APPENDIX

Table 1

Post-Guidelines cases with nonhorizontal aspects (nonexhaustive)

Case	Non horizontal Concerns	Outcome
CASES IN WHICH VERTICAL EFFECTS WERE CONSIDERED		
M. 4731 *Google/DoubleClick*	input foreclosure (conglomerate effects were also considered)	Unconditional clearance (Phase II)
M. 4854 *TomTom/TeleAtlas*	input foreclosure	Unconditional clearance (Phase II)
M. 4942 *Nokia/Navteq*	input foreclosure	Unconditional clearance (Phase II)
M. 4874 *Itema Holding/BarcoVision Division*	input foreclosure	Unconditional clearance (Phase II)
M. 5046 *Friesland/Campina*	input foreclosure	Clearance with remedies addressing both horizontal and vertical concerns (Phase II)
M. 5224 *EDF/British Energy*	input foreclosure	Clearance with remedies addressing horizontal concerns and potential non-horizontal concerns (Phase I)
M. 5232 *WPP/TNS*	input foreclosure	Clearance with remedies addressing horizontal concerns only (Phase I)
M. 5262 *Bonnier/Schibsted/Retriever Sverige*	input foreclosure	Withdrawn
M. 5406 *IPIC/Man Ferrostaal*	input foreclosure	Clearance with remedies addressing non-horizontal concerns (Phase I)
M. 5449 *ABF/Azucarera*	input foreclosure	Unconditional clearance (Phase I)
M. 5454 *DSV / Vesterhavet / DFDS*	input foreclosure	Withdrawn
M. 5579 *TLP/Ermewa*	input foreclosure	Clearance with remedies addressing horizontal concerns only (Phase I)
CASES IN WHICH CONGLOMERATE EFFECTS WERE CONSIDERED		
M. 5114 *Pernod Ricard/V&S*	Tying/bundling	Clearance with remedies addressing horizontal concerns only (Phase I)
M. 5152 *Posten AB/Post Danmark A/S*	Tying/bundling	Clearance with remedies addressing horizontal concerns only (Phase I)
M. 5547 *Koninklijke Philips Electronics/Saeco International Group*	Tying/bundling	Unconditional clearance (Phase I)

For welfare's sake?
Balancing rivalry and efficiencies in horizontal mergers

BY ALISON OLDALE* AND JORGE PADILLA**

There has been an extensive debate about whether the proper objective of merger control should be the long run consumer welfare or long run total welfare. We review the various arguments that have been put forward to justify the use of a consumer welfare standard and find none of them convincing. However this debate risks missing the point. Maximizing long run total welfare may be a suitable objective for governments enacting merger control legislation. But the long run effects of a merger are often too complex for this to serve as a practical guide to decision making. Instead, competition authorities are usually given a target related to competition, allowing for some consideration of efficiencies. In practice this target is often interpreted as a focus on the short term effects on consumers, so that efficiencies count only to the extent that benefits are passed on. The real debate is not about the objective of merger control, but about whether this is the right target.

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I. INTRODUCTION

A merger between competitors (a horizontal merger) may affect total welfare (the sum of consumer welfare and total industry profits) in the short and long run in a variety of ways. First, it may result in an increase in prices in the short run and, consequently, in a reduction in consumer welfare and an increase in total industry profits. Second, the merged entity may find it optimal to phase out some of the products that the merging parties sold premerger. This reduction in product variety is likely to harm consumers, but may save significant fixed costs and may in some cases result in an increase in overall welfare.

Third, besides those static effects, the reduction in rivalry caused by the merger may reduce the incentives to invest in process innovation and facilitate managerial slack. In fact, the biggest loss to aggregate welfare arising from a substantial increase in market power may not be consumer harm, but the high costs that result from these so-called X-inefficiencies.[1]

Fourth, a merger may also give rise to a number of cost efficiencies. These can be the result of economies of scale and scope in production and distribution or of synergies resulting from the combination of the assets, know-how, and management skills of the merging parties. These efficiencies generally increase total welfare, at least in the short term, but will result in an increase in consumer welfare only if they are passed on to consumers in the form of lower prices. The extent to which consumers will benefit from cost reductions thus depends on the strength of competition post-merger. It is possible in principle (though exceptional in practice) for these efficiencies to have harmful long run effects if they benefit the merging firm to such an extent that rivals can no longer remain in the market.

Fifth, a merger can change the incentives of firms to invest in improving existing products or creating new ones, in marketing, and other areas. It is difficult to know whether these incentives are higher or lower after a merger. On the one hand, the merged company may

have fewer incentives to invest because a successful new product launch might cannibalize the existing products of the newly bought firm. On the other hand, the merged company may have greater incentives to invest because the fruits of the research can be shared across a wider product range, because efficiencies mean the firm has more cash, which relaxes a financing constraint and allows it to pursue more projects, or because weaker rivalry means that innovations are more profitable.

Sixth, a merger may also give rise to demand-side efficiencies, which accrue directly to consumers and are particularly important in industries characterized by network effects. They result in an increase in consumer welfare and most often lead to an increase in total welfare. As with cost efficiencies, there may be some exceptional circumstances under which a merger that gives rise to significant demand or cost efficiencies benefits consumers in the short term and yet causes a reduction in total welfare. This can occur if the merger places competitors at a competitive disadvantage, even forcing them to leave the market. As a result, total industry profits may go down in the short term, and prices may go up in the longer term.

This multiplicity of effects makes assessing the welfare effects of a horizontal merger on both consumers and producers extremely complex. Consumers may be worse off if the merger results in a reduction in product variety, an increase in prices, or lower investment. But they may end up better off if the merger results in cost savings that are passed on in the form of lower prices, leads to the introduction of new or better products, or allows consumers to access wider networks. Competitors may benefit from the merger if it gives rise to an industry-wide price increase, but may be worse off if the merger gives rise to efficiencies that they cannot replicate easily.

Despite the difficulty of analyzing the overall effect of a merger on both consumer and total welfare in the long run, there has been extensive debate about which of the two welfare criteria to use. This debate has focused on an apparent paradox. On the one hand, many economists agree that the decision as to the desirability of a horizontal merger should be based on its impact on total welfare, as this is the

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[1] Harvey Leibenstein, *Allocative Efficiency v. X-Efficiency*, 56 AM. ECON. REV. 392 (1966).

criterion that takes into account all of the effects of the merger and the interests of all the people affected by it? On the other hand, commentators have widely interpreted the approach of competition authorities as reviewing mergers under the consumer welfare standard.

The main (but not the only) difference between the two standards in merger control lies in the treatment of efficiencies. Under the total welfare standard, a merger may be cleared even if it results in an increase in prices and a reduction in consumer welfare if the resulting efficiencies are sufficiently large to offset the harm caused to consumers. Under a consumer welfare standard, efficiencies are relevant only if they benefit consumers. Most competition authorities, if they consider efficiencies at all, do so only to the extent that the efficiencies are passed on to consumers as lower prices, and this is the basis on which they are said to pursue a consumer welfare standard. Only in Canada, where the law prohibits intervention against a merger that significantly lessens competition when the efficiencies attributable to the merger, whether or not they are appropriated by consumers, outweigh the harm to competition, is merger law interpreted as applying a total welfare standard.

In seeking to make sense of the difference between what many economists think competition authorities ought to be doing, and what it is often said they are actually doing, commentators have tried a

3 See Oliver E. Williamson's classic paper, Economies as an Antitrust Defense: The Welfare Tradeoffs, 58 AM. ECON. REV. 18 (1968), reprinted in 1 COMPETITION POL'Y INT'L 217 (2005). See also ROBERT H. BORK, THE ANTITRUST PARADOX: A POLICY AT WAR WITH ITSELF (1978). Bork claims that the total welfare standard reflects the proper consumer welfare standard, since everyone (including producers) is a consumer. In this last regard, see also Timothy J. Muris, The Efficiency Defense Under Section 7 of the Clayton Act, 30 CASE W. RES. L. REV. 381 (1980). For more up-to-date surveys of the relevant literature, see Miguel De la Mano, For the Customer's Sake: The Competitive Effects of Efficiencies in European Merger Control (EC DG Enterprise Paper No. 11, 2002); and Thomas W. Ross, Efficiencies in Merger Review and Other Matters Under the Competition Act (Univ. of British Columbia Working Paper, 2004). This consensus does not extend outside the boundaries of the economics profession, however. See, e.g., Robert H. Lande, Wealth Transfers as the Original and Primary Concern of Antitrust: The Efficiency Interpretation Challenged, 34 HASTINGS L.J. 65 (1982), for criticism of the total welfare standard and a defense of a merger criterion that takes into account only the welfare of purchasers.

number of tacks: from saying there is no practical difference to suggesting that merger control ought to pursue distributive justice as well as efficiency, or that a consumer welfare standard is easier to implement. We review these arguments and find that none provides a convincing justification for using consumer welfare rather than total welfare.

