

Critical Loss Analysis

Its growing use to define relevant markets in US antitrust

The concept of Critical Loss flows from the definition of an antitrust market in the U.S. DoJ/FTC *Merger Guidelines* and EC Commission's *Market Definition Notice*. In 1989 Barry Harris and Joseph Simons developed a simple formula that identifies the percentage loss in sales necessary to make a given price increase unprofitable, and thus the amount of substitution needed to expand a provisional relevant market definition. This level of lost sales they called the "Critical Loss". Critical Loss analysis has gained an increasingly important role in US antitrust, although not yet in EC competition law. Here the concept and its use in antitrust cases are explained.

Background

The DoJ/FTC *Merger Guidelines* and EC *Market Definition Notice* define a relevant product market as a group of producers for whom a "small but significant and nontransitory" price increase would be profitable. Although this "hypothetical monopolist test" is now central in both the US and EC, the issue of how to determine when such a price increase would be profitable is neither addressed in US case law nor in the decisional practice of the EC Commission and courts. For example, the US the Supreme Court has enunciated the standard of "reasonable interchangeability" such that two products are in the same market only if they are reasonably interchangeable. Most products are employed in a variety of uses, and often there are substitute products available in only some of the uses. The Court has never explained, however, whether products must be interchangeable in 10 percent, 50 percent or 75 percent of their sales to be considered in the same market. The Court has instead turned to seemingly arbitrary and *ad hoc* line-drawing to resolve this issue. The same can be said of EC law, where the focus is on "interchangeability in use" and product characteristics, and producer profitability is ignored.

How to Calculate the Critical Loss

Harris and Simons in their article *Focusing Market Definition: How Much Substitution is Necessary?* developed a way of filling this gap in market definition analysis. They derived a formula which asks what the group of producers in a proposed market could gain or lose from a price increase. Typically, a price increase will cause the group of producers to lose some sales and the profits earned from them. At the same time, the

group of producers will earn increased profits from higher prices on the retained sales. The price increase will be profitable if profits lost due to reduced sales are less than profits gained from higher prices. The Critical Loss is the level of lost sales at which the group of producers is indifferent between raising the price and not raising the price.

The formula that identifies the Critical Loss depends only on the size of the price increase being considered and the contribution margin of the group attempting to increase prices. More precisely, in its simplest form, the Critical Loss is equal to $Y \div (Y + CM) \times 100$, where Y is equal to the *Merger Guideline's* hypothesized price increase (typically 5 or 10 percent) and CM is equal to the contribution margin. The contribution margin is defined as the difference between the original price and average variable cost stated as a percentage of the original price. Small adjustments in the formula allow for the calculation of the Critical Loss when there are supply or demand interdependencies, such as when two or more products necessarily result from a single production process.

The calculation of the Critical Loss identifies the amount of substitution needed to cause a price increase to be unprofitable. It does not provide any information on whether this substitution would actually occur. To estimate the lost sales that would actually occur, it is necessary to make the familiar inquiries into the reactions of (1) producers of other products, (2) other producers of the same product and (3) customers of the same product. If the level of expected lost sales is less than the Critical Loss, the group of firms under review constitutes a relevant product market or antitrust market. The principal empirical insight from Critical Loss analysis is that a relatively small number of customers willing to use alternative sources of supply is often sufficient to protect all customers from the exercise of market power.

Application in merger decisions

The concept of Critical Loss was first presented at a 1986 merger trial in which the FTC attempted to enjoin a merger between producers of PVC (*FTC v. Occidental Petroleum Corp.*). In that case the FTC alleged a geographic market consisting of North American producers. The FTC failed to obtain a preliminary injunction when the trial judge, relying in part on Critical

Loss analysis, ruled that European and other producers outside North America were properly included in the market even though many consumers in the United States would not use imported products.

In *FTC and State of Missouri v. Tenet Health Care Corp* involving an attempt by the FTC to enjoin a hospital merger in a small city with only the two merging hospitals, the Court of Appeals noted: "A "critical loss" analysis would identify the threshold number of patients who, by seeking care at other hospitals, could defeat a price increase by making it unprofitable. The purchasing behavior of these patients or "marginal customers" would discipline or constrain any potential price increase by a merged entity". In reaching its decision, the court found important the "... significance of the consumers who live outside Poplar Bluff, particularly those patients within the FTC's proposed geographic market who actually live or work closer to a hospital outside that geographic market than to either of the Poplar Bluff hospitals."

Critical Loss is not a defendant's charter

Critical Loss analysis is not only a tool used by defendants wishing to expand an alleged market. In 2000, the FTC relied on a Critical Loss analysis to stop a proposed acquisition by Swedish Match of the loose leaf chewing tobacco business of National Tobacco Company. The parties agreed that the Critical Loss associated with a 5 percent price increase was only seven to eight percent, but the FTC prevailed because it was able to establish that consumers would not substitute in sufficient numbers, even with this low Critical Loss, between loose leaf and moist snuff. Consequently, the relevant product market was found to be limited to loose leaf tobacco products.

Application to price discrimination

The Critical Loss concept is typically based on situations where a single price is charged to all customers by a producer. In 2001, in *U.S. v SunGard and Comdisco*, a U.S. District Court relied in part on Critical Loss analysis in a market with pervasive price discrimination in ruling against the U.S. Department of Justice in concluding that SunGard's acquisition of the computer disaster recovery assets of Comdisco was not likely to harm competition. The Department of Justice alleged a market consisting of a particular type of recovery services called shared "hot-site" recovery services.

The *US Merger Guidelines* recognize that markets based on price discrimination may exist, but the existence of such a market would require SunGard to be able to distinguish between customers that would and would not switch from hot-site services to other types of recovery services. If SunGard could make this distinction, it could avoid lost sales associated with an across-the-board price increase by limiting higher prices to customers unwilling to switch. Unless there is a well-defined, identifiable group of captive customers, however, attempts at price discrimination will still involve lost sales (and lost profits) as misidentified customers switch to alternatives. Consequently, an alleged market based on price discrimination must still pass a Critical Loss test. An analysis of computer disaster recovery services customers by industry, size, location and type of computer failed to identify any group that did not already include customers meeting their disaster recovery needs without using shared hot-site services. Consequently, all customers could credibly threaten to use these alternative services, which in turn meant that the appropriate antitrust market to evaluate the SunGard/Comdisco transaction needed to include the full range of alternatives already being used.

Concluding remarks

While Critical Loss has been used most frequently in merger cases, its basic logic applies to most analyses in which there are allegations of anticompetitive behaviour leading to the exercise of market power. Simply, a Critical Loss analysis provides a determination of whether an exercise of market power has been or will be profitable. When sufficient alternatives exist, an attempted exercise of market power will not be profitable and, thus, is not likely to be attempted. The inability to raise price or otherwise profitably exercise market power ultimately means that there is no ability to harm competition.

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