perfectly competitive market, in which there are many small firms charging prices equal to marginal costs.

However, evaluating market performance using the static analysis may be flawed in the new economy as social benefits and efficiencies that

arise from dynamic competition are ignored. Firms in the new economy constantly make efforts to invent the "it" product that will endow them with temporary market leadership and such endeavor leads to frequent developments of new products and technological improvements. In the long-run, consumers may benefit more from the variety of available new products or economic progresses made through technological improvements than they suffer from supra-competitive market prices.³ The trade-off between static allocative efficiency and dynamic productive efficiency is well-discussed in the seminal paper by Schumpeter (1950), who argues that some degree of monopoly power is a necessity to keep going the process of endogenous growth and development.

In the new economy, the competition to obtain a monopoly is an important form of competition and this competition is socially desirable given that innovation is the means with which firms strive to obtain the monopoly. Thus, the market performance should be evaluated on the basis of the vigor of innovative activities that are aimed for acquiring static market power, and market concentration alone should not be considered as a signal for market failure.

3. Merger Guidelines in Light of the New Economy

In this section, we suggest modifications to the Guidelines so that it can properly address the new economy's dynamically competitive environment. We reevaluate the four fundamental elements that are considered in the merger analysis while suggesting ways to improve the analytical method with which those elements are examined.

The main suggested revisions to the Guidelines are: (i) explicit

³ The importance of technology development on economic growth is discussed in Nelson (1995) and Nelson and Winter (1982).

consideration innovation markets in the market-defining process, (ii) attention on entry conditions as the most important standard for assessing competitiveness, (iii) examination of demand-side volatilities when assessing likeliness of entries, and (iv) less strict standards for substantiating efficiency gains.

3.1. Suggestions for Defining Markets

As argued in Section 3.1, the static product market definitions are of little significance in dynamically competitive markets. But if a market is to be defined at all, it should at least encompass potential substitute products that can be substantiated as near being marketed. One way to do this is by considering "innovation markets," the concept of which is often utilized in intellectual property laws. The 1995 DOJ/FTC Intellectual Property Guidelines defines innovation market as "the research and development directed to particular new or improved goods or processes, and the close substitutes for that research and development."⁴ Of course, defining an innovation market is a challenging task, more so than defining a relevant product market. Nonetheless, the difficulty of assessment should not discourage antitrust authorities from tackling the issue because, in the new economy, innovation plays as important and primal role as it does in the intellectual property context.

Gilbert and Sunshine (1995) shed a perceptible light in this regard. Paralleling the Guidelines, they suggest to define innovation markets in merger analysis as a set of activities and geographical area in which a hypothetical monopolist would impose at least a *small but significant and nontransitory reduction* in R&D effort. Procedurally, they advise to first identify the overlapping R&D activities of the merging firms and the alternative sources of R&D. They then suggest to evaluate actual and

⁴ Intellectual Property Guidelines, Section 3.2.3.

potential competition from downstream products and finally, to assess the increase in concentration in R&D and R&D efficiencies. As clear the suggested procedure is, substantiating R&D activities and defining innovation markets is operationally a difficult task. Previous findings show that the task is relatively easier when innovation requires specialized assets that are possessed by a few firms or when there is a horizontal overlap in R&D activities.

An example that relates to the first case is the proposed acquisition of General Motor's Allison Division by ZF Friedrichshafen.⁵ Only a few firms worldwide possessed assets required to manufacture heavy-duty automatic transmissions, where GM and ZF were the two largest producers accounting for about 85% of the production. Although the product market overlap was only in transmissions for refuse trucks and transit buses, the government alleged that too much control of the asset by the merged firm may lead to harmful effects in areas where the firms were not in direct competition. These areas include the design and production of automatic transmissions for medium and heavy duty commercial and military vehicles.

As for horizontal overlap in R&D activities, the Glaxo p.l.c. case⁶ is a good example. Glaxo was acquiring Wellcome, which was a potential entrant for non-injectable migraine remedy research. Within the product market of migraine headache remedies, the firms involved were found to be competing in the "innovation market" for non-injectable migraine remedies even though there was no market for non-injectable migraine remedies in the conventional antitrust sense. Thus, in these cases, the mere existence of present competition in R&D was sufficient to

⁵ See *United States v. General Motors Corp.*, Civ. No. 93-530 (D.Del. filed Nov. 16, 1993).

