THE COMPONENTS AND TECHNIQUES OF WORKING CAPITAL MANAGEMENT
IN CORPORATE FINANCE
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ABSTRACT (100-200 words):

"Working capital management is an important aspect of financial management in most firms. Working capital is the sum of current assets in a firm which provide profitability and liquidity to a firm. Profitability ensures that funds are employed efficiently to generate a maximum rate of return. Liquidity enables the firm to satisfy its financial obligations and avoid bankruptcy. The major current assets which comprise working capital are cash, marketable securities, accounts receivable, and inventory. The current liabilities that detract from working capital are accounts payable, accruals and short-term borrowing. A survey was sent to 65 financial executives to determine the current trends in implementing working capital techniques. Each respondent was asked to supply information about his/her company's annual revenues."

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NORTHERN ILLINOIS UNIVERSITY

THE COMPONENTS AND TECHNIQUES OF WORKING CAPITAL MANAGEMENT
IN CORPORATE FINANCE

A Thesis submitted to the
University Honors Program
in Partial Fulfillment of the
Requirements of the Baccalaureate Degree
With Upper Division University Honors

Department of Finance

by
Constance T. Clements
DeKalb, Illinois
May, 1968
# TABLE OF CONTENTS

<table>
<thead>
<tr>
<th>Part</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>List of Illustrations</td>
<td>vii</td>
</tr>
<tr>
<td>Approval Page</td>
<td>viii</td>
</tr>
<tr>
<td>Abstract</td>
<td>viii</td>
</tr>
<tr>
<td>Introduction</td>
<td>viii</td>
</tr>
</tbody>
</table>

### I. Working Capital Accounts

**Figure 1:** Sample Balance Sheet

  - 1. Working Capital: 1
  - 2. Cash: 2
  - 3. Marketable Securities: 2
    - a. Table 1: 4
  - 4. Accounts Receivable: 4
  - 5. Inventory: 5
- B. Current Liability Accounts: 6-8
  - 1. Accounts Payable: 6
  - 2. Accruals: 8
  - 3. Short-Term Borrowings: 7

### II. Survey Results and Discussion of Working Capital Techniques

- A. The Survey: 9-10
  - 1. Survey Results: 10
- B. Company Information: 11
  - 1. Question: 11
  - 2. Question 2: 11
- C. Cash Management: 13-19
  - 1. Question 3: 13
    - a. Forecasting: 13
    - b. Subjective Analysis: 13
    - c. Preset Levels: 13
  - 2. Question 4: 13
    - a. Positive Float: 14
    - b. Zero-Balance Accounts: 14
    - c. Centralized Payment Control: 15
    - d. Remote Disbursements: 15
    - e. Controlled Disbursements: 15
  - 3. Question 5: 15
    - a. Negative Float: 16
    - b. Lockbox System: 16
    - c. Electronic Funds Transfer: 17
    - d. Customer Discounts: 17
  - 4. Question 6: 18
    - a. Cost: 18
    - b. Ease in Implementation: 18
    - c. Improvement in Float: 18
    - d. Consistency of Results: 19
- D. Marketable Securities: 20-22
  - 1. Question 7: 20
    - a. Yield: 20
    - b. Maturity: 20
    - c. Marketability: 21
LIST OF ILLUSTRATIONS

FIGURE 1: Sample Balance Sheet to Illustrate the Relationships Among Current Asset and Current Liability Accounts

Table 1: Investment Characteristics of Popularly Used Marketable Securities

Table 2: Accounts Receivable Aging Schedule
Approved:  

Department of:  

Date:  May 5, 1982  

[Signature]

[Signature]

[Signature]
ABSTRACT

Working capital management is an important aspect of financial management in most firms. Working capital is the sum of current assets in a firm which provide profitability and liquidity to a firm. Profitability ensures that funds are employed efficiently to generate a maximum rate of return. Liquidity enables the firm to satisfy its financial obligations and avoid bankruptcy. The major current assets which comprise working capital are cash, marketable securities, accounts receivable, and inventory. The current liabilities that detract from working capital are accounts payable, accruals, and short-term borrowing.

A survey was sent to 65 financial executives to determine the current trends in implementing working capital techniques. Each respondent was asked to supply information about his/her company's annual revenues, industry, cash management policies, marketable securities investments, accounts receivable control, inventory management, and short-term borrowing.

Many interesting observations were made based on the data collected from the survey. Among these observations are the following: The most important features of a cash management system are cost, improvement in float, ease in implementation and consistency of results; the most important characteristics of marketable securities are safety, yield, maturity, and marketability; most firms devote a lot of effort to control accounts receivable and reduce delinquent accounts; and the majority of companies feel that a good relationship with a commercial lender is important in obtaining short-term funds. The most important observation was that all companies use working capital management.
INTRODUCTION

Working capital management is becoming an area of increasing importance to many corporations. Working capital problems and, in particular, inventory and cash management problems, are the most common inefficiencies plaguing today's corporations. Thus, numerous techniques have been specifically developed to counter working capital problems.

In order to understand the concept of working capital, the components of working capital must first be understood. Working capital is comprised of current assets and current liabilities which mature in one year or less. The specific accounts located in the current assets and current liabilities portions of a typical balance sheet are explained and the accounts' interrelationships are identified in the first section of this paper.

A survey was conducted to determine the trends and techniques most commonly used by corporations in managing working capital. The results of this survey will be reported and the working capital techniques found to be used most frequently will be discussed in detail. The working capital areas of cash management, accounts receivable management, inventory management, short-term borrowing and investment in marketable securities are represented by the questions and techniques included in the survey.

Working capital trends derived from the results of the survey will then be identified and conclusions will be made regarding working capital management in the aggregate.
PART I: WORKING CAPITAL ACCOUNTS
This section of the paper will discuss the accounts which comprise net working capital. All of the accounts discussed are located in the sample balance sheet illustrated below to enhance your understanding of the relationships among the accounts.

**ILLUSTRATED BALANCE SHEET**

**ASSETS:**

Current Assets:

Cash
Marketable Securities
Accounts Receivable
Inventory

Total Current Assets

Fixed Assets:

Machinery
Plant

Total Fixed Assets

TOTAL ASSETS

**LIABILITIES AND OWNER'S EQUITY:**

Current Liabilities:

Accounts Payable
Accrued Payables
Notes Payable (Borrowing)

Total Current Liabilities

Long-Term Liabilities:

Total Long-Term Liabilities

Total Liabilities

Total Owner's Equity

Total Equity

TOTAL LIABILITIES AND EQUITY

(TOTAL ASSETS = TOTAL LIABILITIES AND EQUITY)

**FIGURE II:** Sample Balance Sheet to Illustrate the Relationships Among Current Asset and Current Liability Accounts

*Source: Primary*
CURRENT ASSET ACCOUNTS

Working Capital

Working capital can broadly be defined as the sum of current assets in a firm. Net working capital is the difference of current assets and current liabilities. Among the current assets included in working capital are cash, marketable securities, accounts receivables, and inventory. Net working capital is derived by subtracting the following accounts from working capital: accounts payable, notes payable, accruals, and short-term borrowings.

The main goals of managing working capital are profitability and liquidity. Profitability ensures that funds are employed in the most efficient way so as to generate the maximum possible gains. Liquidity enables the firm to satisfy its financial obligations and avoid bankruptcy.

These goals often conflict with one another and some trade-off must be made between profitability and liquidity in working capital management. Next, the components of working capital will be discussed in greater detail and the techniques for managing these components will be studied.

Cash

Cash is generally agreed to include currency and coin on hand and checking account balances, though a broader definition exists to include investments in marketable securities. Cash is an important current asset in a business firm. Cash is necessary to purchase resources used in production such as materials, plant
and equipment. Cash also compensates employees for their services and pays for taxes, dividends, and interest. Although cash is usually the smallest current asset, it gains its importance from being the most liquid asset. Cash is so important in many firms that it is often the responsibility of a chief financial officer.

The reasons a firm holds cash are grouped into the following categories: operating expenses, precautionary purposes, and speculative purposes (Smith, 1979). Operating expenses are the most important uses of cash because these are costs incurred by a firm in producing its products and services. Cash balances available for precautionary purposes fill the gap when cash outflows periodically exceed cash inflows, such as when a customer pays late. These balances also compensate for inaccurate forecasts or other unanticipated events. Lastly, cash may be set aside for unforeseen business opportunities that may develop. Such opportunities may include future acquisitions or taking advantage of bulk-rate purchase discounts.

 Marketable Securities

Marketable securities are securities with a short maturity or regular term securities that are to be liquidated within one year. These securities are issued by government agencies and industrial organizations. Marketable securities allow the firm to invest temporary excess funds and earn profits until the funds are needed.

Marketable securities usually appear in the form of U.S.
Treasury bills, certificates of deposit, bankers' acceptances, repurchase agreements, commercial paper and issues of federal agencies. The choice of which marketable securities to invest in is dependent upon the individual firm's required return, investment time period, funds available for investment, and risk aversion. These characteristics are listed for each investment in Table I.

