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Merger Efficiencies and Competition Policy

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Some OECD nations nations -- I do not know how many -- have incorporated an efficiencies defense into the evaluation of mergers that might otherwise be expected to reduce competition and raise prices. Adjudicating the tradeoff between efficiencies and anti-competitive effects is difficult. I address here some of the most important issues from the perspective of my own experience in actual U.S. cases. Efficiency defenses have at least in U.S. practice also been asserted against claims of excessive or abusive monopoly power -- e.g., in the 1911 Standard Oil case and the 1956 Cellophane case -- but brevity requires me largely to pass over the relevant experience.

The Williamson Tradeoff

The tradeoff analyzed in 1968 by Oliver Williamson is well-known and will have been exposited by the conference organizers. I choose the risk of duplication here to highlight some caveats. The original Williamson analysis is summarized in my Figure 1.[1] It is assumed that before merger the industry supply function, i.e., the envelope of individual producers' marginal cost curves -- is given by the curve S_1. Merger to monopoly reduces the marginal cost curve to MC_M, i.e., by $15 per unit. A tradeoff is required only if the merger enhances monopoly power so much that e.g. the new profit-maximizing solution entails equation of the now-lower marginal cost with marginal revenue MR, precipitating an increase in the price from approximately $139 to $149 per unit, corresponding with an output reduction of approximately 16 percent. The social loss normally attributable to this output reduction is the dot-shaded deadweight loss triangle in Figure 1. The social gain from the monopoly-based cost reduction is the vertically shaded gap between the old, higher supply curve and the new marginal cost curve. As Figure 1 is constructed, the cost-reduction gain is about four times the deadweight loss, and so by Williamson's reckoning, the merger might be justified under welfare economic criteria. Evoking (but not citing) a result demonstrated as early as 1890 by Alfred Marshall,[2] Williamson argues that many realistic combinations

1. See Oliver Williamson, "Economies as an Antitrust Defense: The Welfare Tradeoffs," American Economic Review, March 1968, pp. 18-36. Less than a year before publication Williamson completed a one-year assignment as the second-ever U.S. Department of Justice Antitrust Division chief economist -- although the formal title differed then.

2. Alfred Marshall, Principles of Economics (1890), p. 447, footnote 1.

of demand elasticities and monopoly-based cost reductions could entail a net welfare gain.

In 1984 the U.S. Department of Justice (DoJ) revised its merger guidelines to allow what appeared to be a Williamsonian efficiencies defense. The statement left important points unclear, however, and in an early case involving an already-consummated 1982 merger between Archer-Daniels-Midland (ADM) and Clinton (Iowa) Corn Processing Company, views on how the defense could be sustained clashed.[3] Department of Justice attorneys insisted that efficiencies could support a valid defense only if their cost-reducing effect led to a decrease in high-fructose corn syrup prices below the price that had prevailed (presumably, under more vigorous competition) pre-merger, or at least, to no price increase. In effect, the Williamson *tradeoff* between higher prices and lower costs was to be ignored. For the merging parties I submitted in 1987 a memorandum rebutting several points in the DoJ approach and strongly supporting the Williamson tradeoff. The memo is provided as a supplement to this report.[4] Extensive support was added in court, but the presiding judge, fearful of treading on unexplored precedential ground, chose to approve the merger on more traditional grounds, thereby dogding the efficiencies question.

Even though the Williamson tradeoff was originally advocated by the only competition enforcement agency chief economist to be honored with the Nobel Prize in economics, the U.S. agencies have continued to insist that no tradeoff be accepted. Rather, in the words of the joint agency Horizontal Merger Guidelines of August 19, 2010, section 10:

> ... To make the requisite determination, the Agencies consider whether cognizable efficiencies likely would be sufficient to reverse the merger's potential to harm customers in the relevant market, e.g., by preventing

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3. U.S. v. Archer-Daniels-Midland Co. et al., CCH 1991 Trade Cases para. 69,647. When the case was initiated, it was believed to be the first test of the new merger efficiencies defense. However, other cases moved ahead because of procedural delays. The first successful litigated defense known to me was in a hospital merger case, U.S. v. Carilion Health Systems et al., CCH 1989 Trade Cases para. 68,451.

