1989

The Impact of Alternative Presentations of Cash Flows From Operations on the Relevance of Funds Flow Information.

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Order Number 9002132

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The Louisiana State University and Agricultural and Mechanical Col., 1989

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THE IMPACT OF ALTERNATIVE PRESENTATIONS OF CASH FLOWS FROM OPERATIONS ON THE RELEVANCE OF FUNDS FLOW INFORMATION

A Dissertation

Submitted to the Graduate Faculty of the
Louisiana State University and
Agricultural and Mechanical College
in partial fulfillment of the
requirements for the degree of
Doctor of Philosophy

in

The Department of Accounting

by
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May, 1989

ACKNOWLEDGEMENTS

I would like to express my sincere appreciation to the members of my dissertation committee: Dr. Nicholas Apostolou; Dr. William Mister; Dr. Glenn Sumners; Dr. David Senteney; and Dr. Douglas McMillin. I would also like to thank Dr. Bart Hartman and Dr. Stephen Looney for their helpful comments and insight.

A very special thank you goes out to my wife for her continuing support and encouragement.

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ABSTRACT

Generally accepted accounting procedures allow the use of either the direct or indirect presentation of cash flow from operations in the statement of cash flows. A behavioral study is employed to examine the impact of these alternative presentations on the relevance of the information provided by the statement. Bank loan officers make line of credit and interest rate decisions, and projected cash flow from operations based on a set of financial statements presented in either the direct or indirect format. The study also examines the feedback value of the alternative presentations, which is operationalized as the change in accuracy of projections made before and after feedback. The experiment is performed twice, once for a company with increasing cash flows, and again for a company with decreasing cash flows. Data analysis is performed using a priori contrasts and the Mann-Whitney test with the Bonferroni multiple comparison technique.

The results of the study indicate that the alternative presentation formats do not result in significant differences for the line of credit, the interest rate premium, or the feedback variables. Some evidence is found that the alternative presentations of cash flow from

operations differ in terms of predictive ability. Two of the four cash flow projections are significantly different at the family level of significance of .10. The results also indicate that neither presentation format is always superior to the other in terms of predictive accuracy. While the results of the study are not strong, the primary implication is that the FASB should reevaluate the optional disclosure of the direct format. The direct method may provide additional, relevant information to investors and creditors in certain situations.

CHAPTER 1

INTRODUCTION AND OVERVIEW OF STUDY

The Financial Accounting Standards Board (FASB) has determined three objectives of external financial reporting as part of its work on the conceptual framework. The second of these objectives relates to the reporting of cash flow information:

> Financial reporting should provide information to help investors, creditors, and others assess the amounts, timing, and uncertainty of prospective net cash inflows to the . . . enterprise (FASB 1978, par. 37).

In light of this objective, the FASB has released Statement of Financial Accounting Standards No. 95 (SFAS 95), Statement of Cash Flows (FASB 1987).

SFAS 95 "supersedes Accounting Principles Board Opinion No. 19 (APB 19), Reporting Changes in Financial Position, and requires a business enterprise to provide a statement of cash flows in place of a statement of changes in financial position (SCFP)" (FASB 1987, par. 1). APB 19 allowed for flexibility in the "form, content, and terminology of the statement to meet its objectives in differing circumstances" (APB 1971, par. 9). Included in this flexibility was the focus of the statement: cash, cash and temporary investments combined, quick assets, and

working capital were all permitted (APB 1971, par. 11). The FASB cites this flexibility as one of the reasons for the issuance of SFAS 95. The flexibility has resulted in (1) ambiguity of the term funds, (2) lack of comparability, and (3) the reporting of net changes in amount of assets and liabilities rather than gross inflows and outflows (FASB 1987, par. 2).

Requirements of SFAS 95

As a result of these problems, SFAS 95 eliminates much of the flexibility allowed in APB 19. Citing the increased significance of cash flows[1], the FASB eliminates the opportunity for firms to present the statement in any format other than cash and cash equivalents. The statement defines cash equivalents as short-term, highly liquid investments that are both (1) readily convertible to known amounts of cash, and (2) so near their maturity that they present insignificant risk of changes in value due to changes in interest rates (FASB 1987, par. 8).

The statement also eliminates flexibility in the format of the statement. It does this with three

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[1]As previously noted, SFAC 1 states that one of the objectives of external accounting is to provide information relating to the amount, timing, and uncertainty of cash flows of an enterprise (FASB 1978). The FASB reaffirmed the significance of cash flows by suggesting that a "full set of financial statements . . . should show: . . . Cash flows during the period" in SFAC 5, Recognition and Measurement in Financial Statements of Business Enterprises (FASB 1984, par. 13).

formatting requirements. First, it requires the separation of the cash effects of transactions into three classifications: operating, investing, and financing activities (FASB 1987, par. 6).[2] Second, it requires that the statement reconcile beginning and ending cash and cash equivalents (FASB 1987, par. 26). Third, it requires that information about all investing and financing activities that do not result in cash receipts or cash payments in the period be reported in related disclosures outside the statement (FASB 1987, par. 32). This moves the disclosures required under the "all financial resources concept" (Kieso and Weygandt 1986, 1062) from the body of the funds statement to a supplemental disclosure outside the statement.

SFAS 95 does not eliminate all flexibility, however. The operating section of the statement of cash flows can be presented in two different formats, reflecting different methods of determining cash flows from operations.