A more recent line of inquiry starts from the observation that competition authorities are not the only players whose decisions affect which mergers are consummated; companies have an important role to play. Moreover competition authorities wield delegated powers within a system of government that includes many policy instruments, giving rise to the possibility that there are two objective functions: one for government overall and another for competition authorities pursuing the limited task that is delegated to them. This point of view has highlighted two additional reasons why governments might prefer to delegate to competition authorities a consumer welfare standard rather than a total welfare standard: doing so can provide a counterweight to the effects of lobbying by merging firms, and it can provide a counterweight to the tendency of firms to consider profits but ignore consumers when selecting which mergers to pursue.

We believe this recent debate rightly emphasizes the difference between the ultimate objective or end-goal of competition policy, which will be some version of the public interest over the long run, and the particular targets pursued by competition authorities when implementing merger control. However the continued focus on the choice between consumer welfare and total welfare when considering the appropriate target risks missing the point, since in practice competition authorities apply neither standard when evaluating mergers. The substantive tests that competition authorities are charged with implementing generally concern the effect of mergers on competition, not welfare (though Canada is a notable exception).

In addition to considering the effect of a merger on competition, authorities are either explicitly charged with taking efficiencies into

4 See Terry Calvani, Rectangles and Triangles: A Response to Mr. Lande, 58 ANTITRUST L.J. 657 (1989).

account or have interpreted "competition" to include consideration of efficiencies.

Although practice varies, in making this assessment competition authorities focus primarily on the loss of rivalry and sometimes look in detail at the impact of such a loss on short term prices. They will occasionally take into account the short term effect of efficiencies on prices, though this is rare. Even more rarely they consider the longer term effects of mergers on investment and innovation. We will refer to this approach as adopting a price target for merger control: a merger can proceed if the authorities do not expect prices to rise as a result of the combined effect of the loss of competition and any increase in efficiency. This label obviously involves some simplification, but it serves to capture the focus on the short term and the role that considerations of pass-through of efficiencies plays when balancing them with effects on competition.

We argue that the relevant debate is not about whether competition authorities should pursue consumer or total welfare. Rather the better question is whether competition authorities are striking the right balance between preserving competition (which, other things equal, can be more intense when concentration is low) and enabling firm-level efficiencies (which can be greater when firms are bigger). Or, in other words, whether and to what extent the price target delivers the right outcome from a long run welfare perspective.

We proceed as follows. In section II, we describe in some detail the potential efficiency effects of a horizontal merger. We also describe the impact of those efficiencies on the welfare of consumers and of the shareholders of the firms that compete in the markets affected by the merger. In section III, we explain why the right merger criterion from the perspective of welfare economics is one that takes into account its impact on the welfare of *all* individuals and not just consumers. This section, which borrows from Ross and Winter,[4] also discusses the expected welfare costs (the type I and type II errors) of a merger

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[4] Thomas W. Ross & Ralph A. Winter, *The Efficiency Defense in Merger Law: Economic Foundations and Recent Canadian Developments*, 72 ANTITRUST L.J. 471 (2005). *See also* Gary L. Roberts & Steven C. Salop, *Efficiencies in Dynamic Merger Analysis*, 19 WORLD COMPETITION 5 (1996).

review process that adopts the consumer welfare standard. In section IV, we move from theory to practice. We explain the logic of merger control as currently applied by distinguishing between the fuzzy long term welfare or public interest goals of this policy and its definite target: short term prices. We also discuss how competition agencies seek to implement that target optimally by balancing rivalry and efficiencies. Section V concludes.

II. EFFICIENCIES IN MERGERS

A horizontal merger may give rise to several effects on efficiency. Some of those lead to a reduction in the cost of supplying the market and, in some cases, may cause a reduction in prices to the ultimate benefit of consumers. Others, such as the introduction of new products or the extension of valuable networks, directly benefit consumers. As noted by Röller, Stennek and Verboven, the available empirical evidence does not support a general presumption that mergers create efficiency gains, but shows that in particular cases mergers do create efficiencies overall and some of those efficiencies benefit consumers.[5]

A. Cost efficiencies

A horizontal merger may reduce the costs of production and distribution in different ways. First, the merged entity may *rationalize production* by reallocating production from less efficient (or high marginal cost) plants to more efficient (or low marginal cost) plants,[6] provided the latter are not capacity constrained. Optimizing the allocation of output across plants in this way does not require any change in the joint production capabilities of the merging parties.[7]

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[5] Lars-Hendrik Röller, Johan Stennek & Frank Verboven, *Efficiency Gains from Mergers* 9 (EC DG EconomicsFinance Paper, 2000).

[6] Differences in marginal cost across plants arise from differences in physical, human, or intellectual capital stock, or asymmetrical capacity constraints. *Id.* at 14.

[7] Note that optimization over several plants can include the extreme case of shutting down the plant operating at a higher average cost.

Figure 1 illustrates the impact on consumer and total welfare of a reduction in marginal costs due to the reallocation of output across plants, under the assumption that that reduction is passed on to consumers in the form of a reduction in prices. In figure 1, marginal costs fall from MC to MC' and prices from p to p'. The increase in consumer surplus caused by the reduction in costs is given by the sum of regions A and C: consumers benefit from the reduction in prices. The change in industry profits resulting from the rationalization of production is given by region B minus region C: profits increase as a result of the reduction in costs and the increase in output (region B), but fall because of the cut in prices (region C). Consequently, the increase in total welfare is given by the sum of regions A and B. (Region C just captures the transfer of rents from companies to consumers that is due to the reduction in prices.)

Figure 1

Price | D | Region C | Region A | MC | MC' | p | p' | Region B | D | Quantity
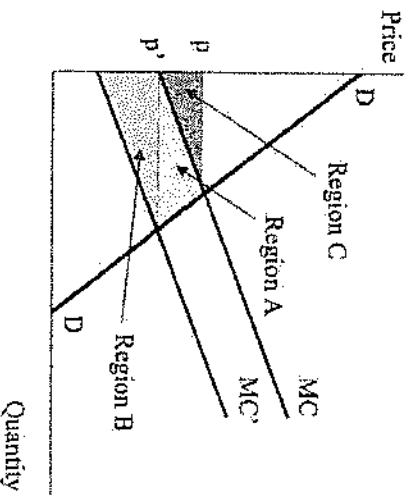
Second, the merged entity may be able to take advantage of economies of scale and scope in the production and distribution of its products. These economies expand the joint production capabilities of the firm. Economies of scale decrease the average cost of supplying the market at higher levels of output. Economies of scope decrease the average costs of multiproduct firms. Some of these economies will materialize in the short run; others will take more time. For example,

in the short run, the merged entity may benefit from economies of scale stemming from the elimination of duplicate indivisible expenditures, such as billing, marketing, human resources, and legal departments. It may also benefit by reallocating (1) all production to one plant exhibiting decreasing marginal costs, or (2) the production of all goods that require the same input to one plant. And it may also be able to cut costs by utilizing the same sales force and distribution network, or by marketing various products under a single (umbrella) brand. In the long run, economies of scale and scope can be generated as a result of the coordination of previously independent investments in physical capital. All fixed capital assets become variable, and economies of scale and scope can be obtained through the combination and integration of those assets.[8]

A horizontal merger may result in additional efficiency gains on the supply side. For example, the merging parties may increase their bargaining power vis-à-vis powerful buyers. The merger may thus result in a reduction in the costs of procurement. The merger may also facilitate raising capital for investment and innovation and may also give rise to other pecuniary savings, such as tax benefits associated with size. These are all valid efficiencies from an economic point of view. Yet, because they mainly result in higher cash flows for the merged entity, they are typically not regarded as cognizable from the viewpoint of merger control.

B. *Demand side efficiencies*[9]

A horizontal merger may benefit consumers by combining existing networks into a larger network in markets characterized by the presence of economies of scale and scope in consumption, i.e., network externalities. These network effects may be direct or indirect.[10] Direct network effects arise when the valuation of a product

[8] Röller, Stennek & Verhoven, *supra* note 5, at 16.

[9] *See* David S. Evans & Atilano Jorge Padilla, *Demand-Side Efficiencies in Merger Control*, 26 WORLD COMPETITION 167 (2003).

[10] *See, e.g.,* Michael L. Katz & Carl Shapiro, *Systems Competition and Network Effects*, 8 J. ECON. PERSP. 93 (1994); and David S. Evans & Richard Schmalensee, *A Guide to the Antitrust Economics of Networks*, 10 ANTITRUST 36 (1996).

or service increases with the number of customers that use it. Indirect network effects arise when an increase in the number of users of a network raises the demand for products that are complements to the network. Indirect network effects are a key characteristic of two-sided markets,[30] such as the credit card market and the operating systems market.[31] A common example of this type of market is the electronic games industry.[32] On one side of the market, consumers buy into the network by acquiring their game consoles. They select the console that, among other things, gives them access to a wider variety of high-quality games. On the other side of the market, software developers create new games. They focus on those consoles with a larger footprint. An increase in the number of software developers writing games for a console makes that console more attractive to end users, while an increase in the number of users of a given console makes it more likely that games are developed for it.

