

FINANCIAL CHARACTERISTICS  
OF ACQUIRING AND  
ACQUIRED FIRMS

By

MARJORIE DENISE WILSON

Bachelor of Science in Accounting

Oklahoma State University

Stillwater, Oklahoma

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Scope and Method of Study: This study considers the financial characteristics of the firms involved in a merger to determine if the acquiring firm purchases a firm with financial characteristics that are complementary to those financial characteristics of the acquiring firm. A sample of fifteen mergers during the 1978-1982 time period was tested on eleven financial characteristics by using a paired difference experiment and a t-test statistic.

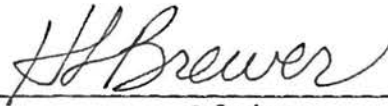
Findings and Conclusions: Of the eleven financial characteristics studied, four were found to be significant. These results lead to the conclusion that firms do consider the criteria of complementary financial characteristics in evaluating potential acquisitions.

ADVISER'S APPROVAL

*H. Brewer*


FINANCIAL CHARACTERISTICS  
OF ACQUIRING AND  
ACQUIRED FIRMS

Report Approved:



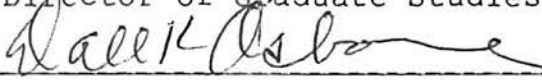
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Advisor



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Director of Graduate Studies



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Head, Department of Finance

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## I. INTRODUCTION

Mergers and acquisitions have been a part of the business activities of firms for many years. The terms "merger" and "acquisition" have been used synonymously in the literature. However, they are not defined in exactly the same way as noted by George D. McCarthy.

There are several terms generally used in referring to business amalgamations. The most common of these is "merger" which in its broad sense indicates the combination of two or more business entities into a single economic enterprise. To be more exact, however, the only types of business combinations that should be designated as mergers are statutory mergers or consolidations, i.e., when one or more companies are merged into another or into a new corporation in conformity with the statutes dealing with such transactions in the states of their incorporation.<sup>1</sup>

However, since most authors do not differentiate between the two terms, they will be used interchangeably in this paper.

Mergers can be categorized as either horizontal, vertical, or conglomerate. A horizontal merger is a merger between two firms in the same line of business. A vertical merger occurs when the buying firm expands forward in the direction of the ultimate consumer or back toward the source

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<sup>1</sup>George D. McCarthy, Acquisitions and Mergers (New York, 1963), p. 16.

of raw materials. A conglomerate merger is defined as a merger between companies involved in unrelated lines of business. Mergers are consummated on the belief that two firms are worth more together than they are separately. There are various reasons for firms to merge, that is, to be worth more together than they are apart.

Economies of scale often occur when two firms combine in a merger. Economies of scale are the natural goal of horizontal mergers. Vertical mergers can enjoy economies of scale in that coordination and administration are easier. In addition, technology or expertise at one stage of production may be applicable at another stage of the production process. Conglomerate mergers benefit from economies of scale by sharing central services such as office management and accounting, financial control, executive development, and top-level management.

Sometimes a firm may have potential tax shields or tax-loss carry-overs but not expect to have future profits to take advantage of them. If a firm in this situation merges with a firm that is generating taxable income, these tax shields could be taken advantage of to the benefit of the combined firm.

Firms in mature industries that are generating a substantial amount of cash flow and have few profitable investment opportunities may use the excess funds to acquire another firm. Firms with excess cash are widely regarded as natural targets for an acquisition. An acquisition allows a

firm to redeploy capital instead of another entity redeploying the capital for them.

A merger occurs when the whole is worth more than the sum of the parts. For this to occur it is necessary for the firms to have complementary resources so that when the merger is complete each firm acquires something it does not have prior to the merger. The purpose of this paper is to examine a sample of mergers to see if the financial characteristics of the acquired firm complement those of the acquiring firm.

## CHAPTER II

### LITERATURE REVIEW

The literature aimed at studying the financial characteristics of firms involved in mergers or acquisitions falls into several categories. This paper separates the various studies into studies dealing with liquidity, studies involving conglomerate firms and studies that focus on the financial characteristics of firms acquired in the transaction.

#### The Impact of Liquidity on Merger Activity

Dalton and Esposito (1973) tested the hypothesis that excess internal liquidity is a cause of mergers. Bain stated the excess liquidity hypothesis in his book Industrial Organization as follows:

Acquisitions may take place simply as the result of some firms looking for attractive places to invest excess funds. Mergers of this sort are likely to be especially frequent in times of prosperity when corporate earnings run high and there are large quantities of funds left for investment by corporations after all conventional dividend payments have been made to shareholders.<sup>1</sup>

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<sup>1</sup>Joe S. Bain, Industrial Organization (New York, 1959), p. 179.

There are several benefits to a firm which decides to use excess internal funds for an acquisition. Stockholder approval may be difficult to obtain for a stock exchange. Management can overcome this by using cash to meet the acquisition price. Stockholders must approve a new issue of stock for an acquisition but no formal stockholder approval is needed for a direct cash acquisition. Excess funds can also be used to purchase a firm's own stock without stockholder approval. This stock can then be used in a stock exchange. Securing stockholder approval takes time and time may be a critical factor during the acquisition process.

Another benefit of using excess internal cash for an acquisition is that the acquiring firm can amortize the actual purchase price of depreciable facilities for tax purposes. If the acquisition is consummated with a stock exchange, the facilities that can be depreciated by the acquiring firm are what is left to be depreciated on the acquired firm's books. This will be less than the amount that can be depreciated in a cash acquisition.

An additional point to note is that an acquisition by a stock exchange or by cash is not mutually exclusive. Both procedures may be used in acquisition programs. Excess cash makes the effective implementation of an acquisition somewhat easier. Financial contingencies can arise during or after an acquisition that would not have been foreseen prior to the acquisition. Excess funds can be used to meet these financial contingencies. A high liquidity position is extremely



important in conglomerate mergers, if the parent company is to compete effectively with firms already entrenched in that industry.

Excess liquidity enhances the merger environment by allowing a firm to be more aggressive and more optimistic relative to a profitable integration. Because acquisitions involve a substantial and immediate commitment of resources, liquidity is important as a safeguard. Internal expansion can be spread over time and in this respect is more divisible than external expansion. This difference between internal and external expansion implies that if profitability expectations are not very high or are mixed, internal expansion is the more attractive method. If profitability expectations are high, as in times of prosperity, merger activity may increase because the substantial commitment of resources required is more easily justified in the expectational sense and more easily integrated in the financial sense.

Dalton and Esposito sampled 71 firms from among the approximately 200 largest manufacturing firms of 1965. The selection of the largest manufacturing firms as the population to sample from did not, according to Dalton and Esposito, introduce a serious bias relative to merger activity because the largest firms were doing most of the acquiring.

The time frame starts in 1955 and ends in 1966. During 1955, the amount of merger activity increased. The ending date was chosen so that the acquired assets would not be significantly affected by the inflationary forces of 1967. The

study of the liquidity hypothesis was done by using multivariate regression analysis. The estimated regression equations include different combinations of two dependent variables and four independent variables.

Merger activity is defined as the dependent variable. Two measures of merger activity are used. One measure of merger activity is the total number of acquisitions by the firm where the value of the acquired assets was at least \$1 million during the 1955-1966 time period. A shortcoming of this measure is that the total number of acquisitions does not consider the financial magnitude of the assets acquired. For example, a firm with ten acquisitions valued at \$10 million per acquisition would be considered more active than a firm with one acquisition with a \$100 million value over the same time period. A more suitable measure of merger activity is the total value of acquired assets during the time period 1955-1966. By this measure, a firm with one merger valued at \$200 million is more active than a firm with ten acquisitions valued at \$10 million each.

Two measures were used to measure a firm's liquidity: cash flow and the rate of return on owner's equity, referred to as the profit rate. The measure of cash flow is determined by the sum of retained earnings and noncash charges. Retained earnings contribute to cash flow in two ways. First, the flow of funds can be increased because of the time lag between increasing dividend payments after an increase in net income has occurred. In addition, a firm's management

decides dividend policy and the management may delay making any significant change in dividend policy. This point is particularly pertinent because of the evidence that management interests carry more importance than stockholder interest in firms that are actively involved in merger activities.

Noncash charges include depreciation, depletion, and amortization. These charges are charged against income with no cash payment outside the firm. These noncash charges are accumulated in the firm's liquid resources. These funds can be used for acquisitions because firms can accumulate depreciation charges that exceed current replacement requirements. The future replacement requirements can be funded by the then current depreciation charges. It may be more profitable for a firm to buy new facilities rather than to replace or upgrade present facilities. During economic booms, depreciation charges may be increasing for firms which expand facilities in expectation of the boom and early during the economic boom.

Dalton and Esposito used the mean value of the ratio of cash flow to total assets for the time period 1954-1965 for the cash flow variable in this analysis. Because of the size differential in the firms used in this sample, a comparison of the absolute cash flow amount has no explanatory power. To standardize for firm size, cash flow was divided by the firm's total assets.

The profit rate, that is, the rate of return on owner's equity is the second measure of a firm's liquidity. This

measure indicates present and future liquidity by taking the ratio of net income after taxes to net worth. The measure used in this analysis of the profit rate is the mean value of the ratio of net income to net worth for the time period 1954-1965. Both measures of liquidity are expected to have a positive correlation with merger activity.

Another variable entering into the regression equations is a measure of stock prices. Nelson (1966) and Weston (1953) have presented evidence that the number of mergers and stock prices have a significant and positive relationship.

The relationship between stock prices and merger activity is supported by three major points. First, when a firm is considering an acquisition consummated with a stock exchange, one consideration of the acquiring firm is the recent performance of the market price of its securities. This is based on the fact that the ratios of exchange are partially determined by the market price of the stock of the firms involved in the merger. The second point is that a cash acquisition using the proceeds of a new equity financing is more appealing when the market price of the acquiring firm's securities has been increasing. Thirdly, to cover the costs associated with the integration of the acquired firm into the operations of the acquiring firm, the acquiring firm may issue new stock. The additional stock issued provides the acquiring firm with working capital to meet these contingent costs. This is especially appealing when the market price of the acquiring firm's stock is increasing.

For this analysis the measure of stock prices used was the median price/earnings ratio for each firm during the time period 1954-1965. This measure was used because the price/earnings ratio should show the characteristics of the capital market conditions. Those firms that have the highest price/earnings ratio would probably show the largest increases in their stock prices. It is expected that a positive correlation between the price/earnings ratio and merger activity will result.

The last variable included in the regression analysis is the size of the firm. This variable was included for two reasons. First, it is included as a control variable to consider the level of merger activity for firms of different sizes. It acknowledges the fact that a firm with \$100 million worth of assets acquiring \$20 million worth of assets is as merger-active as a firm with \$1 billion worth of assets acquiring \$200 million worth of assets. The second reason is that firms with the same profit rate behave differently relative to merger activity because of the difference in absolute size. If two firms have the same amount of excess liquidity and there is a substantial size difference, the larger firm will have more funds to work with in an absolute sense. In addition, a larger firm may be able to use capital markets with less difficulty thereby reducing the amount of liquidity needed. Therefore, size should have a positive correlation with merger activity regardless of the measure of liquidity.

In this analysis, the measure of firm size used was the

mean asset size of each firm for the time period 1954-1965. It is expected that firm size will exhibit a positive correlation with merger activity.

The empirical analysis conducted by Dalton and Esposito was divided into two sets consisting of five regression equations in each set. The first set considered the number of mergers relative to stock prices, cash flow, and profit rates. The second set considered the value of acquired assets relative to stock prices, cash flow, and profit rates. The significance of the regression coefficients was tested using a one-tailed t-test.

In the first set of regression equations the regression coefficient of the stock prices was not significant. It showed a negative sign when the liquidity variable was included. This was an unexpected result in a theoretical sense. The regression coefficient of the cash flow variable was significant at the .05 level and showed a positive correlation with the number of mergers. The regression coefficient of the profit rate also showed a positive correlation with the number of mergers and was significant at the .10 level. The regression coefficient of the firm size variable showed a negative correlation with the number of mergers and was significant at the .10 level in only two of the five regression equations.

The results of this phase of the regression analysis are consistent with the liquidity hypothesis. That is, one would expect the resulting significance of the cash flow

variable and the profit rate variable. The insignificance of the regression coefficient of the stock price variable lends no empirical support to the stock price hypothesis.