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[2]Financing transactions "include obtaining resources from owners and providing them with a return on, and a return of, their investment; borrowing money and repaying amounts borrowed . . . and obtaining and paying for other resources obtained from creditors on long-term credit" (FASB 1987, par. 18). Investing transactions include "making and collecting loans and acquiring and disposing of debt or equity instruments and property, plant, and equipment and other productive assets" (FASB 1987, par. 15). Operating activities include all transactions and other events that are not defined as investing or financing activities (FASB 1987, par. 21).

The Direct Method

The first method of presenting the operating section is called the direct method, and entails the reporting of major classes of gross cash receipts and payments and their arithmetic sum (FASB 1987, par. 27). Minimum separate disclosures under this method include:

> The following classes of operating cash receipts and payments:
>
> a. Cash collected from customers, including lessees, licensees, and the like
> b. Interest and dividends received
> c. Other operating cash receipts, if any
> d. Cash paid to employees and other suppliers of goods or services, including suppliers of insurance, advertising, and the like
> e. Interest paid
> f. Income taxes paid
> g. Other operating cash payments, if any (FASB 1987, par. 27).

SFAS 95 encourages, but does not require, the use of the direct method (FASB 1987, par. 27). If the direct method is used as recommended, the financial statements must contain a separate schedule which reconciles net income to net cash flow from operating activities (FASB 1987, par. 30).

The Indirect Method

The second method of presentation is called the indirect method. This method adjusts net income to reconcile it to net cash flow from operations. As such, it requires the adjustment of net income to remove:

> (a) the effects of all deferrals of past operating cash receipts and payments, such as changes during the period

> in inventory, deferred income, and the like, and all accruals of expected future operating cash receipts and payments, such as changes during the period in receivables and payables, and (b) the effects of all items whose cash effects are investing or financing cash flows, such as depreciation, amortization of goodwill, and gains or losses on sales of property, plant, and equipment and discontinued operations (which relate to investing activities), and gains or losses on extinguishment of debt (which is a financing activity) (FASB 1987, par. 28).

APB 19 allowed either the direct or indirect method to be utilized. Most companies utilize the indirect, or add-back method to arrive at cash flow from operations. The use of the indirect method is criticized by some who claim its use confuses readers and fosters incorrect perceptions of such items as net income and depreciation (Heath 1987, 57). After reviewing the SCFP and its weaknesses, Heath summarizes his findings by calling the SCFP a "mess" (Heath 1987, 50).

Research on the Significance of Cash Flow Reporting

The issuance of SFAS 95 should improve the disclosure of funds flow information. This information has been demanded by users for many years, but the profession has been slow to require its disclosure. One of the reasons for this delay is that many within the profession were against its disclosure, fearing that it would detract from the prominence of accrual accounting and the net income figure that results from its application (Seidman 1961).

Empirical research has been performed on the subject in order to determine if the disclosure of cash flow information is significant for users. There are three major areas of research performed on cash flow reporting: (1) on the association between cash flow measures and stock prices and returns, (2) on the ability of cash and accrual accounting to predict future cash flows, and (3) on the relative abilities of cash and accrual accounting to predict bankruptcy.

The results of the studies performed in all three of the major areas of cash flow research are mixed. Gombola and Ketz (1983) suggest one possible cause for the conflicting results is the manner in which the variables are defined. Operationalization of cash flow variables are not the same in all of the studies examined. Prior research shows that some of the measures of cash flow, such as working capital from operations, are closely correlated with earnings and therefore add little information to the earnings numbers (Largay and Stickney 1980, 325, and Bowen, Burgstahler, and Daley 1986, 719).

The research also shows that significant results are achieved when more adjustments are made to net income in order to arrive at the cash flow measure (Gombola and Ketz 1983, and Bowen, Burgstahler, and Daley 1986). Essentially, researchers have to disaggregate reported information in order to arrive at a truer cash flow measure. The

determination of a net income figure encompasses a vast amount of information aggregation, and with that aggregation some usefulness is lost. Sorter (1969 and 1982) states that this aggregation is not necessarily beneficial to financial statement users.

Additionally, as the rules governing financial reporting and the determination of income become more complex, the reconciliation of an accrual-based net income figure to a cash flow from operations figure becomes increasingly difficult (Giese and Klammer 1974, 58). Drtina and Largay (1985) discuss the problems associated with making that reconciliation, and conclude it results in only an approximation of cash flow from operations which differs from the actual amount by an unknown amount of error (p. 325). This raises doubts about the validity of empirical studies which calculate cash flow from operations by applying the indirect adjustment algorithm to data banks such as COMPUSTAT (pp. 321-322).

In short, the results of the empirical research may be mixed due to the method most firms utilize to present cash flow information. If cash flow information is important to users, as would seem to be indicated by their demand for the information, the accounting profession should supply that information in a clear and straight-forward manner. Many individuals believe the direct method of presenting cash flow from operations is the preferred method from this

standpoint (Moonitz 1943; Vatter 1944; Sorter 1982; Thomas 1982; Heath 1978 and 1987; and FASB 1987, par. 113).

Purpose of Research

Two of the members of the FASB agree with these views, and dissent from SFAS 95 as a result:

> They believe that by permitting the continued use of the indirect method, the Board has foregone the opportunity to make a significant contribution to the quality of financial reporting and to enhanced user understanding of cash flows from operating activities. Reporting information . . . [using] (the direct method) provides a description of the operating activities of an entity during a period that is both more informative and more consistent with the primary purpose of a statement of cash flows, which is . . . "to provide relevant information about the cash receipts and cash payments of an enterprise during a period (FASB 1987, par. 34).