Horizontal mergers may give rise to both direct and indirect network effects. A merger will create direct network effects by migrating the users of two or more separate networks into a single network or by facilitating the interoperability of the existing networks so that their users can connect with each other almost seamlessly. This in turn may also generate indirect network effects, since the increased size of the network may encourage the development of complementary goods, thus increasing consumer satisfaction.

The integration of two stock exchanges (or equity trading platforms) provides a clear example of a horizontal merger that can generate significant network effects. The operation of stock exchanges

[30] David S. Evans, *The Antitrust Economics of Two-Sided Markets*, 20 YALE J. ON REG. 325 (2003).

[31] Jean-Charles Rochet & Jean Tirole, *Platform Competition in Two-Sided Markets*, 1 J. EUR. ECON. ASS'N 990 (2003); *See also* Jean-Charles Rochet & Jean Tirole, *Defining Two-Sided Markets* (IDEI Working Paper, 2004).

[32] Ben Hunt, *Consolidation: Big is Beautiful in the Games Industry*, FIN. TIMES, Aug. 7 2002, at 4; STEVEN L. KENT, THE ULTIMATE HISTORY OF VIDEO GAMES: FROM PONG TO POKEMON—THE STORY BEHIND THE CRAZE THAT TOUCHED OUR LIVES AND CHANGED THE WORLD (2001); *See also* Jim Davis, *Microsoft Woos Game Developers*, CNET.COM, Mar. 9, 2000, http://news.com.com/2100-1040-237819.html?legacy=cnet.

is characterized by both direct and indirect network effects.[33] First, brokers and dealers prefer to trade on a platform where there are many other active brokers and dealers. A thicker market is generally more liquid and, therefore, more attractive to brokers, dealers, and end-investors: it generally features a lower bid-ask spread and the market price is less sensitive to orders. In addition, the market price tends to be more stable. Second, the more securities there are listed on a trading platform, the more it will attract investors and analysts: a larger number of securities means that investors will be able to diversify their portfolios, and analysts are attracted by markets with many comparable firms. At the same time, greater participation by investors and analysts boosts both the demand for local stocks and their liquidity, and thus their market price. This in turn attracts more companies, creating an indirect network effect.

The integration of stock exchanges into a single trading platform increases overall liquidity by combining the liquidity pools of the merging exchanges. This in turn reduces the costs of trading (as reflected by lower bid-ask spreads) and attracts additional securities, analysts, and end-investors. All these benefits accrue directly to the users of the exchange. The available evidence suggests that these benefits are substantial.

Arnold, Flersch, Mulherin and Netter found that integration led to a reduction of the average bid-ask spreads in three successive mergers between regional U.S. stock exchanges in the 1940s and 1950s.[34] Pagano and Padilla quantified these efficiencies by studying a recent "natural experiment": the integration between September 2000 and November 2003 of the French, Belgian, Dutch, and Portuguese stock

[33] *See, e.g.*, Marco Pagano, *Endogenous Market Thinness and Stock Price Volatility*, 56 REV. ECON. STUD. 269 (1989); Marco Pagano, *Trading Volume and Asset Liquidity*, 104 Q.J. ECON. 255 (1989); and Bhagwan Chowdry & Vikram Nanda, *Multimarket Trading and Market Liquidity*, 4 REV. FIN. STUD. 483 (1991). A survey of this literature can be found at Marco Pagano & Abiano Jorge Padilla, *The Economics of Cash Trading: An Overview* (2005), *available at* http://www.competition-commission.org.uk/inquiries/ref2005/lse/main_submission_received_euronext_nv_lecg.pdf.

[34] Tom Arnold, Philip Hersch, J. Harold Mulherin & Jeffry Netter, *Merging Markets*, 54 J. FIN. 1083 (1999).

exchanges to form Euronext.[16] They found that users of Euronext benefited directly from the integration of its constituent exchanges.

In particular, they found that integration allowed Euronext members directly to access all the different Euronext markets. For example, a member located in Amsterdam who, before the merger, could access directly only the Amsterdam market, can now also directly access the Brussels, Lisbon, and Paris markets, without incurring the costs of multiple exchange memberships or operating in multiple locations. Integration also expanded the set of securities accessible to Euronext members. They report that for a member of the Paris exchange who was not active in other Euronext markets prior to integration, the integration of Paris with the Brussels and Amsterdam markets increased the number of cash securities that could be traded.[17]

The integration process also increased the liquidity of the merging exchanges and, therefore, reduced the costs of trading. This increase in liquidity was reflected in greater volume and lower volatility and led to a reduction in the costs of trading (i.e., to lower bid-ask spreads). Using standard regression techniques to analyze the impact of the Euronext on liquidity, Pagano and Padilla found that

[t]rading volume in Paris, Brussels, and Amsterdam increased as a result of the creation of Euronext. This effect is statistically significant and cannot be attributed to an upward trend common to other European exchanges, such as the London Stock Exchange and Deutsche Börse. According to our estimations, the creation of Euronext led to an increase in the traded volume of the main securities listed on the Paris, Brussels, and Amsterdam exchanges of approximately 40%.[18]

In addition, the volatility of the large-cap securities traded in Paris, Brussels, Amsterdam, and Lisbon fell as a result of the creation of Euronext. The statistically significant reduction in volatility following integration was between nine and eighteen percent of the initial levels.[19]

[16] Marco Pagano & Ailano Jorge Padilla, Efficiency Gains from the Integration of Exchanges: Lessons from the Euronext "Natural Experiment" (2005), available at http://www.competition-commission.org.uk/inquiries/ref2005/lse/main_submission_received_euronext_nv_lecg_2.pdf.

[17] Id. ¶ 1.15.

[18] Id.

[19] Id.

Pagano and Padilla also found that

[the bid-ask spreads of the securities included in the main Paris index (CAC 40) fell as a result of the creation of Euronext. This effect was statistically significant for all specifications of the regression model, and cannot be attributed to a downward trend common to other European exchanges . . . . It was also material from an economic viewpoint: the reduction in bid-ask spreads following integration was between 40% and 48% when measuring the bid-ask spread using Bloomberg data, and 38% when using the weighted average bid-ask spread constructed by Euronext for the Paris exchange. The regression analysis also shows that integration led to a reduction of the bid-ask spreads of the securities in the main indices of Brussels and Amsterdam.[20]

C. Productive and dynamic efficiencies

A merger can have ambiguous effects on productive and dynamic efficiency. A market outcome is said to be productively efficient if production is undertaken at the lowest possible marginal cost of production, i.e., by the most efficient firms. The impact of a merger on productive efficiency is, in principle, ambiguous. On the one hand, a merger is likely to cause prices to increase, and in particular to rise above the marginal costs of the most efficient firm operating in the market. This will make it possible for relatively less efficient firms to produce and sell their products. A horizontal merger may also reduce the incentives of managers and workers to exert effort and reduce costs. Following the initial suggestion of Leibenstein,[21] several authors have formally shown that changes in product market competition are likely to adversely affect managerial incentives.[22] Economic theory also suggests that mergers may limit the ability of shareholders to

[20] Id.

[21] Leibenstein, supra note 1.

[22] See James A. Brander & Barbara Spencer, Moral Hazard and Limited Liability: Implications for the Theory of the Firm, 30 INT'L ECON. REV. 833 (1989); Sanford Grossman & Oliver Hart, Corporate Financial Structure and Managerial Incentives, in THE ECONOMICS OF INFORMATION AND UNCERTAINTY (John J. McCall ed., 1982) and Klaus Schmidt, Managerial Incentives and Product Market Competition, 64 REV. ECON. STUD. 191 (1997). The opposite result is obtained by Stephen Martin, Endogenous Firm Efficiency in a Cournot Principal-Agent Model, 59 J. ECON. THEORY 445 (1993).

provide the right incentives to managers by making it harder to engage in yardstick competition.[?]

Mergers may also affect the ability and the incentives of the merging parties to invest in cost-reducing R&D. For example, if the merging firms have different R&D capabilities, they might expand their joint technological frontier by sharing knowledge and skills. The result is an increase in technological progress.[?] A merger might also increase the incentives of the merging parties to engage in costly R&D. The merger enables the merging parties to achieve a number of economies of scale in R&D expenditure. It also allows them to internalize some of the negative externalities that may limit R&D investment. For example, two competing firms may be unwilling to invest in R&D if competition in the product market is fierce, because in that case they will be unable to appropriate the rents resulting from their innovations. A merger softens competition in the product market and may thus provide incentives for further investment in R&D.

This is, however, an ambiguous result. When companies merge they may be less willing to engage in R&D because they fear cannibalizing the sales of the newly expanded product line. When competition becomes softer, the incentives of companies to engage in costly innovation may also be reduced. Recent studies have shown that the impact of concentration on incentives is ambiguous: innovation increases with concentration when concentration is low, and vice versa.[?]