The second set of regression equations showed the value of acquired assets relative to stock prices, cash flow, and profit rates. The regression coefficient of the cash flow variable was significant at the .05 level and at the .10 level when the stock price variable was introduced into the regression equation. The regression coefficient of the profit rate variable was significant at the .025 level. The firm size variable had the expected positive sign and was significant at the .10 level in only one of the five regression equations.

In both phases of the regression analysis, the stock price variable was not significant. In the set of regression equations using the value of acquired assets as the measure of merger activity, the statistical significance of the profit rate is greater than that of the cash flow variable. However, when the number of mergers was used as the measure of merger activity, the statistical significance of the cash flow variable is greater than that of the profit rate. In both sets of regression equations, the results show strong support for the liquidity hypothesis and no empirical support for the stock price hypothesis.

To summarize, the results of this study suggest a positive relationship between firm liquidity and the degree of merger activity. That is to say that firms with greater in-



ternal liquidity merge more actively than firms with less internal liquidity. The results show no relationship between stock prices and the degree of merger activity. What the results do show however, is that a stock price variable used in a time-series analysis is used as a proxy for general business conditions instead of a measure of stock market conditions for firms considering an acquisition.

#### A Discriminate Analysis For Conglomerate Targets

Simkowitz and Monroe (1971) conducted a study that addressed the following two questions: 1) What was the financial profile of firms absorbed by conglomerate firms during the period April 1 through December 31, 1968?, and 2) Does this profile of financial characteristics of the absorbed firms provide a useful criterion for identifying those firms with a high probability of subsequently being absorbed by a conglomerate?

To answer these questions, Simkowitz and Monroe constructed two samples of firms. One sample included firms (the absorbed firms) that were merged or bought by firms whose two-digit SIC code was different from the acquired firms. The other sample was a random sample of non-absorbed firms listed on Standard & Poor's Compustat tape. From each sample, two subsets of firms were randomly selected. One subset was used as an analysis subset and the other was used as a hold-out sample.



Multiple discriminant analysis was applied to both the absorbed company sub-sample and the non-absorbed sub-sample. The results from this analysis were then applied to the two hold-out sub-samples. The analysis included an F-test, to test the method to distinguish one analysis sub-sample from the other; a t-test, to test the ability to correctly classify the analysis and hold-out samples, and the significant financial variables.

Multiple discriminant analysis is constructed to classify subjects into two or more a priori groups on the basis of a set of measurable characteristics. The groups in this study were classified as absorbed and non-absorbed and the measurable characteristics were financial in nature.

Simkowitz and Monroe stated the hypothesis of the study as follows: "The financial profile of industrial firms determined from the simultaneous analysis of selected financial ratios does provide a basis for describing and distinguishing conglomerate take-over targets."<sup>2</sup> Multiple discriminant analysis was used to segregate the firms into two groups, absorbed firms and non-absorbed firms. The absorbed firm group included those firms absorbed in a conglomerate type merger or acquisition during the time period April 1, 1968 through December 31, 1968. The non-absorbed firm group included any firm not specifically included in the absorbed firm group and

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<sup>2</sup>Michael Simkowitz and Robert J. Monroe. "A Discriminant Analysis Function For Conglomerate Targets", Southern Journal of Business 6 (November 1971):3.

that continued to operate on December 31, 1969.

The data set was compiled from Standard and Poor's Compustat tapes. The data for the non-absorbed firms was taken from the Compustat Annual Industrial File. The data for the absorbed firms was obtained from a Compustat data file prepared especially for this study.

The analysis groups were comprised of twenty-three absorbed firms and twenty-five non-absorbed firms. The hold-out samples included sixty-four non-absorbed firms and twenty-three absorbed firms. The two hold-out groups were used as a basis for testing the discriminant function determined from the analysis groups.

The absorbed firms were chosen on the basis of four criteria. These criteria are listed below.

1. The firm's stock was listed for trading on the New York or American Stock Exchange prior to the merger.
2. The stock was deleted from the exchange because of the merger between April 1, 1968 and December 31, 1968.
3. The firm was acquired by another firm with at least one two-digit SIC industry code different than that of the absorbed firm.
4. The firm's financial records had been included in the Compustat data file prior to the merger.

The non-absorbed firms were chosen on the basis of the following four criteria:

1. The firm's financial records were included in the Compustat data file.

2. The firm's fiscal year was terminated after October 31 and before March 1.
3. The firm had continued operations for at least twelve months beyond the period covered by this study.
4. All items of data necessary for calculation of the financial variables were available.

Twenty-four variables were chosen to provide measurements on seven different areas of a firm's financial condition. These seven areas are 1) growth, 2) size, 3) profitability, 4) leverage, 5) dividend policy, 6) liquidity, and 7) the market characteristics for a firm's stock.

The results of this study support the hypothesis that firms absorbed by conglomerates could be identified by their financial characteristics alone. Conglomerates tend to acquire firms whose price/earnings ratios are lower than their own. The absorbed companies were usually low dividend payers, had average current yields and low past growth rates. In addition, the absorbed firms were smaller and had active markets for their securities. This permitted a conglomerate firm to take an initial position without any major disruption to the market.

The F-test used to distinguish between the two samples showed that the variance explained by the model could have been a chance occurrence in less than two of one thousand trials. The results of the classification of the hold-out sample reveals that the ability to classify absorbed and non-absorbed groups combined could have been a chance

occurrence in less than one out of one hundred trials. When each group is analyzed separately the significance is still at the .05 level.

#### Differences Between Financial Characteristics Of Conglomerate and Traditional Mergers

Hempel and Melicher (1974) undertook a study of conglomerate mergers and traditional mergers to see if there were significant differences in financial and other related characteristics and to determine what these differences were. A conglomerate merger is defined, according to the Federal Trade Commission, as a merger in one of three categories: product extension, market extension, and other conglomerates. A traditional merger is a merger of a horizontal or vertical nature. In addition, the effects of different time periods and different industries were analyzed to determine if they might have been the primary cause of the differences between conglomerate and traditional mergers.

The data base was drawn from merger records of the New York Stock Exchange for the time period 1958 through 1969 and similarly defined merger records from Dellenbarger's (1966) study for the time period 1950 through 1957. These records were compared with the FTC merger records. The FTC records are restricted to manufacturing and mining mergers in which the acquired firm's premerger assets were at least \$10 million. The sample included 166 of the 246 recorded mergers and prospectus statements were collected for the 166 mergers

studied.

A breakdown of the 166 mergers showed that there were sixteen horizontal mergers, nineteen vertical mergers, ninety-two product-extension conglomerate mergers, three market-extension conglomerate mergers, and thirty-six other conglomerate mergers. Thirty-one of these mergers occurred during the 1950's, forty-nine occurred between 1960 and 1965, and eighty-six occurred between 1966 and 1969. Eighty-six of the mergers were financed by common stock exchanges, forty-one were convertible preferred stock exchanges, twenty were combinations of common stock and convertible stock exchanges, and nineteen were miscellaneous changes.

Forty-eight financial characteristics were analyzed for significant differences between the traditional and conglomerate mergers. (See Table I for a listing of the financial characteristics studied.) These characteristics were measured separately for the acquired firm (A), the acquiring firm (B), the relationship of the acquired firm characteristic divided by the same acquiring firm characteristic (A/B), and the size-adjusted relationship of the acquired firm characteristic divided by the same acquiring firm characteristic (\*A/B\*). The forty-eight financial characteristics were categorized into eleven categories: 1) size, 2) liquidity, 3) leverage, 4) activity, 5) profit margin, 6) return on assets, 7) return on common equity, 8) earnings share growth, 9) earnings share variability, 10) price/book value, and 11) price/earnings.

TABLE I  
FIRM FINANCIAL CHARACTERISTICS EMPLOYED

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Total Assets (A)	Profit Margin (A)
Total Assets (B)	Profit Margin (B)
Total Assets (A/B)	Profit Margin (A/B)
Net Sales (A/B)	Profit Margin (*A/B*)
Net Profits (A/B)	Return on Assets (A)
Current Ratio (A)	Return on Assets (B)
Current Ratio (B)	Return on Assets (A/B)
Current Ratio (A/B)	Return on Assets (*A/B*)
Current Ratio (A*/B*)	Return on Equity (A)
Net Current Assets/Share (A/B)	Return on Equity (B)
Current Liabilities/Total Assets (A/B)	Return on Equity (A/B)
Total Debt/Total Assets (A/B)	Return on Equity (*A/B*)
Total Leverage/Total Assets (A)	Earnings Per Share Growth (A)
Total Leverage/Total Assets (B)	Earnings Per Share Growth (B)
Total Leverage/Total Assets (A/B)	Earnings Per Share Growth (A/B)
Current Liabilities/Total Assets (*A/B*)	Variability in Earnings Per Share (A)
Total Debt/Total Assets (*A/B*)	Variability in Earnings Per Share (B)
Total Leverage/Total Assets (*A/B*)	Variability in Earnings Per Share (A/B)
Turnover of Current Assets (A/B)	Price/Book Value (A)
Turnover of Total Assets (A)	Price/Book Value (B)
Turnover of Total Assets (B)	Price/Book Value (A/B)
Turnover of Total Assets (A/B)	Price Earnings (A)
Turnover of Noncurrent Assets (*A/B*)	Price Earnings (B)
Turnover of Total Assets (*A/B*)	Price Earnings (A/B)

---

Hempel and Melicher expected that the relationships of an acquired firm characteristic divided by the same acquiring firm characteristic, referred to as relative characteristics, would generally be different for conglomerate as opposed to traditional mergers, although several financial characteristics of either the acquired or acquiring firm were expected to be significantly different for the two types of mergers.

The size-adjusted relative characteristics, calculated by the sum of the acquired and acquiring firm characteristics minus the same acquiring firm characteristic, were expected to show differences between the conglomerate and traditional mergers. Because of the size differential of merging firms, the size-adjusted relative characteristics are thought to indicate the relative benefits of the merger to the acquiring firm.

Two additional variables were examined separately. The effects of the time period in which the merger was completed on both the type of merger and the financial characteristics of the merger were analyzed. This analysis was done separately to determine if exogenous factors, for example government regulations and capital market conditions, might have been the primary determinant of the type of merger and/or the financial characteristics. In addition, broad industry classifications of the acquiring and acquired firms were analyzed separately to determine if there was any effect on the financial characteristics of the merger and the type of merger.

The data was analyzed using multiple linear



discriminant analysis to determine the interactive differences between the financial characteristics of the traditional and conglomerate mergers. Discriminant analysis tries to maximize the ratio of among-group to within-group variability. Multiple discriminant analysis is a special case of regression analysis in which the dependent variable is treated as a zero-one dummy variable and the constant term is ignored.

Three restrictions were placed on the data to select the financial characteristics to be included in the final multiple discriminant function. To avoid double counting an effect, a maximum of one characteristic could be included from the eleven categories. Second, simple linear correlations greater than 0.5 and linear relations with other characteristics greater than 0.7 were eliminated in an attempt to limit the linear relationships and combinations among the characteristics. Finally, to bring out the interactive effects, stepwise multiple discriminant analysis (the highest interdependent F-level is used to add variables) and stepwise multiple regression analysis (the lowest interdependent t-value is used to eliminate variables) were used. The time period and the industry type were analyzed by examining the differences between traditional and conglomerate mergers in the same way the other forty-eight financial characteristics were analyzed. In addition, the incremental effects of the time period and the industry type on the multiple discriminant function developed from the financial characteristics



were examined.

The findings of the study support the belief that there are significant differences in the examined financial characteristics of firms combining in traditional mergers.

Conglomerate mergers involved firms that had considerably more financial leverage prior to merging and had used this leverage in a profitable manner. They usually had higher market prices relative to book values. Firms with rapidly growing earnings per share and firms that appeared to be well-managed at the time of the merger seem to be the most desirable. In addition, firms involved in conglomerate mergers were more able and likely to use a price/earnings strategy than firms involved in traditional mergers.

The financial characteristics of firms combining in traditional mergers strongly support the hypothesis that the acquiring firms were heavily dependent on economies of production and marketing and the related managerial expertise. The acquiring firms were larger than the companies they were acquiring. This made the performance of the acquired companies less of a factor in the consolidated results. The acquiring companies in traditional mergers had less financial leverage relative to acquiring companies in conglomerate mergers. The time period and the industry type were not found to be significant. This accentuates the importance of differences in financial characteristics of firms combining in traditional and conglomerate mergers.