The purpose of this study is to determine if this viewpoint is correct. In particular, the purpose is to determine whether the alternative presentations of cash flow from operations result in different expectations of future cash flows from operations.[3] In other words, do users vary their expectations of cash flows, and consequently their investment/credit decisions, as a result of receiving different presentations of cash flow information? A secondary issue is: Which method of presentation provides

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[3]The use of expectations is appropriate due to the fact that predictive value is one of the components of relevance, which is one of the primary qualitative characteristics of accounting information that make it useful (FASB 1980a, par. 53).

more feedback on prior expectations?[4]

If expectations differ between the two presentations, it can be inferred that the relevance of the information provided by the two methods is different, and that they should not be alternatives. The method which provides more relevant information (i.e., produces more accurate expectations) should be the required method. If the expectations do not differ between the presentations, then no support is found for the view that the direct method should be required.

The research question is important for four reasons. The first reason is the importance accorded cash flow reporting in the conceptual framework. SFAC 1 lists cash flow reporting as one of three objectives of external reporting (FASB 1978, par. 37). Additionally, SFAC 5 states that a full set of financial statements should include information on cash flows during the period (FASB 1984, par. 13). Given the importance of cash flows, and the fact that the primary purpose of the statement of cash flows is to provide this information (FASB 1987, par. 4), an understanding of whether the alternative presentations differ in the relevance of the information provided is of interest to the profession.

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[4]Feedback is a second component of relevance, and is therefore an appropriate variable to examine (FASB 1980a, par. 47).

The second reason the study is important to the profession is the interest shown by bank loan officers for the direct method. Individual lending officers as well as the Accounting Policy Committee of the Robert Morris Associates (RMA) lobbied the FASB for the direct method (O'Leary 1988, 22 and 28). The lenders apparently believe that the new information would be beneficial in improving the decisions they make regarding loan amounts and interest rates. Based upon the demand for the direct method, the profession has an obligation to provide that presentation if it provides additional, relevant information beyond that of the indirect method.

While users desire disclosure of the direct method, management will probably not utilize it unless required to do so. The disclosures included in the indirect method are similar to those included in the SCFP and, as such, require no new information be gathered by the accounting information system. These disclosures are required by SFAS 95 regardless of which method is utilized in the body of the statement of cash flows. The information in the direct method, on the other hand, was not disclosed previously and therefore represents new requirements for the accounting

information system.[5] These disclosures are required only if the direct method is employed.

It seems reasonable that management will choose to utilize the indirect method, and not generate the new disclosures (Heath 1987, 56).[6] While the selection of the indirect method meets the requirements of SFAS 95, it is not the method recommended by the FASB. Since the Board recommends the direct method be utilized, it apparently believes its disclosures are preferable to those included in the indirect method (FASB 1987, par. 119). This belief is also held by the two members of the Board who dissented from SFAS 95[7] and a majority of the respondents to the Exposure Draft, "who asked the Board to require the use of the direct method" (FASB 1987, par. 111). Given this belief, there are only two possible justifications for not requiring the use of the direct method: (1) the cost of generating the

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[5]This is highlighted by the fact that "many of the providers of financial statements . . . [responding to the Exposure Draft] said that it would be costly for their companies to report gross operating cash receipts and payments . . . [since] they do not presently collect information in a manner that will allow them to determine [the required] amounts" (FASB 1987, par. 109).

[6]This is supported by the fact that the majority of financial statement providers who responded to the Exposure Draft were in favor of allowing a choice between the direct and indirect method. "They generally said that requiring the direct method would impose excessive implementation costs" (FASB 1987, par. 113).

[7]See quote on page 8.

disclosures is greater than the benefit derived[8] or (2) the alternative formats present information which is essentially the same in terms of relevance to users.

Regarding the first possible justification, the Board acknowledges that there are questions about the ability of enterprises to determine the disclosures required under the direct method (FASB 1987, par. 119). However, it believes that many enterprises may be able to determine the disclosures at a reasonable cost (FASB 1987, par. 118), a view Heath supports (1987, 58). As such, the cost/benefit argument does not seem to be supported.

This study examines the second possible justification. The research examines whether the disclosures provided in the alternative formats differ in regard to the relevance of the information provided. This is a first attempt at resolving the question of whether the two formats should be allowed as alternatives to each other.

The third reason the study is important to the profession lies in the disaggregation theory of Sorter (1969). Researchers do not know how users employ cash flow information in their decision models or even what those models are. Given this lack of insight, Sorter states that the purpose of accounting is to deliver disaggregated

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[8]SFAC 2 addresses the fact that the benefits derived from accounting disclosures must outweigh their associated costs: "A standard-setting authority must concern itself with the perceived costs and benefits of the standards it sets" (FASB 1980a, par. 135).

information that might be useful in a variety of possible decision models (p. 13). To this end, Sorter recommends the direct method of presenting cash flows from operations instead of the indirect method (1982, 193).

The fourth reason the study is important to the profession is the fact that SFAS 95 may suffer from one of the problems that led to the demise of APB 19, which it supersedes. The FASB cited the diversity of formats allowed by APB 19 as one of the reasons the SCFP failed to fulfill its role in financial reporting (FASB 1987, par. 2). The diversity of formats resulted in a lack of comparability between firms.[9] The statements of cash flows produced under SFAS 95 may also lack comparability since it allows alternative presentation formats. By investigating whether the information provided in the alternative formats differs in terms of relevance, it can be determined whether comparability problems will result.