⁶ FTC file 951-0054, 60 Fed. Reg. 16,319 (Mar. 29, 1995).

challenge a merger despite the possibility that no successful product would even be developed.

Putting aside the challenges of correctly defining innovation markets, one may worry that markets so defined may be too broad as there can be a myriad of potential products out there. The concern, however, would be overrated considering the difficulties of substantiating R&D activities, of which the burden of proof lies on the merging firms. By suggesting that the Guidelines explicitly take innovation markets into account, we are merely asking to spare a little room for potential products in the market-defining process so that the firms engaged in a dynamically procompetitive merger can accordingly defend themselves. Conversely, by diverting the attention from product market shares to potential substitute products, the enforcement agencies will be able to keep their eyes open to dynamically anticompetitive mergers, including those in which the leading firm attempts to acquire potentially successful entrant before it reaches the market.

3.2. Suggestions for Analyzing Potential Anticompetitive Effects

Since innovation is the main means with which firms compete in the new economy, the proper question to ask when addressing potential anticompetitive effects is whether the merger is more or less likely to lead to a reduction in innovative activities. The analysis is more complicating than that with the static market analysis. In a static setting, a (merged) firm with the ability to elevate market price will always want to exercise such power because a higher price will generate higher profits as long as the pre-merger price is below the monopoly price. When the method of competition is innovation, however, the incentive may not immediately follow the ability to reduce the market R&D activities. In other words, the product market concentration may not necessarily lead to a reduction

in R&D investment. We thus examine a monopolist's incentives for three different types of R&D activities, each of which leads to either a cost reduction, an improvement over the existing product, or a creation of a new, but related product.

The analysis for cost-reducing R&D activities is rather straightforward. It is unlikely for a merger to have a severe negative influence on a firm's incentives to engage in cost-reducing R&D activities. Even a monopolist, both in static and dynamic sense, will continue this type of R&D efforts as long as the expected benefits from cost reduction exceed the costs of carrying on such effort.

As for a merger's influence on R&D activities that are intended to make an improvement upon existing products, we may draw conclusions from its impact on the downstream product market. Mergers that significantly lessen the product market competition may reduce the merged entity's incentives to develop a new version of its own product. This is because, without any outside competition, the new version will only cannibalize the firm's existing product. This is the intuition behind Arrow (1962), one of whose main assumptions was that innovation must be related to the existing product or process. While Arrow did not explicitly assume durable goods, whereas a majority of the new-economy products are, the insight carries through in the durable goods market. If a merger eliminates outside competition, the merged entity will have incentives to retard the pace of R&D so that it can "re-sell" its improved version of the product after the original market is saturated and when there are no cannibalization effect.

R&D efforts for a creation of new, but related products are most crucial in light of the new economy. These R&D activities are often revolutionary and paradigm shifting, and thus can take over the entire

market when successful. Hence, even a monopolist should be careful in reducing this type of R&D efforts because losing the monopoly status may be worse than cannibalization effects. The seminal paper by Gilbert and Newbury (1982) show this in the context of patenting. They establish that a monopolist has more to lose than a successful entrant has to gain and thus the monopolist outbids an entrant in a patent race. A more up-to-date paper by Etro (2004) also demonstrates that the Arrow effect disappears as long as entry is free, and that leaders invest in more radical innovations when the size of innovation is endogenous. The literature therefore suggests that a monopolist will rarely have incentives to reduce this type of innovative activities unless entries are sufficiently blocked.

Among different types of R&D activities, those intended for drastic innovations are most important when firms dynamically compete to obtain the market leadership. Contrary to static market analysis under which potential anticompetitive effects are closely related to market shares, those in the new economy are tightly related to the easiness of entries that are armed with drastic innovations.

3.3. Suggestions for Analyzing Entries

The previous subsection suggests that sufficient entry barriers are essential to provide any merged firm facing dynamic competition the incentives to retard or cease its R&D efforts. While the focus of the current entry analysis is on the supply side, i.e., entries that can attain premerger prices, we argue that demand-side volatilities and technical barriers to entries should be spotlighted in the new economy. We provide suggestions for each timeliness, likeliness, and sufficiency standard below, while putting emphasis on the likeliness of entries as it has the most constraining influence on the incumbent's abilities to exercise market power.

