



**DIRECTORATE FOR FINANCIAL AND ENTERPRISE AFFAIRS  
COMPETITION COMMITTEE**

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**ROUNDTABLE ON DYNAMIC EFFICIENCIES IN MERGER ANALYSIS**

**-- Note by the United States --**

*This note is submitted by the Delegation of the United States to the Competition Committee FOR DISCUSSION at its forthcoming meeting to be held on 6-7 June 2007.*

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1. The enforcement agencies in the United States have recognised that mergers may lead to “increased innovation that results in lower costs and prices or in more rapid introduction of new products that benefit consumers.”<sup>1</sup> Benefits from mergers of these sorts may be termed “dynamic efficiencies.” In an exceptional case such efficiencies could be decisive in the agencies’ assessment of a merger, but the vast majority of mergers likely to generate significant dynamic efficiencies would not raise significant competitive concerns in the first instance. Dynamic efficiencies, nevertheless, are important in the formulation and implementation of competition policy, especially outside the merger area, because they contribute greatly to consumer welfare.

## 1. Dynamic Efficiency Considerations in Competition Policy

2. Dynamic efficiencies produce substantial increases in consumer welfare. Research and development (R&D) by individual firms, especially basic research, has contributed significantly to increases in their productivity,<sup>2</sup> and at the macro level, technical progress has been estimated to have accounted for as much as three-quarters of the economic growth in major industrialised countries.<sup>3</sup> During the late 1990s, improvements in information technology alone were found to have contributed more than half of the increase in industrial productivity in the United States.<sup>4</sup> The people of all the OECD countries surely enjoy tremendous benefits from new and improved products, such as mobile phones and personal computers.

3. The most important principle for competition policy in promoting dynamic competition was simply set out more than a half century ago: “The successful competitor, having been urged to compete, must not be turned upon when he wins.”<sup>5</sup> Embracing this principle, the Supreme Court of the United States recently declared: “The mere possession of monopoly power, and the concomitant charging of monopoly prices, is not only not unlawful; it is an important element of the free-market system. The opportunity to charge monopoly prices—at least for a short period—is what attracts ‘business acumen’ in the first place; it induces risk taking that produces innovation and economic growth.”<sup>6</sup>

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<sup>1</sup> U.S. Department of Justice & Federal Trade Commission, Commentary on the Horizontal Merger Guidelines 49 (March 2006), *available at* <http://www.usdoj.gov/atr/public/guidelines/215247.pdf>, <http://www.ftc.gov/os/2006/03/CommentaryontheHorizontalMergerGuidelinesMarch2006.pdf>.

<sup>2</sup> *See, e.g.,* Zvi Griliches, *Productivity, R&D, and Basic Research at the Firm Level in the 1970s*, 76 AMERICAN ECONOMIC REVIEW 141 (1986); Edwin Mansfield, *Basic Research and Productivity Increase in Manufacturing*, 70 AMERICAN ECONOMIC REVIEW 863 (1980).

<sup>3</sup> *See, e.g.,* Michael J. Boskin & Lawrence J. Lau, *Capital, Technology, and Economic Growth, in* TECHNOLOGY AND THE WEALTH OF NATIONS 17 (Nathan Rosenberg et al. eds., 1992) (During the four decades following World War II, the estimated contribution of technical progress to economic growth was: United States—49%, Japan—55%, United Kingdom—73%, France—76%, and West Germany—78%.)

<sup>4</sup> *See* Stephen D. Oliner & Daniel E. Sichel, *The Resurgence of Growth in the Late 1990s: Is Information Technology the Story?*, JOURNAL OF ECONOMIC PERSPECTIVES, Fall 2000, at 3.

<sup>5</sup> *United States v. Aluminum Co. of America*, 148 F.2d 416, 430 (2d Cir. 1945).

<sup>6</sup> *Verizon Communications Inc. v. Law Offices of Curtis V. Trinko, LLP*, 540 U.S. 398, 407 (2004). *See also* Thomas O. Barnett, *The Gales of Creative Destruction: The Need for Clear and Objective Standards for Enforcing Section 2 of the Sherman Act*, Opening Remarks for the Antitrust Division and Federal Trade Commission Hearings Regarding Section 2 of the Sherman Act (June 20, 2006), *available at* <http://www.usdoj.gov/atr/public/speeches/216738.pdf>.