## A Multivariate Analysis of Financial Characteristics of Merged Firms

Stevens (1973) conducted a study of acquired firms and nonacquired firms to see if there were any differences in their financial characteristics. The initial study looked at forty acquired firms and forty nonacquired firms. The acquired firms were merged during the 1966 calendar year and taken from the Federal Trade Commission's listing. (The FTC listing includes only acquired firms with at least \$10 million worth of assets at the time of acquisition.) The nonacquired firms were matched by size distribution of assets. These firms were taken from Moody's Industrials.

Financial statement data was taken for two prior reporting periods as taken from Moody's Industrials. A group of ratios were calculated and averaged to minimize random fluctuations. The ratios measured the financial characteristics of liquidity, activity, profitability, and leverage. (See Table II for a complete listing of the ratios used.)

Multiple discriminant analysis (MDA) was used with the ratio information to formulate a linear model. The purpose of the model is to discriminate the acquired group from the nonacquired group. MDA can be used in many finance related applications where the dependent variable is nonmetric, for example acquired and nonacquired. In addition, MDA is a multivariate technique that can assess a group of variables as opposed to one variable at a time. MDA assumes an a priori group membership with the goal of segregating entities into

TABLE II  
FINANCIAL RATIOS CALCULATED

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<u>Category</u>	<u>Ratio</u>
Liquidity	Net Working Capital/Total Assets Net Working Capital/Sales
Profitability	Earnings Before Interest and Taxes/Total Assets Gross Profit/Sales Earnings Before Interest and Taxes/Sales Net Income/Sales Earnings Before Taxes/Sales Net Income/Net Stockholder's Equity Net Income/Total Assets
Leverage	Long-term (LT) Debt/Market Value Equity (A) LT Debt/Total Assets LT Debt/Net Stockholder's Equity LT Liabilities/Total Assets (B) Total Liabilities/Total Assets
Activity	Sales/Total Assets Cost of Goods Sold/Inventory Sales/(Current Assets-Inventory)
Other	Interest/(Cash + Marketable Securities) (C) Cash Dividends/Net Income Price/Earnings

(A) LT debt includes long-term bonds and similar obligations.

(B) LT liabilities include everything of a long-term nature.

(C) This ratio behaves similarly to liquidity and leverage.

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mutually exclusive groups by the statistical decision rule of maximizing the ratio of among-groups to within-groups variance - covariance from the set of independent variables. MDA shows which of the variables have contributed most to group discrimination.

One problem that this study had to deal with was the multicollinearity problem. A statistical assumption of MDA is that the independent variables are mutually uncorrelated. Small deviations from this have no significant impact on the results when the variables are extremely collinear and the weights in the resulting model are highly unstable. In addition, the model tends to be highly sensitive to sampling techniques and interpretation is very difficult.

Stevens' study used a large set of ratio data and experienced the multi-collinearity problem. Efforts to reduce high correlations among the data involved applying factor analysis to the data before MDA was used. Factor analysis can be used both to simplify and to group or discover patterns in data. Because of the high level of multicollinearity, the original group of ratios were factored into six groups. To interpret factor analysis, the following items are generally considered: 1) the number of distinct factors, 2) how the original data is grouped into factors, and 3) can the factors be meaningfully interpreted given the research problem under consideration. Considering these three items, Stevens used the following six factors: 1) leverage, 2) profitability, 3) activity, 4) liquidity, 5) dividend policy,

and 6) price/earnings. The factor analysis converted the original set of twenty ratios with high intercorrelations into six uncorrelated factors that represented essentially the same financial characteristics as the original data set.

The resulting ratio data was used for the MDA stage of the research that produced a linear function that best segregated the acquired and nonacquired groups. It is important to note that the financial dimensions determined by the factor analysis and the financial dimensions that best discriminate among the groups may not be the same financial dimensions. Factor analysis looks at all ratios and combined groups as a total set and its interdependence and MDA separates the total set into pre-defined groups and finds a variable profile that best divides the groups.

The MDA model used four of the six ratios in the equation. These ratios are defined as follows:

- $X_1$  - Earnings Before Interest and Taxes/Sales.  
This is a measure of a firm's profitability relative to its sales, before interest adjustments or leverage effects. This ratio was second in importance in the MDA model and the univariate test showed no group differences.
- $X_2$  - Net Working Capital/Assets. This is a measure of liquidity. This ratio was least important in group discrimination. The results showed that acquired firms tended to be more liquid.
- $X_3$  - Sales/Assets. This is an overall measure of activity and turnover. The results showed little group difference but still contributed to the group discrimination.
- $X_4$  - Long-term Liabilities/Assets. This is a measure of financial leverage. It was the most

significant factor in both the univariate tests and the MDA model. This implies that the capital structure of a firm is a major consideration in merger decisions and that acquired firms have systematically smaller amounts of leverage.

Dividend payout and price/earnings ratios did not improve the discriminating ability. The major implications based on the univariate analysis are that clearly, leverage makes a difference and that acquired firms may be more liquid than nonacquired firms.

Classification accuracy was tested on the basis of the probability of group membership. The model showed 70 percent classification accuracy for the original sample. A split sample validation was conducted and this validation showed a 67.5 percent classification accuracy.

The major conclusions drawn from the results of this study are that financial characteristics provide a basis of discrimination of acquired firms from nonacquired firms. Therefore, financial characteristics are considered in acquisition decisions. In addition, the firm's capital structure appears to be an important factor, both by itself and in a profile of variables that measure liquidity, activity, and profitability. Stevens' recommendations are that the results of this study are useful in the determination of merger motives and in relating these motives to merger movement analysis.

## Financial Characteristics of Acquired Firms

Harris, Stewart, and Carleton (1982) conducted a study of financial characteristics of acquired firms during the time period 1974 through 1977 to determine if there is a distinct difference between the characteristics of acquired firms and nonacquired firms and to see if these characteristics might be useful in predicting future acquisitions.

This study focuses on two different time periods of dissimilar economic conditions. Samples of acquired firms are taken from the 1974 through 1975 time period and the 1976 through 1977 time period. This is to determine what changes, if any, occur because of the time factor.

Financial ratios for an individual firm considered independently have little meaning. Some common ways of increasing the explanatory power of financial ratios are the use of time trends and relating ratios to industry averages. In this study, financial ratios are normalized by industry averages. This is done to determine if the results obtained are different from those where such variables are not normalized.

Harris, Stewart, and Carleton postulate that matching firms by size and analyzing as many acquired firms as nonacquired firms, as Stevens (1973) does in his study, prevents any analysis of the effects of size on the possibility that an acquisition will occur. If a model is to be used successfully to predict an event, in this case a merger, it must be



able to deal with the underlying population of firms that may be involved in that event. To include size as a variable, this study used data reflecting the percentage of acquired and nonacquired firms in the population.

The variables considered in this analysis are financial statement variables. Harris, Stewart, and Carleton note, however, that product-market industry concentration, advertising intensity, and concentration of firm ownership may have a crucial impact on the likelihood of a firm's being acquired.

The mergers used in this analysis are based on the acquired firms only. The implied assumption is that the acquiring firms value the characteristics of the firm they are acquiring in basically the same way. In viewing a merger as a marriage between two firms, it is important to look for areas of complementarity between the two firms. By looking at only the acquired firms, important financial areas of concern to both the acquired and acquiring firms may be overlooked.

The basic empirical problem was to determine those characteristics of a firm that have a statistically significant impact on the probability that the firm will be acquired. However, it is not possible to observe and measure the probability that a firm will be acquired. It is only possible to observe a sample of firms over time and to identify which firms were acquired and which were not and to consider the financial characteristics of the firms in the sample.

The technique used in this analysis to address the



empirical problem was probit analysis. Probit has the capability to estimate the probability that a firm will be acquired and the contribution of a particular financial characteristic to that probability. An assumption of probit is that potential acquiring firms will judge the attractiveness of all potential acquisitions. This unobservable measure of attractiveness is assumed to be the same for all potential acquiring firms. It can be written as follows:

$$Y_t^* = X_t B + U_t$$

where  $Y_t^*$  is the unobserved dependent variable describing the attractiveness of firm  $t$  as a potential acquisition,

$X_t$  is a vector of variables describing the relevant characteristics of firm  $t$ ,

$B$  is a vector of coefficients, and

$U_t$  is an unobserved random variable assumed to be independently distributed with mean zero and variance.

Probit takes the pattern of the events observed in the sample and estimates the coefficients ( $B$ ) by maximum likelihood techniques. These coefficients are used to estimate the probability that given the firm's financial characteristics, the firm will be acquired. The statistical properties of consistency and an asymptotically normal distribution are contained in the coefficients. The statistical significance is tested by looking at the negative ratio of the log likelihood function multiplied by two. This quantity has a chi-squared distribution. In addition, it is the logical equiva-

lent of the F-test in linear regression analysis to test the hypothesis that all estimated coefficients are equal to zero.

To use the probit technique, sample data of the financial characteristics must be obtained for both acquired and nonacquired firms. This study used a sample of sixty-one firms acquired during 1976 and 1977, a sample of forty-five firms acquired in 1974 and 1975, and a sample of approximately 1200 nonacquired firms. Primary data sources used were the Compustat Expanded Industrial Tape, the Compustat Expanded Annual Industrial File, and the Federal Trade Commission's Merger Series.

To be included in the study, an acquired firm must be listed in the Compustat information, the firm must be classified as being in a four-digit industry from 2000 to 3999 (manufacturing) by Compustat, and the firm must be recorded as an acquired firm by the FTC during the period 1974-1977. The FTC definition of merger requires that "the acquisition must represent the purchase of 50.1 percent or more of the stock or assets of the company acquired," and "an independent company, subsidiary, or division of another company must be acquired."<sup>3</sup>

To be included in the study, the nonacquired firms were taken from the Compustat Annual Industrial File. These firms were firms that had an SIC code ranging from 2000-3999

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<sup>3</sup>FTC, Bureau of Economics, Statistical Report on Mergers and Acquisitions (Washington, D.C.: U. S. Government Printing Office, November 1967), p.5.

(manufacturing). A further restriction was that the firms were not in the acquired firm sample because the Annual Industrial Tape used was for May 1979 and the nonacquired firms had not disappeared by merger as of that date.

The ratio of acquired to nonacquired firms in this sample is approximately the same ratio of the acquired and nonacquired firms in the manufacturing sector. It is important to note, however, that the use of the Compustat data includes in the sample, firms that are on the average larger than the total set of firms in the United States.

The specific variables included in this study are listed in Table III. The time period used for measurement are two two-year time periods. That is, the characteristics of the firms in the 1976-1977 time period are measured by averaging 1974 and 1975 data for those firms. The financial characteristics of the firms in the 1974-1975 time period are measured by averaging 1972 and 1973 data for those firms.

The results of the empirical analysis show a very high degree of statistical significance of the ratios. All were significant at the 95 percent level and most were significant at the 99 percent level. The models constructed in this study show that price/earnings ratios and firm size (log assets) had a strong negative effect on the probability of acquisition in both time periods, with a weaker size effect in the 1974-1975 time period. In the 1974-1975 time period higher liquidity increased the probability of acquisition. However, in the 1976-1977 time period this effect was

TABLE III  
VARIABLE DEFINITIONS

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<u>Variable</u>	<u>Definition</u>
Liquidity	Net Working Capital/Assets Cash and Equivalent/Assets
Indebtedness	Long-term Debt/Assets Total Liabilities/Assets Interest Coverage
Profitability	Operating Income After Depreciation/ Assets (preinterest, pretax) Operating Income After Depreciation/ Sales Return on Equity
Activity	Sales/Assets
Internal Versus Ex- ternal Financing	Profits After Tax + Depreciation + Cap- ital Expenditures (Profits After Tax + Depreciation + De- ferred Taxes)/Capital Expenditures
Dividend Policy	Dividends Share/Earnings Per Share
Price/Earnings Ra- tio <sup>(A)</sup>	Market Value/Total Earnings
Size (Log Assets)	Firm Size
Valuation	Book Value Per Share/Market Value Per Share
Additional	Average Annual Growth Rate in Sales for a Firm Tax-Loss Carry-Forward/Total Assets

(A) Negative PE's or PE's greater than 100 were eliminated by deleting the firm from the sample.

