

# FINANCIAL MANAGEMENT TECHNIQUES USED BY MANUFACTURERS: SURVEY AND ANALYSIS

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## ABSTRACT

*The major purpose of this paper was to provide insight into the extent to which manufacturers utilize various financial concepts. Findings suggest that respondents were heavy users of such concepts as financial analysis and planning, working capital management, and fixed asset management. Financial concepts such as cost of capital and optimal financial structure were not widely utilized by respondents. Findings suggest a gap exists between what is taught and what is practiced by these firms.*

## Introduction

A frequent concern, expressed by those who develop collegiate finance curricula, is whether or not the financial concepts normally taught in undergraduate finance courses are actually utilized in the business world. As academicians, we have a responsibility to both students and financial managers to help bridge the gap between theory and practice. This concern over real world application of concepts developed and taught by academicians is reflected in the following quote:

*We need to establish an active partnership with industry and enlist their expertise in our efforts to provide a more relevant and exciting learning experience for our students. We need to build increased relevance into our instructional programs and our research and strengthen our relationships with the constituency we serve.[4]*

A study conducted among the Fortune 1000 firms in 1985 [2] found that financial planning and budgeting were ranked as highly important and practitioners devote greater time to the management of assets while textbooks seem to place greater emphasis on liabilities and equities. A 1982 article by Gitman and Mercurio [3] suggested that finance academicians and financial managers should develop a stronger communica-

tion link to enhance the transfer of knowledge and needs between them.

A study by Scott and Johnson [8] among large corporations indicated that the firms utilized financial leverage ratios, subscribed to the optimal capital structure concept, and believed that the prudent use of debt can lower the firm's cost of capital. The findings from this study support the view that financial managers of larger corporations utilize more of the financial concepts taught in undergraduate finance courses than smaller firms.

Several other studies [1,5,6,7] provide additional evidence in support of the view that the propensity to use more sophisticated financial concepts increases as the size of the firm increases.

Given that there is considerable interest among academicians concerning the financial practices of business firms as evidenced by the above cited studies, this study was designed to provide additional insight into this area of concern. Most of the earlier studies on this topic focused on a limited number of financial concepts and on large corporations [2,3,6], whereas this study secured information on a large number of financial management concepts and the survey included large

and small manufacturers.

This paper is organized in the following manner. Initially, survey methodology and respondents are discussed. Then the findings are presented in a section by section analysis following the design of the questionnaire. The paper concludes with some observations from analysis of findings.

### *Survey Methodology*

A four page questionnaire was mailed to a sample of 1,013 manufacturers located in the southern region of the United States [9]. A random sample of 477 small manufacturers (fewer than 500 employees) from a population of 3,183 was included in the study. All manufacturers in the eight state area with 500 or more employees were included in the sample.

A cover letter accompanied the questionnaire explaining the purpose of the study and requesting that the chief financial officer complete the questionnaire. The questionnaires were coded to permit a second mailing if needed. A second mailing was made to 869 manufacturers who did not respond to the first mailing. A decision was made to exclude firms that have fewer than 100 employees. This decision was made for economic reasons and because mere size limits the ability of many small firms to utilize sophisticated financial techniques more commonly used in large corporations.

The questionnaire was designed to obtain information on (1) financial analysis and planning; (2) working capital management; (3) fixed asset management; and (4) financial structure. The need to obtain information on a wide variety of financial topics dictated a relatively long questionnaire. A copy of the questionnaire is available to interested readers.

### *Profile of Respondents*

Two hundred-thirty-five (235) usable responses were received from a sample of 1,013 (23.2% return). The length of the questionnaire likely contributed to the low response level. Additionally, non-response bias is a potential problem in this study. Given the limitations, care must be exercised in making generalizations from the findings of the study. As analysis will reflect later in this

paper, every respondent did not answer every question, thus the number of respondents on specific questions will not total 235. A profile of the respondents by employee size is presented in Table 1.

The chief financial officer was the respondent in 202 of 235 returns. The title of the respondents included vice president of finance, controller, treasurer, or CEO. These titles do suggest that the information obtained should be fairly accurate.

The next section of this paper contains an analysis of the findings from the questionnaires.

### *Analysis of Findings*

This section includes an analysis of the findings from the survey in the following order: (1) financial analysis and planning; (2) working capital management; (3) fixed asset management; and (4) financial structure. The author explained the meaning of specific terms where confusion was likely to exist.

#### *Financial Analysis and Planning*

Several questions in the questionnaire sought information on the extent to which ratio analysis and financial planning were utilized by respondents.

*Ratio Analysis.* Information was secured from respondents on usage of ratio analysis, which ratios they used, and how often they used them. Of the 226 responses, 207 (92%) indicated utilization of ratio analysis. However, 97 percent of the larger firms (over 500 employees) indicated utilization of ratio analysis. Table 2 indicates how often these ratios were used by respondents for financial analysis purposes. Most of these firms utilized ratio analysis on a monthly basis.

