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Hiding the True Extent of Concentration and Market Power with Partial Ownership and Strategic Alliances

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We are in the midst of an incredibly rapid and incredibly massive reorganization of global agribusiness firms that is unprecedented in the history of agriculture. Mergers, strategic alliances, joint ventures, co-opting of co-ops, and partial ownership of other agribusiness firms makes the emerging structure of agribusiness difficult to describe and to understand. It is clear, however, that the emerging web of firms with fuzzy alliances and other linkages may hide the true extent of market concentration and market power.

The prevalent measure of concentration used in antitrust enforcement is the Herfindahl-Hirschman Index (HHI). If the HHI associated with a proposed merger exceeds 1800, and the increase is 100 or more, merging firms are told to expect a court challenge by the Department of Justice (DOJ) or the Federal Trade Commission (Connor, p. 19). The purpose of this note is to illustrate that calculation of the HHI on the basis of reported market shares, which are typically based on ownership and not control, may seriously underestimate market power if alliances, partial ownership and other means of control of facilities are not factored into calculation of the index.

The high fructose corn syrup (HFCS) market is used for illustrative purposes. Table 1 shows the HFCS production capacity in 1997, as reported by USDA. Use of these reported market shares gives an HHI of 1639, which is below the DOJ threshold for antitrust action.

What the standard statistics shown in Table 1 do not reflect, however, is that in 1997 Cargill leased the ProGold plant, and that Archer Daniels Midland (ADM) purchased 30% of Minnesota Corn Processors (Guebert). ADM also reportedly owned 16% of the British sugar refiner, Tate & Lyle, which owned A. E. Staley.

Leased plants should obviously be included directly in calculation of market shares and thus into calculation of the HHI. In this case, Cargill's leasing of the ProGold facilities would increase the HHI by 160 points (from 1639 to 1799), which exceeds the DOJ threshold for antitrust action.

How to factor partial ownership, as opposed to leasing, into calculation of the HHI is not clear, however. One way would be to add to a firm's market share the fraction of firms partially owned. However, this may not reflect the extent of market power, as partial ownership may lead to complete control of the other firms, so a second way is to add to the controlling firm's market share the full market share of the partially owned firms. With the first approach, ADM's partial ownership of MCP and Staley, along with Cargill's leasing of ProGold, gives an HHI of 1984, while the second approach gives an HHI of 3421, both of which are above the DOJ threshold.

As this example illustrates, it is imperative that strategic alliances, joint ventures, partial ownership of other agribusiness firms, and other fuzzy arrangements be considered by the Department of Justice, the Federal Trade Commission, and other entities when they assess concentration and market power.

Firm	Market Share (%)
ADM	27
Minnesota Corn Processors	8
Staley (Tate & Lyle)	17
Cargill	20
Pro Gold Ltd.	4
American Maize	8
CPC	8
Roquette American	3
Arancia and Almex (Mexican)	2

*Source: USDA, Sugar & Sweeteners Outlook Report, SSS-221, September 18, 1997, Table 8.

References

- Connor, John M., *Concentration and Mergers in U.S. Wholesale Grocery Markets*, Staff Paper 97-09, Department of Agricultural Economics, Purdue University, June, 1997.
- Guebert, Alan, *Justice Department Investigates More Charges in Corn Sweetener Market*, Nov. 23, 1997.
- United States Department of Agriculture, *Sugar and Sweetener Outlook Report*, SSS-221 September, 1997.