Details of what was achieved operationally by ADM and the legal issues addressed are found in John F. Kennedy School of Government case study 1126.0, "Archer-Daniels-Midland and Clinton Corn Processing" (1992).

4. Originally reprinted in F. M. Scherer, Competition Policy, Domestic and International (Edward Elgar: 2000), Chapter 18.

price increases in that market....

By the Williamson analysis and by the arguments I advanced in my May 1987 memorandum, this policy is wrong. However, I have more recently begun to have doubts. When Williamson published his 1969 article, civilian sector unemployment in the United States was 3.5 percent. It was 6.2 percent in 1987. At the time, most economists believed we had essentially conquered the business cycle and the scourge of unemployment. Now one is much less certain. The United States has experienced several years running with unemployment rates above 8 percent. For the Euro zone excluding Germany, the unemployment rate in 2012 averaged 12 percent, with youth (under age 25) unemployment rates of nearly 30 percent.

Full employment can no longer be so readily assumed, and given this, two shortcomings of the Williamson tradeoff take on greater weight. First, the resources released through merger-based efficiencies -- the vertically shaded area of my Figure 1 -- enable social gains by releasing resources that will be used in other economic sectors to provide goods and services that enhance consumer welfare . At substantial levels of unemployment, this is no longer certain. Resource leakage is likely, and impact multipliers of less than unity are required. Second, the Williamson tradeoff analysis assumes in effect that Say's law operates. That is, in the first instance, monopoly price-raising adds profits at consumers' expense nearly equal to the curlicue-shaded rectangular area in Figure 1. Those profits are assumed to recirculate into effective demand for additional investment goods or, when distributed to shareholders, through incremental consumer demand. But in a world of liquidity traps, corporations are accumulating profits that they choose not to invest, and when the profits are distributed to typically wealthy shareholders, marginal propensities to consume are below unity in normal times and savings propensities are even stronger in troubled times. Ignoring stock ownership by operating corporations, nearly a third of all domestically-held U.S. common stocks are held by pension funds and insurance companies. Individuals increase their consumption little or not at all when the value of the securities held by their insurers rises. Thus, increased output is much less than equal to the resource savings achieved through mergers.

Another difficulty is acknowledged briefly by Williamson (pp. 27-28). The curlicue-shaded rectangle in Figure 1 represents a transfer of what before merger was consumers' surplus to profit or producer's surplus and ultimately to the merging company's share-holders. Common stockholdings are disproportionately concentrated among the most wealthy families. If one believes with Alfred Marshall (1890, Book III, Chapter III) that the marginal utility of money diminishes as wealth increases, the effect of monopoly price-raising is to redistribute income from consumers with relatively high marginal utilities to shareholders with lower marginal utilities, implying a welfare loss.[5] This is an immensely controversial proposition, and it is no longer fashionable for economists to propound it. But it has become all the more relevant as the inequality of wealth holdings has increased, as it has in many if not most OECD nations during the past two decades.

For these reasons, there is more force than I was once willing to admit for the argument that cost savings must be passed on to consumers if those savings are to be viewed as a justification for mergers. But the Williamson tradeoff could still work if a more sophisticated incidence analysis is appended. One must admit that such an analytic extension adds difficulty to the other challenges I will address shortly. Also, the less-than-full-employment problem that now plagues many (not all) OECD member nations is, one hopes, transitory. When it abates, the case for implementing a full Williamson tradeoff analysis gains strength.