Research Method

A behavioral experiment is employed to determine the relevance of the information provided by the alternative methods of presenting cash flow from operations. The subjects for the study are bank loan officers. Each

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[9]Similar to cash flow information, comparability has received increased attention by the profession. SFAC 2, Qualitative Characteristics of Accounting Information, lists comparability as one of the qualitative characteristics of accounting information that make it useful to decision makers (FASB 1980a, par. 111).

subject receives a set of condensed, comparative financial statements. The financial statements are identical except for the cash flow from operations section of the statement of cash flows, which is presented in either the direct or indirect format. As such, an independent variable in the study is the method of determining cash flow from operations.

The information presented to the subjects is drawn from two companies. The first company is experiencing increasing operating cash flows, while the second company is experiencing decreasing operating cash flows. The subjects are asked to provide (1) expectations of cash flows from operations for the year subsequent to the last year shown, (2) the line of credit they would be willing to extend to the company, and (3) the interest rate premium they would charge. The subjects are then given feedback in the form of the actual financial statements for the year in which they projected cash flows, and asked to provide expectations of the following year's cash flow from operations. As such, the subjects provide two responses on the expected cash flow from operations variable, one of which is made after receiving feedback.

By utilizing this design, the study is able to determine if a significant difference in credit decisions results from the alternative presentations of operating cash flows. The study is also able to examine two of the

three characteristics of relevance as defined in the conceptual framework: predictive value and feedback value. Predictive value is operationalized as the accuracy of the estimate of cash flow from operations made by the subjects. Feedback value is operationalized as the change in the accuracy of the second estimate over the first.

The data analysis is performed using a priori contrasts (Kirk 1969, 73). The test for significant differences in loan amounts, interest rate, and expectations of cash flow from operations are performed using the t test (Neter, Wasserman, and Kutner 1985, 585) and the Mann-Whitney test (Conover 1980, 216-218). The Bonferroni multiple comparison procedure is employed to determine the significance of the test results (Neter, Wasserman, and Kutner 1985, 582-588). The significance of the differences in feedback value is tested using the two sample t test and the Mann-Whitney test.

Contributions of the Study

Cash flow reporting has received increased attention from the accounting profession and the FASB. The conceptual framework includes the reporting of cash flows as one of the objectives of external reporting (FASB 1978, par. 37) and as necessary for full disclosure in financial statements (FASB 1984, par. 13). This study presents empirical evidence about the relevance of the alternative presentation formats in a bank lending situation. It

therefore contributes to the development of reporting standards which are useful to bank lending officers, who represent an important set of external financial statement users.

CHAPTER 2

LITERATURE REVIEW

This chapter will review prior literature relating to cash flow reporting. The chapter begins with a brief discussion on the history of funds flow reporting, which is followed by a review of the empirical research on the significance of cash flows. As indicated in Chapter 1, the results of this research have been mixed: a possible explanation for the conflicting results is discussed in the last section of the chapter.

Historical Perspective of Funds Flow Reporting

The recognition of the need for a funds flow statement has been a slow, evolutionary process that is not yet complete. This section of the literature review will examine the development of the cash flow reporting requirements. It focuses on (1) the determination of the need for cash flow reporting and (2) the format of the resulting statement.

Determination of the Need for Cash Flow Reporting

Many authors discuss the fact that external financial reporting focuses primarily on the determination of income

to the exclusion of other reporting issues (Moonitz 1961, xi-xii; Jaedicke and Sprouse 1965, 6; and Hendriksen 1982, 29). While the conceptual framework focuses financial reporting on the determination of income, it acknowledges that users require information on earnings as a result of their interest in cash flows:

> The primary focus of financial reporting is information about an enterprise's performance provided by measures of earnings and its components. Investors, creditors, and others who are concerned with assessing the prospects for enterprise net cash inflows are especially interested in that information. Their interest in an enterprise's future cash flows and its ability to generate favorable cash flows leads primarily to an interest in information about its earnings rather than information directly about its cash flows. . . .
>
> Information about enterprise earnings and its components measured by accrual accounting generally provides a better indication of enterprise performance than information about current cash receipts and payments (FASB 1978, pars. 43 and 44).

The recognition of cash flows as being important to users is a relatively new phenomena.[10] Accounting practitioners have in the past argued against the presentation of cash flow information.[11] Even those practitioners who pressed for the

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[10]The Study Group on Objectives of Financial Statements ("Trueblood report") was the first to include the idea of providing information useful in predicting, comparing, and evaluating potential cash flows as an objective of financial reporting.

[11]In a letter to the editor of the Journal of Accountancy, J. S. Seidman, who later became a member of the APB, stated "Instead of studying various ways and terminology for presenting cash flow statements, I think the profession is called upon to report to companies, to analysts, to stockholders, and the exchanges that cash flow figures are dangerous and misleading and the profession will have no part of them" (Seidman 1961).

adoption of a funds statement were not clear on its usefulness.[12] Despite these problems, interest in the statement grew.[13]

In response to this growing interest, the AICPA sponsored a research study of the problem. Among the suggestions contained in Perry Mason's research monograph "Cash Flow" Analysis and the Funds Statement was that the funds statement be required as a major financial statement and covered by the auditor's report (Mason 1961, 90). This suggestion met with mixed reviews ("Comments on '"Cash Flow" Analysis and the Funds Statement'" 1962, 63-64) and despite the fact that some of the support for this suggestion came from officials at the New York Stock Exchange, the APB did not adopt it immediately. APB Opinion No. 3 (APB 3), The Statement of Source and Application of

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[12]Rosen and DeCoster (1969) traced the development of the funds statement. One of the earliest promoters of the statement was William Morse Cole who, despite his support for the statement, "appeared to be uncertain about its exact usefulness. . . . his narratives were vague about whether the report format disclosed changes in 'general solvency' or revealed information on the 'trustworthiness of the books'" (p. 126).