To begin with, the time horizon specified in the current Guidelines should be extended to encompass R&D activities, which generally take more than two years from initial planning. However, the necessity of timeliness standard itself should be reevaluated as well. In static models of entries, incumbent firms take disciplinary reactions to entries as firms compete on the margin within a product market. In such a setting, the incumbent can theoretically exercise its market power up to the point of an actual entry if entries are perceived to not occur for some period of time.⁷ Thus with static market analysis, an actual entry and the resulting supply expansion may be viewed as necessities especially since it looks for entries that can attain premerger prices.

Such disciplinary reaction, however, is not possible when firms dynamically compete in terms of innovative activities in an all-or-nothing race to capture the market. Once an entrant has developed an attractive new product to which the existing consumer network takes off, it will be too late for the incumbent to respond in any way. Hence, timeliness of entries in its strict sense is expected to be rather uninfluential on the incumbent's incentives to exercise its market power.

As for the likeliness of entries, the focus of the analysis should be on the profitabilities and the easiness of conquering the market leadership. One feature of the new economy is that the dynamic competition to take over the market becomes more aggressive the more successful the static

⁷ Most static entry models, whether they deal with environments with sunk costs, capacity building, or uncertainty, are two-period models in which firms compete on the margin in terms of either prices or quantities, or capacities in some cases. The models first find the second-period, or post-entry equilibrium and use the reduced form profits to characterize the first-period, or pre-entry incumbent behavior. Thus, the models illustrate how an incumbent will react disciplinarily to a potential and immediate entrant. If the incumbent believes that an entry will not occur for, say, five periods and if it can respond with optimal price/quantity/capacity strategy in the period immediately preceding the entry, the incumbent will enjoy its market power until then.

monopoly is. Entries in such environment will be profitable and thus likely when the expected gains from being a monopolist exceed the costs of becoming one.

There are two main factors that need to be considered in estimating the gains from being a monopolist. The first is the extent of supra-competitive static profits that can be enjoyed by the monopolist and the second is the sustainability of monopoly status. The former can be assessed by looking at the size of the consumer network that the entrant can take over and the price that will prevail upon obtaining the market. The assessment of the latter should consider the competence of other remaining entrants as they will then form threats to the newly-acquired monopoly. For example, an entry will not be profitable if there are several other entrants that are almost equally competent so that they will shortly challenge the new monopoly soon after the incumbent is gone.

On the cost side, there are conventional costs of developing and producing the product. But additionally, there are costs that are particular to the new economy which are incurred during the process of capturing the market. We discuss this type of costs in more detail as we examine difficulties of successful entries below.

While profitabilities of capturing the market indicate how attractive the market is and thus how eager entrants are to enter, entries will also be more likely the easier it is to penetrate and take over the market. The easiness of entries should address the demand-side volatility, i.e., how readily the existing network can be collapsed and be yielded to an entrant. Factors that need to be considered in assessing the demand condition are; the sensitivity of consumers to new technologies, the extent of switching costs if they exist, and compatibility with complementary products.

The existing monopoly will be more volatile the more sensitive or

open consumers are to new technologies. The past history of market evolution or a survey of consumer tastes may provide an indication on this note. In addition, entrants will find it harder to penetrate the market if consumers have to incur some costs when they change products.⁸ When such switching costs exist, entrants need to compensate for those costs in order to lure consumers into purchasing their new products. One frequently-used method for such compensation is charging low introductory prices.⁹ The larger the extent of switching costs, the lower the introductory price has to be or the longer such price needs to persist. On a last note, entries will not be likely if entrants can not produce products that are compatible with other complementary products.

The last point shall be of particular concern in merger analysis because while a merger may have little impact on consumer sensitivities towards new products, it certainly can influence the ways the merged entity will design its product. For example, consider a dominant incumbent firm that faces a couple of fringe entrants, one of which is potentially more threatening than the other. The incumbent can merge with the weaker entrant thereby forming a larger network while making their product un-interchangeable with that of the stronger entrant. Such a merger can have quite an anticompetitive impact by effectively foreclosing potentially successful entries.¹⁰

Finally, as for sufficiency standard, an entry should be regarded

⁸ The scope of switching costs need not be restricted to its literal sense. That is, it not only includes actual monetary costs of reinstalling the new product or discarding the old product, but also such perceived costs of leaving the network or familiarizing oneself to the new product.

