Market Shares And Rules of Thumb

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Abstract

Several popular propositions about firms' market shares influence antitrust enforcement, legislation, and business practices. These propositions, however, may not always reflect reality. This paper explores exceptions to the rules that a broadened product market definition benefits the defendant in a monopolization case, that excess capacity and high seller concentration are unlikely to occur in the same market, and that vertical price restraints benefit full price sellers at the expense of their discounting competitors.

Introduction

Certain propositions about firms' market shares have become rules of thumb: that a broad product market definition is more helpful to a defendant in a monopolization case than a narrower definition, that a highly concentrated market will likely not contain an inefficiently large number of sellers, and that vertical price restraints benefit full price sellers at the expense of their discounting competitors. These rules influence antitrust enforcement, legislation, and business practices, and are generally regarded as economical decision making tools that correctly describe prevailing market conditions. There are, however, important exceptions to these propositions that call their accuracy in generalizing on the expected outcomes of particular market definitions or pricing policies into question. This, in turn, raises more fundamental questions about their desirability as decision making tools. An exception to each proposition, a brief discussion of its likelihood, and concluding thoughts on the costs of inaccurate rules of thumb are presented below.

Market Shares and Product Market Definitions

Someone introduced to the market size - market share relationship through the popular comparison of the 1945 *Alcoa* decision and the 1956 *DuPont* "cellophane" decision well might uncritically accept the notion that a broad market definition leads to smaller shares for existing sellers than a narrower definition. This need not be the case. Consider the world production of two mineral concentrates: zirconium, and monazite - the principle source of thorium. Both zirconium and thorium have major nonenergy uses in refractory applications and energy uses in nuclear reactors, so an argument could be made for grouping zirconium and monazite into a single market (1).

Table 1 shows estimated 1987 world production (net of U.S. production) and the market share for each country producing monazite concentrate, zirconium concentrate , and monazite and zirconium concentrates combined. If the relevant product market is defined as monazite concentrate production, Australia's share is 46.7%. If the product market definition is broadened to include zirconium concentrate production, which entails significantly more tonnage and more participants, Australia's share grows to 58.4%. The problem, of course, is that Australia's share of the zirconium concentrate market exceeds its share of the monazite concentrate market. But this is precisely the point: for a multiproduct seller, no conclusion can be reached about the effect on its market share of broadening a product market definition without first knowing its share of the activity that is to be added to the original definition (2).

The extent of this problem is suggested by a casual survey of the first 100 firms in *Standard & Poor's Register of Corporations, Directors and Executives* (1988, pp. 1-10) that listed operations in two or more four-digit S.I.C. groupings. Of these firms, 39 had two or more of those listings in the same three digit grouping, suggesting that their combined outputs under an expanded product market definition might add to a share that exceeds their share in a narrower definition. Also to be considered as possible exceptions to the rule are sellers of products that are functionally interchangeable but in remote S.I.C. classifications, such as dress knit and dress leather gloves, and sellers of products that are in the same four-digit S.I.C. grouping, as are monazite and zirconium concentrates (3).

Market Shares and Efficiency

The Department of Justice, in its 1984 Merger Guidelines states:

Table 1

Estimated Production in Metric Tons and Share of World Monazite Concentrate, Zirconium Concentrate, and Monazite and Zirconium Concentrates Markets by Country, 1987(1)

	Monazite Concentrate		Zirconium Concentrate		Monazite and Zirconium Concentrates	
Country	Tons	Share	Tons	Share	Tons	Share
Australia	12,000	46.8%	439,000	58.8%	451,000	58.4%
Brazil	2,000	7.8	15,000	2.0	17,000	2.2
China	-----	---	15,000	2.0	15,000	1.9
India	4,000	15.6	16,000	2.1	20,000	2.6
Malaysia	6,000	23.3	12,000	1.6	18,000	2.3
South Africa	-----	---	160,000	21.4	160,000	20.7
Sri Lanka	200	0.8	3,500	0.5	3,700	0.5
Thailand	1,500	5.8	1,500	0.2	3,000	0.4
U.S.S.R.	-----	---	85,000	11.4	85,000	11.0
	25,700	100.0%	747,000	100.0%	772,700	100.0%

Source: James B. Hendrick, "Thorium," preprint from the 1987 Bureau of Mines Minerals Yearbook (Washington, D.C.: United States Department of the Interior, 1988), p.6; James B. Hendrick, "Zirconium and Hafnium," preprint from the 1987 Bureau of Mines Mineral Yearbook (Washington, D.C.: United States Department of the Interior, 1988), p.8.