<table>
<thead>
<tr>
<th>Type</th>
<th>Maturity</th>
<th>Denomination</th>
<th>Marketability</th>
<th>Yield</th>
</tr>
</thead>
<tbody>
<tr>
<td>T-Notes</td>
<td>1-365 days</td>
<td>$10,000 to 1 mill</td>
<td>Secondary</td>
<td>Appreciation from discount</td>
</tr>
<tr>
<td>Federal Agency Issues</td>
<td>Few months</td>
<td>$10,000 to 1 mill</td>
<td>Secondary</td>
<td>Interest at maturity</td>
</tr>
<tr>
<td>Commercial Paper</td>
<td>3 to 270 days</td>
<td>$10,000 to 5 mill</td>
<td>Secondary</td>
<td>Appreciation from discount</td>
</tr>
<tr>
<td>Certificate of Deposit</td>
<td>Few months</td>
<td>$10,000 to 1 mill</td>
<td>Secondary</td>
<td>Interest at maturity</td>
</tr>
<tr>
<td>Banker's Acceptances</td>
<td>Few months</td>
<td>$25,000 to 1 mill</td>
<td>Secondary</td>
<td>Appreciation from discount</td>
</tr>
<tr>
<td>Repurchase Agreements</td>
<td>Few days</td>
<td>$10,000 to 1 mill</td>
<td>Secondary</td>
<td>Appreciation from discount</td>
</tr>
</tbody>
</table>

Source: GUIDE TO WORKING CAPITAL MANAGEMENT, 8th Edition

Accounts Receivable

Accounts Receivable includes sales made to customers on a credit basis. Credit is an increasingly popular means of obtaining goods, services, and funds while promising to pay in the future. Often a problem arises when these promises fail to be kept.

Credit is offered by firms to increase sales and profitability. Credit needs to be managed to prevent losses from
bad debts and cash flow droughts. Techniques for achieving these goals are discussed later in this study.

Inventory

Inventory is a unique current asset in that it is physical property that can be seen and counted. Inventory can also take on a number of forms. The most commonly referred to inventories are materials used in producing products or services such as supplies, fasteners, lubricants, and building materials. Another form of inventory is work-in-process. These inventories are products that are not yet completed. Inventories are also classified as finished goods. Finished goods are products that are completed and ready to be sold.

Depending on the type of firm, inventory can be a firm's largest investment. Inventory is held to eliminate unnecessary delays in acquiring materials and manufacturing a product upon a customer's request.
CURRENT LIABILITY ACCOUNTS

Accounts Payable

Accounts payable is short-term financing offered to a firm by a supplier whereby the firm may obtain goods and services immediately and pay later. One type of credit is open-account financing. It simply involves a firm purchasing goods and materials and paying for them at a later date. The firm usually receives an invoice stating when the payment is due and any discount allowed for early payment.

Revolving credit usually involves the use of a credit card. This allows the customer to make a purchase with the option of paying it off within one month with no finance charges or paying in installments with the remaining balance accruing interest at a pre-determined rate. This type of credit is normally limited to consumer use.

Consignment allows a retailer to obtain merchandise without actually buying it. The supplier is not paid until the merchandise is sold. If it cannot be sold, it is returned to the supplier. A similar agreement is known as seasonal dating whereby shipping and billing are coordinated with seasonal fluctuations. Goods are shipped to accommodate peak sales periods. Payment is not due until after the peak sales period.

Accruals

Accruals are similar to Accounts Payable in that the firm receives goods and services now and pays for them later. Some examples of accruals are wages and salaries payable and taxes
payable.

Credit is often necessary for most firms to operate. It would be nearly impossible for a firm to acquire enough cash to pay for materials and parts used in production. Accounts payable and other accruals offer a convenient form of short-term financing which most firms take advantage of. Net credit is Accounts Payable taken from Accounts Receivable. Positive net credit identifies the firm as a net supplier of credit and a negative value identifies a net user of credit.

Short-Term Borrowing

Short-term borrowing means that a firm acquires dollars as a deliberately planned source of financing whereby finance charges are incurred. Short-term borrowing is like a counterpart to marketable securities; Short-term borrowing is a source of excess funds and marketable securities is a use of funds. Both smooth out short-term fluctuations in cash and help to balance the cash budget.

Some sources of short-term borrowing are individuals, commercial paper, commercial bank loans, and commercial finance companies.

Individuals such as family, friends and owners of a business may provide funds to get up and operate a business. Commercial paper is promissory notes sold by large firms to other businesses. They are unsecured, short-term and usually denominated in $1 million increments.
Commercial bank loans are the largest source of short-term borrowing used. They can be simple interest loans where a principal and interest is repaid at maturity. Discounted loans have the interest paid in advance which reduces the principal. Working capital loans last under one year and are intended for accounts receivable and inventory investment. Term loans involve a set payment over a certain period of time which pays off both interest and principal. Compensating balances may be required by a bank during the loan period and a line of credit allows the collateral is often required in a lending agreement.

Collateral for short-term borrowing can be Accounts Receivable, Inventories, or a similar current asset. Commercial finance companies offer loans involving such collateral. Their loans tend to be risky and at high interest rates for risky firms that usually cannot obtain financing otherwise.
II. SURVEY RESULTS AND DISCUSSION OF WORKING CAPITAL TECHNIQUES
THE SURVEY

A survey was conducted to determine the extent to which various working capital techniques are used. The survey consisted of 18 pages with 16 questions regardingcash management, marketable securities, credit policy, inventory management and short-term borrowing. Two of the questions identified the size of the firm by annual revenues and the industry in which the firm operates.

Each survey question included specific directions to either check one answer, check all applicable answers or to rank all items in order of importance. Respondents were instructed to leave blank any questions or items within a question not applicable to their firm.

A letter accompanying the survey stated the purpose of the survey, the importance of each firm's response and what is to be done with the findings. The respondents were assured confidentiality in responding to the questionnaire. Also included in this letter were instructions for completing and returning the survey. A self-addressed, stamped envelope was also sent with each survey. Copies of the survey and cover letter are included in the appendix.

The survey was sent to the financial executives of the 65 largest corporations in the Chicago area. These firms were identified in the March 14, 1988 issue of Crain's Chicago Business. The names of the financial officers of these firms were found in Who's Who in Corporations for 1987. A listing of the firms may be found in the appendix.
Survey Results

Of the 85 surveys sent, 31 responses were received. Although these responses are not representative of all American corporations, an identifiable trend in working capital management may be ascertained from the results.

The data gathered from the survey responses was tabulated and frequency distributions were calculated for each response under each question. The remainder of this paper will discuss these results and the working capital techniques frequently used.

For the ranking questions, the majority of respondents only ranked one or two items as important. Therefore, only the first and second most important responses were tabulated. For all questions, percentages for each response were figured from the total of 31 surveys that were received rather than from the total number of responses for each individual question. Cross tabulations were attempted with the data, however, no trends were identified due to the small sample size.

For ranking questions, if respondents used checks instead of ranks or did not rank more than the first item, if checks were used instead of ranks, all checks were counted as first choices. Data from all of the survey questions is summarized in table form in the appendix at the end of this report.
COMPANY INFORMATION

Question 1: The first two survey questions were asked to
determine the firm's size by annual revenues and the industry in
which the firm operates. According to question 1, all of the
firms that responded had sales ranging from $201 million to over
$5 billion. The majority (52 percent) of respondents had sales
between one and five billion dollars. The complete breakdown of
annual revenues is listed in the appendix.

Question 2: Question 2 identified the industry in which the
firm operates. The categories listed were manufacturing-consumer
goods, manufacturing-industrial goods, retail, utility, financial
services, non-financial services, transportation and other. The
most frequent response was 37 percent for the manufacturing-
consumer goods category. Other popular answers were
manufacturing-industrial goods and other with both categories
receiving a 19 percent response rate. The responses to the
"other" category were energy, food distribution and corn
refining, food service, health care supplies and services,
wholesaling and light manufacturing and leasing. (See appendix
for further breakdown)
CASH MANAGEMENT

The next four questions involved cash management practices.

**Question 6:** The first cash management question asked the firm to check all techniques used to determine optimal cash balances. The firm responded most frequently to the "other" category which received 19 percent of the total or 7 out of 31 responses. Five of the seven companies that answered "other" indicated that cash balances are minimized and set as close as possible to zero. In other words, their response would more accurately have been the category "profit levels." The two remaining "other" respondents replied that cash balances are set in accordance with bank and credit requirements. This subject will be expanded upon in the section regarding short-term borrowing.

Also commonly used for determining cash balances is a combination of forecasts and subjective analysis. This pair received 17 percent of the total responses. Forecasts were also used as the sole technique for determining cash balances for 10 percent of the companies responding.

**Forecasting:** Future cash availability is forecasted by first considering future cash receipts such as cash sales, cash from accounts receivable, asset sales and investment proceeds. Next, future disbursements are taken into account, for example, payrolls, maturing debt, interest expense, large purchases, and taxes. If the cash receipts exceed the cash disbursements, there is a cash inflow. The cash inflow is added to the previous cash balance to obtain the present cash balance. If disbursements
exceed receipts, there is a net cash outflow which is subtracted from existing cash balances (if any) to obtain the present cash balance. Typically, if no cash balances are held to cover such outflows a short-term loan will be taken out.