⁹ See Cabral, Salant and Woroch (1999), Fudenberg and Tirole (2000) and Klemperer (1987a), (1987b).

¹⁰ Standard setting is another widely acknowledged problem in the new economy and should be considered alongside these types of mergers. For more on specifics of standard setting, see Katz and Shapiro (1999).

sufficient if it will succeed in taking over the market. Contrary to the static analysis, entries that intend to serve residual demands by inventing around the leading product will not be sufficient. Those hit-and-run-type entries will have little, if any, constraining impact on the exercise of market power by the leading firm. Evaluating *ex ante* whether a potential entry will succeed in taking over the market or not is nonetheless a difficult task. Several factors that the Guidelines should look into are the progress of entrants' current R&D efforts, the history of entrants' ability to commercialize R&D, the overlap of innovative activities with the incumbent. etc.

To summarize, likeliness of entries that can tip over the market is the most important standard in assessing dynamic competitiveness in the new economy. Entries will be more likely the more profitable and the easier it is to enter. Profitabilities of entries should consider static market profits an entrant can enjoy and the sustainability of market leadership. The former can be assessed by investigating the existing network size and the expected market price while the latter should consider the competencies of remaining entrants. Easiness of entries should address demand-side volatilities, such as consumer sensitivity towards new technologies, extent of switching costs, and compatibility with complementary products.

3.4. Suggestions for Efficiency Analysis

Subsection 3.4 addressed two main problems with applying the current Guidelines' efficiency analysis to the new economy. The first problem was that efficiency gains in terms of R&D were hard to be substantiated as cognizable efficiencies. The second problem was that cognizable efficiencies, even if they were substantiated, rarely could be sufficient as they could not be of magnitude to reverse anticompetitive

effects or a merger.

The second problem stemmed from the Guidelines' heavy reliance on static market concentrations which lead to an overestimation of potential anticompetitive effects. This problem will somewhat be mitigated if anticompetitive effects of the merger are properly assessed to begin with. Since previous subsections already suggested revisions to evaluate competitive effects of the merger in light of the new economy, we address the first problem below by discussing channels through which mergers can enhance R&D efficiencies. We argue that the Guidelines should recognize these efficiency gains as cognizable since these gains are potentially large in markets where innovation plays the key role of competition.

There are several channels through which mergers may enhance efficiencies of innovative R&D activities. First, a merger between two firms engaging in similar R&D program can eliminate redundant R&D efforts thereby reducing social costs of innovation. A caveat with this argument is that combining R&D efforts may also unintentionally cutoff research channels that would have been useful. Assessing which outcome will prevail with or without the merger is extremely difficult. However, if overlaps of merging firms' R&D processes or substitutabilities of R&D assets indicate a substantial redundancy that are removable by the merger, the highly unpredictable possibility of not enlivening a useful outcome should not block the merger. Second, a merger between firms separately holding complementary assets can also benefit social efficiencies as firms need not engage in unnecessary duplication of assets. Lastly, a merger may shorten the R&D process until the final outcome is realized because the merger will enable knowledge sharing between firms and help exploit economies of scale.

4. Conclusion

Applicability of the Guidelines in the new economy has been reevaluated and modest revisions have been suggested. The fundamentally static analyses of mergers carried out in the Guidelines are incapable of addressing the dynamic competitiveness of the new economy. Such limitation may result in two-sided errors. On the one hand, too many mergers may be challenged on the basis of static anticompetitiveness when they are in fact dynamically procompetitive. On the other hand, the Guidelines may overlook those mergers that are potentially harmful to the dynamic competition when they do not raise static anticompetitive concerns.

While many papers have identified innovation as the key method of competition in the new economy and problems in the Guidelines thereof, a few have provided conclusive ways to revise the Guidelines. We suspect that this is because of the hardships in quantifying or substantiating innovative activities. Nonetheless, the role innovation plays in the competitive dynamics of the new economy and in the overall economic growth has become too crucial to be steered away from. Although some may argue that innovation and R&D activities are too intangible concepts to be operationally used in legal context, we believe that it is an issue worth tackling and made a limited yet modest step on this front.