[13]The interest was spurred more by users of financial statements than by their providers. Phillip West, vice president of the New York Stock Exchange, suggested that a funds statement be treated as a major financial statement and disclosed by all companies ("Comments on '"Cash Flow" Analysis and the Funds Statement'" 1962, 64). The Directors of the Financial Analysts Federation favored the inclusion of a statement of the source and application of funds in corporate reports to shareholders (Financial Analysts Federation 1964, 14). See also Bradish 1965, 761-762, and Backer 1970, 51-52.

Funds recommended that funds statements be included in financial reports as supplementary information (APB 1963, par. 8).[14] It was not until APB 19 was issued eight years later that the funds statement became one of the primary financial statements.

Format of the Report

The format and focus of the funds statement were hotly debated in the early years of its formation.[15] The working capital approach gradually emerged as the accepted focus of the funds statement. Rosen and DeCoster (1969) state that this may have resulted because of the fact that:

> Many authors of textbooks, CPA examiners and accounting teachers saw the 'funds' statement primarily as an excellent vehicle for testing a student's knowledge of the mechanics of the accrual basis of accounting (p. 129).

Heath (1978) states that the working capital approach was a natural result owing to (1) the funds statement presents information useful in determining solvency and (2) credit analysis during the 1920s, 1930s, and 1940s consisted of the analysis of working capital position (p. 12). This view is supported by Rosen and DeCoster (1969).

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[14]APB 3 was explicit in stating that earnings took precedence over cash flow information: "The amount of funds derived from operations cannot be considered as a substitute for or an improvement upon properly determined net income as a measure of results of operations and the consequent effect on financial position" (APB 1963, par. 15).

[15]See Rosen and DeCoster (1969) for a discussion of the debate: its participants, their views, and their impact on the reporting practices of companies.

The stock market crash changed the manner in which creditors examined loan applicants. Emphasis was no longer placed on analysis of working capital position, but instead was placed on earnings (Backer 1970, 50, and Heath 1978, 16). Due to the multitude of allocations and varying measurement techniques, the earnings number was an inappropriate focus, however:[16]

> The financial failures of the late 1960s and early 1970s drove home the point that debts are not paid out of profits in much the same unforgiving way that failures of the 1930s drove home the point that current liabilities are not paid out of current assets (Heath 1978, 17).

According to Heath, the appropriate focus of credit analysis is cash flows, and the appropriate place to present that information to creditors is the statement of cash flows. Since the working capital format of the SCFP is not conducive to this analysis, Heath recommends that it be replaced with the cash basis funds flow statement. He also recommends that the cash flow from operations be presented in the direct format (Heath 1978, 9). This latter recommendation had been made previously,[17] though not

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[16]See also: Bradish 1965, 761; Jaedicke and Sprouse 1965, 121-122; Fess and Weygandt 1969, 56; Murray 1971, 330; Hawkins 1977, 48-50; and Greenberg, Johnson, and Ramesh 1986, 267.

[17]Giese and Klammer (1974) state that the indirect method has become confusing due to the increasing complexity of the economy and financial reporting environment (p. 58), an idea shared by Sorter (1982, 188) and Drtina and Largay (1985, 314). The General Accounting Office recommended adoption of the direct method in their comment on Perry Mason's research monograph ("Comments on '"Cash Flow"

without debate.[18]

Heath gives two reasons for recommending the direct method: (1) it does not confuse users by reinforcing the idea that profits and depreciation are sources of cash, and (2) it is likely to be useful in dispelling some of the confusion that now exists over the relationship between business activities and cash receipts and payments (p. 127). Drtina and Largay (1985) add the fact that the "indirect method seems at best to produce an estimate of CFO which differs from actual CFO by an unknown amount of error" (p. 325) to this list.

Summary

To summarize, the reporting of cash flows has undergone an evolutionary process. The major factor influencing this process has been users' information needs

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Analysis and the Funds Statement'" 1962, 66). Moonitz (1943) also favors the direct method due to its clarity (p. 266). More recent advocates of the direct method include the Accounting Policy Committee of Robert Morris Associates (O'Leary, 1988, 28).

[18]Andrew Barr, former chief accountant of the Securities and Exchange Commission commented on the use of the indirect method: "If the 'funds statement' is to serve the purpose of accounting for all of the funds coming into the business and their disposition, the 'net income' [indirect] approach seems to be better for general use. This will avoid an appearance of constructing an income statement on two bases, and I believe is more likely to discourage the notion that amortization of prior years' capitalized charges may be ignored in the determination of income" ("Comments on '"Cash Flow" Analysis and the Funds Statement'" 1962, 66). Perry Mason (1961) also advocates the use of the indirect method (p. 80).

in regard to the determination of credit worthiness, which has itself changed over the years. At the present time, it seems users require a statement based on cash rather than working capital, though the method of reporting cash flows from operations has not been resolved. The FASB has responded to these needs by issuing SFAS 95 which requires a cash based statement of cash flows. It recommends the direct method of reporting cash flows from operations, but does not require it.

Research Findings on the Significance of Cash Flows

The lack of a single focus of the Statement of Changes in Financial Position has resulted in debate over what the appropriate focus of the statement should be. Much of this debate occurred in the form of opinions and commentaries expressed by individuals through articles, speeches, and letters. While opinions have a place in the promulgation of accounting principles, they are often not supported by fact. Accounting researchers have attempted to add the underlying facts to the discussion through empirical research. The research has concentrated in three areas: (1) the association between cash flow measures and stock prices and/or returns, (2) the ability of cash and accrual accounting to predict future cash flows, and (3) the ability of cash and accrual accounting to predict bankruptcy.