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5. See also W. Blum and H. Kalven, The Uneasy Case for Progressive Taxation (University of Chicago Press, 1953); and F. M. Scherer, "A Note on Global Welfare in Pharmaceutical Patenting," The World Economy, July 2004, pp. 1127-1142.

The With-or-Without Question

We turn next to what operations researchers have long called the "with-or-without" question. That is, one attempts to compare performance with the intervention in question vs. what could be achieved using alternative feasible measures. In their August 2010 revised Merger Guidelines, the U.S. antitrust agencies stated the same concept as: "The Agencies credit only those efficiencies 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." Again, difficult "but for" analyses must be made. Let me illustrate with the proposed 1998 merger between defense contracting companies Lockheed-Martin and Northrop-Grumman. I was part of the Department of Justice team addressing competitive effects and efficiency benefits. One benefit claimed by Lockheed was a consolidation entailing the closure of nearly 100 specialized research laboratories, with consequent cost savings. Analyzing the relevant data, I realized that nearly all of the laboratories proposed for closure had counterpart laboratories within the same company performing substantively similar research. So why was the merger needed? Why wasn't one laboratory in a field closed, with transfer if needed of critical personnel to a parallel laboratory? The surprising answer was that in 1993, perceiving that the United States was supporting more contractors than it could fully load with new programs in the future, Defense Secretary William Perry induced the U.S. Congress to pass a legislative loophole stating that contractors would be reimbursed for installation closure costs made in conjunction with a merger, otherwise, presumably not. So Lockheed-Martin waited for an appropriate merger to effect closures that it could have made, but at greater cost to itself, even if not to the public till, without merger. The question was, did these facts violate the "with or without" test? As events ensued, the efficiencies analysis was not needed, because decision-makers in the Department of Defense came to believe that they needed Northrop-Grumman as an independent center of technological initiative.[6]

6. In a new paper, "Mergers and Innovation in the Pharmaceutical Industry," William S. Comanor and I have proposed that a similar test be applied to pharmaceutical mergers.

The Defense Department's decision might have been an historical anomaly. For the first time in 1998, the Department had an Undersecretary for Acquisitions, Jacques Gansler, trained in economics (specifically, defense economics) rather than engineering or business. Gansler recognized, as engineers were unlikely to, the value of having diverse independent centers of technological initiative. Much to Lockheed's surprise, Gansler's view was strongly supported by the colonels who play a key role in defense acquisition decision-making, and so Lockheed voluntarily abandoned the merger.

Two other illustrations reinforce this example, which, because of the special legislative context, may have been anomalous.

In 1976 a U.S. Senate subcommittee held extensive hearings on a bill (S. 2387) proposed by its chairman, Senator Philip Hart, to initiate a divestiture program substantially reducing the vertical integration of market-dominating U.S. petroleum companies. Witnesses for the companies insisted that vertical disintegration would sacrifice substantial efficiencies. Drawing upon research I had done on the economics of multi-plant operation, including the petroleum industry, I then testified[7] that the principal advantages of vertical integration in petroleum stemmed critically from major imperfections in petroleum markets, including distortions imparted by a "percentage depletion" law for crude oil, the advantages integrated marketers drew from preferred access to gasoline supplies under the existing system of "two tier" price controls, and integrated company control of crucial pipelines. The bill was approved in subcommittee but died on the Senate floor. But the market distortions that gave integrated companies their main advantages were gradually eliminated, and more recently, several companies have verified the unimportance of integration in a more unrestrained market by voluntarily severing refining and marketing divisions from crude oil exploration and production.