1 U.S. production is excluded from the source data to avoid disclosing proprietary information. Data for Malaysian zirconium concentrate production includes exports only. Data for monazite concentrate production excludes China, Indonesia, North Korea, the Republic of Korea, and the U.S.S.R., any of whom may have produced the concentrate, but reliable numbers were not available. Mozambique, which reported 4 tons of monazite concentrate production, is excluded from the data reported here since it accounted for a 0.0% share of that market.

Because the antitrust laws, and thus the standards of the Guidelines, are designed to proscribe only mergers that present a significant danger to competition, they do not present an obstacle to most mergers. As a consequence, in the majority of cases, the Guidelines will allow firms to achieve available efficiencies through mergers without interference from the Department pp. 26,834).

Can it be presumed that a policy condemning mergers that endanger competition will allow firms to merge to achieve available efficiencies in the majority of cases? Put differently, are danger to competition due to too few sellers and inefficiency due to an excess of sellers not ordinarily found in the same market at the same time? If high concentration and excess capacity do co-exist in markets, the wisdom of a generalization such as that in the Guidelines can be questioned.

High concentration, and implicitly, danger to competition, is a function of the distribution of sales, output, or some other measure of size among firms relative to the size of their market. Inefficiency due to excess capacity is a function of technological considerations affecting the behavior of firms' cost functions relative to the size of their market. There is nothing in the behavior of a firm's sales, output or other measure of market share that imparts systematic information about the behavior of its costs.

While the presence of high concentration and excess capacity must be determined on a market-by-market basis, evidence suggests it could be a problem in specific instances. Welch and Naes (1985) studied the extent to which both were found in local commercial banking markets in the Eighth (Saint Louis) Federal Reserve District as of June

1981 using deposit data and a range of deposit levels over which commercial banks' average costs have been shown to be minimized. Evaluations for excess capacity in these markets were performed under three separate assumptions: that banks' average costs are actually minimized at the bottom, in the middle, and at the top of the calculated cost minimizing range of deposits.

Of 145 local commercial banking markets in the Eighth District where the premerger H.H.I. number exceeded 1,800, only 12 exhibited excess capacity when the actual average cost minimizing level of deposits was assumed to be at the bottom of the calculated range. But 67 exhibited excess capacity when the actual average cost minimizing level of deposits was assumed to be in the middle of the range, and 95 exhibited excess capacity when the actual cost minimizing level of deposits was assumed to be at the top of the range(4). Also, in a study of the manufacturing sector over the 1976-1979 period, Esposito and Esposito (1986) obtained ambiguous results when testing the relationship between higher, moderate, and lower concentration market structures and excess capacity across 273 industries using Bureau of the Census capacity utilization rates, and 52 material input industries using Federal Reserve System capacity utilization rates. Thus, absent further elaboration, the presumption that high concentration and excess capacity are typically not present in the same market at the same time can be questioned on both theoretical and empirical grounds.

Market Shares and Vertical Price Restraints

There has been renewed interest in vertical price restraints following the Supreme Court decision in *Business Electronics Corporation v. Sharp Electronics Corporation* (1988) that an agreement to terminate a price cutter is not per se illegal absent an agreement on the prices to be charged by the remaining sellers. One state's Attorney General was quoted as saying that the decision, at worst "'...signals a death knell for discount retailers....'" (5) The working assumption here is that, given continuing availability of the price maintained product to the discount seller, the loss of price cutting as a competitive strategy will undermine its position and lead to a loss of market share to full price sellers. But from the discount seller's point of view, a vertically maintained price imposes a floor above its current price, and the firm should increase, not decrease, its sales, and thus its share of the market, following the enforcement of such a price if it is to maximize profit (6).