Association of Cash Flow Measures and Security Returns

Some common stock valuation models hypothesize the value of a security is the present value of its dividend stream (Hawkins 1977, 49, and Reilly 1985, 277-279). If these models are appropriate, an assessment of cash flows is important to the valuation of stocks since dividends are paid out of cash. As such, if cash flow measures are included in the information set used to establish stock prices, a relationship between the two should exist. By utilizing stock prices as a surrogate for users' decisions/ expectations, researchers can examine this hypothesized impact. This section of the literature review discusses studies that examine the association between cash flow measures and security returns.

Stabus (1965)

Stabus (1965) was the first to look at the association between stock returns and accounting measures. He uses a sample of fifty stocks drawn randomly from a population of approximately 2,000 American corporations (p. 119). A total of 47 stock returns, with holding periods varying in length from one to twelve years, are computed for purchases made in five separate years. The purchase dates are assumed to occur at the end of a one year "base period." The accounting variables are computed for this base period, and serve as a standard for comparisons at future disposal

dates. If the variable computed for the base year has "negative or zero reading," the observation is excluded from the analysis. The resulting samples vary from 40 to 44 companies for each test (p. 125).

The author computes coefficients of correlation between each independent variable and each version of discounted stock value for each of the five assumed decision dates. Discounted stock values are defined as the net present value of purchasing the stock, utilizing a discount rate of six percent. The results of the analysis are: (1) current flows (net income plus depreciation) are more closely associated with discounted values than are earnings, (2) for a one-year holding period, earnings are more closely associated with discounted values than are funds flows, (3) the correlation of funds flow variables with discounted values increases as the holding period is lengthened, and (4) the funds flow variables for holding periods of three and four years are more closely associated with discounted stock values than are any other variables/holding periods (pp. 126-127). As such, Stabus finds a relationship between funds flows and stock returns.

Ball and Brown (1968)

Ball and Brown (1968) use two alternative models of market expectations in order to test for the information content of income numbers. The first model is a random walk, wherein the earnings expectation is equal to the prior

year's earnings. The second model is based on the change in a market index of earnings (pp. 161-162). Abnormal monthly and yearly returns are computed using the market model.

The authors utilize three different definitions of income: net income, cash flow, and net income before nonrecurring items. The results of the study indicate that those firms with positive changes in net income have positive abnormal returns. They also find that much of the price adjustment to annual earnings occurs before the month of the earnings announcement. In regard to the cash flow and net income before nonrecurring items, the authors find that these variables are not successful in predicting the signs of stock return. In other words, the authors do not find a relationship between cash flows and security returns (pp. 171-172).

Beaver and Dukes (1972)

Beaver and Dukes (1972) extend the Ball and Brown study in three different ways: (1) they examine alternative methods of measuring earnings, (2) they examine a broader class of expectations models, and (3) they examine a broader class of transforming the earnings variable. They utilize the market model to determine abnormal returns and five different earnings expectations models. The five models consist of a market based model, wherein the expected earnings of a firm is formed using a linear

combination of a market-wide index of earnings, and four different models based on the time-series behavior of a firm's earnings. The time series models had been developed in previous research.

The authors examine three different earnings measures: (1) earnings as reported, (2) earnings before tax deferral entries are made, and (3) cash flow. The latter variable is computed by adding depreciation, depletion, and amortization to earnings. The forecast errors are computed for each of 123 firms for each of five years. The results of the study indicate that cash flow performed the worst of the three earnings measures (p. 329).

Wilson (1986 and 1987)

Wilson performed two studies to determine the incremental information content of funds from operations beyond that of earnings. He treats the earnings announcement date (earnings release in the Wall Street Journal (WSJ)) and funds announcement date (date the Annual Report arrives at the SEC) as two specific events that occur apart from each other (1987, 298).

1987 Study

Stated in the null form, the hypothesis of Wilson's 1987 study is: "Conditional on knowing earnings, investors do not change their assessment of share value when they observe funds from operations" (p. 294). Earnings are

decomposed in two different ways, each alternative consisting of two parts: a funds from operations component and a corresponding accrual component (p. 294). Exhibit 1 indicates the two methods of decomposing earnings.

Exhibit 1.--Methods of decomposing earnings used in Wilson's 1987 study

	Funds Component	Accrual Component
First method	Working capital from operations	Noncurrent accruals*
Second method	Cash from operations	Total accruals**

* The noncurrent accruals are defined as working capital from operations less earnings, which is essentially the sum of depreciation, amortization, deferred taxes, and other noncurrent accruals used in the determination of earnings.

** Total accruals is equal to current accruals (the change in working capital accounts other than cash, marketable securities, and short-term debt) plus noncurrent accruals, as defined above. This is equal to cash from operations less earnings, and represents the effects of all accruals on a cash-based earnings figure.

Abstracted from Wilson 1987, 294.

His methodology consists of a two-stage procedure. In the first stage, accounting forecast equations are estimated cross-sectionally. The equations are linear projections based on information known to investors at the beginning of the period. The suitability of these prediction equations is assessed by comparing their out-of-sample forecasting ability to competing models that resemble

those used elsewhere. The forecast equations are utilized to generate expected amounts for the variables in the study, which are in turn used to determine residuals.

In the second stage, the association between the residuals from the first-stage and market model prediction errors is determined (pp. 301-302). The information content is measured using two different methods: (1) regression approach, wherein the market model prediction errors are regressed cross-sectionally against the first-stage residuals, and (2) portfolio approach, wherein portfolios are formed according to the magnitude of the first-stage residuals (amount of "information"), and their mean returns are compared.