References

- Arrow, K. (1962), "Economic Welfare and the Allocation of Resources for Invention," in Nelson, editor, *The Rate and Direction of Inventive Activity*.
- Cabral, L., D. Salant and G. Woroch (1999), "Monopoly Pricing with Network Externalities," *International Journal of Industrial Organization*, Vol. 17(2), pp.199.
- Ceccagnoli, M. (2005), "Firm Heterogeneity, Imitation, and the Incentives for Cost Reducing R&D Effort," *The Journal of Industrial Economics*, Vol.53(1), pp.83.
- Etro, F. (2004), "Innovation by Leaders," *Economic Journal*, Vol. 114(495), pp.281.
- Evans, D. and R. Schmalensee (2001), "Some Economic Aspects of Antitrust Analysis in Dynamically Competitive Industries," *NBER Working Paper # 8268*.
- Fudenberg, D. and J. Tirole (2000), "Pricing a Network Good to Deter Entry," *Journal of Industrial Economics*, Vol. 48(4), pp.373.
- Gilbert, R. and D. Newbery (1982), "Preemptive Patenting and the Persistence of Monopoly," *The American Economic Review*, Vol.72(3), pp.514.
- Gilbert, R. and S. Sunshine (1995), "Incorporating Dynamic Efficiency Concerns in Merger Analysis: The Use of Innovation Markets," *Antitrust Law Journal*, Vol. 63, pp.569.
- Gowrisankara, G. (1999), "A Dynamic Model of Endogenous Horizontal Mergers," *The RAND Journal of Economics*, Vol. 30(1), pp.56.
- Jorde, T. and D. Teece (1990), "Innovation and Cooperation: Implications for Competition and Antitrust," *Journal of Economic Perspective*, Vol.4(3), pp.75.

- Katz, M. and C. Shapiro (1999), "Antitrust in Software Markets," *Competition, Convergence, and the Microsoft Monopoly*.
- Klein, J. (2000), "Rethinking Antitrust Policies for the New Economy," *U.S. Department of Justice speeches*, <http://www.usdoj.gov/atr/public/speeches/4707.htm>.
- Klemperer, P. (1987a), "Markets with Consumer Switching Costs," *Quarterly Journal of Economics*, Vol.102, pp.375.
- Klemperer, P. (1987b), "Entry Deterrence in Markets with Consumer Switching Costs," *Economic Journal*, Vol.97, pp.99.
- Lebowitz, S. and S. Margolis (2001), *Winners, Losers and Microsoft: Competition and Antitrust in High Technology*, The Independent Institute publishing.
- Lopatka, J. and W. Page (1995), "Microsoft, Monopolization, and Network Externalities: Some Uses and Abuses of Economic Theory in Antitrust Decisionmaking," *Antitrust Bulletin* Vol. 40, pp.265.
- Mairesse, J. and P. Mohnen (2002), "Accounting for Innovation and Measuring Innovativeness: An Illustrative Framework and an Application," *The American Economic Review*, Vol.92(2), pp.226.
- Nelson, R. (1995), "Recent Evolutionary Theorizing about Economic Change," *Journal of Economic Literature*, Vol. 33, pp.48.
- Nelson, R. and S. Winter (1982), "The Schumpeterian Tradeoff Revisited," *American Economic Review*, Vol. 72, pp.114.
- Ordover, J. (2002), "Competition and Intellectual Property Law and Policy in the Knowledge-Based Economy," <http://www.ftc.gov/opp/intellect/020220januszordover.pdf>.
- Posner, R. (2001), "Antitrust in the New Economy," *Antitrust Law Journal*, pp.925.
- Schumpeter, J. (1950), *Capitalism, Socialism, and Democracy*, 3rd. Ed.,

New York: Harper.

Schmalensee, R. (2000), "Antitrust Issues in Schumpeterian Industries,"
The American Economic Review, Vol. 90(2), pp. 192.

U.S. Department of Justice and the Federal Trade Commission, Horizontal
Merger Guidelines (revised April 8, 1997)

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