Several interesting strategies for increasing sales come to mind - especially for the large seller. Singer (1981, p. 105) noted that, in addition to their use for achieving economic leverage, tying arrangements allow a seller to side-step price controls. Such a strategy is as applicable to a good whose price cannot fall as to a good whose price cannot rise: bundle the good with others offered at a discount, thereby lowering buyers' overall cost for the bundle. For example, and hypothetically, a large retailer could offer price-maintained components for home entertainment systems along with discounted cabinets for those systems.

A large seller could also offer a wide variety of competing price-maintained brands for buyers to choose from, thereby lowering their point of sale search costs; or offer service, add-on, or related goods that would lower buyers' after-sale search and operating costs when repair, expansion, or maintenance is important. For example, and again hypothetically, the retailer of the price-maintained home entertainment product could offer discounted tapes for use with that product, or several convenient locations for obtaining those items and perhaps service for the product itself, or an inventory of related products that could be delivered to buyers on short notice. In each case the seller is lowering buyers' effective costs without lowering the price of the product in question, and can take share away from other full price sellers who cannot offer the same opportunities.

A second factor argues against a weakening of the discount seller's position, even in light of the *Sharp* decision. The balance of power between manufacturers and distributors has changed from what it was when resale price maintenance laws were in force. Increasingly, retail markets are populated by large discount sellers who make sizable purchases from manufacturers. A manufacturer who terminates such a seller for not adhering to a vertically set price could be embarking on a classic win the battle - lose the war strategy (7). Thus, because of the growing importance of large retail sellers and buying groups that can easily expand their commitment to any of several manufacturers' products, and who may represent a significant share of a manufacturer's business, it is not clear whose market share would be injured by a vertically maintained price, or whether such a pricing policy could be enforced.

Conclusions

Do rules of thumb cause businesses to pick less attractive over more attractive merger partners because of market definition concerns? Do rules of thumb underlie enforcement positions such as that in the Merger Guidelines stating "...parties must establish a greater level of expected net efficiencies the more

significant are the competitive risks...?" (p. 26,834) Do they lead to legislative initiatives, such as H.R. 585, the Freedom from Vertical Price Fixing Act of 1987? Rules can be constructed about the competitive positions of firms whose market shares have decreased when market definitions were broadened, about why firms with large market shares might operate more efficiently than firms with smaller market shares, and about the effect on discount sellers of lost market shares due to vertical price restraints. These are theoretical matters that lend themselves to generalization. How firms' market shares change as market definitions change, how firms' efficiency is related to their market shares, and how vertical price restraints affect market shares of discounting firms are empirical questions that do not lend themselves to generalization.

Inaccurate rules of thumb can be costly when applied to empirical market share issues. While careful analysis will overcome rules that data do not support, their cost will be greater the greater the time or effort lost in learning that they were not a good guide, or in remedying the effects of inappropriate actions based on their use.

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Footnotes

1 See source note to Table 1.

2 As an aside, India and Malaysia would likely benefit from a broadened market definition if they were justifying a merger of their monazite production operations to a World Antitrust Court that used the Merger Guidelines in its determinations. According to the narrow monazite concentrate market definition, such a merger would raise the H.H.I. number from 3062.2 to 3789.2, or by 727 points, thereby creating a market situation that would "likely be challenged." However, using the expanded monizite concentrate - zirconium concentrate market definition, the merger would raise the H.H.I. number from 3981.1 to 3993.1, or by 12 points, and would not likely be challenged.

3 See *Standard Industrial Classification Manual.* (1987, pp. 42, 90, 161).

4 While bank mergers are approved by the Federal Reserve System rather than the Department of Justice, evidence from this industry is appropriate since Guideline-based criteria play a role in the System's deliberations, and the Department has introduced modified guidelines for the banking industry. Bank market definitions have changed substantially since the time of this study as a result of the Depository Institutions Deregulation and Monetary Control Act of 1980, the Garn-St. Germain Act of 1982, and other developments, such as the growth of non-bank banks.

5 See "Congress: *Sharp* Decision Attacked; Passage of RPM Legislation Urged," (1988, p. 1).

6 A vertical price restraint that would force a discount seller to raise its price would shift the discount seller's demand and marginal revenue curves from a downward-sloping to a perfectly elastic configuration at a price above its pre-restraint profit maximizing price. Given increasing marginal cost, this would increase the seller's post-restraint profit maximizing output.

7 See Felgner (1989).

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