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reversed and was statistically insignificant. During the 1976-1977 time period a high use of debt relative to the industry average significantly lowered the chance of being acquired whereas in the 1974-1975 time period the high use of debt had a statistically insignificant positive effect.

The best measure of the significance of the probit estimates is to calculate the probabilities of acquisition based on the specific probit models. If the probit model were a perfect representation of reality, then all the acquired firms would be assigned a probability of one and all the nonacquired firms a probability of zero. A probit model's usefulness is increased to the extent that it can assign probabilities better than a naive model that takes the probability of acquisition to be the same for all firms and equal to the percentage of firms acquired during the time period. Harris, Stewart, and Carleton found that the probit models were not capable of providing substantive discriminatory power.

The major conclusions from the empirical work of Harris, Stewart, and Carleton are as follows:

1. In sample design, it is important to keep the ratio of acquired to nonacquired firms approximately equal to the ratio found in the firm population.
2. The estimated probit models are statistically significant but are not very powerful in explaining the determinants of acquisition activity.
3. A focus on characteristics of only the acquired firms may miss important phenomena that involve

specific matchings of acquired and acquiring firms. This phenomena may be instructive in understanding merger activity.

To summarize, the findings of the studies are that financial characteristics are a factor in the acquisition decisions that firms make. In addition, some financial characteristics may be more important relative to other financial characteristics.

## CHAPTER III

### RESEARCH DESIGN

#### Methods and Procedures

The purpose of this paper is to determine if the acquiring firm in a merger purchases a firm that possesses financial characteristics that complement those of the acquiring firm. To do this, a sample of fifteen proposed mergers announced during the years of 1978-1982 was taken from W. T. Grimm's listing of the one-hundred largest acquisitions during the years 1968-1982.<sup>1</sup> The sample of proposed mergers is listed in Table IV.

The financial characteristics under consideration in this study were grouped into five categories as follows: 1) liquidity, 2) leverage, 3) activity, 4) profitability, and 5) valuation. Eleven ratios were taken from Moody's Industrials and Moody's Handbook of Common Stocks and averaged for five years prior to the year the merger was announced. These ratios are listed in Table V. This average was calculated to minimize the effects of random fluctuations.

The null hypothesis to be tested for each ratio is that

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<sup>1</sup>W. T. Grimm, Mergerstat Review, 1982 ed. (Chicago, Illinois: W. T. Grimm & Co., 1983), pp. 6-10.

TABLE IV  
LIST OF MERGERS STUDIED

Merger Number*	Acquiring Firm Acquired Firm	Year Announced
1	Occidental Petroleum Corp. Cities Service Co.	1981
2	Sun Co., Inc. Seagram Co. Ltd. - Canada	1980
3	Standard Oil Co. of Ohio Kennecott Corp.	1981
4	Allied Corp. Bendix Corp.	1982
5	Exxon Corp. Reliance Electric Co.	1979
6	Bendix Corp. Martin Marietta Corp.	1982
7	Smithkline Corp. Beckman Instruments, Inc.	1981
8	Mobil Corp. Esmark, Inc.	1980
9	Cooper Industries, Inc. Gardner-Denver Co.	1979
10	Allied Chemical Corp. Eltra Corp.	1979
11	R. J. Reynolds Industries, Inc. Del Monte Corp.	1978
12	Anheuser-Busch Cos. Campbell Taggart, Inc.	1982
13	Morton-Norwich Products, Inc. Thiokol Corp.	1982
14	Caterpillar Tractor Co. International Harvester Co.	1981



TABLE IV (CONTINUED)

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Merger Number*	Acquiring Firm Acquired Firm	Year Announced
15	Allegheny International, Inc. Sunbeam Corp.	1981

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\* In the remainder of the paper, mergers are referred to by number only.

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TABLE V  
FINANCIAL RATIOS EMPLOYED

Category	Ratio
Liquidity	Current Ratio
Leverage	Debt to Total Assets Fixed Charges Earned
Activity	Inventory Turnover Sales/Receivables Fixed Asset Turnover* Total Asset Turnover*
Profitability	Profit Margin on Sales Return on Total Assets Return on Net Worth
Valuation	Price/Earnings

\* These ratios are expressed as a percent of sales.

the difference between the means for the acquiring firm and the acquired firm is equal to zero. The alternative hypothesis to be tested is that the difference between the means for each ratio for the acquiring firm and the acquired firm is not equal to zero. This is restated as follows:

$$H_0: M_1 - M_2 = 0$$

$$H_A: M_1 - M_2 \neq 0$$

These hypotheses were tested using a two-tailed paired difference test with a t-test statistic. The procedure used was to calculate the difference between the acquiring firm mean for the ratio under consideration and the acquired firm mean ratio. These differences were then summed and the mean was calculated. This mean is referred to as the mean difference. The standard deviation and the t-value was then calculated. This calculated t-value was compared to the critical t-value with  $N-1$  degrees of freedom, where  $N$  is the number of mergers in the sample.  $N$  was equal to fifteen for all of the ratios in the study except for the P/E ratio. This  $N$  was equal to fourteen due to one merger with P/E's in excess of 100.

### Expected Results

#### Liquidity

Liquidity was tested using the current ratio. The current ratio indicates to the acquiring firm the potential

reservoir of cash; that is, the amount of cash that can be obtained in the merger. The current ratio includes cash and those assets that can be converted to cash in the short term. This includes marketable securities, accounts receivable, and inventories. If the acquired firm is in a highly liquid position the acquiring firm can use this reservoir of cash to increase the borrowing potential of the acquiring firm or to integrate the operations of the merging companies. It is expected that the acquiring firms will be less liquid than the acquired firms resulting in a negative mean difference and a negative calculated t-value.

### Leverage

Leverage ratios measure the degree of financing supplied by the owners relative to the financing supplied by the firm's creditors. Leverage reflects the economies of acquiring funds, that is, firms with higher leverage ratios have more difficulty in obtaining funds relative to those firms with lower leverage ratios. Leverage also indicates the degree of financial risk a firm faces. Firms with lower leverage ratios have less risk of loss and lower expected returns. Highly leveraged firms face the risk of large losses; however, they also have the potential for greater returns.

Leverage was measured using two ratios. The debt ratio measures the percentage of debt relative to total assets. The fixed charges earned ratio measures the extent to which earnings can decline and the firm still be in a position to

meet fixed expenses. The decision about the degree of leverage a firm uses involves a trade-off between risk and return. It is expected that the acquired firms use less leverage than the acquiring firms. This would give the acquiring firm a greater potential for return without the full risk associated with financing this return internally.

### Activity

The next category of ratios considered are the activity ratios. Activity ratios measure how effectively a firm is using its available resources. Four ratios were considered in this category. Inventory turnover indicates the rate at which companies turn over their inventories. A high inventory turnover is often considered a sign of efficiency. The sales/receivables ratio indicates the degree of sales on credit. Fixed asset turnover measures the turnover of plant and equipment, indicating the degree to which the existing capital is utilized. Total asset turnover is similar to the fixed asset turnover, however, it takes the total assets into consideration. A high total asset turnover ratio may indicate that the firm is working close to capacity. An increase in output may only be accomplished with an increase in invested capital.

It is expected that the acquiring firm would purchase a firm that will increase the acquiring firm's level of activity. Therefore, the mean differences and t-values should be negative values.

### Profitability

Profitability is the end result of a large number of policies and decisions, providing information as to how effectively the firm is being managed. Three ratios are included in the study; the profit margin on sales, return on total assets, and return on net worth.

It is expected that the acquiring firms will differ from the acquired firms in terms of profitability. However, it is not possible to say what this difference will be. If the acquiring firm desires to boost its profitability, the firm will purchase a firm with higher profitability ratio. However, it is also conceivable that the acquiring firm will purchase a firm with tax shields that the acquiring firm could take advantage of. Therefore, the acquired firm's profitability ratios would be lower.

### Valuation

The final ratio under consideration is the P/E ratio. A high P/E ratio is generally associated with a rapidly growing company. It is expected that a firm with a high P/E ratio would be complementary for the acquiring firms because this gives the acquiring firm a higher potential for growth.

## CHAPTER IV

### ANALYSIS OF RESULTS

The ratios taken from Moody's Industrials and Moody's Handbook of Common Stocks and the five year average are shown in Appendix A. Appendix B is a listing of the results of the research. A discussion of the results follows.

#### Liquidity

It was expected that the acquired firms would be more liquid than the acquiring firms. This would be manifested in a negative mean difference value and a negative t-value. The results show that at the .10 level the acquired firms were more liquid than the acquiring firms. This finding on the current ratio was not significant at the .05 level, missing significance by only .001. However, it probably would be reasonable to assume significance at this level due to the minute difference in the calculated t-value and critical t-value.

#### Leverage

The leverage hypothesis, that is, acquired firms use less leverage than the acquiring firms was not supported.

The debt ratio and the times charges earned ratio showed no significance at either the .05 level or the .10 level. It is interesting to note, however, that on the debt ratio there were extreme differences in the acquiring firm's debt ratio and the acquired firm's debt ratio. High debt firms generally purchased firms with a considerably lower debt ratio than their own debt ratio. This might indicate that firms do buy firms with debt ratios so that the merged entity would be in a more desirable debt position.

### Activity

Of the four activity ratios, only the fixed asset turnover ratio was significant at the .05 level. This ratio indicated that the acquired firms had a higher fixed asset turnover. It is assumed that the acquiring firms purchased firms that were utilizing their plant and equipment at close to full capacity. However, the activity hypothesis was supported by only one of the four ratios considered.

### Profitability

The profitability hypothesis stated that the profitability ratios for the acquiring and the acquired firms would be different. However, it was not possible to say whether or not the acquired firms were more or less profitable than the acquiring firms. Of the ratios calculated, the profit margin, return on total assets, and return on net worth, two were



significant at the .05 level. The profit margin and the return on net worth indicated that the acquiring firms, on the whole, were more profitable than the acquired firms. The hypothesis was generally supported by the results of the study. However, no reason for this difference can be stated with the present research.

### Valuation

The test on the P/E hypothesis was conducted using fourteen mergers. (Merger 3 was eliminated due to P/E's in excess of 100 for three of the five years under consideration.) This hypothesis stated that the acquired firms would have higher P/E ratios relative to the acquiring firms. Generally speaking, this was true; however, the difference was not significant at either the .05 level or the .10 level.

## CHAPTER V

### SUMMARY AND CONCLUSIONS

This study made an effort to determine if the acquiring firm in an acquisition purchased a firm that had financial characteristics that were complementary to those financial characteristics of the acquiring firm. Restated, do the potential acquired firm financial characteristics complement those financial characteristics of the acquiring firm.

The significant results are that acquiring firms are less liquid and have lower fixed asset turnovers than the acquired firms. These differences indicate that the acquiring firms believe that the excess cash and higher activity level increase the potential for profitability. The profitability ratios indicated that firms purchased less profitable firms. Less profitable firms may complement more profitable firms due to potential tax shields and a lower tax liability for the acquiring firms.

While these results are not significant enough to show that a firm always purchases a firm with complementary financial characteristics, they do indicate that firms do consider the criteria of complementary financial characteristics in evaluating potential acquisitions.

## SELECTED BIBLIOGRAPHY

- Bain, Joe S. Industrial Organization. New York: Wiley, 1959.
- Brealey, Richard and Stewart Meyers. Principles of Corporate Finance. New York: McGraw-Hill Book Company, Inc., 1981.
- Dalton, James A. and Louis Esposito. "The Impact of Liquidity on Merger Activity." The Southern Economic Journal, Vol. XXXIX (April, 1973), pp. 15-26.
- Dellenbarger, L. E. Jr. Common Stock Valuation in Industrial Mergers. Gainesville: University of Florida Press, 1966.
- Emory, William C. Business Research Methods. Homewood, Illinois: Richard D. Irwin, Inc., 1980.
- FTC, Bureau of Economics. Statistical Report on Mergers and Acquisitions. Washington, D. C.: U. S. Government Printing Office, November 1976.
- Grimm, W. T. Mergerstat Review, 1982 Ed. Ed. Tomislava Simic. Chicago, Illinois; W. T. Grim & Co., 1983.
- Harris, Robert S., John F. Stewart and Willard T. Carleton. "Financial Characteristics of Acquired Firms." In Mergers and Acquisitions, pp. 223-241. Ed. Michael Keenan and Lawrence J. White. Lexington: D. C. Heath and Company, 1982.
- Hempel, George H. and Ronald W. Melicher. "Financial Characteristics of Merging Companies: Differences Between Conglomerate and Traditional Mergers." Journal of Economics and Business, Vol. 27 (Fall 1974) pp. 17-26.
- McCarthy, George D. Acquisitions and Mergers. New York: Ronald Press Company, 1963.
- McClave, James T. and P. George Benson. Statistics for Business and Economics, 2nd Ed. Santa Clara, California: Dellen Publishing Company, 1982.
- Monroe, Robert J. "Comment: Financial Characteristics of Merged Firms: A Multivariate Analysis." Journal of

Financial and Quantitative Analysis, Vol. VIII (March, 1973), pp. 163-165.