**Subjective Analysis:** Subjective analysis allows the cash manager to determine appropriate cash balances for each period based on past experience and projected needs and future conditions. This technique does not involve any mathematical models. Instead it relies upon the "common sense" of the cash manager.

**Preset Levels:** Ten percent of the firms responded that preset levels was the only approach used to determine cash balances. Preset levels are generally dictated by the company’s past experience with cash flows. Some companies that checked “other” for this question indicated that minimal or zero cash balances are set to be achieved. One way to achieve such a balance is via zero-balance accounts held at banks. A bank will manage a firm’s zero-balance account by transferring all deposits to another corporate account in the same bank each day. All disbursements are covered by daily transfers from a corporate account in the same bank.

One firm also responded that cash balances are set at a fixed amount of $2500 daily for each period.

**Question 4:** The next question regarding cash management asked the companies to rank seven different items in order of importance for increasing the positive float of their firms. One difficulty encountered in evaluating responses to this
question was that some firms checked the answers instead of ranking them and some firms only marked one item as having importance.

**Positive Float:** Float is the delay between the time funds are disbursed by the buyer and the time funds are received by the seller. Float is comprised of call time, processing time and check clearing time. Positive float is the time during which the firm can continue to use the funds that have been sent to the supplier. The value of this type of float is the return the firm can earn on these funds during the delay period. Therefore, it is beneficial for a company to attempt to increase positive float as much as possible.

**Zero-Balance Accounts:** Approximately 35 percent of the firms replied that zero-balance accounts were the most important technique used to increase the positive float of their firm. In addition, 25 percent of the remaining firms replied that these accounts were second in importance to increase positive float. These accounts increase positive float because they must be replenished before a disbursement can be made from them. If the accounts are replenished only once a day, the disbursement may not be completed until the replenishment has been made. Thus, up to one day may be added to the processing time of the disbursement.

**Centralized Payment Control:** This category received 32 percent of the responses as first in importance for increasing positive float. Sixteen percent of the firms chose centralized payment
control at second in importance. This tactic involves the sending of a subsidiary unit's invoices to a central unit for payment. Systems that centralize payments can control and slow payments by adding time for mailing a payment from a distant payment center to a local supplier and adding processing time for checks written on out-of-town banks.

Remote Disbursements: This technique involves deliberately causing cash payments to be made from a distant location. It is similar to a centralized payment system except the intent is to make disbursements from a bank in a remote location relative to the supplier. Hence, the firm writes checks on a remotely located bank solely to increase its positive float at the expense of the supplier receiving the payment. Sixteen percent of those surveyed used remote disbursements as their primary means of increasing positive float. Another 10 percent ranked it second.

For the response of "other", 10 and 13 percent of the respondents ranked another technique for the first and second ranks, respectively. Six of the respondents specified that controlled disbursements were of great importance in increasing positive float for their firms.

Controlled Disbursements: Controlled disbursing accounts are zero-balance accounts typically held at branches or affiliates of major cash management banks. Often, the branch is not located in a Federal Reserve city which adds to clearing time for the funds thus increasing positive float. (Driscoll, 1983)

**Question 5:** This question required the company to rank six
different items in order of importance for decreasing the negative float of their firm. The results of this question are somewhat misleading because 25 percent of the firms did not check a second chance and others checked all applicable responses instead of ranking. These checks were all counted as first choices.

**Negative Float**: Negative float is the length of time the firm must wait to use the funds which are paid by buyers of the firm's products and services. Negative float is quantified as the foregone opportunity to invest those funds which are caught up in processing. For example, if a firm receives a customer's payment 30 days late and the firm could have earned 10 percent on those funds if they were received 20 days earlier, the cost of negative float is 10 percent multiplied by the amount of funds, multiplied by the quantity of 20 divided by 360 days.

Approximately 25 percent of the respondents ranked only one item as having any importance in decreasing negative float. The most common answer to this question was lockbox system which received 55 percent of the responses for being most important and 23 percent of the responses for being second in importance.

**Lockbox System**: A lockbox is an arrangement whereby a firm rents a post office box and allows a commercial bank to manage it. The bank monitors the lockbox 24 hours a day for incoming checks from customers. When checks arrive, they are immediately processed and deposited in the account of the firm. The ultimate purpose of the lockbox is to reduce mail float by retrieving the checks when they reach the post office instead of
Waiting for delivery and to reduce processing costs by having the bank retrieve and immediately deposit the checks instead of the firm receiving them and presenting them for deposit. A lockbox system is a set of strategically placed lockboxes in cities around the country to reduce overall negative float.

Electronic Funds Transfer: Electronic funds transfer (EFT) also received a significant number of responses to question 2 with 33 and 19 percent of the firms ranking EFTs first and second in importance, respectively. An EFT system is the system that replaces a paper form of payment with an electronic payment. (D’Andrea, 1985) EFTs have emerged in many different forms. EFTs allow for credit cards to be used to enable a customer’s individual account for purchases. EFTs are used for automatic payment of utility bills, paychecks and consumer and mortgage loans (Smith, 1979). A firm would most likely utilize an EFT that connects banks and other financial institutions to allow for automatic clearing of transactions. For instance, a firm would automatically debit a customer’s account for a purchase and gain immediate access to the funds. Some respondents to the survey noted that EFTs are very advantageous but it is difficult to convince customers to allow them.

Customer Discounts: Thirteen and ten percent of the firms ranked customer discounts as having first and second importance in decreasing their negative float. Customer purchases are usually accompanied by terms such as 2/10, net 30. This is an agreement whereby the customer receives a 2 percent discount if payment is made within 10 days, otherwise the full balance is due in 30.
days. This type of agreement induces the customer to submit payment within the first 10 days of receipt of the invoice in order to take advantage of the discount. Discounts are beneficial to the firm because funds are received 20 or 30 days earlier thus reducing negative float. However, a trade-off is made because the firm does not receive the full invoice amount if the discount is taken. A cost-benefit analysis would need to be done to determine if the earlier receipt of funds is worth the foregone revenue.

Question 6: This question requested the respondent to choose all important features of his firm's cash management system. The question was asked to determine what is considered most before implementing and while maintaining a cash management system. It is interesting to note that all but one response involved a combination of features. The features listed are: cost, ease in implementation, familiarity with techniques, improvement in float, consistency of results and others.

Cost: Cost refers to the amount of funds necessary to implement and maintain the cash management system. Some examples of costs are: setup fees, compensating balances and foregone investment opportunities.

Ease in Implementation: This feature refers to the degree of difficulty and feasibility in implementing and maintaining a cash management system. For instance, a system that requires a large number of personnel may not be feasible for a company with only ten employees.

Improvement in Float: This feature refers to the extent to which:
A cash management system reduces negative float and/or increases positive float.

Consistency of Results. Consistency of results implies that the system is reliable and operates with few deviations in results.

The most popular response for this question was a combination of costs, ease in implementation, and improvement in float which received 23 percent of the total responses. Second most popular was a combination of cost, improvement in float and consistency of results with 10 percent of the total responses. Thirteen percent of the respondents checked cost and improvement in float as the two important features of the cash management system at their firms. As anticipated, cost and improvement in float were checked in all of the three most popular responses.
MARKETABLE SECURITIES

The next two questions concerned investment in marketable securities.

**Question 7:** Respondents were asked to rank seven characteristics of marketable securities in order of importance to their firms. Thirteen percent of the firms chose not to respond to this question and were classified that they do not invest in marketable securities.

**Safety:** Safety is associated with the degree of risk undertaken by investing in marketable securities. This risk can be broken down into default risk—the threat that the borrower will not pay the principal and interest on borrowed funds, interest rate risk—the threat that the principal or return on a fixed-return security will be forfeited if the security is sold prior to maturity, reinvestment risk—the inability to reinvest funds from maturing securities at the same high interest rate, and country risk—the threat that an unstable foreign government will lead to the devaluation of the funds held in a security in that country. (Grissell, 1983)

Safety received an overwhelming 71 percent of the responses for being the most important characteristic of marketable securities. Six percent of the firms ranked safety second.

**Yield:** Yield refers to the rate of return received on funds invested in marketable securities. Yield was chosen as foremost in importance by 16 percent of the respondents and second in importance by 29 percent. Yield and maturity tied as the second most important characteristic of marketable securities.
Maturity: Maturity is the length of time until the principal amount of a marketable security is returned to the investor. Six percent of the firms chose maturity as most important and 29 percent chose maturity as second most important.

Marketability: Marketability is the ability of an investor of a marketable security to sell the security to another investor. Marketability was another popular response for the second most important characteristic with 19 percent of the votes. Six percent considered marketability foremost in importance.

Question 8: The firms were asked to indicate how the size of their investments in marketable securities were determined. Of the total surveys returned, 19 percent chose not to respond to this question. This is probably because some firms do not invest in marketable securities.