Here too, the market failures that made multi-plant integration profitable stemmed in part from misguided government interventions. A case absent government distortion arose in the proposed 1978 merger between Jones & Laughlin Steel and Youngstown Steel, the seventh- and eighth-largest U.S. steel producers. Although the antitrust agencies had not yet adopted efficiencies defense guidelines, efficiency consequences and others were weighed in view of a crisis U.S. steel makers were experiencing at the time. Advising Attorney General Griffin Bell on the matter, I detailed the parties' claims that they would derive benefits from cross-shipment of their iron ore, coking coal, finished coke, and unfinished steel shapes.[8] I asked, however, why those benefits could not also be realized by arm's-length purchase and sale transactions. The would-be acquirer replied that "Short of merger, J&L has no interest in YS&T's survival. Therefore, absent unusual circumstances ... J&L would not enter into contracts with YS&T because of competitive concerns." Viewing this attitude as an indicator of market failure, I responded that "it is a sad commentary on the US steel industry that its members are willing to cooperate in lobbying for

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7. The testimony is not reproduced as an OECD file, but can be found in Scherer, Competition Policy, Domestic and International, Chapter 20.

8. My memorandum has been reproduced and placed on the OECD web site. It was published in Scherer, Competition Policy, Domestic and International, Chapter 17.

governmental protection against imports but not to engage in mutually advantageous market transactions that reduce costs and improve their competitiveness against foreign producers."

The Tendency Toward Erroneous Evaluations

The Jones & Laughlin - Youngstown merger also illustrates what is perhaps the most serious barrier to introducing efficiency defenses in proposed merger evaluations -- the difficulty of making accurate projections about necessarily uncertain future events, including both costs and, at least as hard, prices. My work on the cost implications of that merger provides a concrete example, since I revisited the facts several years later and learned that I had been excessively pessimistic in assessing the potential benefits.[9]

In my 1978 analysis for Attorney General Bell, I observed that Youngstown's most modern plant, at Indiana Harbor on Lake Michigan, had been unprofitable. I observed that "What Indiana Harbor needs to serve the nation well is good management and an infusion of capital." I expressed doubts whether J&L's management, depleted as a result of turnover following previous mergers, was up to the task and noted that J&L, like Youngstown, was severely cash-constrained. My retrospective revealed that these were indeed the core of Youngstown's problems. However, I was wrong in my skepticism about J&L's ability to fill the gap. I failed to realize that the problem with Youngstown's conglomerate parent (ascertained in later interviews) was profound ignorance of how to operate a steel mill rather than unbreakable cash constraints. And relying upon paper documentation rather than face-to-face meetings with J&L managers, I underestimated their competence. I was probably biased in this judgment because four years earlier I had visited J&L's newest steel works and found it appallingly badly managed in comparison to a directly comparable Japanese plant I visited a month earlier. J&L reassigned able managers to Indiana Harbor and invested funds among other things in spare parts for the Indiana Harbor hot strip rolling mill -- a key bottleneck, raising its output from 68 percent of capacity pre-merger to nearly full capacity and thereby permitting a substantial expansion of ancillary product finishing mill output.

In the longer run, however, those measures proved insufficient. Further mergers by J&L experienced significant indigestion problems. The industry was plunged again into crisis by a severe recession and intensified import

9. The later analysis was one of 15 case studies presented in my book (with David Ravenscraft), Mergers, Sell-offs, and Economic Efficiency (Brookings 1987), especially pp. 275-279. My retrospective is included with permission as "Youngstown Sheet & Tube" on the OECD web site.

competition. J&L's parent filed for bankruptcy. A series of reorganizations followed. The remaining Youngstown, Ohio, plant was permanently closed. Youngstown's more modern Indiana Harbor plant operated under diverse ownership constellations until it was acquired by Arcelor-Mittal, which had also acquired what was once the Inland Steel Corporation. Since 2005, therefore, the two major Indiana Harbor works, separated by a canal's width, became an integrated entity owned by the Mittal interests.[10]

Coping with Uncertainty: I

For me, the Youngstown - J&L experience was humbling. I erred significantly in forecasting improvement prospects for an industry on which I had unusually deep insight. This raises the broader question, how should competition policy enforcement agencies cope with the uncertainties attending claims that mergers will yield significant efficiencies?