Mergers may facilitate the development and marketing of new or improved products. For example, they can facilitate the development of new products by the combination of R&D efforts and exploitation of newly combined intellectual property.[?] They may also facilitate the launching of existing products into new markets by combining the

[?] See Bengt Holmstrom, *Moral Hazard in Teams*, 13 Bell. J. Econ. 324 (1982); and Barry Nalebuff & Joseph E. Stiglitz, *Information, Competition and Markets*, 73 Am. Econ. Rev. 278 (1983).

[?] Röller, Stennek & Verboven, *supra* note 5, at 18.

[?] Philippe Aghion et al., *Competition and Innovation: An Inverted U Relationship*, 120 Q.J. Econ. 701 (2005).

[?] See Josh Lerner & Jean Tirole, *Efficient Patent Pools*, 94 Am. Econ. Rev. 691 (2004).

distribution networks of the merging parties. And they may also increase the value to consumers of existing products by creating a one-stop shopping opportunity, and hence reducing search costs.[?] Figure 2 illustrates the positive impact on consumer welfare of the commercial launch of an improved product.

The introduction of an improved product shifts the demand curve from DD to $D'D'$. This shift captures the increase in the willingness to pay for the improved product. In a competitive market, where the supply curve is given by the marginal cost curve MC, this shift in demand results in a price increase: from p to p'. The benefit to consumers is given by (1) the difference between the demand curve for the improved product, $D'D'$, and the old demand curve, DD (region A), minus (2) the reduction in consumer welfare resulting from the price increase (region B).

Figure 2
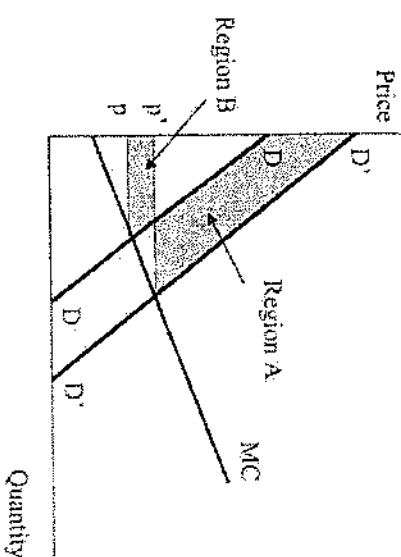
The impact of the introduction of the improved product on total welfare is depicted in figure 3 and is given by the sum of regions A and C. This is equal to the sum of the increase in consumer surplus (region A minus region B) and the increase in industry profits (regions B and C).

[?] Paul Klemperer & Atilano Jorge Padilla, *Do Firms' Product Lines Include Too Many Varieties?*, 28 RAND J. Econ. 472 (1997).

Figure 3
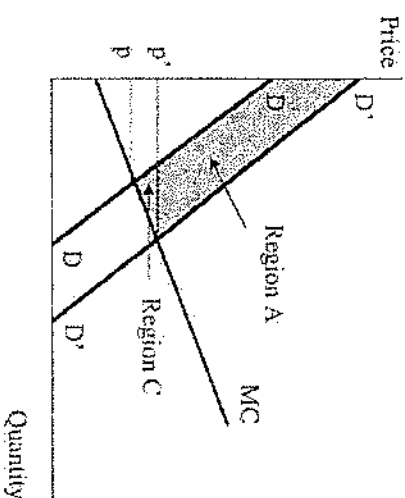
These gains are not just theoretical. There is considerable evidence that the introduction of new or improved products for which there is potential demand has a substantial impact on welfare.[28] A seminal study by Jerry Hausman calculated that impact in a concrete example. He found that making a new cereal by adding apple and cinnamon to an existing cereal created value of $78.1 million per year in the United States.[29] A new drug is a more serious example. The value of saving or improving lives dwarfs the seemingly exorbitant costs of some drugs.[30] Likewise, technical change due to product and process

[28] See Jerry A. Hausman, *Valuation of New Goods under Perfect and Imperfect Competition*, in THE ECONOMICS OF NEW GOODS (Timothy F. Bresnahan & Robert J. Gordon eds., 1997). *See also* Timothy F. Bresnahan, *Valuation of New Goods under Perfect and Imperfect Competition Comment*, in THE ECONOMICS OF New Goods, *supra*.

[29] Hausman, *supra* note 28, at 228. For other estimates of the value of new goods, see Amil Petrin, *Quantifying the Benefits of New Products: The Case of the Minivan*, 110 J. POL. ECON. 705 (2002); and Jerry A. Hausman & Gregory K. Leonard, *The Competitive Effects of a New Product Introduction: A Case Study*, 50 J. INDUS. ECON. 237 (2002).

[30] The estimated social value of increases in life expectancy due to advances in medical research from 1970 to 1990 was $2.8 trillion per year. Kevin M. Murphy & Robert H. Topel, *The Economic Value of Medical Research*,

innovations has resulted in rapid increases in productivity and improved standards of living around the world.[31]

III. THE WELFARE ECONOMICS OF MERGER CONTROL

The debate about the proper objective of merger control authorities has tended to focus on the question of whether they should seek to maximize long run consumer welfare or long run total welfare. This section examines the main contributions to that debate, after setting out a suitable analytical framework based on standard welfare economic principles and concepts.

The impact of a horizontal merger on total welfare is summarized in equation (1) below. The merger is likely to affect consumer welfare (CW) and the profits of the merging parties (Π^M) as well as the profits of all firms that remain independent (Π^O).

$$\Delta TW = \Delta CW + \Delta \Pi^M + \Delta \Pi^O \qquad (1)$$

First, the reduction in the number of competitors may lead to a price increase and a reduction in product variety. These changes have a negative impact on consumer welfare ($\Delta CW < 0$), but increase overall industry profits ($\Delta \Pi^M + \Delta \Pi^O > 0$). The quantitative importance of these effects depends on the degree of market power pre- and post-merger. The increase in prices resulting from the merger, and hence its effects on consumer welfare and industry profits, will be greater when the merger produces a significant increase in market power, e.g., when premerger competition was fierce and the merger softens competition considerably. A horizontal merger will produce no anticompetitive effect in markets characterized by low barriers to entry.

[31] in MEASURING THE GAINS FROM MEDICAL RESEARCH: AN ECONOMIC APPROACH 57 (Kevin M. Murphy & Robert H. Topel eds., 2003).

[32] Rolf Färe, Shawna Grosskopf, Mary Norris & Zhongyang Zhang, *Productivity Growth, Technical Progress, and Efficiency Change in Industrialized Countries*, 84 AM. ECON. REV. 66 (1994). Steven Globerman, *Linkages Between Technological Change and Productivity Growth* (Industry Canada Research Publications Program Occasional Paper No. 23, 2000).

In principle, absent any efficiency gains, a horizontal merger may increase or decrease the profits of the merging parties ($\Delta\Pi^M > < 0$), but it unambiguously benefits their competitors ($\Delta\Pi^O > 0$) because the merger causes a reallocation of sales from the merging parties to the nonmerging firms. In markets where firms sell differentiated products and compete in prices, the prices charged by both the merging parties and their competitors increase, but the prices of the former rise more than those of the latter. As a result, the merging parties lose market share to their competitors. While competitors benefit from higher prices and higher market shares, the impact on the profits of the merging parties is, in principle, ambiguous: they charge higher prices but their market share post-merger falls below their combined market share premerger. In markets with homogeneous products and where companies compete setting quantities, the loss in the market share of the merging parties will be privately profitable only if it leads to a significantly concentrated market (e.g., a merger to monopoly) or gives rise to substantial economies of scale.

From a practical viewpoint, however, one might assume that any merger that comes under the review of the competition authorities must be privately profitable ($\Delta\Pi^M > 0$), because the parties would not otherwise have pursued that course of action. With this assumption

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See MASSIMO MOTTA, COMPETITION POLICY—THEORY AND PRACTICE 249 (2004).

Id. at 234, 247. See also Raymond Deneckere & Carl Davidson, Incentives to Form Coalitions with Bertrand Competition, 16 RAND J. ECON. 473 (1985).

MOTTA, supra note 32, at 246. See also Stephen W. Salant, Sheldon Switzer & Robert J. Reynolds, Losses from Horizontal Mergers: The Effects of an Exogenous Change in Market Structure on Cournot-Nash Equilibrium, 98 Q.J. ECON. 185 (1983).

MOTTA, supra note 32, at 250. See also Martin K. Perry & Robert H. Porter, Oligopoly and the Incentives for Horizontal Merger, 75 AM. ECON. REV. 219 (1985).

Of course, a horizontal merger may be privately profitable ex ante and yet may prove unprofitable ex post, once it is completed. But that does not affect the assumption above, given that regulators will have to decide on the merging parties.

in mind, it follows that a horizontal merger will increase total welfare if its net external effect, which is given by the sum of the change in consumer surplus and the change in the profits of the nonmerging parties ($\Delta CW + \Delta\Pi^O$), is positive. This is a sufficient but not necessary condition, since a horizontal merger may be welfare increasing even if its net external effect is not positive, provided that $\Delta\Pi^M$ is sufficiently large.