4. Of course, competition policy also must be mindful of the fact that monopoly can hinder technical progress,<sup>7</sup> but that does not mean greater competition always leads to greater innovation. Economic theory demonstrates that the incentive to innovate depends on many complex factors,<sup>8</sup> and many empirical analyses find no systematic relationship between market concentration and the level of R&D.<sup>9</sup>

5. One important insight from economic theory and studies of particular industries is that the incentive to innovate depends critically on “appropriability”—the extent to which the successful innovator can capture the fruits of an innovation. Innovation typically entails a significant investment that is entirely sunk before any resulting new technologies are implemented or any new products are commercialised. Just to break even on a substantial up-front investment, a successful innovator must be sufficiently free of competition from imitators to be able to charge, for a significant period of time, a price for its new technology or products well in excess of short-run marginal cost. Because investments in innovation are risky, successes also must compensate for failures.

6. The pharmaceutical industry is illustrative. Most research programs do not produce marketable drugs, and those that do generally entail more than a decade of laboratory research and clinical testing. A recent study estimated that the average approved new drug in the United States was backed by investment of nearly \$900 million when failures are accounted for and the investment was capitalised to the date of the drug’s introduction.<sup>10</sup>

7. Intellectual property rights are key mechanisms for limiting competition from imitators,<sup>11</sup> but competition and competition policy also affect the appropriability.<sup>12</sup> If competition policy facilitates static competition with successful innovators, it may undermine dynamic competition by reducing appropriability. Consumer gains from enhanced price competition could come at the cost of far greater consumer harm from retarded technical progress. As a leading judge and antitrust commentator in the

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<sup>7</sup> As compared with a monopolist entirely protected from the forces of competition, a competitive firm has a significantly greater incentive to invest in cost-reducing innovations if patent law completely prevents imitation. See F.M. SCHERER & DAVID ROSS, *INDUSTRIAL MARKET STRUCTURE AND ECONOMIC PERFORMANCE* 637–44 (3d ed. 1990); Kenneth J. Arrow, *Economic Welfare and the Allocation of Resources for Inventions*, in *THE RATE AND DIRECTION OF ECONOMIC ACTIVITY* 609 (1962).

<sup>8</sup> See generally Richard J. Gilbert, *Looking for Mr. Schumpeter: Where Are We in the Competition-Innovation Debate?*, in 6 *INNOVATION POLICY AND THE ECONOMY* 159 (Adam B. Jaffe et al. eds., 2006); JEAN TIROLE, *THE THEORY OF INDUSTRIAL ORGANIZATION* ch. 10 (1988); Jennifer F. Reinganum, *Research, Development, and Diffusion*, in 1 *HANDBOOK OF INDUSTRIAL ORGANIZATION* 850 (Richard Schmalensee & Robert D. Willig eds., 1989).

<sup>9</sup> See generally Wesley Cohen, *Empirical Studies of Innovative Activity*, in *HANDBOOK OF THE ECONOMICS OF INNOVATION AND TECHNOLOGICAL CHANGE* 182 (Paul Stoneman ed., 1995); Wesley M. Cohen & Richard C. Levin, *Empirical Studies of Innovation and Market Structure*, in 2 *HANDBOOK OF INDUSTRIAL ORGANIZATION* 1060 (Richard Schmalensee & Robert D. Willig eds., 1989); Gilbert, *supra* note 8, at 187–204.

<sup>10</sup> Joseph A. DiMaisi et al., *The Price of Innovation: New Estimates of Drug Development Costs*, 22 *JOURNAL OF HEALTH ECONOMICS* 151 (2003).

<sup>11</sup> In some industries, intellectual property rights are not the major force in providing appropriability. See Richard C. Levin, et al., *Appropriating the Returns from Industrial Research and Development*, *BROOKINGS PAPERS ON ECONOMIC ACTIVITY (MICROECONOMICS)* 783 (1987).

<sup>12</sup> Some theoretical and empirical literature finds an “inverted-U” relationship between market concentration and innovation, such that both too little and too much competition retard innovation. See, e.g., SCHERER & ROSS, *supra* note 8, at 646–47; Philippe Aghion et al., *Competition and Innovation: An Inverted-U Relationship* (unpublished paper, Mar. 20, 2005), available at [http://www.econ.brown.edu/fac/Peter\\_Howitt/publication/ABBGH.pdf](http://www.econ.brown.edu/fac/Peter_Howitt/publication/ABBGH.pdf).