The Clinton Corn Processing acquisition, it must be reiterated, took place eight years before the government's challenge was resolved judicially. The lag was attributable in part to uncertainty over whether the transaction was a merger rather than a long-term lease and then to procedural delays. Archer-Daniels-Midland began implementing efficiency improvements on the day it took the Clinton, Iowa, plant over, and by the time a formal trial was held in late 1990, a clear performance record had been established and few relevant uncertainties remained. Among other things, it was possible to show that ADM made many investments that Clinton's prior management had not contemplated, had achieved productivity far superior to other industry members, and even that its average prices were lower than those of competitors.

Most merger challenges do not enjoy this historical luxury, in part, at least in the United States, because before the antitrust agencies were granted power under the 1976 Hart-Scott-Rodino Act to delay mergers pending settlement or judicial approval, it proved difficult to unscramble eggs that had already been scrambled.[11] Had divestiture been required eight years after the Clinton Corn Processing merger, the efficiencies achieved in that virtually free-standing plant could probably have been sustained, despite the absence of Archer-Daniels-Midland management's cost-sparing obsession. The main new costs would have come from the need for Clinton to develop its own field sales

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10. Note that in my 1978 report to Attorney General Bell, I recommended that, absent acquisition by a Japanese steel maker, an alternative superior to acquisition of Youngstown's Indiana Harbor works by LTV would be consolidation with Inland Steel.

11. See Kenneth Elzinga, "The Antimerger Laws: Pyrrhic Victories," Journal of Law & Economics, April 1969, pp. 43-78.

force, from cessation of access to the parent's operating know-how and specialized enzymes, and from the sacrifice of modest inter-plant peakload-balancing advantages. But for other mergers, especially those contemplating substantial multi-plant coordination and reorganization, restoring the status quo ante several years after a hold-separate order could be difficult. To the extent that this is true, a three-way tradeoff among ex ante prediction uncertainty, the delay of efficiency-increasing measures until legal uncertainty is achieved, and breakup costs if the merger is retroactively disapproved, must be faced.

One possible solution would be to weigh these tradeoffs in a preliminary judicial or administrative hearing. If substantial long-term reorganizations between acquirer and acquired firm operations are contemplated, it is probably necessary to accept the uncertainties of predicting efficiency consequences in a front-end "go - no go" decision. But if predicted operational changes are expected to occur mainly within the acquired entity with only modest multi-plant interaction, a two-stage approach might be adopted, with the enforcement authority allowing the merger for a limited (e.g., three-year) period and then revisiting the facts after experience has resolved remaining uncertainties. The emergence of companies that specialize in divesting segments of existing organizations, reorganizing them, and then offering new equity shares for them in public capital markets might add to the two-stage approach's feasibility.[12]

Coping with Uncertainty: II

If efficiency claims must be evaluated ex ante, i.e., before a proposed merger is consummated, the question remains, who should analyze the claims on behalf of the enforcement agency?

My natural, possibly prejudiced, assumption is that economists on the enforcement agency's staff or retained by the agency as consultants would perform the necessary analyses. But on this, I have serious misgivings. Presumably, many of those staff economists focused their Ph.D. studies in the academic field known as "industrial organization." (Later) Nobel laureate Wassily Leontief once said in a Harvard University lecture that an industrial organization economist "is a person who has never been inside a factory." The remark was made in jest, but it reflected a touch of reality. And since Leontief uttered it in 1960, its truth has increased. Up to the 1960s, there was a

12. During the 1980s, those firms were called leveraged buyout specialists. Their functioning is analyzed in Ravenscraft and Scherer, supra. More recently, private equity companies perform similar functions. Bain & Co., in which U.S. presidential candidate Mitt Romney gained most of his business experience, is one example.

tradition that students completing their Ph.D. studies in the field of industrial organization would submit as their thesis a book-length in-depth study of how some industry functioned. To the best of my knowledge, that tradition has almost totally ebbed. Now industrial organization dissertations emphasize econometric analysis of some data set or theoretical derivations, not hands-on industry analysis.[13] And the economist who hasn't wrestled with the recalcitrant facts of industry production processes is likely to have difficulty sorting out uncertain efficiency predictions.

