

A Comparative Statistical Analysis
of the Growth of
Fifteen U.S. Food Distribution Firms
1948 - 1967

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A revolution in the food distribution sector of the U.S. economy has occurred which can be dated from about the beginning of the twentieth century. The importance of this revolution is compounded by the fact that it is being diffused internationally to other developed and developing nations. Two principal institutional changes have been the vehicles of the revolution: the diffusion of the chain store organizational innovation and the development and diffusion of a change in the production function, commonly referred to as, "the supermarket." The chain store and supermarket changes, innovations on the firm and plant levels, have produced a significant increase in market concentration resulting in a trend away from a competitive market toward an oligopolistic market structure in food distribution. In 1900 food chains' share of total U.S. grocery store sales was 8 per cent; by 1963 it was 41 per cent. As recently as 1946, supermarkets accounted for only 23 per cent of U.S. retail food sales; by 1962 supermarkets' share had approximately tripled to 67 per cent. The retiring President of the Economic History Association recommended the study of the large, multi-unit enterprise recently in his Presidential Address.¹ This study of important firms in U.S. Food distribution seems to be an example of the type of research Professor Chandler recommended.

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causes and the consequences of these important changes in U.S. food distribution and especially to gain some insight into the process by which they occurred. Some hypotheses concerning the growth of a group of business firms were also tested. The approach used was a comparative study of a group of fifteen U.S. food distribution firms. This methodology by its explicit comparative nature is a kind of hybrid of the single firm business history and industry-wide aggregate studies. This comparative study is on the microeconomic level of the business firm which is a fundamental unit of research in economic history, because it is in the business firm that decisions are made which largely determine the industry and economy-wide aggregates observed on the macroeconomic level. One of the reasons for the choice of this comparative analytical framework was the observation of Thomas C. Cochran that a limitation of previous business history was the inability to make comparisons among firms in a similar sector of the economy.² The methodology of this dissertation is distinctive in its explicit comparative nature. The principal focus is on similarities and differences in the patterns of growth and development of the fifteen firms.

The choice of the fifteen firms was partly determined by the desire to include a representative cross-section of the food distribution sector of the economy and partly by the availability of data. The sample of fifteen firms studied include nine of the ten largest U.S. food chains based on 1967 sales rank. The

study was divided into two principal parts on the basis of the type of data available. One part, based on data from Moody's Industrial Manuals, business archives and general historical information, involved case studies of ten of the fifteen firms for their entire history. The ten firms were a representative sample of the fifteen and included large and small, high growth, and low growth, old and recently established firms. In the case of the Great Atlantic and Pacific Tea Co., the oldest of all U.S. food chains, the history began in 1859.

The other principal part of the study was a quantitative description and comparative statistical analysis of the growth of the fifteen firms for the period 1948-1967. The principle source of the quantitative data was the Compustat computer data bank. The twenty-year time period, 1948-1967, was determined by Compustat data availability. About 12,000 units of information were drawn from the Compustat tapes by an original Fortran computer program. Numerous checks were made to Moody's Manuals and the Compustat tapes were found to be a highly reliable data base.

Growth rates for real sales for the period 1948-1967 were computed for each of the fifteen firms. The range of the growth rates was from a low of 2.2 per cent per annum for A & P to a high of 16.4 per cent per annum for Lucky Stores. The average growth rate per firm was 8.6 per cent per annum. Significant variability in both the firm growth rates and the time pattern

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downward trend during the period 1949-1967. The rates of profit on equity capital, total capital, and margin all registered their highest average values for the fifteen-firm group in 1949 and the lowest average values in 1967. However, the decrease in average margins during the period was observed to be principally due to decreases in the margins of six of the older, larger firms in the east and mid-west. The other nine firms experienced approximately constant margins during the period. A & P's reputation as a high-turnover, low-margin firm was substantiated in this study: A & P had the highest average turnover and the lowest average margin of the fifteen firms for the period.

While it is generally believed on a priori grounds that margin and turnover vary inversely, the empirical data show downward trends in both margin and turnover. The decrease in turnover is especially interesting since it is widely believed that the supermarket arrangement raised turnover and this permitted lower margins. The decrease in turnover is also somewhat at variance with the view taken by Alfred Chandler that turnover was more important than scale as an economy and source of large size enterprise.