United States has explained: “An antitrust policy that reduced prices by 5 percent today at the expense of reducing by 1 percent the annual rate at which innovation lowers the cost of production would be a calamity. In the long run a continuous rate of change, compounded, swamps static losses.”<sup>13</sup>

## 2. Dynamic Efficiencies from Mergers<sup>14</sup>

8. Mergers are part of the process through which markets allocate resources. Companies recognising an opportunity to realise efficiencies by combining their complementary assets often propose to merge, and companies operating inefficiently often are taken over by those who perceive the potential for gains by replacing incumbent management. Mergers, thereby, can promote dynamic efficiency. For example, small start-up companies that have made significant inventions may find that they can best commercialise their inventions by partnering with well-established companies that have the necessary resources and expertise. In some cases, the best arrangement may be a merger between the two companies. In this way, mergers combining complementary assets can facilitate the introduction of new products and the diffusion of new technologies.

9. Mergers creating dynamic efficiencies need not involve companies that compete significantly and thus need not threaten to lessen competition. An interesting recent study focused on thirty-one mergers in which the two merging firms operated in the same general sector of the economy. The study found significant increases in R&D performance only when the merging firms were neither direct competitors nor operated in the same technological field.<sup>15</sup>

The enforcement agencies in the United States do not focus on the possible benefits from a merger unless they first find that the merger raises significant competitive concerns. Non-horizontal mergers only rarely raise significant competitive concerns, but such mergers may be the most likely to combine complementary assets in a manner that generates dynamic efficiencies. Thus, the agencies may never focus on the efficiency aspects of the particular mergers that contribute most to dynamic efficiency.

## 3. Cognisable Dynamic Efficiencies in Merger Enforcement

10. If a merger does raise significant competitive concerns, the enforcement agencies in the United States investigate both the ways in which the merger might lessen competition and ways in which the merger might enhance competition, including through both static and dynamic efficiencies. The guidelines issued by the agencies state that they “will not challenge a merger if cognisable efficiencies are of a character and magnitude such that the merger is not likely to be anticompetitive in any relevant market.” In this regard, the guidelines indicate that the agencies consider, among other things, efficiencies “in the

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<sup>13</sup> Frank H. Easterbrook, *Ignorance and Antitrust*, in ANTITRUST, INNOVATION, AND COMPETITIVENESS 119, 122–23 (Thomas M. Jorde & David J. Teece eds., 1992).

<sup>14</sup> On the competitive effects of mergers on innovation, see generally Michael L. Katz & Howard A. Shelanski, *Mergers and Innovation*, 74 ANTITRUST LAW JOURNAL 1 (2007).

<sup>15</sup> Bruno Cassiman et al., *The Impact of M&A on the R&D Process: An Empirical Analysis of the Role of Technological- and Market-Relatedness*, 34 RESEARCH POLICY 195 (2005). Similarly, an unpublished study of mergers involving large pharmaceutical companies found that mergers were likely to have an adverse impact on innovation (as measured by expenditures related to research and development) when the merging firms were closely related technologically. Carmine Ornaghi, *Mergers and Innovation: The Case of the Pharmaceutical Industry* (University of Southampton), available at <http://www.economics.soton.ac.uk/staff/ornaghi/sub-pages/contents/Pharmaceuticals.pdf>.

form of new or improved products . . . even when price is not immediately and directly affected.”<sup>16</sup> The guidelines, however, make clear that the agencies take efficiencies into account only if they are merger-specific, in that they are “likely to be accomplished with the proposed merger and unlikely to be accomplished in the absence of either the proposed merger or another means having comparable anticompetitive effects,” and also only if the agencies have sufficient information to be able to “verify by reasonable means the likelihood and magnitude of” the efficiencies.<sup>17</sup>

11. Experience suggests claims relating to dynamic efficiencies are often “vague or speculative” or otherwise are of a sort that “cannot be verified by reasonable means.” The agencies’ guidelines indicate that such claims are given no weight.<sup>18</sup> For example, a general, unsupported claim that a merger will allow the realisation of economies of scale would be given no weight, and this is true no matter whether the claimed economies would be in production, distribution, or R&D.

12. Claims of dynamic efficiencies are most likely to be merger-specific and verifiable when the merging firms point to specific complementary assets that would be combined by their merger and explain why combining those assets accomplishes specific objectives that, in turn, have a predictable salutary effect. For example, a merger that combines one firm’s strength in distribution and marketing with another firm’s strength in product development may bring consumers significant benefits from more rapid introduction or diffusion of new products.

13. Specific plans for reducing cost following a merger assure that efficiencies claims are not “vague or speculative,” but the agencies do not uncritically accept such plans. Rather, the agencies examine closely both the plans and the accompanying estimates of savings. As noted by the agencies’ guidelines, one issue in this examination is whether the savings “arise from anticompetitive reductions in output or service.”<sup>19</sup> The elimination of one of the merging firms’ research programs could produce a significant cost reduction, but that cost reduction normally should be viewed as an anticompetitive reduction in research rather than as a dynamic efficiency benefit from the merger. Projected savings associated with reductions in personnel from combining two research programs would be examined closely to determine whether the savings stem from economies of scale or from reducing research effort.