Second, the merger may give rise to cost, demand, and dynamic efficiencies. All types of efficiencies will increase the profits of the merging parties ($\Delta\Pi^M > 0$) as well as consumer surplus ($\Delta CW > 0$). How the welfare gains caused by the merger are split between consumers and the merged firm depends on the precise nature of those efficiencies and the degree of market power post-merger. The more competitive the market post-merger, the more likely that consumers appropriate a larger portion of the efficiencies generated by the merger.

The efficiencies resulting from the merger may, however, cause a reduction in the profits of competitors ($\Delta\Pi^O < 0$). They may find themselves at a competitive disadvantage vis-à-vis the merging parties, not being able to replicate the economies of scale and scope produced by the merger or to match the new or improved product

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merger on the basis of its ex ante (prospective) effects. A more serious objection is that the decision to merge may not be based on a rational ex ante calculation, but driven by opportunism, optimism or by the empire-building aspirations of the managers of the merging parties or, at least, of the acquiring firm. This possibility should not alter the competitive assessment of mergers, as described above. The competition authorities are not in charge of protecting the private interest of the shareholders of the merging parties. There are other institutions whose role is precisely to ensure that the managers of publicly quoted companies respect their fiduciary duties towards the companies they represent.

Joseph Farrell & Carl Shapiro, Horizontal Mergers: An Equilibrium Analysis, 80 AM. ECON. REV. 107 (1990).

Some efficiencies have the opposite effect: they increase competitors' profits. For example, a merger leading to lower output may cause a reduction in input prices and, hence, an increase in rivals' profits. Or competitors may eventually imitate the cost and demand innovations developed by the merging parties. See Roberts & Salop, supra note 4.

offerings that the merger makes possible. Rivals will have an incentive to complain about a merger when it is likely to produce significant welfare gains that they are unable to match and make it harder for them to compete head-to-head. On the other hand, they will tend to welcome any merger that is unlikely to improve consumer welfare in the short term. The implication of this is that the complaints of competitors in horizontal merger cases should be treated cautiously, as they may signal the presence of efficiency gains. This does not mean that their complaints should be completely disregarded. For example, if the effect of the merger is to exclude all nonmerging firms from the market and make entry or re-entry into the market difficult, the merger would lead to a monopoly position in the market place and consumers may end up worse off in the long run.[9]
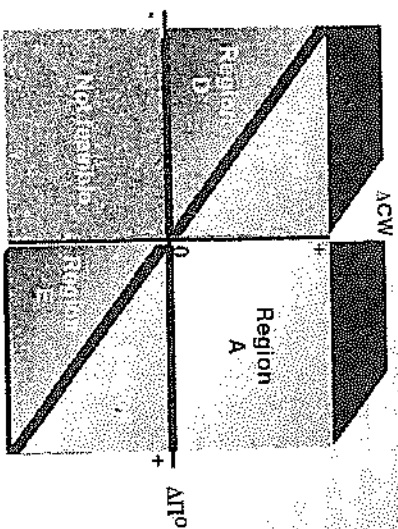
A. The net external effect

Whether or not a merger produces efficiency gains, and assuming that any notified merger is privately profitable, a horizontal merger will unambiguously increase total welfare whenever it has a positive net external effect:

$$NEE = \Delta CW + \Delta\Pi^{O} \qquad (2)$$

Figure 4 below provides a framework to analyze the competitive effects of horizontal mergers according to their net external effect. The graph is divided into five relevant regions according to the values of ΔCW and $\Delta\Pi^{O}$. Regions A, B, and C correspond to mergers with a positive net external effect, while regions D and E correspond to mergers with a negative net external effect. There is a sixth region where both ΔCW and $\Delta\Pi^{O}$ are negative, which makes no economic sense.

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9 This is the economic theory behind the efficiency offense doctrine in merger control. *See* Atilano Jorge Padilla, *The Efficiency Offence Doctrine in European Merger Control, in* INTERNATIONAL MERGER CONTROL: PRESCRIPTIONS FOR CONVERGENCE (J. William Rowley & Michael Reynolds eds., 2002).

Figure 4

A merger in region A has a positive net external effect. It raises both consumer welfare and the profits of the nonmerging firms. Mergers in this region are likely to cause a price increase (which explains the increase in the profits of competitors) and result in significant demand-side efficiencies, for instance by combining the networks of the merging parties into a single, consolidated network (which in turn explains the increase in consumer surplus in spite of the price increase).

A merger located in either region B or E causes a reduction in consumer welfare but an increase in the profits of the nonmerging parties. In region B, the second effect is quantitatively more important than the first, so that the net external effect of the merger is positive. The opposite is true in region E. Economic theory shows that horizontal mergers producing no efficiencies, or cost efficiencies that are not passed on to consumers, are likely to raise the profits of the nonmerging firms while reducing consumer welfare. It also shows that the latter effect, the reduction in consumer welfare, is generally greater than the positive externality conferred on competitors. So, while many mergers may be located in region E, finding mergers in region B is highly unlikely.

A merger located in either region C or region D makes consumers better off and competitors worse off. In region C, the first effect dominates so that the net external effect of the merger is positive. The opposite is true in region D. Economic theory shows that horizontal mergers producing significant cost and demand efficiencies are likely to cause an increase in consumer welfare and a reduction in competitors' profits. However, the theory is not clear about which of the two effects is likely to dominate. It will depend on (1) the size of the efficiencies, which will determine the quantitative impact on consumer welfare and the reduction in the combined market share of the nonmerging parties, and (2) the impact of a reduction in volume on the profits of the nonmerging parties. When the merger produces substantial efficiencies and these accrue to consumers, the merged entity is likely to steal a significant proportion of the sales of its competitors. This causes a reduction in the revenues of the nonmerging parties and may also lead to an increase in their average costs if production is subject to economies of scale due to, for example, the existence of fixed costs. Therefore, the impact of the loss in volume on profits will be greater when the reduction in volume causes a larger increase in the average cost of production of the nonmerging parties, e.g., when their fixed costs are greater. In those circumstances, the merger, despite its efficiency effects, is likely to have a negative net welfare effect (i.e., be located region D), and its efficiencies may be regarded as an offense.[45]

As explained above, all mergers with a positive net external effect are welfare-increasing. So, all mergers in regions A, B, and C have a positive impact on total welfare. However, not all mergers with a negative net external effect have a negative impact on total welfare; the increase in profits of the merging parties may offset the negative net external effect of the merger.

B. *The Williamson trade-off*

Professor Oliver Williamson, one of the founders of modern industrial organization and 2009 Nobel Laureate, developed a simple analysis of the welfare impact of a horizontal merger by comparing a

45 *Id.*

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premerger scenario characterized by perfect competition and a post-merger scenario characterized by a monopoly.[46] That is, he considered the welfare implications of a merger to monopoly, which simplifies the analysis above because the net external effect equals the change in consumer welfare. There is no need to worry about the profits of the nonmerging parties, because all companies operating in the market become part of the merger.

Figure 5
The Williamson Trade-off
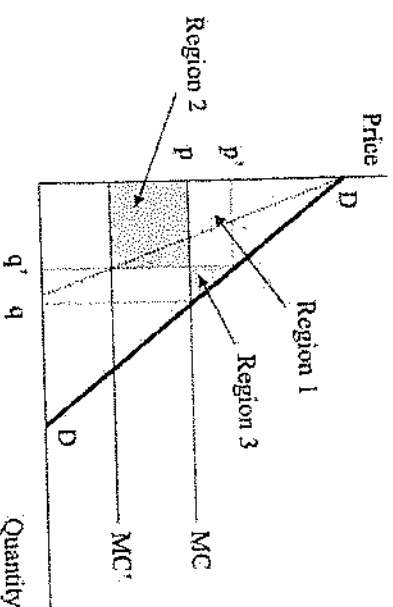
Williamson's "before and after" analysis can be explained with the help of figure 5. In the premerger scenario, perfect competition ensured that the equilibrium price, p, was equal to the marginal cost of production, MC. Post-merger, a monopolist sets its price, p', so that its marginal revenue equals the new marginal cost, MC'. The net external effect is given by the change in consumer surplus due to the merger. Consumers are worse off after the merger. Some of them have to pay more for the product in question (region 1), while others stop consuming the product altogether (region 3.) In terms of the framework developed in figure 4 above, this merger is located in region E, i.e., it has a negative net external effect consumer welfare falls more than the profits of the nonmerging firms increase. However, the impact of

46 Williamson, *supra* note 2.

the merger on total welfare is positive. The merger has a positive effect on industry profits (which in this simple example equal the profits of the merging parties). The change in industry profits is given by the sum of the areas in regions 1 and 2. Region 1 captures the effect on profits of the increase in prices, while region 2 measures the profit impact of the cost efficiencies achieved by the merger.