Others: The most common response to this question regarding marketable securities was "other," which received 26 percent of the responses. Eight out nine firms that responded "other" indicated that all excess cash is allocated into marketable securities investments. This is the response implied by the category "cost-balancing model" under this question which was obviously misunderstood. The last firm responding to "other" indicated that the amount of credit risk of a security was the sole determinant for the size of investment.

Subjective Analysis: Twenty-three percent of those surveyed responded that subjective analysis is used to determine
Investment in marketable securities. This simply allows the financial manager to decide how much to invest, perhaps based on past experience and projections for future cash needs. Basically, subjective analysis relies upon the "common sense" of the person determining the amount of investment.

Preset Levels. The response "preset levels" implies that a firm has a set of predetermined guidelines stating an amount to be invested in marketable securities each period. Thirteen percent of the respondents indicated that preset levels was the means by which the investment in marketable securities is determined.

One last popular response to question 8 was a combination of subjective analysis and preset levels which is utilized by 10 percent of the responding firms.
ACCOUNTS RECEIVABLE MANAGEMENT

Questions 9 through 11 deal with the firm’s management of accounts receivable.

Question 9: This question asked the respondents to rank several techniques in order of importance for determining whether to grant credit to a customer.

Analysis of Financial Statements: Analyses of financial statements generally involves examining a customer’s balance sheet, income statement, cash flow statement, etc. Various ratios can be calculated to determine the customer’s solvency, efficiency, leverage and profitability. A firm may also attempt to forecast a customer’s future revenues and cash flows to determine whether the customer can accommodate additional debt.

This technique is most popularly used to determine whether to grant credit to a customer. Approximately 61 percent of those surveyed said this analysis was most important while 34 percent responded that it was second in importance.

Credit Reports: Credit data may be gathered from the customer directly and credit reports may be obtained from trade references, bank references, credit bureaus and the firm’s own record of that customer. Credit reports are primarily used by 29 percent of the survey respondents. Credit reports are secondary in importance to about 27 percent of the firms in determining whether to grant credit.

Subjective Judgment: This technique can involve a number of qualitative assessments of a potential credit customer. A firm that grants credit may allow the following characteristics as a
potential customer commonly referred to as the Four C's.
Character: The honesty, integrity, fairness and reputation of a customer and his overall intention to pay for a purchase.
Capacity: The customer's ability to pay for a purchase by a designated date.
Capital: The financial resources of the customer which are often determined by financial statement analysis.
Conditions: The economic environment in which a decision to grant credit is made.

Another factor worthy of subjective analysis is the customer's past history or one attitude about paying for purchased if previous business has been completed.

Approximately 10 percent of those surveyed replied that subjective analysis was most important in determining whether to grant credit to a customer.

Question 10: The companies were next asked to check all ratios, if any, which are used to evaluate a potential credit customer. About 32 percent of those surveyed did not respond to this question. The basic definitions of the ratios are as follows:
Solventy Ratios: Ratios used to determine a company's liquidity and potential for bankruptcy.
Current Ratio: Current Assets/Current Liabilities
Quick Ratio: (Current Assets - Inventory)/Current Liabilities
Receivables: Sales/Average Accounts Receivable
Times Interest Earned: Earnings Before Interest and Taxes/Interest Expense
Profitability Ratios: Ratios used to determine the customer's
ability to generate profits.

**Debt to Equity Ratio:** Long Term Debt/Long Term Debt + Equity

**Other:** Responses indicated under this category included corporate credit guidelines, experience with customer, knowledge of the customer, and credit cannot be refused to anyone (public utility).

Nineteen percent of the respondents indicated that a combination of all of the ratios (except “other”) was used. Another 10 percent replied that all except the times interest charges earned and “other” ratios were used.

These findings indicate that companies are concerned with a customer’s all-around solvency, efficiency, profitability, and use of leverage.

**Question 11:** This question asked the companies to indicate all of the procedures used to control accounts receivable. Sixteen percent of the survey respondents did not answer this question. Those firms that did reply to the question indicated that a combination of most of the procedures was used and not one company relied upon just one of the procedures.

**Monitor Collection Period:** Monitoring the collection period of accounts receivables involves determining the collection period by dividing accounts receivable by credit sales per day. This computation will result in the average number of days accounts receivable are outstanding. The smaller this number is, the better it is for the company. One rule of thumb is that accounts receivable days should not exceed the shelf life of the product purchased.

**Accounts Receivable Aging Schedule:** This schedule shows how long accounts receivable dollars have been outstanding. The
schedule allows a credit manager to locate changes in a customer's payment behavior. An example of an A/R aging schedule follows:

<table>
<thead>
<tr>
<th>Period</th>
<th>Quarter 1</th>
<th>Quarter 2</th>
<th>Quarter 3</th>
<th>Quarter 4</th>
</tr>
</thead>
<tbody>
<tr>
<td>0-30 days</td>
<td>43,000</td>
<td>62,000</td>
<td>68,000</td>
<td>79,000</td>
</tr>
<tr>
<td>31-60 days</td>
<td>86,000</td>
<td>41,000</td>
<td>55,000</td>
<td>60,000</td>
</tr>
<tr>
<td>61-120 days</td>
<td>14,000</td>
<td>14,000</td>
<td>26,000</td>
<td>21,000</td>
</tr>
<tr>
<td>VI-120 days</td>
<td>9,000</td>
<td>7,000</td>
<td>11,000</td>
<td>10,000</td>
</tr>
<tr>
<td>Totals</td>
<td>95,000</td>
<td>175,000</td>
<td>157,000</td>
<td>179,000</td>
</tr>
</tbody>
</table>

Source: Primery

Collection Agencies: Another tactic used by some companies to manage accounts receivable is to turn delinquent accounts over to a collection agency or another third party such as a bank. Usually these agencies have more time and resources to devote to collecting on delinquent accounts.

Collection Letters: Written letters are an inexpensive and flexible means of notifying a customer of a delinquent account.

Telephone Requiring Accounts: A credit manager may telephone delinquent customers to remind them to pay on time or inform the customer of the consequences if payment is not received. A similar tactic is to personally visit the customer and encourage them to pay.

The results of this question indicate that 39 percent of the respondents used all of the above techniques to control accounts receivable. Another 17 percent responded that all pressures except using collection agencies were used.
INVENTORY MANAGEMENT

Questions 12 and 13 concern the firm’s inventory management.

Question 12: The firm was next asked to check all concepts used in the management of inventory at their firms. Thirty-five of those surveyed did not respond to this question. This lack of response is most likely due to the number of companies surveyed that do not hold inventories such as those in the financial services industry. All of the companies that did respond to the question used a combination of concepts for inventory management.

FIFO Valuation: This technique of inventory valuation causes inventory balances to reflect the cost of goods purchased recently and requires that goods purchased earlier in time are sold first (first-in, first-out). Assuming that prices are rising, inventories will have a greater value under FIFO valuation than under LIFO valuation.

LIFO Valuation: This technique of inventory valuation causes the cost of items purchased earlier in time to be reflected in inventory balances. Thus, goods purchased most recently are sold first (last-in, first-out).

Computerized Inventory Control: This is a process whereby inventory balances are automatically maintained via a computer system.

Just-in-Time: This inventory management technique allows companies to minimize inventory levels by producing ordered products just-in-time for delivery to the customer. Some firms
keep zero inventory balances and others keep very minimal balances to compensate for variances.

**Other Responses:** Some additional responses provided by those surveyed on inventory management were that inventory was valued at fair market value, average cost and minimum selling quantities were used.

The results of the survey revealed that 10 percent of the companies used a combination of FIFO and LIFO valuation, Computerized Inventory Control and the other responses mentioned. Another 10 percent of the firms used a combination of FIFO valuation, Computerized Inventory Control and Just-in-Time inventory levels.

**Question 13:** The firms were asked to rank eight items in order of importance for determining appropriate inventory levels. Forty-two percent of the firms surveyed chose not to respond to this question and another 16 percent either checked all applicable items or did not rank more than one item.

**Seasonal Demand:** Seasonal demand occurs when demand for a company's product or service is not uniform throughout the year. Examples are downhill skiis in winter and days around Christmas. An inventory manager must account for these seasonal fluctuations by adjusting inventory replenishment for peaks and troughs in demand. For instance, larger quantities of skis are ordered in the winter season and less in the summer season. One approach to determining the exact order quantity is to order quantities in proportion to the square root of demand.
for that reason.

Of the firms surveyed, 22 percent replied that seasonal demand is first in importance for determining appropriate inventory levels at their companies. Another 18 percent responded that seasonal demand was the second most important factor.

Preset Levels: Preset levels imply that companies have predetermined guidelines for determining inventory levels to be maintained.

Twenty-three of the respondents answered that preset levels were most important in determining inventory levels at their firm.

Cost of Items: The cost of an item in inventory can also come into play in determining optimal inventory levels. In a capital intensive firm, the purchase price of an item may be too high to keep large inventories of the item. It may also be difficult for a firm to raise enough capital to purchase excessive amounts of expensive inventories.