Moody's Handbook of Common Stocks. New York: Moody's Investors Services, Inc.

Moody's Industrial Manual. New York: Moody's Investors Services, Inc.

Nelson, Ralph L. "Business Cycle Factors in the Choice Between Internal and External Growth." In The Corporate Merger, pp. 52-65. Ed. W. W. Alberts and Joel E. Segall. Chicago: University of Chicago Press, 1966.

Simkowitz, Michael and Robert J. Monroe. "A Discriminant Analysis Function For Conglomerate Targets." Southern Journal of Business, Vol. 6 (November 1971) pp. 1-16.

Stevens, Donald L. "Financial Characteristics of Merged Firms: A Multivariate Analysis." Journal of Financial and Quantitative Analysis, Vol. VIII (March, 1973), pp. 149-158.

Weston, J. Fred The Role of Mergers in the Growth of Large Firms. Los Angeles: University of California Press, 1953, pp. 75-81.

Weston, J. Fred and Eugene F. Brigham. Managerial Finance. 7th Edition. Hinsdale, Illinois: The Dryden Press, 1981.

Womer, Frank B. Basic Concepts in Testing, Boston: Houghton Mifflin Company, 1968.

APPENDIX A  
RATIOS OF THE 15 MERGERS STUDIED

## 1. OCCIDENTAL PETROLEUM CORP./CITIES SERVICE CO.

YEAR ANNOUNCED - 1982

Occidental Petroleum Corp.

Category	Ratio	Year					Mean
		1981	1980	1979	1978	1977	
Liquidity	Current	1.07	1.12	1.11	1.00	1.44	1.148
Leverage	Debt to Total Assets	22.78	30.53	39.17	44.36	37.24	34.616
	Times Charges Earned	4.55	6.49	5.08	1.06	2.60	3.956
Activity	Inventory Turnover	18.30	19.91	19.24	15.21	16.76	17.884
	Sales/Receivables	10.18	8.33	7.36	6.62	10.13	8.524
	Fixed Asset Turnover*	327.26	317.34	300.23	228.83	254.46	285.624
	Total Asset Turnover*	182.15	188.18	171.84	135.67	160.20	167.608
Profitability	Profit Margin	13.90	20.70	20.60	16.30	15.60	17.420
	Return on Total Assets	8.94	10.72	10.10	1.45	4.09	7.060
	Return on Net Worth	21.05	31.17	33.00	.53	11.86	19.522
Valuation	Price/Earnings	3.60	3.30	3.10	(1)	9.10	4.775

Cities Service Co.

Category	Ratio	Year					Mean
		1981	1980	1979	1978	1977	
Liquidity	Current	1.15	1.42	1.46	1.71	1.82	1.512
Leverage	Debt to Total Assets	43.07	29.25	29.28	32.43	28.87	32.580
	Times Charges Earned	2.81	7.20	4.94	2.61	3.83	4.278
Activity	Inventory Turnover	14.91	14.88	15.82	11.63	10.60	13.568
	Sales/Receivables	10.93	9.24	8.15	8.86	9.71	9.378
	Fixed Asset Turnover*	212.26	202.79	196.95	160.08	163.56	187.128
	Total Asset Turnover*	141.30	138.90	125.10	110.93	110.94	125.434
Profitability	Profit Margin	12.40	13.40	11.90	10.60	11.70	12.000
	Return on Total Assets	-.81	8.91	7.28	2.95	5.62	4.789
	Return on Net Worth	-2.34	18.52	15.60	5.99	10.85	9.725
Valuation	Price/Earnings	14.90	7.70	5.70	12.20	7.20	9.540

\*Expressed as a percent of sales.

(1) This was eliminated in the calculation of the mean due to a negative P/E.

## 2. SUN CO., INC./SEAGRAM CO. LTD. - CANADA

YEAR ANNOUNCED - 1980

Sun Co., Inc.

Category	Ratio	Year					Mean
		1979	1978	1977	1976	1975	
Liquidity	Current	1.27	1.21	1.40	1.40	1.38	1.332
Leverage	Debt to Total Assets	16.88	17.71	20.42	22.16	19.66	19.366
	Times Charges Earned	7.19	4.76	6.66	6.68	5.05	6.068
Activity	Inventory Turnover	14.26	14.89	16.66	13.82	12.78	14.482
	Sales/Receivables	12.50	9.96	7.50	8.08	6.31	8.870
	Fixed Asset Turnover*	267.75	205.75	217.52	186.61	159.76	207.478
	Total Asset Turnover*	142.96	123.82	123.88	111.97	97.85	120.096
Profitability	Profit Margin	21.20	14.60	14.30	9.90	14.30	14.860
	Return on Total Assets	9.38	6.85	7.96	7.85	5.02	7.412
	Return on Net Worth	18.57	12.81	14.91	14.91	9.20	14.080
Valuation	Price/Earnings	4.40	7.60	4.90	6.10	6.10	5.820

Seagram Co. Ltd. - Canada

Category	Ratio	Year					Mean
		1979	1978	1977	1976	1975	
Liquidity	Current	2.28	2.75	3.64	3.05	2.61	2.866
Leverage	Debt to Total Assets	25.63	32.05	33.51	38.15	34.08	32.684
	Times Charges Earned	4.76	3.28	2.60	2.93	3.62	3.438
Activity	Inventory Turnover	2.44	2.36	2.63	2.44	2.39	2.452
	Sales/Receivables	8.03	6.78	6.32	5.06	4.84	6.206
	Fixed Asset Turnover*	678.87	581.87	604.75	566.05	581.36	602.580
	Total Asset Turnover*	104.80	98.97	106.61	94.81	96.96	100.430
Profitability	Profit Margin	10.90	10.40	9.90	9.20	9.50	9.980
	Return on Total Assets	6.90	3.94	4.25	3.73	3.72	4.508
	Return on Net Worth	13.76	8.34	8.51	8.34	8.12	9.414
Valuation	Price/Earnings	7.30	9.60	8.70	11.10	14.60	10.260

\*Expressed as a percent of sales

## 3. STANDARD OIL CO. OF OHIO/KENNECOTT CORP.

YEAR ANNOUNCED - 1981

Standard Oil Co. of Ohio

Category	Ratio	Year					Mean
		1980	1979	1978	1977	1976	
Liquidity	Current	1.19	1.97	1.40	1.56	1.61	1.546
Leverage	Debt to Total Assets	43.62	55.33	69.68	71.19	72.51	62.466
	Times Charges Earned	6.07	3.70	1.94	1.71	3.80	3.444
Activity	Inventory Turnover	23.64	17.04	9.86	7.77	12.22	14.106
	Sales/Receivables	10.20	7.77	6.51	5.59	6.67	7.348
	Fixed Asset Turnover*	170.81	127.98	85.26	61.20	59.90	101.030
	Total Asset Turnover*	91.25	85.96	62.43	45.30	46.59	66.306
Profitability	Profit Margin	44.30	30.50	27.00	12.70	7.70	24.440
	Return on Total Assets	14.99	12.88	5.41	2.33	2.19	7.560
	Return on Net Worth	39.71	38.43	27.06	10.78	8.83	23.962
Valuation	Price/Earnings	8.90	6.80	9.00	22.10	20.00	13.360

Kennecott Corp.

Category	Ratio	Year					Mean
		1980	1979	1978	1977	1976	
Liquidity	Current	1.90	1.72	1.94	1.84	2.17	1.914
Leverage	Debt to Total Assets	31.43	72.35	30.66	26.98	27.85	37.854
	Times Charges Earned	3.50	2.86	1.08	1.07	.76	1.854
Activity	Inventory Turnover	4.86	5.22	4.06	1.88	3.01	3.806
	Sales/Receivables	5.69	6.23	6.45	2.98	6.52	5.574
	Fixed Asset Turnover*	151.36	169.76	136.50	70.60	114.16	128.476
	Total Asset Turnover*	69.81	87.39	72.07	34.80	41.42	61.098
Profitability	Profit Margin	6.40	8.10	2.90	.30	.40	3.620
	Return on Total Assets	5.95	4.68	.19	.27	.38	2.294
	Return on Net Worth	11.90	8.88	.37	.53	.63	4.462
Valuation	Price/Earnings	5.80	6.50	(1)	(1)	(1)	(1)

\*Expressed as a percent of sales

(1) P/E's for this merger were eliminated from the study due to ratios in excess of 100.



4. ALLIED CORP./BENDIX CORP.  
YEAR ANNOUNCED - 1982

Allied Corp.

Category	Ratio	Year					Mean
		1981	1980	1979	1978	1977	
Liquidity	Current	1.46	1.40	1.21	1.43	1.69	1.438
Leverage	Debt to Total Assets	31.08	34.72	43.67	38.16	40.93	37.712
	Times Charges Earned	4.95	4.57	2.72	3.24	3.55	3.806
Activity	Inventory Turnover	7.62	9.18	7.19	9.04	9.17	8.440
	Sales/Receivables	6.87	7.03	5.73	6.05	6.07	6.350
	Fixed Asset Turnover*	223.55	231.50	199.76	147.74	146.20	189.750
	Total Asset Turnover*	119.89	121.62	102.92	92.77	92.10	105.860
Profitability	Profit Margin	16.70	17.90	16.10	10.10	9.60	14.080
	Return on Total Assets	6.51	6.37	.26	3.7	4.71	4.310
	Return on Net Worth	18.32	17.37	.88	9.45	11.30	11.464
Valuation	Price/Earnings	5.40	6.20	6.60	8.60	9.10	7.180

Bendix Corp.

Category	Ratio	Year					Mean
		1981	1980	1979	1978	1977	
Liquidity	Current	1.92	1.72	1.57	1.62	1.68	1.702
Leverage	Debt to Total Assets	26.16	29.07	27.37	26.93	22.97	26.500
	Times Charges Earned	2.66	2.48	3.07	3.00	3.11	2.864
Activity	Inventory Turnover	4.87	4.31	4.88	5.15	4.96	4.834
	Sales/Receivables	7.06	5.92	6.99	7.54	8.59	7.220
	Fixed Asset Turnover*	136.50	131.27	149.41	160.29	165.48	148.590
	Total Asset Turnover*	595.84	543.65	618.20	648.73	641.13	609.510
Profitability	Profit Margin	6.50	7.50	7.20	7.90	5.30	6.880
	Return on Total Assets	14.07	6.55	7.18	6.50	6.67	8.194
	Return on Net Worth	30.87	14.29	15.70	13.91	14.08	17.770
Valuation	Price/Earnings	7.30	6.50	5.70	6.60	7.70	6.760

\*Expressed as a percent of sales.

## 5. EXXON CORP./RELIANCE ELECTRIC CO.

YEAR ANNOUNCED - 1979

Exxon Corp.

Category	Ratio	Year					Mean
		1978	1977	1976	1975	1974	
Liquidity	Current	1.36	1.43	1.43	1.50	1.55	1.454
Leverage	Debt to Total Assets	15.64	16.83	16.67	16.85	16.33	16.464
	Times Charges Earned	5.52	5.17	10.98	10.56	9.21	8.288
Activity	Inventory Turnover	15.10	13.48	12.42	12.20	11.05	12.850
	Sales/Receivables	9.65	10.24	9.82	9.56	8.67	9.588
	Fixed Asset Turnover*	284.52	285.29	281.63	301.88	308.64	292.392
	Total Asset Turnover*	156.24	152.09	144.73	148.48	146.98	149.704
Profitability	Profit Margin	31.30	32.00	31.40	21.10	25.40	28.240
	Return on Total Assets	6.65	6.36	7.26	7.62	9.72	7.522
	Return on Net Worth	13.66	12.78	14.29	14.70	19.38	14.962
Valuation	Price/Earnings	7.80	9.40	8.40	7.10	5.50	7.640

Reliance Electric Co.