Using equation (1) above to calculate the impact of the merger on total welfare, the change in total welfare, ΔTW, is given by the trade-off between the area in region 2, which measures the cost efficiencies, and the area in region 3, which measures the reduction in consumer welfare that is not directly offset by an increase in profits. Region 3 corresponds to what economists call the dead-weight loss of monopoly. In the example of figure 5, the cost efficiencies produced by the merger are sufficiently large to offset the deadweight loss of monopoly and, hence, the merger results in an increase in total welfare, in spite of having a negative net external effect.

More generally, Williamson's trade-off model can be used to estimate the reductions in costs that are necessary to offset the deadweight loss of monopoly caused by a merger to monopoly under different assumptions regarding the elasticity of demand and premerger market power. In the case of no premerger market power and an elastic market demand ($\eta = 2$), a 10% post-merger price increase can be compensated by an average cost reduction of a mere 1%. If premerger prices were 10% greater than marginal costs due to market power, a 10% post-merger price increase can be compensated for with an average cost reduction of 1.10% (with an elasticity of demand $\eta = 2$).

Figure 6 illustrates the Williamson trade-off with premerger market power (captured by the gap between the premerger price, p, and the marginal cost, MC). Premerger profits are given by region X. The change in total welfare caused by the merger is given by the difference between regions Z_1 and Z_2 (which capture the reduction in consumer surplus due to the increase in prices)[11] and region Y (which

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[11] Note that the change in producer surplus includes the area in region Z_1 and not only the deadweight loss given by the area in region Z_2. Ignoring the producer loss in region Z_1 would lead to an underestimate of the efficiencies needed to overcome the anticompetitive effects of the merger.

measures the cost efficiencies attributable to the merger). In the example depicted in figure 6, region Y is greater than the sum of regions Z_1 and Z_2, and so the impact of the merger on total welfare is positive despite having a negative net external effect.
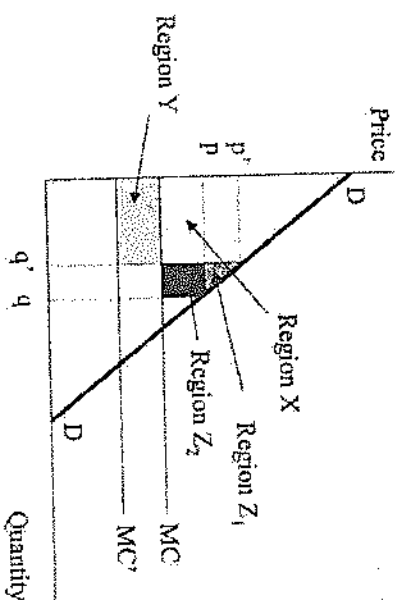
Figure 6:
The Williamson Trade-off with Premerger Market Power

Williamson concluded: "[A] merger that produces non-trivial real economies, must produce substantial market power and result in relatively large increases in price for the net allocative effect to be negative."[20] In terms of the framework of figure 4, this means that many mergers in region E will be welfare enhancing despite having a negative net external effect. Williamson's model shows the importance of measuring the overall welfare implications of the efficiencies achieved by a merger, not only the impact on consumer welfare, when assessing the merger.

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[20] Williamson, *supra* note 2, at 223. Note, however, that significant efficiencies are needed to produce improvements in consumer surplus (as opposed to total welfare) after a merger in a concentrated industry. See Gregory J. Werden, *A Robust Test for Consumer Welfare Enhancing Mergers Among Sellers of Differentiated Products*, 44 J. INDUS. ECON. 409 (1996); Luke M. Froeb & Gregory J. Werden, *A Robust Test for Consumer Welfare Enhancing Mergers Among Sellers of a Homogeneous Product*, 58 ECON. LETTERS 367 (1998).

C. Merger specificity

We have defined ΔCW and $\Delta \Pi$ in equations (1) and (2) as the change in consumer surplus and the change in profits from the premerger equilibrium to the post-merger equilibrium. That is, we have been assuming that the appropriate counterfactual for the assessment of a horizontal merger is the premerger status quo. But that is correct only if the markets that would be affected by the merger would remain unchanged if the merger was abandoned or prohibited. Otherwise, the right counterfactual from the viewpoint of merger control would not be the premerger status quo, but rather the industry configuration that likely would emerge in the absence of the merger.[44] ΔCW and $\Delta \Pi$ would then be defined by comparing consumer surplus and profits post-merger with their corresponding levels under the appropriate counterfactual.

This logic has clear implications for the assessment of efficiencies. The only efficiencies that should be credited to the merger are those that would likely materialize if the merger were to take place but would likely not be created if the merger was blocked or abandoned. That is, the only relevant efficiencies for the competitive assessment of horizontal mergers are those that are merger-specific.

Note that this is not the interpretation that is often given to the notion of merger specificity. Efficiencies are typically defined as merger-specific if there is no alternative way to achieve them that is less restrictive of competition, such as internal growth or other contractual arrangements. This interpretation may lead to decisions that are inconsistent with the principles of welfare economics. To see why, assume that the efficiencies that a merger creates could also be achieved through internal growth, but only at a considerable cost, with great uncertainty, and after a long delay. Although there is a less restrictive way of achieving the efficiencies generated by the merger, that alternative is unlikely to be implemented by the merging parties even if the merger is prohibited. Therefore, that alternative cannot be part of the right counterfactual for the assessment of the proposed

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[44] See Joseph Farrell & Carl Shapiro, *Scale Economies and Synergies in Horizontal Merger Analysis*, 68 ANTITRUST L.J. 685 (2001).

concentration. If it was, the merger could be blocked in spite of its unambiguous, positive net contribution to total welfare.[45]

D. The right welfare criterion

Hitherto, we have been assessing mergers according to their impact on total welfare. Is that the right welfare criterion from an economic perspective? To many economists the answer is obvious: if total welfare is higher, then the capacity of the economy to generate economic benefits for citizens is higher, and for this reason total welfare is generally used to assess public policy interventions. A horizontal merger is likely to affect the allocative, productive, and dynamic efficiencies of the affected market, and the only way to capture these effects properly is to adopt a welfare criterion under which the effects of the merger on consumer welfare and industry profits receive consideration.[46] However, competition authorities in Europe and the United States place greater weight on the effects of a merger on consumers, and this has often been interpreted as implying that their objective function is consumer welfare. This seeming paradox has led to some discussion about whether there are sound justifications for a long-run consumer welfare standard. We review the main contributions here and find that none are entirely convincing.

1. DISTRIBUTIONAL CONCERNS A horizontal merger likely will affect the distribution of income between consumers and the shareholders of the firms competing in the affected markets; i.e., an anticompetitive merger reduces consumer surplus and increases the surplus of shareholders. These changes may be regarded as socially

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[45] Professors Farrell and Shapiro maintain that many, if not most, economies of scale and scope are not merger-specific, but could be obtained through less restrictive, albeit perhaps more time-consuming, means such as internal growth. In their view, only the intricate combination of hard-to-trade assets, what they regard as the true synergies, would qualify as a merger-specific cost efficiency. *Id.*

[46] Note that a total welfare standard does not necessarily imply a higher approval rate. A merger causing X-inefficiencies may be approved under the consumer welfare standard if it does not lead to an increase in prices but prohibited under a total welfare standard because of its negative impact on productive and dynamic efficiency.

undesirable if they imply a redistribution of income, wealth, and utility from less wealthy individuals (consumers) to more wealthy ones (shareholders). A merger criterion that takes into account these distributional concerns, but still satisfies the Pareto principle,[?] can be represented by a weighted social welfare function, SWF, where consumer surplus and industry profits (i.e., the surplus of shareholders) are both given positive weights, as in equation (3):[#]

$$SWF = \omega \Delta CW + (1 - \omega)(\Delta PM + \Delta P) \qquad (3)$$

The choice of weights $(\omega, 1 - \omega)$ is not simple and is the subject of considerable debate in the field of welfare economics. Some argue that ω should equal 1 because the consumers of the products sold in the markets affected by the merger are often less wealthy, less healthy, or more physically challenged than the shareholders of the merging parties and its competitors. The evidence that share ownership is concentrated among the well off suggests that there is some strength to Russell Pitman's claim that "we can be pretty confident that, as a general matter, transfers of income and wealth to the owners of large firms from individual customers are transfers from the less to the more well off."[??] This may indeed be the case for mergers in markets for products satisfying basic needs. But it will not always be the case. It is less likely for mergers between producers of luxury goods or for

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[?] The Pareto principle, the cornerstone of orthodox welfare economics, implies that any merger that makes some individuals (whether consumers or shareholders) better off without harming any others should be allowed. See LOUIS KAPLOW & STEVEN SHAVELL, FAIRNESS VERSUS WELFARE (2002).

[#] Distributive justice is not the only reason why a weighted social welfare function, like that in equation (3), may provide the right criterion to judge mergers. Alternatively, the weights $(\omega, 1 - \omega)$ may be interpreted as discount factors, to capture the fact that the effect of the merger on consumer surplus and the achievement of efficiencies may take time to manifest. The weights may also be taken to measure uncertainty regarding the impact of the merger on consumer welfare and efficiency. Daniel J. Gifford & Robert T. Kudrle, Rhetoric and Reality in the Merger Standards of the United States, Canada and the European Union, 72 ANTITRUST L.J. 423, 466-67 (2005).