Ten percent of the survey respondents replied that the cost of the inventory item was most important in determining optimal inventory balances for that item.

Other: Ten percent of the firms answered that one response that they provided was most important in determining inventory levels. These responses were as follows: Customer service levels, cost of money, orders for just-in-time levels, AR/PR analysis, and demand history.
SHORT-TERM BORROWING

The last three questions address short-term borrowing of funds.

**Question 14:** The firms were asked to check all types of short-term financing that are used by their firms. The types of short-term financing listed to choose from were: commercial paper, working capital loans, lines of credit, collateralized loans, trade credit, lines with counterparts balances, finance company loans and others. All of these forms of loans are defined in the section of this paper entitled "Working Capital Accounts," so the terms are not discussed here.

Commercial paper and a line of credit both received 90 percent of the responses as being the two forms of short-term borrowing. The combination of commercial paper, line of credit and trade credit also received 90 percent of the responses. Also receiving 10 percent of the responses was the combination of commercial paper and other. The responses provided for other were: foreign currency loans, LICEF loans, bankers' acceptances, revolving credit, factor bank notes, non-recourse notes and subordinated financing.

Based on these findings, the most popular types of short-term financing consist of responses or combinations including commercial paper and lines of credit.

**Question 15:** The respondents ranked the uses of short-term borrowed funds by their companies. Approximately 80 percent of the respondents did not indicate a second highest use of short-term borrowings by their firms.
Temporary Cash Deficits: Temporary cash deficits are usually caused by a temporary discrepancy between the amount of cash outflows and cash inflows. This mismatch of inflows and outflows can be caused by late payments by customers or variability in sales demand.

Temporary cash deficits received 42 percent of the response for the most common use of short-term borrowings. Thirteen percent ranked this category second in usage.

Continuous Source of Funds: Some firms use short-term borrowings as a continuous source of funding for their day-to-day operations. Short-term debt is constantly rolled over to provide funds for everyday operations.

Thirty-five percent of the respondents answered that "continuous source of funds" was their primary use of short-term borrowings. In addition, 12 percent considered it second according to usage.

Purchase of Current Assets and Inventory: Often a firm will take out a short-term loan to finance a purchase of inventory or other current assets. In the case of inventory, the funds are used to acquire the inventory and the loan is paid off when the inventory is sold. Short-term loans are used for these purchases to provide liquidity in matching sales and expenses.

Nineteen percent of the respondents ranked this category first as a use for short-term borrowings. Another 30 percent ranked these purchases second among uses for funds.

Question 16: Lastly, the companies were asked to indicate
the significance of relationships with commercial lenders in obtaining short-term financing.

Forty-eight percent of the firms reported that such relationships are important but not the most important factor. Twenty-six percent of the firms reported that relationships with lenders are the most important factor in obtaining short-term financing and another 26 percent replied that such relationships are unimportant.
SUMMARY OF SURVEY RESULTS

Some key working capital trends that were identified from the survey results are as follows:

1. Forecasts, predetermined levels, and subjective analysis are commonly used to arrive at optimal cash balances.
2. Remote disbursements, automatic accounts, centralized payment control, and controlled disbursements have been found by many firms to be most effective in increasing the positive float of their firms.
3. Blockbusters, electronic funds transfers, and customer discounts have been found to be most effective in decreasing the negative float of many firms.
4. The most important features to be considered in a cash management system are the cost of the system, the degree to which it improves float, its ease of implementation, and the consistency of its results.
5. The characteristics that are most important for a company to consider before investing in marketable securities, in order of importance, are safety, yield, maturity, and marketability.
6. Most firms decide how much to invest in marketable securities by following predetermined guidelines, using subjective analysis, and then investing all excess cash.
7. Most companies decide whether to grant credit to a customer based on analysis of financial statements and credit reports. Subjective judgment is also used to a large degree.
8. The majority of firms that analyze financial statements to determine whether to grant credit use a well-rounded blend of...
rations to test solvency, profitability and debt capacity.

Most firms devote a lot of effort to control accounts receivable and reduce delinquent accounts. Some procedures facilitate to achieve this are monitoring collection periods, preparing A/R aging schedules, sending collection letters, using collection agencies and telephoning delinquent accounts.

FIFO, LIFO and average costing methods of inventory valuation are very popular. Computerized inventory control systems and just-in-time inventory planning are also highly utilized in inventory management.

The most popular means by which inventory levels are determined comply with present levels and seasonal demand.

Commercial paper, lines of credit and trade credit are also popular forms of short-term financing for small firms.

Short-term borrowing is typically used for temporary cash deficits and as a continuous source of funds. Some companies also use these funds to acquire inventory and other current assets.

The majority of companies feel that a good relationship with a commercial lender is important in obtaining short-term funds.
CONCLUSION

The findings reported have revealed some valuable insight into the components that comprise working capital and the importance of working capital management in today's corporations.

Based on the survey responses, it is apparent that corporations devote a large amount of time, effort and money for the purpose of effectively controlling working capital. Depending on the firm, working capital goals may be attained through effective management of cash, accounts receivable, short-term borrowing and inventory and investment of idle funds in marketable securities. Of the firms surveyed, cost management was the most universal technique used to attain working capital goals.

Although the techniques used to manage working capital vary from firm to firm, one thing is obvious: working capital management is very important to all corporations regardless of how it is accomplished.
APPENDIX
Dear Financial Executive:

I am an Honors student at Northern Illinois University majoring in Finance. As part of my Honors coursework, I have elected to submit an Independent Study Project on working capital management. To aid in my research, I am conducting a survey on working capital management. I would greatly appreciate your cooperation in completing this survey which I have enclosed.

The results of this survey will be used to identify the current trends in managing working capital and your response is very important to accurately determine these trends. This study will be submitted to the NIU Honors Program and the NIU Finance Department and will aid the faculty in determining which techniques and practices to emphasize in future finance coursework.

Your cooperation in completing and returning this survey in the self-addressed, stamped envelope by April 6, 1988 would be greatly appreciated. Please answer only the questions that are relevant to your firm with the answer(s) that best describe your firm. Any questions that are not relevant to your firm or that you do not wish to answer may be left blank. Your responses to the survey questions will be kept completely confidential. If you have any further questions please contact me at (815) 758-4712. Thank you for your time and effort.

Sincerely,

Constance Clemente

Enclosure
Names of Survey Recipients

Mr. Richard E. Jones
Chief Financial Officer
Brown, Root and Co.

Mr. Frederick Avey
Vice President-Financial Operations
Appco Corporation

Mr. Alan J. Lacy
Treasurer
First, Inc.

Mr. Daniel Hulsh
Controller
Spelman Lee Corp.

L.A. Huchan
Treasurer
Caterpillar, Inc.

Mr. Daniel Copeckosian
Controller
CMF National Corp.

Mr. Kenneth Johnson
Controller
Mead Corp.

Ms. Barbara Harris
Treasurer
Dexter-Travenol Laboratories, Inc.

W. Philip Sheehan
Treasurer
Archer Daniels Midland Co.

Mr. Raymond Beinhart
Controller
Commonwealth Edison Co.

Mr. Glenn Dodg
Controller
Santa Fe Southern Pacific Corp.

Mr. James Cantalupo
Controller
McDonald's Corp.

Mr. Michael Gallagher
Sr. Vice President of Finance
Quaker State Co.
Mr. Wayne L. Burnham  
Chief Financial Officer  
Abbott Laboratories

Mr. Roger Pollock  
Controller  
Walgreens Co.

Mr. Glennen M. Bostock  
Controller  
Deere & Co.

Mr. Ralph Beitner  
Treasurer  
IG Industries Inc.

Mr. Walter L. White  
Treasurer  
Kemper Corporation

Mr. Robert Morrison  
Controller  
Navistar International Corp.

Mr. Ludwig Siebeck  
Controller  
Inland Steel Industries Inc.

Mr. Thomas T. Holland  
Treasurer  
Household International Corp.

Mr. Leeland B. Miller  
Treasurer  
Steele Continental Inc.

Mr. Michael Meisner  
Treasurer  
Stone Container Corp.

Mr. Arthur Lyons  
Controller  
The Corp.

Mr. Frederick Florinsteine  
Treasurer  
Brunswick Corp.

Mr. Robert Tierre  
Controller  
USB Corporation

Mr. John O'Dell  
Controller  
Waste Management Inc.
Mr. R.G. Cudell
Controller
R.R. Donnelley and Sons Co.

Mr. David Levin
Treasurer
Zenith Electronics Corp.

Mr. Paul VanSickle
Controller
Premark International Corp.

Mr. John Pomer
Controller
Tribune Co.

Mr. Thomas McDavitt
Controller
Marvin Thielke Inc.

Mr. Bruce Fedak
Controller
Relco Manufacturing Corp.

Mr. William Devall
Controller
Illinois Tool Works Inc.

Mr. John Bondoraggner
Controller
International Minerals and Chemical Corp.

Mr. Robert Board
Controller
Carson Pirie Scott & Co.