A topic that frequently surfaces when ratios are discussed is concerned with what ratios do firms utilize. Respondents were asked to check ratios used from a list in the questionnaire. Table 3 summarizes the responses of these firms to this topic. Profitability and asset management ratios were used heavily by the respondents.

*Financial Planning.* To assess the extent to which financial planning and forecasting were used, respondents were asked if they actually

Table 1. Distribution of Respondents by Employee Size

Employee Size	Number of Respondents
100-499	101
500 & over	<u>134</u>
Total	235

Table 2. How Often Does Your Firm Use Ratios?

Frequency	*Response Percentage
Weekly	5.7%
Monthly	79.7
Quarterly	46.7
Annually	50.2

\*The number of responses was not the same on every question since respondents did not answer every question.

Table 3. What Ratios Do You Use?

Ratio	Response Percentage
Gross Profit Margin	84.2%
Inventory Turnover	81.6
Net Profit Margin	75.0
Average Collection Period	72.8
Return on Assets	63.2
Current Ratio	57.0
Return on Equity	56.1
Debt to Total Assets	35.1
Total Asset Turnover	34.6
Acid Test	28.9
Times Interest Earned	12.3

Table 4. What Financial Planning Techniques Does Firm Use?

Technique	Response Percentage
Operating Budgets	84.6%
Capital Budget	82.0
Cash Budget	61.0
Funds Statement	57.9
Computerized Planning Models	26.3

engaged in these activities. Of 228 respondents, 210 (92%) indicated that they used financial planning and forecasting on a regular basis. Respondents were asked to check techniques used from a list. Table 4 summarizes their responses to the question concerning which financial planning techniques they used.

The above responses indicated heavy use of financial planning techniques by both small and large firms in this study. These responses were encouraging in that these basic financial planning concepts seem to be widely utilized by business firms.

### *Working Capital Management*

Several questions were included in this survey concerning working capital management practices of these firms. Responses were sought on such topics as the importance of working capital management and techniques used in managing cash, accounts receivable, and inventory.

*Importance of Working Capital Management.* As Table 5 indicates, working capital management was very important to these firms. Approximately 60 percent of the respondents checked "very important" when asked to rank the importance of working capital management.

*Managing Current Assets.* The firms were asked several questions related to their use of specific techniques in managing cash and marketable securities, accounts receivable, and inventory. The specific techniques used by these firms are discussed below. Table 6 summarizes their responses to the question of whether or not they used specific techniques in managing their current assets.

The use of specific techniques in managing accounts receivable and inventory seemed to be important to the respondents. While this is not surprising, less interest in managing cash is likely related to the relatively low level of interest rates at the time of this survey.

*Techniques Used in Managing Current Assets.* The firms that responded "yes" to the use of specific techniques in Table 6 above were asked to identify the specific techniques utilized from a list provided in the questionnaire. The most frequently used techniques in managing cash were: lock

box; a sweep account; and zero bank balances. However, none of these were utilized by a large number of respondents. No one technique seemed to dominate.

The most frequently mentioned techniques used by respondents in managing accounts receivable were: aging of accounts; setting credit limits; and an aggressive collection policy. Again, no one technique seemed to dominate.

The two techniques mentioned most frequently by respondents in managing inventory were the EOQ Model (32%) and Computer Models (54%). Of the three types of current assets cited in this paper, inventory was the only one in which a few specific management techniques seemed to dominate. The widespread availability of computer software in inventory management undoubtedly has contributed to the above results.

Overall, numerous techniques were used to manage current assets, but usage varied widely among different size firms. The larger firms indicated a higher level of usage of each technique.

### *Fixed Asset Management*

Respondents were asked if they used the time value of money concept, what evaluation techniques were used in making decisions on fixed asset investments, and if they attempt to determine the cost of capital. These concepts receive considerable attention in finance courses, and we encourage their use among businesses.

*Time Value of Money.* Seventy-two percent of the respondents indicated usage of the time value of money concept in making fixed asset management decisions. In comparing small and large manufacturers, large firms (over 500 employees) indicated a much greater usage of this concept (81% compared to 61%).

*Evaluation Techniques Utilized.* Respondents were asked to indicate what evaluation techniques they used in making decisions on fixed asset investments. Table 7 summarizes their responses. The payback method was used by the largest percentage of respondents with the internal rate of return and net present value next in usage.

*Cost of Capital.* The cost of capital serves as

Table 5. How Important is Working Capital Management To Your Firm?

<u>Response</u>	<u>Response Percentage</u>
Very Important	60.1%
Important	30.5
Not Very Important	9.0
Unimportant	<u>.4</u>
Total	100.0

Table 6. Does Your Firm Use Specific Techniques In Managing Current Assets?

<u>Response</u>	<u>Percentage Using Specific Techniques</u>		
	<u>Cash &amp; M/S</u>	<u>Acc. Rec.</u>	<u>Inventory</u>
Yes	37.6%	55.3%	68.2%
No	<u>62.4</u>	<u>44.7</u>	<u>31.8</u>
Total	100.0	100.0	100.0

Table 7. Evaluation Techniques Used In Evaluating Projects

<u>Technique</u>	<u>Response Percentage</u>	
	<u>Yes</u>	<u>No</u>
Payback Method	74.8%	25.2%
Internal Rate of Return	58.0	42.0
Net Present Value	57.5	42.5
Profitability Index	16.4	83.6

Table 8. How Does Your Firm Measure Financial Leverage?