[??] Russell Pitman, Consumer Surplus as the Appropriate Standard for Antitrust Enforcement 3 (Dep't of Justice EAG Discussion Paper 07-9, 2007).

mergers where the customers of the merging companies are businesses, for example.[?]

Some others argue that the weights attributed to consumers and shareholders should be approximately the same: $\omega = 0.5$.[?] The argument is that if the merger standard were to be chosen by a representative citizen without any knowledge about which merger would affect him and whether he would be a consumer or a shareholder, there is no reason why he would choose anything other than equal weights for consumers and shareholders.

We find all those distributional arguments somewhat inconclusive but note that merger control is not the only policy tool available to governments that have concerns over income distribution and is surely a less effective tool than general taxation or the benefit system. One reason for not paying much attention to the effects of a merger on distribution is that merger control is best targeted at maximizing the size of the economic pie, leaving the distribution of that pie to other elements of government policy.[?] This is reflected in the consensus view that the basic goal of competition policy "is to protect and preserve competition as the most appropriate means of ensuring the efficient allocation of resources—and thus efficient market outcomes—in free market economies."[?]

2. ADMINISTRABILITY CONCERNS From a practical viewpoint it could be argued that implementing a consumer welfare standard is simpler than implementing a total welfare standard. Implementing a total welfare standard is a complex exercise because (1) measuring cost and, especially, demand efficiencies is difficult, and (2) balancing those efficiency effects with the anticompetitive effects of the merger to establish its net welfare effect is also difficult. However, neither of

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[?] Ross & Winter, supra note 4, at 479-80 and 487-93.

[?] Id. at 476 & 487-94.

[?] Joseph Farrell & Michael L. Katz, The Economics of Welfare Standards in Antitrust (UC Berkeley: Competition Policy Center, 2006).

[?] ORGANISATION FOR ECONOMIC CO-OPERATION AND DEVELOPMENT, COMPETITION POLICY AND EFFICIENCY CLAIMS 5 (1996), available at http://www.oecd.org/dataoecd/1/4/2379526.pdf.

these two problems can be eschewed by the use of the consumer welfare standard. A proper implementation of the consumer welfare standard also requires evaluating the likely efficiencies of the merger. And to the extent that it also entails estimating the degree to which those efficiencies are appropriated by consumers and balancing those consumer benefits with the harm caused by the reduction of rivalry, the use of the consumer welfare standard is no less demanding from an economic viewpoint than the use of the total welfare standard. In conclusion, it is hard to see how the choice of a merger criterion based on the consumer welfare standard could be defended on the grounds of its superior administrability.

3. POLITICAL ECONOMY CONCERNS A different approach to justifying a consumer welfare standard starts from the observation that competition authorities do not always make decisions in line with their objectives. This approach accepts that whether a merger should be allowed to proceed or not ought to be judged using a total welfare standard, but sees the use of a consumer welfare standard as a counterbalance to lobbying by the parties. Competition authorities will hear from the parties many times during a merger review and may be influenced by lobbying. Customers rarely engage to the same extent, so it may be necessary to force the authorities to pay more attention to consumers through their objective function in order to counterbalance any bias. This situation has been modeled by Neven and Roller,[34] and while the model finds that a consumer surplus standard might be optimal, it is not necessarily so.

4. INCENTIVE ARGUMENTS A fourth argument focuses on the role that firms play in selecting mergers to provide another reason why giving merger control authorities the task of maximizing consumer welfare might be the best way to maximize total welfare.[35] In these models firms choose which merger to propose, knowing the decision rule the agency will adopt. If firms know that the agencies will

[34] Damien J. Neven & Lars-Hendrik Roller, Consumer Surplus versus Welfare Standard in a Political Economy Model of Merger Control, 23 INT'L J. INDUS. ORG. 829 (2005).

[35] Bruce Lyons, Could Politicians Be More Right than Economists? A Theory of Merger Standards (Univ. East Anglia, unpublished manuscript, 2002).

prohibit mergers that lower consumer welfare, they will propose only those mergers that generate sufficient efficiencies that both consumer surplus and producer surplus (their own profits) rise. However, as with the lobbying models above, this approach can justify using either a consumer welfare standard or a total welfare standard. On the one hand, under a total welfare standard firms may put forward mergers that increase profits without generating efficiencies. A consumer welfare standard provides incentives to select better mergers, those that increase profits but also generate offsetting efficiencies. On the other hand, if the agency uses a consumer welfare standard it may prohibit all mergers, even if there are some that generate some efficiencies (though not enough to compensate for the adverse price effects of the merger) and increase total welfare. That would be bad too. Which effect prevails depends on the parameters,[36]

In sum, we do not believe any of the arguments advanced so far to defend the adoption of a consumer welfare standard, and in this way rationalize current practice in many jurisdictions, is sufficiently persuasive. Some of those arguments rely on controversial value judgments, while others, though intellectually appealing, are fragile: they hold true only for some parameter configurations that are hard to test in practice. In our view, none of those arguments is significant enough to offset the expected cost of the type I (incorrect prohibition decisions) and type II (incorrect clearance decisions) errors that the adoption of a consumer welfare standard may give rise to. Basing merger decisions on their impact on consumer welfare alone is likely to cause both type I errors (because some legitimate efficiency defenses are ignored) and type II errors (because the negative impact of efficiencies on competitors is disregarded).

This can be better understood with the help of the graph in figure 4 above. Under the consumer welfare standard, all mergers located in regions A, C and D would be cleared, while all mergers in regions B and E would be blocked. The consumer welfare standard, therefore, would provide the right answer in regions A and C, where the mergers' net external effect and impact on consumer welfare are both

[36] For a more formal development of this idea, see Mark Armstrong & John Vickers, A Model of Delegated Project Choice, 78 ECONOMETRICA 213 (2010).

positive. A competition authority using the consumer welfare standard would prohibit mergers in region B when it should have approved them, given that their net external effect is positive. These type I errors are, however, unlikely because, as we explained above, very few mergers will be located in region B. Mergers in region E would also be blocked under a consumer welfare standard. Some of those decisions to prohibit mergers would be correct, but many others would be unjustified, as we explained in section III when discussing Williamson's trade-off. Finally, a merger control system based on the consumer welfare standard would approve all mergers in region D, because their impact on consumer welfare is positive, even when some of them may have a negative impact on total welfare, due to the harm caused to competitors. Figure 7 summarizes the implications of using the consumer welfare standard rather than the correct total welfare standard.

Figure 7
Assessing the Consumer Welfare Standard

Correct
Type I error
Type II error
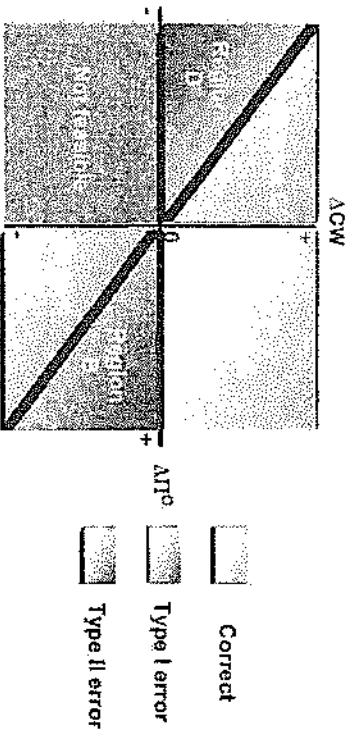
IV. MERGER CONTROL IN PRACTICE: FUZZY GOALS AND DEFINITE TARGETS

As summarized above, the debate on the objective of merger control has tended to focus on the apparent divergence between what economists think merger control should be based on (long-run total

welfare) and what commentators have assumed it is actually based on (long run consumer welfare). This may well be the wrong question: in practice competition authorities do not seem to apply either standard when evaluating mergers. Instead of focusing on the appropriate welfare standard for merger control, we believe the better question is what balance should competition authorities strike between protecting competition, on the one hand, and allowing firm-level efficiencies and concentration on the other.

A. Merger control in practice

As Farrell and Katz point out,[?] competition authorities are concerned not only with welfare, but also with competition as a process of rivalry. They give the example of excess entry, which reduces total welfare but increases competition, and say that they would be surprised if competition authorities opposed such entry. In a merger context we note that a transaction could lower consumption of an addictive product, or lower production of some pollutant, but these factors would generally play no role in an authority's assessment of whether to allow the deal even when they are no doubt relevant from a welfare perspective.[?]

In other words, competition authorities do not obviously pursue any long run measure of welfare at all. This is highlighted by their substantive tests, which usually require competition authorities to evaluate mergers on the basis of their effect on competition, not welfare (with Canada as a notable exception). In addition to considering the effect of a merger on competition, authorities are either explicitly charged with taking efficiencies into account or have interpreted "competition" to include consideration of efficiencies.