Category	Ratio	Year					Mean
		1978	1977	1976	1975	1974	
Liquidity	Current	2.52	2.50	2.56	2.61	1.90	2.418
Leverage	Debt to Total Assets	23.47	25.22	28.43	32.42	23.96	26.700
	Times Charges Earned	8.54	7.59	5.99	4.90	4.82	6.368
Activity	Inventory Turnover	5.11	5.19	4.69	5.16	4.14	4.858
	Sales/Receivables	5.51	5.73	5.72	5.60	5.02	5.516
	Fixed Asset Turnover*	595.24	576.26	559.59	596.50	620.01	589.520
	Total Asset Turnover*	157.56	153.08	145.85	157.37	154.37	153.646
Profitability	Profit Margin	15.60	13.70	14.00	11.50	10.30	13.020
	Return on Total Assets	10.54	9.88	8.96	8.54	7.69	9.122
	Return on Net Worth	19.95	19.02	17.85	18.17	17.19	18.436
Valuation	Price/Earnings	8.20	8.90	7.40	4.50	6.10	7.020

\*Expressed as a percent of sales.

6. BENDIX CORP./MARTIN MARIETTA CORP.  
YEAR ANNOUNCED - 1982

Bendix Corp.

Category	Ratio	Year					Mean
		1981	1980	1979	1978	1977	
Liquidity	Current	1.92	1.72	1.57	1.62	1.68	1.702
Leverage	Debt to Total Assets	26.16	29.07	27.37	26.93	22.97	26.500
	Times Charges Earned	2.66	2.48	3.07	3.00	3.11	2.864
Activity	Inventory Turnover	4.87	4.31	4.88	5.15	4.96	4.834
	Sales/Receivables	7.06	5.92	6.99	7.54	8.59	7.220
	Fixed Asset Turnover*	136.50	131.27	149.41	160.29	165.48	148.590
	Total Asset Turnover*	595.84	543.65	618.20	648.73	641.13	609.510
Profitability	Profit Margin	6.50	7.50	7.20	7.90	5.30	6.880
	Return on Total Assets	14.07	6.55	7.18	6.50	6.67	8.194
	Return on Net Worth	30.87	14.29	15.70	13.91	14.08	17.770
Valuation	Price/Earnings	7.30	6.50	5.70	6.60	7.70	6.760

Martin Marietta Corp.

Category	Ratio	Year					Mean
		1981	1980	1979	1978	1977	
Liquidity	Current	1.90	1.77	2.17	1.64	1.88	1.872
Leverage	Debt to Total Assets	23.07	12.87	12.37	14.85	23.17	17.266
	Times Charges Earned	3.07	29.22	15.93	10.79	6.77	13.156
Activity	Inventory Turnover	7.15	7.75	8.59	8.82	6.88	7.838
	Sales/Receivables	11.27	7.83	6.88	6.21	6.34	7.706
	Fixed Asset Turnover*	228.84	243.01	244.91	250.79	232.97	240.104
	Total Asset Turnover*	129.39	126.57	116.20	112.33	104.57	117.812
Profitability	Profit Margin	6.70	8.80	12.90	12.80	12.70	10.780
	Return on Total Assets	7.86	9.09	10.04	8.69	7.41	8.680
	Return on Net Worth	16.67	17.01	18.36	15.74	14.07	16.370
Valuation	Price/Earnings	6.60	7.50	5.30	5.20	6.00	6.120

\*Expressed as a percent of sales.

## 7. SMITHKLINE CORP./BECKMAN INSTRUMENTS, INC.

YEAR ANNOUNCED - 1981

Smithkline Corp.

Category	Ratio	Year					Mean
		1980	1979	1978	1977	1976	
Liquidity	Current	2.61	2.43	2.46	2.44	2.49	2.486
Leverage	Debt to Total Assets	12.13	13.86	16.96	19.96	22.49	17.080
	Times Charges Earned	13.20	13.90	10.37	5.70	5.43	9.720
Activity	Inventory Turnover	5.55	5.15	6.75	6.05	6.27	5.954
	Sales/Receivables	5.26	5.01	5.40	5.13	5.33	5.226
	Fixed Asset Turnover*	420.10	454.50	524.97	441.03	447.49	457.618
	Total Asset Turnover*	113.99	112.16	125.77	104.30	101.02	111.448
Profitability	Profit Margin	25.50	25.40	23.40	17.30	16.40	21.600
	Return on Total Assets	19.81	19.11	18.63	11.93	10.80	16.056
	Return on Net Worth	31.20	32.16	31.89	21.14	19.95	27.268
Valuation	Price/Earnings	13.30	13.10	13.60	13.60	14.60	13.640

Beckman Instruments, Inc.

Category	Ratio	Year					Mean
		1980	1979	1978	1977	1976	
Liquidity	Current	2.53	2.28	2.41	2.41	2.48	2.421
Leverage	Debt to Total Assets	48.65	55.90	49.94	48.32	48.51	50.265
	Times Charges Earned	2.04	2.07	2.04	2.04	2.05	2.049
Activity	Inventory Turnover	2.99	2.91	3.19	3.36	3.25	3.139
	Sales/Receivables	4.01	3.73	4.49	4.42	4.67	4.265
	Fixed Asset Turnover*	356.07	399.36	433.43	487.02	445.61	424.299
	Total Asset Turnover*	102.83	102.04	111.38	115.21	110.94	108.478
Profitability	Profit Margin	13.00	13.30	13.00	11.20	9.40	11.980
	Return on Total Assets	6.84	7.01	7.38	6.60	5.32	6.632
	Return on Net Worth	13.33	15.90	14.75	12.77	10.32	13.414
Valuation	Price/Earnings	18.10	15.80	14.10	14.50	18.00	16.100

\*Expressed as a percent of sales

## 8. MOBIL CORP./ESMARK, INC.

YEAR ANNOUNCED - 1980

Mobil Corp.

Category	Ratio	Year					Mean
		1979	1978	1977	1976	1975	
Liquidity	Current	1.06	1.13	1.20	1.19	1.18	1.152
Leverage	Debt to Total Assets	23.91	27.39	30.64	31.67	24.63	27.648
	Times Charges Earned	5.37	3.69	3.58	3.58	4.67	4.178
Activity	Inventory Turnover	9.03	8.42	8.48	7.71	9.34	8.596
	Sales/Receivables	8.84	8.29	8.20	7.46	7.32	8.022
	Fixed Asset Turnover*	341.31	321.15	322.13	278.27	299.49	312.470
	Total Asset Turnover*	162.59	151.82	151.67	134.88	135.15	147.222
Profitability	Profit Margin	28.70	26.30	27.10	28.90	32.60	28.720
	Return on Total Assets	7.30	4.94	4.84	5.04	5.39	5.502
	Return on Net Worth	19.09	12.51	12.28	12.57	11.93	13.676
Valuation	Price/Earnings	5.00	6.10	7.10	6.20	5.20	5.920

Esmark, Inc.

Category	Ratio	Year					Mean
		1979	1978	1977	1976	1975	
Liquidity	Current	1.73	1.93	2.06	1.73	1.80	1.850
Leverage	Debt to Total Assets	38.05	40.22	38.88	37.80	34.46	37.882
	Times Charges Earned	2.26	2.46	2.44	2.74	3.62	2.704
Activity	Inventory Turnover	9.05	10.19	10.97	10.66	10.71	10.316
	Sales/Receivables	12.82	12.00	14.23	16.07	15.79	14.182
	Fixed Asset Turnover*	798.37	718.85	627.73	696.96	751.39	718.660
	Total Asset Turnover*	282.16	271.28	284.71	293.93	312.87	288.990
Profitability	Profit Margin	3.30	2.40	2.30	2.60	3.60	2.840
	Return on Total Assets	3.87	3.73	3.95	4.79	5.29	4.326
	Return on Net Worth	10.64	9.86	9.74	12.08	12.81	11.026
Valuation	Price/Earnings	6.30	7.30	9.00	8.00	5.10	7.140

\*Expressed as a percent of sales

## 9. COOPER INDUSTRIES, INC./GARDNER-DENVER CO.

YEAR ANNOUNCED - 1979

Cooper Industries, Inc.

Category	Ratio	Year					Mean
		1978	1977	1976	1975	1974	
Liquidity	Current	1.87	2.05	2.06	2.21	2.10	2.058
Leverage	Debt to Total Assets	11.07	20.15	28.48	28.62	29.56	23.576
	Times Charges Earned	13.72	9.76	8.23	5.19	4.36	8.252
Activity	Inventory Turnover	3.91	3.85	3.40	3.27	3.33	3.552
	Sales/Receivables	5.15	5.31	4.82	5.26	5.29	5.166
	Fixed Asset Turnover*	509.98	499.33	438.01	460.11	411.30	463.746
	Total Asset Turnover*	142.33	136.78	122.52	128.17	124.45	130.850
Profitability	Profit Margin	17.70	16.50	15.70	13.20	15.90	15.800
	Return on Total Assets	12.41	10.84	9.24	8.43	7.39	9.662
	Return on Net Worth	22.86	20.94	19.81	17.57	15.54	19.344
Valuation	Price/Earnings	8.40	9.10	8.60	6.80	6.90	7.960

Gardner-Denver Co.

Category	Ratio	Year					Mean
		1978	1977	1976	1975	1974	
Liquidity	Current	4.06	4.31	5.56	5.18	4.35	4.692
Leverage	Debt to Total Assets	23.33	25.15	27.22	19.35	25.01	24.012
	Times Charges Earned	5.95	3.24	3.79	5.95	4.79	4.744
Activity	Inventory Turnover	3.51	2.71	2.68	2.64	2.52	2.812
	Sales/Receivables	4.49	4.51	4.84	4.87	4.03	4.548
	Fixed Asset Turnover*	799.76	683.90	476.39	478.93	420.83	571.962
	Total Asset Turnover*	131.21	112.71	106.49	113.91	105.13	113.890
Profitability	Profit Margin	7.89	13.00	10.90	15.40	15.30	12.498
	Return on Total Assets	10.35	5.30	4.79	8.76	7.82	7.404
	Return on Net Worth	17.49	9.10	7.97	13.30	12.90	12.152
Valuation	Price/Earnings	7.50	15.10	22.50	13.60	18.50	15.440

\*Expressed as a percent of sales.

## 10. ALLIED CHEMICAL CORP./ELTRA CORP.

YEAR ANNOUNCED - 1979

Allied Chemical Corp.

Category	Ratio	Year					Mean
		1978	1977	1976	1975	1974	
Liquidity	Current	1.43	1.69	1.96	2.14	1.93	1.830
Leverage	Debt to Total Assets	36.81	33.63	32.26	32.26	26.78	32.348
	Times Charges Earned	2.75	3.50	3.41	3.43	5.01	3.620
Activity	Inventory Turnover	9.79	9.03	7.89	7.68	7.70	8.418
	Sales/Receivables	6.56	6.71	7.74	7.86	8.21	7.416
	Fixed Asset Turnover*	160.08	161.53	170.49	170.68	183.24	169.204
	Total Asset Turnover*	101.24	101.76	104.04	100.21	107.57	102.964
Profitability	Profit Margin	10.10	9.60	8.80	9.60	11.20	9.860
	Return on Total Assets	3.72	4.71	4.64	4.97	6.97	5.002
	Return on Net Worth	9.45	11.30	10.39	11.16	14.83	11.426
Valuation	Price/Earnings	8.60	9.10	8.70	8.00	7.10	8.300

Eltra Corp.

Category	Ratio	Year					Mean
		1978	1977	1976	1975	1974	
Liquidity	Current	2.76	2.87	2.92	2.65	2.56	2.752
Leverage	Debt to Total Assets	19.16	20.57	21.32	15.50	18.18	18.946
	Times Charges Earned	6.15	5.82	6.04	5.03	5.76	5.760
Activity	Inventory Turnover	4.10	4.04	3.73	3.99	4.22	4.016
	Sales/Receivables	5.01	5.03	4.95	4.87	4.58	4.888
	Fixed Asset Turnover*	721.36	678.36	667.56	698.77	787.96	710.802
	Total Asset Turnover*	138.54	139.09	134.14	143.26	148.42	140.690
Profitability	Profit Margin	8.30	7.20	8.80	8.50	8.10	8.180
	Return on Total Assets	6.50	6.41	6.69	6.83	6.88	6.662
	Return on Net Worth	12.23	11.94	12.47	12.26	12.95	12.370
Valuation	Price/Earnings	7.20	7.20	7.70	5.80	4.80	6.540

\*Expressed as a percent of sales.