<u>Ratio</u>	<u>(a) 1</u>	<u>Ranking of Ratios</u>		
		<u>2</u>	<u>3</u>	<u>4</u>
Debt to Total Assets	54.4%	31.7%	11.4%	2.5%
Debt to Equity	64.8	32.7	1.9	.9
LTD to Total Capitalization	22.9	20.8	41.7	14.6
Times Interest Earned	6.4	21.3	25.5	46.8

(a) One indicates most important

the discount rate in using the net present value technique. It also serves as the hurdle rate in using the internal rate of return technique. The cost of capital is also one of the more difficult measures to compute accurately. Respondents were asked if they attempted to determine the cost of capital. The findings indicated that approximately 48 percent of the firms attempted to determine the cost of capital. While this is not a high percentage, this is not extremely low considering the fact that both small and large firms were included in the study. Of 71 firms with over 500 employees, 56 percent attempted to determine the cost of capital.

The concepts developed under the topic of fixed asset management (capital budgeting) generally are not as widely practiced among financial officers as other less complex financial concepts. The findings from this survey seemed to support other research on this topic. The low percentage of respondents using these concepts was somewhat disappointing.

#### *Financial Structure*

In this section the findings from eight questions contained in the survey are presented. There was no attempt in this survey to differentiate between long-term sources (capital structure) and short-term sources of financing. In other words, all sources of financing were included in this survey.

*Use of Financial Leverage Measure as Constraint.* The first question was designed to determine the number of respondents who used some measure of financial leverage (debt ratio, etc.) as a constraint on the mix of debt and equity. The findings indicated that approximately 46 percent of the firms used such a measure. This low percentage illustrates the hesitancy by practitioners to implement financial management concepts.

*How Financial Leverage Was Measured.* Respondents who used financial leverage measures were asked to rank, by importance, selected measures of financial leverage, using 1 as most important. Several commonly used measures of leverage were included in the questionnaire. Table 8 provides a summary of the responses to this question. Based on responses, the debt and debt to equity ratios were ranked as most important by a large percentage of these firms as measures of financial leverage.

*Optimal Financial Structure.* A target (optimal) capital structure is of considerable interest in finance courses. However, most academicians recognize that such a measure is quite difficult to compute. In this study, financial structure was used instead of capital structure. Practitioners often do not make a major differentiation between the above two concepts. The author defined financial structure to avoid ambiguity of interpretation by the respondents. Approximately 36 percent of the respondents indicated usage of a target financial structure. This low percentage, while possibly not surprising, is disappointing and raises a question of "why" they did not use a target financial structure.

Those respondents who answered "yes" to the above question were asked to identify their target financial structure from several options provided in the questionnaire. They were asked to use the debt ratio as the measure of leverage. Over 53 percent of the respondents indicated a target debt ratio range of 21-40 percent. Other target percentages were indicated by a small number of firms. In interpreting target financial structure research, one must remember that optimal structures will differ between industries. Therefore, the above findings should be applied to specific industries with caution.

*Debt and Cost of Capital.* Respondents were asked if they believed there was a positive relationship between the amount of debt financing and the cost of capital. The widely accepted theory among academicians is that as the amount of debt financing increases beyond some point, the cost of capital will increase because of excessive risk. Do financial manager have this same perception? Approximately 45 percent of the respondents agreed with the view that as debt financing increases beyond some point, the cost of capital increases. However, 15 percent of the respondents did not agree with this view.

#### **SUMMARY AND OBSERVATIONS**

This article summarized the responses of 235 manufacturing firms to a mail questionnaire survey sent to the chief financial officers of 1,013 firms located in the southern region of the U.S. Using employee size, the respondents represented a good cross section of firms from 100 employees to over 1,000. The findings were analyzed under topics typically found in financial management textbooks.

A major thrust of this paper was to provide insight into the extent to which manufacturers utilize various financial concepts. The study suggests that respondents were heavy users of such concepts as financial analysis and planning, working capital management, and fixed asset management. Finance topics such as cost of capital and optimal financial structure were not as widely utilized by respondents.

The findings from this study indicate widespread use of the less complex financial concepts, but a large gap exists between what is taught in the finance courses and what is practiced by business firms. Therefore, the transfer of knowledge from the finance classroom to practitioners has not been extremely effective. An observation from the study would be that academicians need to communicate more effectively to practitioners of the potential benefits of applying the more complex financial management concepts. Additionally, academicians should continue research in these more complex areas to possibly develop modifications of these concepts so they would be more useful to practitioners.

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8. David F. Scott, Jr., and Dana J. Johnson, "Financing Policies and Practices in Large Corporations," *Financial Management*, Summer 1982, pp 51-59.
9. The eight states were Alabama, Arkansas, Kansas, Louisiana, Missouri, Mississippi, Oklahoma, and Tennessee.