The assessment of any merger depends on the particular facts of the case, and the best way to implement any substantive test is bound to vary. However, in practice, in balancing the impact of a merger on

[?] Farrell & Katz, *supra* note 52.

[?] Of course in the excess entry example it is likely that prices would be lower, at least in the short term, and it might be argued that this is the reason why competition authorities would not oppose it. But short term price effects are not the same as long term increases in any particular measure of welfare.

competition and efficiency, agencies emphasize (1) the short term effects about which there is some certainty and (2) the effects of efficiencies on consumers. (Canada is an important exception here in considering all effects of efficiencies.)

We refer to this approach as adopting a price target for merger control: a merger can proceed if the authorities do not expect prices to rise as a result of the combined effect of the loss of competition and any increase in efficiency. As with all labels this one involves some simplification—competition authorities do not always express their assessment of the effects on competition in terms of the impact this has on consumers or price, and competition authorities often focus on competitive variables other than price. But nevertheless it serves to capture the focus on the short term and the role of pass-through when balancing competition and efficiencies.

This observation raises two questions. First, is it appropriate for competition authorities to behave in this way? An analogy with monetary policy suggests that there is good cause for giving competition authorities a clear and simple intermediate target to pursue, even if the true overall objective of government is some complex measure of the public interest over the long run. The second question is whether prohibiting mergers that generate short run price increases is the right intermediate target for merger control.

B. *Rivalry and short run price effects as a target*

The case for giving competition authorities clear and simple targets starts from the observation that it is very difficult for them to pursue complex long run goals. Starting with what we might term the noneconomic effects of a merger, such as its implications for levels of pollution or employment, we make the same comment here as in the section on the effects of mergers on income distribution. Governments have many policy instruments at their disposal, and many will be better suited than merger control to tackling pollution and employment.

Even though economists have developed a number of tools to help them assess the short term effects of a change in concentration on competition and price, focusing only on the economic effects of a merger provides little guidance to competition authorities for judging the effects on long run welfare (whether consumer or total). Notably there is in many cases little that can be said in the context of a particular transaction even about the direction of some important effects, such as productive efficiency, and investment and innovation. Notwithstanding the difficulty of using existing economic tools to predict whether any particular transaction will result in more or less productivity growth and innovation, policy in the United States and Europe is generally informed by the belief that competition (as a process of rivalry) is good for both and, moreover, that the benefits of competition primarily come from its effects on productive and dynamic efficiency rather than from the short term effects on keeping prices low."

Thus while rivalry, or its short term effects on prices, may not be the overall objective of competition policy, it may form part of an appropriate target for a competition authority, since by preventing concentrations that reduce rivalry and lead to significant price increases in the short term, competition authorities may do a reasonable job of promoting conditions that foster productivity growth, innovation, and total welfare in the long run.

In macroeconomic policy it has long been accepted that, rather than try to use all policy instruments to maximize a complex welfare function, it is better to specify separate targets and use separate instruments to achieve each one. Central banks in Europe generally have inflation as their sole target, even though (1) inflation is not pursued as an end in itself, but because it is believed that successfully management of inflation underpins a productive economy, and (2) the setting of interest rates, the main instrument available to central banks, has effects on many aspects of the economy, not just on inflation. Macroeconomists have spent considerable time investigating the link between the intermediate targets of monetary policy and its end goals. Similar analyses should be conducted in the competition policy arena and in particular in the context of merger control.

* UK DEP'T OF TRADE & INDUSTRY, PRODUCTIVITY AND ENTERPRISE: A WORLD CLASS COMPETITION REGIME (2001), *available at* http://webarchive nationalarchives.gov.uk/tna/+/http://www.dti.gov.uk/ccp/topics2/pdf2/cm5233.pdf/

In the context of merger control, there is another reason why a focus on competition and short run price effects, rather than welfare, might be appropriate. Competition authorities will be unwilling to object to a merger unless it meets a substantive test with a degree of certainty. This means that competition authorities' decisions necessarily place much greater weight on short term effects, which can be foreseen with some confidence, and much less weight on longer term effects, which are more speculative. The long run effects on welfare, whether consumer or total, of a change in market structure are often very hard to predict, whereas the short run effect on competition (understood as a process of rivalry) may be less contentious and therefore more suitable as part of a target for competition authorities.

C. Balancing rivalry and efficiencies

The focus of competition authorities on the short run price effects of a loss of rivalry does not imply that they always pursue more rivalry and greater market fragmentation. While there is a general consensus that competition is good for productive and dynamic efficiency, there is also recognition that big firms can be more efficient. The difficulty lies in striking the right balance between rivalry and efficiencies. The balance struck in practice has a number of elements. All merit debate.

First, many concentrations are allowed even though economic modelling would predict an increase in short term prices in the absence of countervailing efficiencies. This may reflect in part a belief that entry and other supplier responses can be relied on to counteract some effects or to limit their duration or that some mergers that harm competition and prices should be allowed to avoid stifling the market for corporate control. But it may also reflect a belief that if the price effect is small, then there is a good chance that the harm from a loss of rivalry will be offset by a gain in efficiency on the part of the merged firm, especially when that gain is passed on and shared with consumers. If so, what is an appropriate efficiency credit?

Second, many, if not most, competition authorities are skeptical about specific efficiency claims by merging parties and require very

convincing evidence before accepting them. The difficulty of evaluating specific efficiency claims is, perhaps, one of the reasons why the authorities take some for granted in the efficiency credit that makes up the first part of the balance.[20] Is this approach of taking some efficiencies for granted and being very skeptical of specific claims appropriate?

Third is what we have termed the price target. When balancing rivalry and efficiencies the short term price effects often receive most attention. In part this reflects the fact that the analytical tools to assess price effects are better developed than others. But in the case of efficiencies it also reflects a policy choice that not all efficiencies count only those count that are passed on to consumers. Is this the right choice? If the price effect of a loss of rivalry is only one part of the full long term harm from the loss of competition following a merger then this might indeed justify using a suitably weighted measure of the full long term benefits to both consumers and producers from any efficiencies. But it would be rather surprising if the optimal value for that weight turned out to be exactly the extent to which the efficiency led to lower prices in the short term in all cases. More research is needed on this.

V. CONCLUSIONS

In this article we have first explained the many effects of horizontal mergers on consumer and aggregate welfare, both in the short run and the long run. We have then reviewed the debate about the right welfare standard in merger control and concluded that the optimal standard is closer to total welfare than consumer welfare and that it should take into account both the short and long term impact of mergers.

More importantly, we suggest that the focus on whether competition authorities should assess mergers using a total or a consumer welfare standard addresses the wrong question. Because measuring the long term effects of a merger seems impossibly

20 William J. Kolasky & Andrew R. Dick, The Merger Guidelines and the Integration of Efficiencies into Antitrust Review of Horizontal Mergers, 71 ANTITRUST L.J. 207 (2003).

difficult at the current stage of knowledge, a policy that attempted to deal with mergers by assessing their long run consumer or total welfare impact would be impractical, likely would produce many errors, and may be unworkable within the legal context that constrains most competition authorities. Not surprisingly, while governments may have in mind a fuzzy end goal—an imprecisely defined welfare or public interest objective in the long run—when they set the policies for their competition authorities, the targets they give these authorities are more tightly defined and less dependent on making predictions about what will happen in the long run. Seen this way, merger control is a policy tool that, as currently practiced, plays a role in the overall pursuit of the long run public interest by prohibiting those mergers that are likely to have an adverse impact on short term prices.

This approach is based on the presumption that the short term target is linked to a reasonable extent to long term welfare. The accuracy of the presumption depends on achieving the right balance between fragmented and competitive markets, and efficient and possibly large firms. Framed in this way, the right question is how to strike this balance. Current practice comprises three strands: The first is to implicitly credit merging firms with some efficiencies and to assume that these will outweigh the harm from reductions in rivalry if those reductions lead to small short term price effects. The second is to be very skeptical of efficiency claims by the merging parties. The third is to balance the costs of rivalry and the benefits of efficiencies using their short term price effects.

Going forward we believe the debate on efficiencies in merger control should move away from the consumer welfare versus total welfare controversy and focus on the following two questions: (1) Is short term price targeting likely to yield desirable long term outcomes for consumers and the economy in general?; and (2) How should we best balance competition and efficiencies to properly evaluate the price effects of mergers, and ensure that pursuit of the simple target serves the complex long run goal? This article does not offer definitive responses to these questions. Both questions are of crucial importance and must be answered convincingly or merger control policy may find itself increasingly challenged, especially in current

times. As Professor Williamson noted years ago, "[the] alternative is scarcely acceptable. For if neither the courts nor the enforcement agencies are sensitive to these [efficiency] considerations the system fails to meet a basic test of economic rationality. And without this the whole enforcement system lacks for defensible standards and becomes suspect."[4] We believe the same could be said about the need to design enforcement systems in merger control that produce desirable long term outcomes.

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[4] Williamson, *supra* note 2, at 234.