The results of the analysis indicated that there is "significant evidence" that accrual and cash from operations have incremental information content beyond earnings. The analysis shows a positive, significant association between cash from operations and stock returns. The results of the study are inconclusive when funds are defined as working capital from operations, however. Wilson points out that this may explain why other authors have not found information content:

> The fact that information content was detected for cash from operations but not for working capital from operations might explain why others, using funds variables which are highly correlated with earnings, have not found evidence that funds have incremental information content (p. 319).

1986 Study

While the publication dates seem to indicate otherwise, Wilson's 1986 study is an extension of his 1987 study. The 1986 study examines the question of whether accruals have incremental information content beyond cash flows. The study tests two null hypotheses, as follows:

Ho_1: The accrual and funds components of earnings, taken together, have no incremental information content beyond earnings.

Ho_2: Accruals have no incremental information content beyond funds from operations (p. 167).

Wilson tests these hypotheses by constructing a two-return model. The model is based on the idea that investors use the announcement of earnings and revenues to update their forecast of the period's accruals and funds. The two-return model structures the way these updates are formed and specifies how the market response to the updates is measured (p. 169). The model measures the association between stock returns and the forecast updates by projecting market model prediction errors onto the updates for accruals and funds (p. 171). One parameter of the model measures the incremental effects on stock returns of new information about accruals released at the two event dates, while the second parameter measures the incremental effects of new information on funds at these two dates. Wilson examines whether these parameters are significantly different from zero and each other in order to draw inferences about the incremental information content of accruals and funds.

The results of his study indicate that both total accruals (the difference between earnings and cash from operations) and cash flow from operations have incremental information content beyond (1) earnings and (2) each other. He also finds that working capital from operations is essentially known at the date the earnings are announced. These findings suggest that the information content of total accruals results primarily from current-accruals instead of noncurrent accruals (p. 191).

Rayburn (1986)

Rayburn (1986) also examines the association of cash and accrual variables with security prices. The study is predicated on two facts: (1) investors are interested in assessing future cash flows and (2) the FASB has states that accrual-based income figures provide more information for that assessment. Given that accrual-based income figures are simply transformations of operating cash flows through the addition of accruals, the FASB is implying that the accruals utilized in the determination of income have information content beyond that of cash flows. The author therefore examines the incremental information content of accruals over operating cash flows. She also examines the potential differences in the informativeness of current and long-run accruals.

The author utilizes two different models to generate expectations for the accounting variables in the study. The

first expectations model is a time-series model in which each financial statement variable is regressed against the lagged values of all the financial statement variables. The second expectations model is a random walk. Based on these expectations, the amount of unexpected information is determined by finding the difference between the actual and expected amounts for each variable. Market model residuals are used to measure abnormal market returns.

The results of the analysis are that both operating cash flow and aggregate accruals are associated with abnormal returns. She also finds that current accruals have information content under both of the expectations models employed. The long-term accruals are significant only when a random walk expectations model is utilized to form expectations. Rayburn states that the inconsistency of the results regarding the long-term accruals results from large outlier observations generated by the time series model. She concludes that "operating cash flow, aggregate accruals, and current accruals are consistent with the information set used to value equity securities" (p. 132).

Summary of Studies of Association Between Stock Prices and Cash Flow Measures

Financial analysts indicate the desire to receive cash flow information on companies they analyze. If this information is utilized by analysts and other the sophisticated investors, then decisions made by these groups

of people should reflect that information. Researchers have attempted to test this hypothesized relationship empirically by testing for the association of stock prices/returns with cash flow information. The results of these studies have been mixed, with some studies finding a relationship and others not finding a relationship. The most recent studies, which improve on the methodology of the earlier studies, find a positive relationship between unexpected cash flows and abnormal stock price returns.

Prediction of Future Cash Flows

The studies reviewed in the previous section indicate that an association may exist between cash flows and stock price movements. One theoretical base for this is that stock prices represent the present value of future dividends paid by the company (Reilly 1985, 277-279). Given this view of stock prices, and the fact that dividends are paid out of cash, the assessment of the amounts, timing, and uncertainty of future cash flows is important to users (FASB 1978, par. 37). This section of the literature review discusses empirical research on the relative abilities of cash accounting and accrual accounting measures to predict future cash flow from operations. These studies are particularly relevant to the study since the prediction of cash flows is one of the dependent variables in the study.

Bowen, Burgstahler, and Daley (1986)

Bowen, Burgstahler, and Daley test the FASB's contention that "financial reporting should focus on earnings as opposed to CF [cash flow] data because earnings are . . . superior to CF data as a predictor of future CF: . . ." (p. 714). The authors seek to provide evidence on whether this assertion is true. In particular, they examine the following three questions:

> Q1. Are the traditional CF measures used in previous research highly correlated with alternative measures of cash flow that have recently been advocated by academics and practitioners?
> Q2. Are accrual accounting earnings and cash flow measures highly correlated?
> Q3. Does earnings or a CF variable best predict future cash flows? (p. 714)

The authors utilize a sample of 324 firms and data for a ten-year period in order to test the questions. They utilize five different measures of cash flow, two of which they maintain were "traditional measures" (p. 715), while the others are alternatives to these measures. These alternative measures have "recently been advocated by academics and practitioners" (p. 714). The five different measures of cash flow are defined as follows:

Traditional measures

NIDPR = Net income before extraordinary (NIBEI) plus depreciation and amortization

WCFO = NIDPR plus adjustments for 'other' elements of NIBEI not affecting working capital

Alternative measures

CFO = WCFO plus changes in non-cash current assets and liabilities from operations

CFAI = CFO adjusted for the period's investment activities

CC = CFAI plus net financing activity for the period = the change in cash and short-term marketable securities during the period (pp. 715-716).