This briefest of historical sketches of the rise of large scale managerial enterprise in American transportation, communications, distribution, and production, emphasizes that the economies of scale within the firm resulted far more from speed than from size. It was not the size of an enterprise but the velocity of through-put that permitted economies that lowered costs and increased output per worker and per machine and so provided the classic, competitive advantage.⁴

The decrease in turnover may also be partly a result of over-expansion by food distribution firms during the period.

Since the period 1948-1967 approximately coincided with the major diffusion of the supermarket, a rough test of the Schumpeterian innovation thesis should be possible. Schumpeter held that innovations could produce temporary increases in profits which would diminish as the innovation was diffused to competitors. The decreasing trend of equity profits seems consistent with the Schumpeterian thesis, but an observed constancy of relative variability in equity profits of the fifteen firms does not seem consistent with that thesis, which would seem to imply decreasing variability of profits as an innovation was diffused and firms became in that regard more similar.

Leverage was observed to be an important determinant of equity profits, generating about twenty-five per cent of the average rate of profit on equity capital for the fifteen firms. When the conventional definition of assets was used, rather than the one employed in the dissertation which excluded that portion of current assets not requiring a finance cost, leverage was even higher. With conventionally defined assets, financial transactions contributed almost as much to equity profits as did earnings from operations. The time trend of average leverage was also downward during the period. This was partly a function of declining profits which are a determinant of leverage and partly due to a decrease during the period of the average debt/

equity ratio which in turn may have resulted from declining profits. As profits declined firms apparently became more concerned with risk aversion. As these firms became larger and older, they manifested a decreasing tendency toward the use of debt financing. Correlation analysis also revealed that the larger, older firms were less likely to use debt financing throughout the period than the younger, smaller firms. This suggests the hypothesis that smaller, younger firms are more motivated by the goal of equity profit maximization whereas larger, older firms are more motivated by the goal of risk aversion. All of the model measures showed considerable variability over time with leverage showing the greatest variability both in level and range of variability during the period.

Correlation analysis of growth rates for real sales showed a high negative relationship to size and age of firms, and a high positive relationship to firms' average rates of equity profit. Thus the hypothesis on which the model used was based, which is that equity profits are a central explanatory growth variable, appears supported by the empirical data. The larger older firms grew slowly and the high equity profit firms grew rapidly. Correlation analysis also showed a higher positive relationship between margin and equity profits than between turnover and equity profits suggesting the hypothesis that profit margins are a more important explanation of equity profit and growth than asset turnover.

Information drawn from the case studies indicates that horizontal diversification, especially by means of mergers, was an important type of growth activity for the small to medium size younger firms in the group. Vertical diversification activities were significant for some of the firms during the period, notably the larger and older firms. There seemed to be somewhat of a pattern for the larger firms to expand into food processing at some size. Exceptions to this pattern, however, were noted. A few of the medium-sized firms expanded extensively into non-food distribution activities, of which self-service department stores and drug stores were most important.

While certain growth and diversification patterns emerge from this study, nothing which could be characterized as rigidly as a normal growth process was observed. Narrative histories of ten of the fifteen firms revealed notable dissimilarities among the firms in regard to the manner, style, area, and financing of growth and diversification.

FOOINOIES

1. Alfred D. Chandler, Jr. "Decision Making and Modern Institutional Change," Journal of Economic History, XXXIII (March 1973), 1-15.

2. Thomas C. Cochran, "The Economics in a Business History," Journal of Economic History, 5 (December 1945), 56.

3. A committee of the American Accounting Association reported, "The past earnings of the firm are considered to be the most important single item of information relevant to the prediction of future earnings." American Accounting Association Committee to prepare a Statement of Basic Accounting Theory, A Statement of Basic Accounting Theory (Evanston, Ill.: American Accounting Association, 1966), pp. 23-24 quoted in Myron J. Gordon and Gordon Shillinglaw, Accounting: A Management Approach, (4th ed.; Homewood, Ill.: Richard D. Irwin, Inc., 1969), pp. 25-26.

4. "Decision Making and Modern Institutional Change," 9.