Once upon a time, the ability of economists to deal with real-world industry production and marketing questions was strengthened through the completion of substantial industry studies by the staff of enforcement agencies. The Federal Trade Commission and its predecessor, the Bureau of Corporations, compiled a brilliant record of performing such studies, which among other things laid a foundation for major U.S. antitrust cases against Standard Oil of New Jersey (1911), the American Tobacco Co. (1911), the United States Steel Corporation (1920), and antibiotic manufacturers (1958), among others. But such efforts appear to have been abandoned in the 1980s and not resumed since then.[14] The United Kingdom Monopolies Commission published many excellent industry studies in earlier decades. Whether the U.K. tradition has continued, or been extended by other nations' competition agencies, I do not know. A resurrection of the industry study tradition, in academia or the enforcement agencies or both, would contribute significantly to the knowledge base on the basis of which merger efficiency claims are evaluated and also to the training of economists who understand in depth how cost savings are achieved in real-world industries. Also worth encouraging are new multi-industry comparative studies of the sources of industrial scale economies like those performed in the past by Joe S. Bain, Clifford Pratten of Cambridge University, Gunnar Ribrandt of Stockholm, and the collaborators in my study on The Economics of Multi-Plant Operation.[15]

If economists default in evaluating merger efficiency claims, an alternative solution might be for merger law enforcement agencies to contract with specialists in consulting firms or working as independent consultants. Here

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13. Studies of government regulation's impact on specific public utility industries may be an exception.

14. See F. M. Scherer, "Sunlight and Sunset at the Federal Trade Commission," Administrative Law Review, Fall 1990, pp. 461-487.

15. On Europe, see Commission of the European Communities, Research on the "Cost of Non-Europe (the so-called Cecchini Report), especially volume 2, "Studies on the Economics of Integration" (1988).

too there are problems. Management consulting firms in particular earn most of their bread through their continuing relationships with the firms making mergers. Bias could be difficult to avoid, and deep understanding of industrial processes is often lacking. My most recent litigation consulting experience, for example, has focused on the muddle left when a prominent company followed the erroneous production technology advice of a leading U.S. management consulting firm. Among other things, the staff of such firms is often recruited predominantly from top graduates of leading MBA programs. Most such programs provide relatively little exposure to complex problems of production management and emphasize training in the field of corporate finance. To the extent that this is true, serious biases can intrude. The finance literature stresses the stock market consequences of mergers, which are correlated at best loosely with real operational efficiency effects.[16] If I were retaining a management consulting firm to assist in efficiencies claim evaluation, I would insist that the retained principals have their primary educational background in operations research or industrial engineering rather than business finance. Similarly, I would look to such academic specialists rather than traditional business school faculty in choosing individual merger evaluation consultants.

Conclusion

In sum, solving the merger efficiencies question correctly is important. Some mergers -- from my own experience, a minority -- yield substantial efficiency gains that benefit consumers and advance economic growth. Separating the wheat from the chaff is difficult. Uncertainties are particularly great when predictions must be made before mergers are actually consummated. Inviting would-be merger makers to present an efficiencies defense is on balance a desirable policy not only to facilitate good enforcement agency decisions, but also to concentrate would-be merger makers' minds on the important operational consequences of their strategies -- a focus that in my experience is all too frequently absent when stock market arbitrage possibilities must be exploited quickly. Enforcement agencies need to work hard to ensure that they can perform the evaluation task competently and minimize error.

16. My most recent of numerous writings on this theme is "A New Retrospective on Mergers," Review of Industrial Organization, June 2006, pp. 327-341.

Figure 1

Illustration of Williamson Efficiencies Tradeoff