14. The enforcement agencies in the United States do not anticipate making an explicit, quantitative trade off between dynamic efficiency gains from a merger and its effect of lessening competition, for example, in the form of short-term price increases. The agencies expect that occasions to attempt such a calculation would be extraordinarily rare; moreover, performing the calculation likely would be infeasible if the occasion did arise.

15. Economists can estimate the contribution of past innovations to increased consumer welfare, including the benefits from additional choices and from lower prices.<sup>20</sup> Notable in the economic literature

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<sup>16</sup> U.S. Department of Justice & Federal Trade Commission, Horizontal Merger Guidelines § 4 (1992, revised 1997), available at <http://www.usdoj.gov/atr/public/guidelines/hmg.pdf>, <http://www.ftc.gov/bc/docs/horizmer.htm>.

<sup>17</sup> *Id.*

<sup>18</sup> *Id.*

<sup>19</sup> *Id.*

<sup>20</sup> Significant contributions in this area are: Jerry Hausman, *Valuation of New Goods under Perfect and Imperfect Competition*, in THE ECONOMICS OF NEW GOODS 209 (Timothy F. Bresnahan & Robert J. Gordon eds., 1997); Jerry A. Hausman & Gregory K. Leonard, *The Competitive Effects of a New Product Introduction: A Case Study*, 50 JOURNAL OF INDUSTRIAL ECONOMICS 237 (2002); Aviv Nevo, *New Products, Quality Changes, and Welfare Measures Computed from Estimated Demand Systems*, 85

are analyses of the consumer benefits of the introduction of direct satellite broadcasting and the minivan.<sup>21</sup> But the sort of studies that economists have conducted are made possible only by observing the actual responses over time of consumers to the new products. Economists are not nearly as good at predicting how consumers would respond to a new product, or at predicting when new products will be introduced. Thus, a quantitative trade-off is not anticipated.

### 3. One Illustrative Merger

16. A merger that raised some of the foregoing issues is Genzyme Corp.'s acquisition of Novazyme Pharmaceuticals, Inc. The acquisition combined the world's only firms engaged in developing the first enzyme replacement therapy (ERT) to treat Pompe disease, a rare, fatal disease, and thus left Genzyme as the only firm engaged in developing Pompe ERT treatments. The merger was investigated by the Federal Trade Commission (FTC) several years after consummation, at which time it was still unclear whether either firm's Pompe drug would ever make it to market. Genzyme asserted that, even without competition from Novazyme, it had the incentive to bring its Pompe product to market in the fastest possible time frame. Genzyme also asserted that the acquisition had resulted in significant efficiencies. Genzyme claimed that each firm had unique skills and expertise, and that, by combining them, the merged firm was able to accelerate development. Genzyme asserted that it possessed certain unique capabilities and technologies that it was applying to Novazyme's Pompe drug. The FTC voted to close its investigation of the merger due, in part, to the evidence supporting the claim that the merger would accelerate development of the drug.<sup>22</sup> In a separate statement by the FTC's chairman, he observed that Genzyme had continued both the Genzyme and Novazyme research programs after the acquisition and that the acquisition had helped avoid delays in the Novazyme program.<sup>23</sup>

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REVIEW OF ECONOMICS & STATISTICS 266 (2003); Manuel Trajtenberg, *The Welfare Analysis of Product Innovations, with an Application to Computed Tomography Scanners*, 97 JOURNAL OF POLITICAL ECONOMY 444 (1989).

<sup>21</sup> See Austan Goolsbee & Amil Petrin, *The Consumer Gains from Direct Broadcast Satellites and the Competition with Cable TV*, 72 ECONOMETRICA 351 (2004) (consumers gained an estimated \$7 billion per year); Amil Petrin, *Quantifying the Benefits of New Products: The Case of the Minivan*, 110 JOURNAL OF POLITICAL ECONOMY 705 (2002) (consumer gained an estimated \$2.8 billion over five years).

<sup>22</sup> Materials on the case are available at <http://www.ftc.gov/opa/2004/01/genzyme.htm>. On April 28, 2006 the Food and Drug Administration granted marketing approval for Genzymes' Myozyme for use in patients with Pompe disease.

<sup>23</sup> Statement of Chairman Timothy J. Muris in the matter of Genzyme Corporation / Novazyme Pharmaceuticals, Inc. (Jan. 13, 2004), available at <http://www.ftc.gov/os/2004/01/murisgenzymestmt.pdf>.