Mr. John Kaszuba
Controller
Square & Co.

Mr. John Heyer
Controller
Control Corp.

Ms. Kathleen Keillor
Treasurer
Nickel Inc.

Mr. Dale Henn
Treasurer
Dean Foods Co.
Mr. Karen Hohn  
Controller  
ServiceMaster L.P.

Mr. Donald Basait  
Treasurer  
Chicago Pacific Corp.

Mr. Adrian Hensler  
Controller  
Randall Corp.

Mr. Donald Kosinski  
Controller  
W.W. Grainger Inc.

Mr. Keith Fogo  
Treasurer  
Outboard Marine Corp.

Ms. Olivia Orr  
Controller  
Iseli Corp.

Mr. John Vavassey  
Treasurer  
Com impuls Inc.

Mr. Emilio Isgani  
Controller  
Peoples Energy Corp.

Mr. Nanie Schenck  
Controller  
AS International Inc.

J.F. Calus  
Controller  
CBI Industries Inc.

A.L. Zucaro  
Chief Financial Officer  
Kim Republic International Corp.

Mr. Glenn Morgan  
Controller  
York Term Corp.

I.M. Butler  
Treasurer  
UN Corp.

Mr. Jerry Cawth  
Controller  
Doulc, Inc.
Mr. Ralph Walkerd
Treasurer
Fruit of the Loom Inc.

Mr. Herman Schiller
Controller
Washington National Corp.

E.L. Benson
Controller
Nalco Chemical Co.

Mr. Richard Polanek
Controller
Interlake Corp.

Mr. Dennis Yarbrough
Controller
We. Wrigley Jr. Co.

Mr. Morgan Field
Treasurer
Great American Management and Investment Services

Mr. Ted Prestuto
Controller
United Stationers Inc.

Mr. Jerome Harz
Controller
Bell & Howell Co.

Mr. Donald Kreutz
Controller
Hewlett Co.

Mr. Nicholas Petcas
Controller
Pilkey Corp.

Mr. Thomas Condacci
Controller
Commerce Clearing House Inc.
Please answer only the questions that are relevant to your firm with the answers(s) that best describes your firm. Rank only the items that apply to your firm using each number only once. Please specify responses to the 'other' category in the space provided. Thank you again for your time and cooperation.

1. What was your firm's revenues for 1987? (Check one)
   - Under $1 million
   - $1-50 million
   - $51-100 million
   - $101-200 million
   - Over $5 billion

2. Which of the following best describes the industry in which your firm operates? (Check one)
   - Manufacturing-Consumer goods
   - Manufacturing-Industrial goods
   - Retail
   - Utility

3. Please indicate which of the following techniques are used in determining optimal cash balances at your firm. (Check all that apply)
   - Cost-Balancing Models
   - Relative Importance
   - Forecasting
   - Regression Analysis
   - Subjective Analysis

4. Please rank the following items in order of importance for increasing the positive float of your firm. (1=most important)
   - Prepaid Items
   - Payables Through Drafts
   - Payroll Disbursements
   - Payroll Lag Time
   - Remote Disbursements
   - Other

5. Please rank the following items in order of importance for decreasing the negative float of your firm. (1=most important)
   - Banker
   - Electronic Funds Transfer
   - Remote Deposit
   - Other

6. Which of the following are important features of the cash management system at your firm? (Check all that apply)
   - Consistency of Results
   - Familiarity with Techniques
   - Improvement in Float
   - Other

7. Please rank these characteristics of Marketable Securities in order of importance to your firm. (1=most important)
   - Safety
   - Maturity
   - Yields
   - Transaction Costs
   - Denomination of Security
   - Other
6. How does your firm determine the size of investment in Marketable Securities? (Check all that apply)
   ___ Cost-Balancing Model    ___ Trend Extrapolation
   ___ Subjective Analysis     ___ Present Levels
   ___ Other

9. Please rank the following techniques in order of importance for determining whether to grant credit to a customer.
   (least important)
   ___ Economic Conditions    ___ Analysis of Financial Statements
   ___ Industry Analysis      ___ Your Firm's Operational Slack
   ___ Subjective Judgment    ___ Credit Reports
   ___ Other

10. If ratio analysis is performed to evaluate a customer, which of the following ratios are used? (Check all that apply)
    ___ Current Ratio          ___ Inventory Turnover
    ___ Quick (acid) Ratio     ___ Profitability Ratios
    ___ Receivables Turnover   ___ Debt/Equity Ratio
    ___ Times Interest Charges Earned
    ___ Other

11. Which of the following procedures does your firm use to control Accounts Receivable? (Check all that apply)
    ___ Monitor Collection Period   ___ Send Collection Letters
    ___ Prepare A/R Aging Schedule  ___ Telephone Delinquent Accounts
    ___ Use Collection Agencies    ___ Other

12. Which of the following concepts are applied in managing the inventory of your firm? (Check all that apply)
    ___ FIFO Valuation         ___ Computerized Inventory Control
    ___ LILO Valuation         ___ Just-In-Time
    ___ Point of Sale Update   ___ Other

13. Please rank the following items in order of importance for determining appropriate inventory levels. (Most important)
    ___ Cost of Item           ___ Seasonal Demand
    ___ Order Cost             ___ Present Levels
    ___ Storage Costs          ___ Purchase Discounts
    ___ Cost of Shortages      ___ Other

14. Which of the following types of short-term financing are used by your firm? (Check all that apply)
    ___ Trade Credit
    ___ Working Capital Loans  ___ Loans with Compensating Balance
    ___ Line of Credit         ___ Finance Company Loans
    ___ Collateralized Loans   ___ Other

15. Please rank the uses of short-term borrowing. (Most used)
    ___ Temporary Cash Deficits  ___ Continuous Source of Funds
    ___ Purchase of Current Assets/Inventory ___ Other

16. Of what significance are relationships with commercial lenders in obtaining short-term financing? (Check one)
    ___ Most Important Factor
    ___ Unimportant Factor
    ___ Important Factor
**QUESTION 1: WHAT WAS YOUR FIRM'S REVENUES FOR 19XX?**

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<thead>
<tr>
<th>RESPONSE</th>
<th>TOTAL RESPONSES</th>
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</thead>
<tbody>
<tr>
<td>Under $1 million</td>
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<tr>
<td>$1-30 million</td>
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<tr>
<td>Over 5 billion</td>
<td>18</td>
</tr>
<tr>
<td><strong>TOTAL</strong></td>
<td><strong>100</strong></td>
</tr>
</tbody>
</table>

**QUESTION 2: WHICH OF THE FOLLOWING BEST DESCRIBES THE INDUSTRY IN WHICH YOUR FIRM OPERATES?**

<table>
<thead>
<tr>
<th>RESPONSE</th>
<th>TOTAL RESPONSES</th>
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<tr>
<td>Manufacturing-Consumer Goods</td>
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<td>Manufacturing-Industrial Goods</td>
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<td>Retail</td>
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<td>Non-Financial Services</td>
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<td>Transportation</td>
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<tr>
<td>Other</td>
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<td><strong>TOTAL</strong></td>
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<tr>
<td>RESPONSE</td>
<td>(%)</td>
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<tr>
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<td>Regression Analysis</td>
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<td>Present Levels</td>
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<td>Historical Balances</td>
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<td>Other</td>
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<td>Subjective Analysis and Other</td>
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<tr>
<td>Cost-balancing models, Subjective Analysis, and Present Levels</td>
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</table>

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100
**QUESTION 1: PLEASE RANK THE FOLLOWING ITEMS IN ORDER OF IMPORTANCE FOR INCREASING THE POSITIVE FLOW OF YOUR FIRM**

(Almost important)

<table>
<thead>
<tr>
<th>RESPONSE</th>
<th>PERCENTAGE RESPONSE FOR #1</th>
<th>PERCENTAGE RESPONSE FOR #2</th>
</tr>
</thead>
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<td>14</td>
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<tr>
<td>Payroll Legions</td>
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<td>3</td>
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<tr>
<td>Zero-Balance Accounts</td>
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<td>24</td>
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<tr>
<td>Delinquency or Trade Credit</td>
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<td>3</td>
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<tr>
<td>Perpetual through Deposits</td>
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<td>3</td>
</tr>
<tr>
<td>Centralized Payment Control</td>
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<tr>
<td>Other</td>
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<tr>
<td></td>
<td>100</td>
<td>99</td>
</tr>
</tbody>
</table>

*Total is unusual to 100 due to response error (checks instead of ranks)*

**QUESTION 2: PLEASE RANK THE FOLLOWING ITEMS IN ORDER OF IMPORTANCE FOR DECREASING THE NEGATIVE FLOW OF YOUR FIRM**

(Almost important)

<table>
<thead>
<tr>
<th>RESPONSE</th>
<th>PERCENTAGE RESPONSE FOR #1</th>
<th>PERCENTAGE RESPONSE FOR #2</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lockbox System</td>
<td>19</td>
<td>22</td>
</tr>
<tr>
<td>Customer discounts</td>
<td>13</td>
<td>18</td>
</tr>
<tr>
<td>Unauthorized Customer Checks</td>
<td>0</td>
<td>6</td>
</tr>
<tr>
<td>Electronic Funds Transfer</td>
<td>23</td>
<td>19</td>
</tr>
<tr>
<td>Regional Banking</td>
<td>3</td>
<td>16</td>
</tr>
<tr>
<td>Other</td>
<td>3</td>
<td>3</td>
</tr>
<tr>
<td>No Response</td>
<td>0</td>
<td>23</td>
</tr>
<tr>
<td></td>
<td>100</td>
<td>99</td>
</tr>
</tbody>
</table>

*Total is unusual to 100 due to response error (checks instead of ranks, no second choice)*
**QUESTION** For which of the following are important features of the cash management system at your firm (check all that apply)?

