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# Beyond Critical Loss: Properly Applying the Hypothetical Monopolist Test

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## **Beyond Critical Loss: Properly Applying the Hypothetical Monopolist Test**

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**T**he hypothetical monopolist test (HMT) for market delineation holds that a group of products and associated area constitute a market only if a profit-maximizing monopolist over them would increase price significantly. This test was prominently articulated in the 1982 *Merger Guidelines* issued by U.S. Department of Justice,<sup>1</sup> and it greatly influenced courts in the United States and competition agencies around the world. In no recently litigated U.S. merger case has there been any dispute regarding whether to apply the HMT.

What is disputed—both in the courtroom and in the commentary—is the utility of a particular way of applying the HMT. What I term “CLAD” (Critical Loss Analysis by Defendants) uses simple arithmetic to calculate the extent to which the quantity sold would have to decline in response to a 5 percent price increase in order to make that increase unprofitable for a monopolist over an alleged market. This calculation generally indicates that a 5 percent price increase would be unprofitable if it induced switching by

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<sup>1</sup> The HMT had appeared in print previously, but the *Guidelines* both made it famous and originated the systematic determination of the products and areas to which the HMT is applied. *See generally* GREGORY J. WERDEN, MARKET DELINEATION ALGORITHMS BASED ON THE HYPOTHETICAL MONOPOLIST PARADIGM (U.S. Department of Justice, Antitrust Division, EAG Discussion Paper 02-8, Aug. 2002).

just a small proportion of customers (e.g., 8 percent). Qualitative evidence then is offered in arguing that a significant proportion of customers would switch, so a 5 percent price increase would be unprofitable.

Whether by the plaintiff or the defendant, a proper application of the HMT test entails a profit-maximization analysis incorporating fact-based assumptions about demand and cost. Only such an analysis can reliably indicate whether a hypothetical monopolist over a candidate market would be likely to increase price significantly.<sup>2</sup> CLAD alone does not supply the requisite analysis and therefore is unreliable. Consequently, expert economic testimony based on CLAD should be ruled inadmissible in U.S. courts under Rule 702 of the Federal Rules of Evidence, which permits an expert to testify only when “reliable principles and methods” are applied “reliably to the facts of the case.”

CLAD does not address the question actually posed by the HMT. Instead, CLAD asks whether an arbitrary 5 percent price increase would be profitable rather than whether a profit-maximizing monopolist would raise price at least 5 percent. Under certain conditions, a negative answer to the former question implies a negative answer to the latter, but those conditions cannot just be assumed. Plausible demand scenarios cause the profit-maximizing price increase to be far greater than 5 percent, even though a 5 percent price increase would be unprofitable.

It is not unusual for different users of a product to have greatly differing abilities to switch away from it. In such situations, CLAD may be driven by the high demand

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<sup>2</sup> For more on the approach advocated here and why CLAD is inadequate, see Gregory J. Werden, *Beyond Critical Loss: Tailored Application of the Hypothetical Monopolist Test*, 4 COMPETITION L.J. 69 (2005).

elasticity of customers readily able to switch, although the low demand elasticity of the remaining customers may be more important to the profit-maximization calculus of a hypothetical monopolist. A monopolist unable to price discriminate could find that its profit-maximizing strategy is to impose a price increase far in excess of 5 percent and sacrifice all of its marginal customers.

CLAD also is too simplistic in its treatment of the profit effects of a price increase. When the hypothetical monopolist's quantity decreases in response to its price increase, CLAD assumes that its corresponding cost decrease can be backed out of a margin constructed by subtracting average variable cost from average price, then dividing by average price. Using this margin to infer the decrease in cost ignores the fact that a monopolist generally could curtail output from just relatively high-costs plants. More importantly, it ignores the fact that some costs normally considered fixed might be avoided by shutting down blocks of capacity and the fact that taking capacity out of the relevant market frees it up for potentially profitable alternative uses.

A monopolist's profit-maximizing strategy often would be to shut down large blocks of capacity or shift substantial capacity into the production of products outside the candidate market. In either event, the margin used in CLAD significantly misstates the profit impact of the output reduction. A 5 percent price increase may be more profitable than CLAD suggests, and much larger price increase may be profit-maximizing even if a 5 percent price increase is unprofitable.

Finally, CLAD does not consider the profit-maximizing pattern of price increases, but rather assumes a 5 percent increase across the board. A profit-maximizing, multi-

product monopolist normally would impose price increases of differing amounts for different products, at different locations, or to different customers. Widely divergent price increases can be far more profitable than a uniform price increase.

What I term “RCLAD” is a response to CLAD that develops alternative calculations exploiting much the same information as CLAD, but in a different way. While CLAD indicates that high margins lead to broad markets, RCLAD argues that much the opposite is true: High margins make it fairly easy for the internalization of competition within the hypothetical monopolist to create the incentive for significant price increases. This is a very important insight, but the calculations suggested by RCLAD are predicated on simplistic assumptions, much as CLAD, and consequently are subject to similar criticisms.

The HMT asks about profit-maximizing price increases and cannot be applied properly using calculations that have nothing to do with profit maximization. Nor can the HMT be applied properly with calculations based on simplistic demand and cost assumptions inconsistent with the facts of the case. Rather, it is essential to undertake a profit-maximization analysis based on fact.