## 11. R. J. REYNOLDS INDUSTRIES, INC./DEL MONTE CORP.

YEAR ANNOUNCED - 1978

R. J. Reynolds Industries, Inc.

Category	Ratio	Year					Mean
		1977	1976	1975	1974	1973	
Liquidity	Current	2.40	2.05	2.38	2.12	2.68	2.326
Leverage	Debt to Total Assets	24.13	23.84	19.15	23.37	24.89	23.076
	Times Charges Earned	5.41	6.02	7.04	6.03	6.90	6.280
Activity	Inventory Turnover	3.56	3.06	2.78	2.91	2.79	3.020
	Sales/Receivables	8.92	8.92	9.29	8.99	8.98	9.020
	Fixed Asset Turnover*	241.09	219.14	279.04	277.67	198.91	243.170
	Total Asset Turnover*	111.12	100.04	106.70	105.97	89.99	102.764
Profitability	Profit Margin	12.80	13.50	17.40	18.30	22.50	16.900
	Return on Total Assets	9.77	8.23	10.21	9.54	9.49	9.448
	Return on Net Worth	17.71	16.73	17.79	17.90	16.50	17.326
Valuation	Price/Earnings	7.40	8.20	7.50	6.50	7.80	7.480

Del Monte Corp.

Category	Ratio	Year					Mean
		1977	1976	1975	1974	1973	
Liquidity	Current	2.70	2.20	2.07	2.16	2.18	2.262
Leverage	Debt to Total Assets	34.36	35.06	38.66	34.74	37.78	36.120
	Times Charges Earned	2.71	2.61	2.63	3.16	2.49	2.720
Activity	Inventory Turnover	4.73	4.36	3.66	4.59	5.04	4.476
	Sales/Receivables	11.62	10.12	10.32	11.43	9.77	10.652
	Fixed Asset Turnover*	663.80	634.85	612.36	544.01	495.81	590.166
	Total Asset Turnover*	185.08	179.59	163.72	163.50	158.45	170.068
Profitability	Profit Margin	8.30	7.80	7.70	7.60	7.50	7.780
	Return on Total Assets	6.35	6.68	6.28	6.13	4.40	5.968
	Return on Net Worth	13.49	15.48	16.00	14.30	14.30	14.714
Valuation	Price/Earnings	6.30	6.10	5.50	5.10	6.10	5.820

\*Expressed as a percent of sales.



## 12. ANHEUSER-BUSCH COS./CAMPBELL TAGGART, INC.

YEAR ANNOUNCED - 1982

Anheuser-Busch Cos.

Category	Ratio	Year					Mean
		1981	1980	1979	1978	1977	
Liquidity	Current	1.10	1.10	1.33	1.93	1.89	1.470
Leverage	Debt to Total Assets	31.44	36.52	35.97	36.36	33.37	34.732
	Times Charges Earned	9.49	6.07	4.58	4.84	4.44	5.884
Activity	Inventory Turnover	16.84	14.11	12.24	12.31	11.33	13.366
	Sales/Receivables	26.05	23.09	23.33	27.23	27.93	25.526
	Fixed Asset Turnover*	170.41	169.21	189.90	203.71	193.08	185.262
	Total Asset Turnover*	133.81	134.52	144.13	137.12	130.93	136.102
Profitability	Profit Margin	9.30	9.50	8.90	9.80	10.10	9.520
	Return on Total Assets	7.56	7.01	10.20	6.74	6.55	7.612
	Return on Net Worth	18.01	16.66	21.72	14.85	13.65	16.978
Valuation	Price/Earnings	7.50	7.40	7.30	9.20	10.70	8.420

Campbell Taggart, Inc.

Category	Ratio	Year					Mean
		1981	1980	1979	1978	1977	
Liquidity	Current	1.51	1.40	1.33	1.21	1.45	1.380
Leverage	Debt to Total Assets	35.80	24.11	27.90	25.68	25.55	27.808
	Times Charges Earned	4.91	5.17	5.04	5.76	5.58	5.292
Activity	Inventory Turnover	20.18	20.46	20.61	20.42	26.21	21.576
	Sales/Receivables	14.82	14.90	14.27	14.23	14.33	14.510
	Fixed Asset Turnover*	430.36	400.45	376.26	366.18	373.62	389.374
	Total Asset Turnover*	244.29	250.93	238.05	231.80	243.39	241.692
Profitability	Profit Margin	9.40	9.20	9.50	9.70	10.40	9.640
	Return on Total Assets	8.10	8.17	7.77	7.77	8.02	7.966
	Return on Net Worth	18.52	16.28	16.47	16.60	16.29	16.832
Valuation	Price/Earnings	9.10	7.30	8.00	9.40	9.00	8.560

\*Expressed as a percent of sales

## 13. MORTON-NORWICH PRODUCTS, INC./THIOKOL CORP.

YEAR ANNOUNCED - 1982

Morton-Norwich Products, Inc.

Category	Ratio	Year					Mean
		1981	1980	1979	1978	1977	
Liquidity	Current	2.09	2.29	2.74	3.33	3.16	2.722
Leverage	Debt to Total Assets	20.56	22.12	25.64	28.31	33.53	26.032
	Times Charges Earned	4.21	4.80	4.89	4.02	3.68	4.320
Activity	Inventory Turnover	7.60	7.01	7.44	7.41	6.90	7.272
	Sales/Receivables	6.72	6.69	6.10	7.45	8.00	6.992
	Fixed Asset Turnover*	344.29	337.41	327.91	336.91	336.91	336.686
	Total Asset Turnover*	137.48	136.27	124.68	125.94	130.03	130.880
Profitability	Profit Margin	8.50	7.90	10.00	9.80	9.80	9.200
	Return on Total Assets	7.61	7.68	7.85	7.08	6.76	7.396
	Return on Net Worth	13.87	13.71	14.46	12.78	13.18	13.600
Valuation	Price/Earnings	8.30	7.80	8.80	10.20	9.50	8.920

Thiokol Corp.

Category	Ratio	Year					Mean
		1981	1980	1979	1978	1977	
Liquidity	Current	1.95	1.56	1.88	1.91	2.35	1.930
Leverage	Debt to Total Assets	1.94	3.26	3.09	11.66	13.47	6.684
	Times Charges Earned	21.22	15.67	15.38	7.49	8.19	13.590
Activity	Inventory Turnover	8.08	7.99	9.90	7.78	6.30	8.010
	Sales/Receivables	14.17	9.55	8.87	7.19	10.34	10.024
	Fixed Asset Turnover*	413.76	367.19	428.68	357.10	360.41	385.428
	Total Asset Turnover*	154.07	141.82	131.34	128.85	120.88	135.392
Profitability	Profit Margin	5.15	15.70	20.30	10.00	9.80	12.190
	Return on Total Assets	7.93	7.37	9.87	7.39	7.50	8.012
	Return on Net Worth	14.75	14.29	19.60	15.05	14.03	15.544
Valuation	Price/Earnings	10.30	11.50	6.70	7.00	6.40	8.380

\*Expressed as a percent of sales

14. CATERPILLAR TRACTOR CO./INTERNATIONAL HARVESTER CO.  
YEAR ANNOUNCED - 1981

Caterpillar Tractor Co.

Category	Ratio	Year					Mean
		1980	1979	1978	1977	1976	
Liquidity	Current	1.71	1.88	2.12	2.36	2.55	2.124
Leverage	Debt to Total Assets	21.35	23.70	27.00	30.14	33.78	27.194
	Times Charges Earned	4.26	4.53	6.06	5.46	5.89	5.240
Activity	Inventory Turnover	4.91	4.56	4.74	4.54	4.05	4.560
	Sales/Receivables	9.42	10.99	9.40	9.02	8.34	9.434
	Fixed Asset Turnover*	285.78	288.62	316.44	292.58	296.85	296.054
	Total Asset Turnover*	140.99	140.90	143.49	134.59	129.49	137.892
Profitability	Profit Margin	9.70	13.00	14.80	14.90	14.20	13.320
	Return on Total Assets	9.26	9.10	11.26	10.24	9.84	9.940
	Return on Net Worth	16.46	16.04	20.58	19.00	18.90	18.196
Valuation	Price/Earnings	8.20	9.80	8.40	10.50	12.10	9.800

International Harvester Co.

Category	Ratio	Year					Mean
		1980	1979	1978	1977	1976	
Liquidity	Current	1.38	1.74	1.84	2.21	2.18	1.870
Leverage	Debt to Total Assets	43.89	30.61	33.20	35.51	37.11	36.064
	Times Charges Earned	-3.63	3.49	2.48	2.70	2.44	1.496
Activity	Inventory Turnover	2.71	3.58	3.52	3.45	3.46	3.344
	Sales/Receivables	8.21	10.42	9.76	11.11	9.10	9.720
	Fixed Asset Turnover*	494.18	807.59	749.04	750.37	772.64	714.764
	Total Asset Turnover*	108.01	159.95	154.41	156.69	153.52	146.516
Profitability	Profit Margin	-6.29	5.60	5.90	7.60	7.40	4.042
	Return on Total Assets	-6.80	7.04	4.33	5.32	4.87	2.952
	Return on Net Worth	-23.42	17.20	9.95	11.71	11.07	5.302
Valuation	Price/Earnings	2.38	3.30	5.20	9.60	4.60	5.016

\*Expressed as a percent of sales.

## 15. ALLEGHENY INTERNATIONAL, INC./SUNBEAM CORP.

YEAR ANNOUNCED - 1981

Allegheny International, Inc.

Category	Ratio	Year					Mean
		1980	1979	1978	1977	1976	
Liquidity	Current	1.67	2.01	2.09	2.76	2.47	2.200
Leverage	Debt to Total Assets	47.31	43.31	45.17	46.01	36.11	43.582
	Times Charges Earned	2.60	2.29	1.80	2.67	3.23	2.518
Activity	Inventory Turnover	2.74	5.03	3.16	3.60	4.78	3.862
	Sales/Receivables	3.13	5.07	4.61	5.08	8.17	5.212
	Fixed Asset Turnover*	268.63	514.41	201.83	243.38	366.44	318.938
	Total Asset Turnover*	67.84	74.58	70.09	85.61	133.73	86.370
Profitability	Profit Margin	7.10	6.50	5.70	13.10	5.20	7.520
	Return on Total Assets	3.37	6.27	3.10	2.40	4.62	3.952
	Return on Net Worth	9.64	15.21	7.73	5.75	9.84	9.634
Valuation	Price/Earnings	4.90	3.40	6.20	8.30	6.80	5.920

Sunbeam Corp.

Category	Ratio	Year					Mean
		1980	1979	1978	1977	1976	
Liquidity	Current	2.29	2.07	2.15	2.23	2.33	2.214
Leverage	Debt to Total Assets	30.33	25.31	26.95	28.67	27.98	27.848
	Times Charges Earned	2.28	2.85	2.77	3.13	3.24	2.854
Activity	Inventory Turnover	3.86	3.84	3.92	3.74	3.94	3.860
	Sales/Receivables	5.09	4.88	5.29	5.34	5.54	5.228
	Fixed Asset Turnover*	899.10	890.88	909.78	860.05	964.99	904.960
	Total Asset Turnover*	159.21	157.51	162.02	156.97	159.55	159.052
Profitability	Profit Margin	8.40	8.20	8.90	9.30	8.80	8.720
	Return on Total Assets	5.49	5.86	5.95	5.19	5.17	5.533
	Return on Net Worth	11.20	5.49	12.92	13.05	10.93	10.718
Valuation	Price/Earnings	5.60	6.30	6.40	7.30	10.30	7.180

\*Expressed as a percent of sales.

APPENDIX B

MEANS, DIFFERENCES, STANDARD DEVIATIONS  
AND t-VALUES FOR RATIOS STUDIED

## Notes

The following applies to the symbols used in this appendix.

X1 refers to the acquiring firm.

X2 refers to the acquired firm.

MD refers to the mean of the difference  $X1-X2$ .

SD refers to the standard deviation.