<table>
<thead>
<tr>
<th>RESPONSE</th>
<th>PERCENTAGE OF TOTAL RESPONSES</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Cost</td>
<td>0</td>
</tr>
<tr>
<td>2. Ease of Implementation</td>
<td>3</td>
</tr>
<tr>
<td>3. Familiarity with Techniques</td>
<td>0</td>
</tr>
<tr>
<td>4. Improvement in Float</td>
<td>0</td>
</tr>
<tr>
<td>5. Consistency of Results</td>
<td>0</td>
</tr>
<tr>
<td>6. Other</td>
<td>0</td>
</tr>
<tr>
<td>7. Cost, Ease of Implementation, and Improvement in Float</td>
<td>23</td>
</tr>
<tr>
<td>8. Cost, Ease of Implementation, Familiarity with Techniques, Improvement in Float, Consistency of Results</td>
<td>6</td>
</tr>
<tr>
<td>9. Cost and Improvement in Float</td>
<td>13</td>
</tr>
<tr>
<td>10. Cost, Improvement in Float, and Other</td>
<td>19</td>
</tr>
<tr>
<td>11. Cost, Improvement in Float, and Consistency of Results</td>
<td>16</td>
</tr>
<tr>
<td>12. Cost, Ease of Implementation, Familiarity with Techniques and Consistency of Results</td>
<td>6</td>
</tr>
<tr>
<td>13. Cost, Ease of Implementation, Consistency of Results, and Other</td>
<td>3</td>
</tr>
<tr>
<td>14. Cost and Other</td>
<td>3</td>
</tr>
<tr>
<td>15. Improvement in Float and Consistency of Results</td>
<td>3</td>
</tr>
<tr>
<td>16. Ease of Implementation, Familiarity with Techniques, and Consistency of Results</td>
<td>6</td>
</tr>
<tr>
<td>17. Ease and Consistency of Results</td>
<td>3</td>
</tr>
<tr>
<td>18. No reply</td>
<td>2</td>
</tr>
</tbody>
</table>
**QUESTION #1: PLEASE RANK THESE CHARACTERISTICS OF MARKETABLE SECURITIES IN ORDER OF IMPORTANCE TO YOUR FUND.**

<table>
<thead>
<tr>
<th>RESPONSE</th>
<th>PERCENT RESPONSE FOR #1</th>
<th>PERCENT RESPONSE FOR #2</th>
</tr>
</thead>
<tbody>
<tr>
<td>Safety</td>
<td>71</td>
<td>6</td>
</tr>
<tr>
<td>Yield</td>
<td>18</td>
<td>29</td>
</tr>
<tr>
<td>Denomination of Security</td>
<td>2</td>
<td>0</td>
</tr>
<tr>
<td>Maturity</td>
<td>6</td>
<td>29</td>
</tr>
<tr>
<td>Marketability</td>
<td>6</td>
<td>19</td>
</tr>
<tr>
<td>Transaction Costs</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Other</td>
<td>0</td>
<td>3</td>
</tr>
<tr>
<td>No Response</td>
<td>13</td>
<td>16</td>
</tr>
</tbody>
</table>

169

Totals unequal to 100 due to response error.

**QUESTION #2: HOW DOES YOUR FUND DETERMINE THE SIZE OF INVESTMENT IN MARKETABLE SECURITIES?**

(Chose all that apply)

<table>
<thead>
<tr>
<th>RESPONSE</th>
<th>PERCENTAGE OF TOTAL RESPONSES</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Cost-Balancing Model</td>
<td>5</td>
</tr>
<tr>
<td>2. Subjective Analysis</td>
<td>27</td>
</tr>
<tr>
<td>3. Other</td>
<td>24</td>
</tr>
<tr>
<td>4. Trend Extrapolation</td>
<td>6</td>
</tr>
<tr>
<td>5. Present Levels</td>
<td>53</td>
</tr>
<tr>
<td>6. Subjective Analysis and Other</td>
<td>3</td>
</tr>
<tr>
<td>7. Cost-Balancing Model and Present Levels</td>
<td>3</td>
</tr>
<tr>
<td>8. Subjective Analysis and Trend Extrapolation</td>
<td>3</td>
</tr>
<tr>
<td>9. Subjective Analysis and Present Levels</td>
<td>10</td>
</tr>
<tr>
<td>10. No Response</td>
<td>19</td>
</tr>
</tbody>
</table>

106
QUESTION 43: PLEASE RANK THE FOLLOWING TECHNIQUES IN ORDER OF IMPORTANCE FOR DETERMINING WHETHER TO GIVE CREDIT TO A CUSTOMER. (Least important)

<table>
<thead>
<tr>
<th>RESPONSE</th>
<th>PERCENT RESPONSE</th>
</tr>
</thead>
<tbody>
<tr>
<td>Economic Conditions</td>
<td>6</td>
</tr>
<tr>
<td>Industry Analysis</td>
<td>6</td>
</tr>
<tr>
<td>Subjective Judgment</td>
<td>10</td>
</tr>
<tr>
<td>Other</td>
<td>6</td>
</tr>
<tr>
<td>Analysis of Financial Statements</td>
<td>26</td>
</tr>
<tr>
<td>Your Firm's Operational Black History</td>
<td>6</td>
</tr>
<tr>
<td>Credit Reports</td>
<td>25</td>
</tr>
<tr>
<td>No Response</td>
<td>29</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>99</strong></td>
</tr>
</tbody>
</table>

*Totals unequal to 100 due to rounding error.*
Question 11: If ratio analysis is performed to evaluate a customer, which of the following ratios are used?
(Check all that apply)

<table>
<thead>
<tr>
<th>RESPONSE</th>
<th>PERCENTAGE OF TOTAL RESPONSE</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Current Ratio</td>
<td>0</td>
</tr>
<tr>
<td>2. Quick Ratio</td>
<td>0</td>
</tr>
<tr>
<td>3. Receivables Turnover</td>
<td>9</td>
</tr>
<tr>
<td>4. Times Interest Charges Earned</td>
<td>0</td>
</tr>
<tr>
<td>5. Inventory Turnover</td>
<td>0</td>
</tr>
<tr>
<td>6. Profitability Ratios</td>
<td>0</td>
</tr>
<tr>
<td>7. Debt/Equity Ratio</td>
<td>0</td>
</tr>
<tr>
<td>8. Other</td>
<td>3</td>
</tr>
<tr>
<td>9. Current, Quick, Profitability, Debt/Equity Ratios, Receivables Turnover and Inventory Turnover</td>
<td>18</td>
</tr>
<tr>
<td>10. Current, Quick, Profitability, Debt/Equity Ratios, Receivables Turnover, TIE and Inventory Turnover</td>
<td>19</td>
</tr>
<tr>
<td>11. Receivables Turnover, Inventory Turnover, Profitability, Debt/Equity Ratios and Other</td>
<td>3</td>
</tr>
<tr>
<td>12. Current Ratio, Quick Ratio, Profitability Ratios, and Debt/Equity Ratios</td>
<td>4</td>
</tr>
<tr>
<td>13. Current, Quick, Profitability, Debt/Equity Ratios, and Receivables Turnover</td>
<td>3</td>
</tr>
<tr>
<td>14. All of the above</td>
<td>3</td>
</tr>
<tr>
<td>15. Current Ratio and Debt/Equity Ratio</td>
<td>0</td>
</tr>
<tr>
<td>16. Current Ratio, Quick Ratio, Debt/Equity Ratio, Receivables Turnover and TIE</td>
<td>2</td>
</tr>
<tr>
<td>17. Current Ratio, Quick Ratio, TIE, Profitability Ratios, Debt/Equity Ratios, and Other</td>
<td>3</td>
</tr>
<tr>
<td>18. Current Ratio, Profitability Ratios, and Debt/Equity</td>
<td>6</td>
</tr>
<tr>
<td>19. Profitability Ratios and Debt/Equity Ratios</td>
<td>3</td>
</tr>
<tr>
<td>20. No Response</td>
<td>32</td>
</tr>
</tbody>
</table>

*Total*
**QUESTION 11:** WHICH OF THE FOLLOWING PROCEDURES DOES YOUR FIRM USE TO CONTROL ACCOUNTS RECEIVABLE? (CHECK ALL THAT APPLY)

<table>
<thead>
<tr>
<th>RESPONSE</th>
<th>PERCENTAGE OF TOTAL RESPONSES</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Monitor Collection Period</td>
<td>0</td>
</tr>
<tr>
<td>2. Prepare A/R Aging Schedule</td>
<td>0</td>
</tr>
<tr>
<td>3. Use Collection Agencies</td>
<td>1</td>
</tr>
<tr>
<td>4. Send Collection Letters</td>
<td>1</td>
</tr>
<tr>
<td>5. Telephone Delinquent Accounts</td>
<td>1</td>
</tr>
<tr>
<td>6. Other</td>
<td>4</td>
</tr>
<tr>
<td>7. All of the Above</td>
<td>4</td>
</tr>
</tbody>
</table>

**B.** Monitor Collection Period, Prepare A/R Schedule, Send Collection Letters, Telephone Delinquent Accounts

**C.** Monitor Collection Period, Prepare A/R Aging Schedule, Use Collection Agencies, Send Collection Letters, Telephone Delinquent Accounts

**D.** Monitor Collection Period, Use Collection Agencies, Telephone Delinquent Accounts

**E.** Monitor Collection Period, A/R Aging Schedule, Collection Agencies and Collection Letters

**F.** Monitor Collection Period, A/R Aging Schedule, Telephone Delinquent Accounts and Other

**G.** Monitor Collection Period, A/R Aging Schedule, Collection Agencies and Telephone Delinquent Accounts

**H.** Monitor Collection Period and Prepare A/R Schedule

**I.** No Response | 14 |

**TOTAL RESPONSES:** 100
**QUESTION #12: WHICH OF THE FOLLOWING CONCEPTS ARE APPLIED IN MANAGING THE INVENTORY OF YOUR FIRM?**
(Check all that apply)

<table>
<thead>
<tr>
<th>RESPONSE</th>
<th>PERCENTAGE OF TOTAL RESPONSE</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. FIFO Valuation</td>
<td>0</td>
</tr>
<tr>
<td>2. LIFO Valuation</td>
<td>0</td>
</tr>
<tr>
<td>3. Point of Sale Update</td>
<td>0</td>
</tr>
<tr>
<td>4. Computerized Inventory Control</td>
<td>0</td>
</tr>
<tr>
<td>5. Just-In-Time</td>
<td>0</td>
</tr>
<tr>
<td>6. Other</td>
<td>0</td>
</tr>
<tr>
<td>7. LIFO Valuation and Computerized Inventory</td>
<td>0</td>
</tr>
<tr>
<td>8. FIFO Valuation, Computerized Inventory, and Other</td>
<td>0</td>
</tr>
<tr>
<td>9. Computerized Inventory, Just in Time, and Other</td>
<td>0</td>
</tr>
<tr>
<td>10. FIFO, LIFO, Computerized Inventory, and Other</td>
<td>0</td>
</tr>
<tr>
<td>11. FIFO Valuation, Computerized Inventory, Just in Time</td>
<td>0</td>
</tr>
<tr>
<td>12. FIFO and LIFO Valuation, Computerized Inventory, and Other</td>
<td>0</td>
</tr>
<tr>
<td>13. FIFO Valuation, Point of Sale Update and Just in Time</td>
<td>0</td>
</tr>
<tr>
<td>14. FIFO and LIFO Valuation, and Computerized Inventory</td>
<td>0</td>
</tr>
<tr>
<td>15. LIFO Valuation, Computerized Inventory, and Just in Time</td>
<td>0</td>
</tr>
<tr>
<td>16. LIFO Valuation, Point of Sale Update, Just in Time, Computerized Inventory</td>
<td>0</td>
</tr>
<tr>
<td>17. FIFO and LIFO Valuation, Point of Sale Update, and Computerized Inventory Control</td>
<td>0</td>
</tr>
<tr>
<td>18. FIFO Valuation and Just In Time</td>
<td>3</td>
</tr>
<tr>
<td>19. No Response</td>
<td>35</td>
</tr>
</tbody>
</table>

Total: 100
**Question 413:** Please rank the following items in order of importance for determining appropriate inventory levels.

(Percent important)

<table>
<thead>
<tr>
<th>RESPONSE</th>
<th>PERCENT RESPONSE FOR #1</th>
<th>PERCENT RESPONSE FOR #2</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cost of Item</td>
<td>10</td>
<td>2</td>
</tr>
<tr>
<td>Order Cost</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Storage Costs</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Cost of Shortages</td>
<td>0</td>
<td>36</td>
</tr>
<tr>
<td>Seasonal Demand</td>
<td>32</td>
<td>14</td>
</tr>
<tr>
<td>Present Levels</td>
<td>23</td>
<td>3</td>
</tr>
<tr>
<td>Purchasing Discounts</td>
<td>8</td>
<td>6</td>
</tr>
<tr>
<td>Other</td>
<td>18</td>
<td>6</td>
</tr>
<tr>
<td>No Response</td>
<td>32</td>
<td>48</td>
</tr>
</tbody>
</table>

*Totals unequal to 100 due to response error.*
**Question 814: Which of the following types of short-term financing are used by your firm? (Check all that apply)**

<table>
<thead>
<tr>
<th>RESPONSE</th>
<th>PERCENT OF TOTAL RESPONSE</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Commercial Paper</td>
<td>10</td>
</tr>
<tr>
<td>2. Working Capital Loans</td>
<td>6</td>
</tr>
<tr>
<td>3. Line of Credit</td>
<td>2</td>
</tr>
<tr>
<td>4. Collateralized Loans</td>
<td>3</td>
</tr>
<tr>
<td>5. Trade Credit</td>
<td></td>
</tr>
<tr>
<td>6. Loans with Compensating Balance</td>
<td></td>
</tr>
<tr>
<td>7. Finance Company Loans</td>
<td></td>
</tr>
<tr>
<td>8. Other</td>
<td></td>
</tr>
<tr>
<td>9. Commercial Paper and Working Capital Loans</td>
<td>3</td>
</tr>
<tr>
<td>10. Commercial Paper, Line of Credit, and Trade Credit</td>
<td>10</td>
</tr>
<tr>
<td>11. Commercial Paper and Other</td>
<td>10</td>
</tr>
<tr>
<td>13. Commercial Paper, Line of Credit, Trade Credit, Other</td>
<td></td>
</tr>
<tr>
<td>17. Commercial Paper, Collateralized Loans, and Trade Credit</td>
<td>3</td>
</tr>
<tr>
<td>18. Working Capital Loans, Line of Credit, Collateralized Loans</td>
<td>3</td>
</tr>
<tr>
<td>19. Commercial Paper, Line of Credit, and Collateralized Loans</td>
<td>3</td>
</tr>
<tr>
<td>20. Line of Credit and Other</td>
<td>3</td>
</tr>
<tr>
<td>21. Commercial Paper and Line of Credit</td>
<td>4</td>
</tr>
<tr>
<td>22. Working Capital Loans and Loans with Comp. Balance</td>
<td>3</td>
</tr>
<tr>
<td>23. Commercial Paper, Line of Credit and Other</td>
<td>1</td>
</tr>
<tr>
<td>24. Commercial Paper, Line of Credit, Collateralized Loans, Loans with Compensating Balance</td>
<td>3</td>
</tr>
<tr>
<td>25. Line of Credit and Trade Credit</td>
<td>3</td>
</tr>
<tr>
<td>26. No Response</td>
<td></td>
</tr>
</tbody>
</table>
**QUESTION #5: PLEASE RANK THE USES OF SHORT-TERM BORROWING.**

<table>
<thead>
<tr>
<th>RESPONSE</th>
<th>PERCENT RESPONSE FOR #1</th>
<th>PERCENT RESPONSE FOR #2</th>
</tr>
</thead>
<tbody>
<tr>
<td>Temporary Cash Deficit</td>
<td>42</td>
<td>53</td>
</tr>
<tr>
<td>Purchase of Current Assets/Inventory</td>
<td>19</td>
<td>10</td>
</tr>
<tr>
<td>Continuous Source of Funds</td>
<td>32</td>
<td>16</td>
</tr>
<tr>
<td>Other</td>
<td>4</td>
<td>0</td>
</tr>
<tr>
<td>No Response</td>
<td>3</td>
<td>0</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>112</strong></td>
<td><strong>107</strong></td>
</tr>
</tbody>
</table>

*Note: Less than 100 may be due to response error.*

**QUESTION #6: OF WHAT SIGNIFICANCE ARE RELATIONSHIPS WITH COMMERCIAL LENDERS IN OBTAINING SHORT-TERM FINANCING?**

<table>
<thead>
<tr>
<th>RESPONSE</th>
<th>PERCENT RESPONSE OF TOTAL</th>
</tr>
</thead>
<tbody>
<tr>
<td>Most Important Factor</td>
<td>24</td>
</tr>
<tr>
<td>Important Factor</td>
<td>48</td>
</tr>
<tr>
<td>Unimportant Factor</td>
<td>24</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>100</strong></td>
</tr>
</tbody>
</table>
BIBLIOGRAPHY