## CURRENT RATIO

MERGER	X1	X2	X1-X2	(X1-X2)-MD	((X1-X2)-MD)
1	1.148	1.512	-.364	.080	.006
2	1.332	2.866	-1.534	-1.090	1.187
3	1.546	1.914	-.368	.076	.006
4	1.438	1.702	-.264	.180	.033
5	1.454	2.418	-.964	-.520	.270
6	1.702	1.872	-.170	.274	.075
7	2.486	2.421	.065	.509	.259
8	1.152	1.850	-.698	-.254	.064
9	2.058	4.692	-2.634	-2.190	4.794
10	1.830	2.752	-.922	-.478	.228
11	2.326	2.262	.064	.508	.259
12	1.470	1.380	.090	.534	.286
13	2.722	1.930	.792	1.236	1.529
14	2.124	1.870	.254	.698	.488
15	2.200	2.214	-.014	.430	.185
TOTAL	26.988	33.655	-6.667		9.669

MD = -.444

SD = .803

t = -2.144

## DEBT TO TOTAL ASSETS

MERGER	X1	X2	X1-X2	(X1-X2)-MD	((X1-X2)-MD)
1	34.616	32.580	2.036	1.157	1.340
2	19.366	32.684	-13.318	-14.197	201.544
3	62.466	37.854	24.612	23.733	563.273
4	37.712	26.500	11.212	10.333	106.778
5	16.464	26.700	-10.236	-11.115	123.535
6	26.500	17.266	9.234	8.355	69.812
7	17.080	50.265	-33.185	-34.063	1160.298
8	27.648	37.882	-10.234	-11.113	123.491
9	23.576	24.012	-.436	-1.315	1.728
10	32.348	18.946	13.402	12.523	156.835
11	23.076	36.120	-13.044	-13.923	193.840
12	34.732	27.808	6.924	6.045	36.546
13	26.032	6.684	19.348	18.469	341.118
14	27.194	36.064	-8.870	-9.749	95.036
15	43.582	27.848	15.734	14.855	220.682
TOTAL	452.392	439.213	13.179		3395.856

MD = .879

SD = 15.046

t = .226



## TIMES CHARGES EARNED

MERGER	X1	X2	X1-X2	(X1-X2)-MD	((X1-X2)-MD)
1	3.956	4.278	-.322	-.673	.453
2	6.068	3.438	2.630	2.279	5.192
3	3.444	1.854	1.590	1.239	1.534
4	3.806	2.864	.942	.591	.349
5	8.288	6.368	1.920	1.569	2.461
6	2.864	13.156	-10.292	-10.643	113.282
7	9.720	2.049	7.671	7.319	53.575
8	4.178	2.704	1.474	1.123	1.260
9	8.252	4.744	3.508	3.157	9.964
10	3.620	5.760	-2.140	-2.491	6.207
11	6.280	2.720	3.560	3.209	10.295
12	5.884	5.292	.592	.241	.058
13	4.320	13.590	-9.270	-9.621	92.571
14	5.240	1.496	3.744	3.393	11.510
15	2.518	2.854	-.336	-.687	.473
TOTAL	78.438	73.167	5.271		309.183

MD = .351

SD = 4.540

t = .300

## INVENTORY TURNOVER

MERGER	X1	X2	X1-X2	(X1-X2)-MD	((X1-X2)-MD)
1	17.884	13.568	4.316	2.163	4.680
2	14.482	2.452	12.030	9.877	97.561
3	14.106	3.806	10.300	8.147	66.378
4	8.440	4.834	3.606	1.453	2.112
5	12.850	4.858	7.992	5.839	34.097
6	4.834	7.838	-3.004	-5.157	26.592
7	5.954	3.139	2.815	.662	.438
8	8.596	10.316	-1.720	-3.873	14.998
9	3.552	2.812	.740	-1.413	1.996
10	8.418	4.016	4.402	2.249	5.059
11	3.020	4.476	-1.456	-3.609	13.023
12	13.366	21.576	-8.210	-10.363	107.386
13	7.272	8.010	-.738	-2.891	8.356
14	4.560	3.344	1.216	-.937	.877
15	3.862	3.860	.002	-2.151	4.626
TOTAL	131.196	98.905	32.291		388.179

MD = 2.153

SD = 5.087

t = 1.639

## SALES/RECEIVABLES

MERGER	X1	X2	X1-X2	(X1-X2)-MD	((X1-X2)-MD)
1	8.524	9.378	-.854	-1.540	2.373
2	8.870	6.206	2.664	1.978	3.911
3	7.348	5.574	1.774	1.088	1.183
4	6.350	7.220	-.870	-1.556	2.423
5	9.588	5.516	4.072	3.386	11.462
6	7.220	7.706	-.486	-1.172	1.375
7	5.226	4.265	.961	.275	.076
8	8.022	14.182	-6.160	-6.846	46.875
9	5.166	4.548	.618	-.068	.005
10	7.416	4.888	2.528	1.842	3.391
11	9.020	10.652	-1.632	-2.318	5.375
12	25.526	14.510	11.016	10.330	106.699
13	6.992	10.024	-3.032	-3.718	13.827
14	9.434	9.720	-.286	-.972	.946
15	5.212	5.228	-.016	-.702	.494
TOTAL	129.914	119.617	10.297		200.412

MD = .686

SD = 3.655

t = .727

## FIXED ASSET TURNOVER

MERGER	X1	X2	X1-X2	(X1-X2)-MD	((X1-X2)-MD)
1	285.624	187.128	98.496	318.416	101388.783
2	207.478	602.580	-395.102	-175.182	30688.714
3	101.030	128.476	-27.446	192.474	37046.261
4	189.750	148.590	41.160	261.080	68162.794
5	292.392	589.520	-297.128	-77.208	5961.067
6	148.590	240.104	-91.514	128.406	16488.115
7	457.618	424.299	33.319	253.239	64130.119
8	312.470	718.660	-406.190	-186.270	34696.493
9	463.746	571.962	-108.216	111.704	12477.796
10	169.204	710.802	-541.598	-321.678	103476.701
11	243.170	590.166	-346.996	-127.076	16148.296
12	185.262	389.374	-204.112	15.808	249.895
13	336.686	385.428	-48.742	171.178	29301.926
14	296.054	714.764	-418.710	-198.790	39517.443
15	318.938	904.960	-586.022	-366.102	134030.635
TOTAL	4008.012	7306.813	-3298.801		693765.039

MD = -219.920

SD = 215.060

t = -3.960

## TOTAL ASSET TURNOVER

MERGER	X1	X2	X1-X2	(X1-X2)-MD	((X1-X2)-MD)
1	167.608	125.434	42.174	66.649	4442.063
2	120.096	100.430	19.666	44.141	1948.410
3	66.306	61.098	5.208	29.683	881.069
4	105.860	609.510	-503.650	-479.175	229608.872
5	149.704	153.646	-3.942	20.533	421.596
6	609.510	117.812	491.698	516.173	266434.359
7	111.448	108.478	2.970	27.445	753.217
8	147.222	288.990	-141.768	-117.293	13757.695
9	130.850	113.890	16.960	41.435	1716.843
10	102.964	140.690	-37.726	-13.251	175.594
11	102.764	170.068	-67.304	-42.829	1834.340
12	136.102	241.692	-105.590	-81.115	6579.676
13	130.880	135.392	-4.512	19.963	398.513
14	137.892	146.516	-8.624	15.851	251.248
15	86.370	159.052	-72.682	-48.207	2323.934
TOTAL	2305.576	2672.698	-367.122		531527.429

MD = -24.475

SD = 188.242

t = -.504

## PROFIT MARGIN

MERGER	X1	X2	X1-X2	(X1-X2)-MD	((X1-X2)-MD)
1	17.420	12.000	5.420	-1.527	2.333
2	14.860	9.980	4.880	-2.067	4.274
3	24.440	3.620	20.820	13.873	192.451
4	14.080	6.880	7.200	.253	.064
5	28.240	13.020	15.220	8.273	68.437
6	6.880	10.780	-3.900	-10.847	117.665
7	21.600	11.980	9.620	2.673	7.143
8	28.720	2.840	25.880	18.933	358.446
9	15.800	12.498	3.302	-3.645	13.288
10	9.860	8.180	1.680	-5.267	27.745
11	16.900	7.780	9.120	2.173	4.720
12	9.520	9.640	-.120	-7.067	49.947
13	9.200	12.190	-2.990	-9.937	98.751
14	13.320	4.042	9.278	2.331	5.432
15	7.520	8.720	-1.200	-8.147	66.379
TOTAL	238.360	134.150	104.210		1017.075

MD = 6.947

SD = 8.234

t = 3.268

## RETURN ON TOTAL ASSETS

MERGER	X1	X2	X1-X2	(X1-X2)-MD	((X1-X2)-MD)
1	7.060	4.789	2.271	.694	.482
2	7.412	4.508	2.904	1.327	1.762
3	7.560	2.294	5.266	3.689	13.612
4	4.310	8.194	-3.884	-5.461	29.817
5	7.522	9.122	-1.600	-3.177	10.090
6	8.194	8.618	-.424	-2.001	4.002
7	16.056	6.632	9.424	7.847	61.583
8	5.502	4.326	1.176	-.401	.160
9	9.662	7.404	2.258	.681	.464
10	5.002	6.662	-1.660	-3.237	10.475
11	9.448	5.968	3.480	1.903	3.623
12	7.612	7.966	-.354	-1.931	3.727
13	7.396	8.012	-.616	-2.193	4.807
14	9.940	2.952	6.988	5.411	29.284
15	3.952	5.533	-1.581	-3.157	9.968
TOTAL	116.628	92.980	23.648		183.858

MD = 1.577

SD = 3.501

t = 1.744

## RETURN ON NET WORTH

MERGER	X1	X2	X1-X2	(X1-X2)-MD	((X1-X2)-MD)
1	19.522	9.725	9.797	5.733	32.868
2	14.080	9.414	4.666	.602	.362
3	23.962	4.462	19.500	15.436	238.272
4	11.464	17.770	-6.306	-10.370	107.536
5	14.962	18.436	-3.474	-7.538	56.820
6	17.770	16.370	1.400	-2.664	7.097
7	27.268	13.414	13.854	9.790	95.845
8	13.676	11.026	2.650	-1.414	1.999
9	19.344	12.152	7.192	3.128	9.785
10	11.426	12.370	-.944	-5.008	25.079
11	17.326	14.714	2.612	-1.452	2.108
12	16.978	16.832	.146	-3.918	15.350
13	13.600	15.544	-1.944	-6.008	36.095
14	18.196	5.302	12.894	8.830	77.970
15	9.634	10.718	-1.084	-5.148	26.501
TOTAL	249.208	188.249	60.959		733.689

MD = 4.064

SD = 6.994

t = 2.251



## PRICE/EARNINGS

MERGER	X1	X2	X1-X2	(X1-X2)-MD	((X1-X2)-MD)
1	4.775	9.540	-4.765	-3.955	15.641
2	5.820	10.260	-4.440	-3.630	13.176
3	.000	.000	.000	.000	.000
4	7.180	6.760	.420	1.230	1.513
5	7.640	7.020	.620	1.430	2.045
6	6.760	6.120	.640	1.450	2.103
7	13.640	16.100	-2.460	-1.650	2.722
8	5.920	7.140	-1.220	-.410	.168
9	7.960	15.440	-7.480	-6.670	44.488
10	8.300	6.540	1.760	2.570	6.605
11	7.480	5.820	1.660	2.470	6.101
12	8.420	8.560	-.140	.670	.449
13	8.920	8.380	.540	1.350	1.823
14	9.800	5.016	4.784	5.594	31.294
15	5.920	7.180	-1.260	-.450	.202
TOTAL	108.535	119.876	-11.341		128.331

MD = -.810

SD = 3.028

t = -1.001

VITA

Marjorie Denise Wilson

Candidate for the Degree of

Master of Business Administration

Report: FINANCIAL CHARACTERISTICS OF ACQUIRING AND ACQUIRED  
FIRMS

Major Field: Business Administration

Biographical:

Personal Data: Born in Ponca City, Oklahoma, July 3,  
1960, the daughter of Ronald and Wanda Wilson.

Education: Graduated from Ponca City High School, Ponca  
City, Oklahoma, in May, 1978; received Bachelor of  
Science Degree in Accounting from Oklahoma State  
University in May, 1982; completed requirements for  
the Master of Business Administration degree at Ok-  
lahoma State University, May, 1984.