The authors test their first question by determining the squared correlation coefficients for all pairwise comparisons between the traditional and alternative CF measures. They find that the median and mean squared correlations between these measures are low for both a first difference and percentage change series. Of the 324 correlations, up to 27 percent are statistically significant at the .05 level, though these correlations are "generally low" (p. 718). The authors therefore conclude that the "more traditional measures of CF used in earlier research are poor proxies for alternative measures of CF incorporating additional adjustments" (pp. 718-719).

The second question is also tested using squared correlation coefficients. The results of the analysis are that the traditional cash flow measures are similar to earnings before extraordinary items for most firms. However, the alternative cash flow measures are substantially different from earnings for most firms. Based on these results, the authors conclude that the traditional cash flow measures are "unlikely to provide users with

different information from that contained in the earnings number" (p. 719). They suggest that this is a possible explanation for the lack of significant results for the cash flow variables examined in prior research. Additionally, the alternative measures, which have little correlation with earnings, may yield significant results when used in similar research (p. 719). The lack of a significance test for this question may limit the interpretation of the results of this analysis, however.

To test the third question, the authors use a limited set of single variable, linear models to predict cash flows. The predictor variables in the models are the five cash flow measures given above, which are lagged by either one or two periods. The prediction model is (p. 720):

$$Y_{i,t+1} = X_{i,t}$$

where

$Y_{i,t+1}$ = the forecast of the CF variable for firm i in period t+1

$X_{i,t}$ = the value of the predictor variable for firm i in period t.

The model is essentially a random walk when the X and Y are the same variable. The model is used to generate expectations of cash flows for both one and two-periods-ahead. Given these expectations, the authors compute prediction errors as the difference between expected and actual amounts. The authors also generate an expectation

of earnings based on a random walk model, which is used as a benchmark.

The results indicate that for each cash flow measure other than CFO, a random walk model performs "at least as well, and usually better than, predictions based on variables with fewer adjustments" to net income (p. 722). In other words, the best prediction of a cash flow measure is made using a random walk model of the prior year's cash flow. The authors conclude that:

> The combination of an observed market demand for these alternative measures of cash flow along with their relative lack of correlation with widely used traditional surrogates may stimulate a new round of empirical research. . . .
> . . . The results based on simple one- and two-period-ahead forecast models do not support the FASB's assertions that earnings provide better forecasts of future cash flows than do cash flow measures (p. 724).

The conclusion of the study therefore suggests that cash flow information may be a better predictor of future cash flows than accrual based net income.

Greenberg, Johnson, and Ramesh (1986)

In a study which is similar to the Bowen, Burgstahler, and Daley (1986) study, Greenberg, Johnson, and Ramesh (1986) examine the relative abilities of cash flow from operations and earnings before extraordinary items and discontinued operations to predict future cash flow from operations. The authors use a smaller sample and examine data for a longer time period, however. They also utilize ordinary least squares regression in contrast to the

primarily descriptive statistics utilized by Bowen, Burgstahler, and Daley.

Greenberg, Johnson, and Ramesh develop two separate least squares regression models for each of 106 firms over a 19-year period. The first model regresses prior earnings as the independent variable and future cash flow from operations as the dependent variable. The second model utilizes the same dependent variable, but uses prior cash flow from operations as the independent variable. The authors compare the coefficients of determination of the two regression models to determine which model explains a higher percentage of the variability of the future cash flows from operations. The authors perform the analysis for periods of two, three, four, and five years of future cash flow from operations.

The results of the study are that the earnings-based model explain a greater percentage of the variability of future cash flows for most of the firms in the sample (70 of the 106 firms for the one year ahead test). The results therefore indicate that accrual net income before extraordinary items and discontinued operations predict cash flows from operations better than cash flow from operations (p. 274). These results conflict with the results obtained by Bowen, Burgstahler, and Daley (1986).

Thode, Drtina, and Largay (1986)

Thode, Drtina, and Largay (1986) also perform a study similar to the one performed by Bowen, Burgstahler, and Daley. The purpose of the study is to examine the need for increased reporting of cash flow information. They state that the information should not be a required disclosure if that information can be readily inferred from current disclosures (pp. 48-49). They test the ability of two currently reported performance measures to serve as proxies for cash flow from operations: working capital from operations and income from operations (p. 47).

The authors use three different types of testing to answer their question: (1) test of the similarity in annual dollar amounts of the three measures (cash flow from operations, working capital from operations, and income from operations), (2) test of the similarity in the year-to-year changes (first differences) in the dollar amounts of the measures, and (3) test for possible linear relationships among the measures (p. 49). Data is taken from the COMPUSTAT Annual Industrial File for the ten-year period from 1973 to 1982. The sample size varies from 375 to 400 for the various hypotheses tested.

The authors use both the t-test and the Wilcoxon signed-ranks test of significance to test for significant differences in the three measures. The nonparametric Wilcoxon test is utilized to supplement the t-test due to

nonnormality of the data. The results of both statistical tests are disclosed, and support each other. The results of the tests performed on the annual dollar amounts imply that cash flow from operations is statistically different from working capital and income from operations. The results of the tests performed on the first differences are ambiguous, however. The authors conclude that "A strong relationship among year-to-year changes does not emerge" (p. 52).

The authors test for a linear relationship among the measures in order to determine if the observed differences are predictable or random in nature (p. 52). The authors use the following regression equation to test for systematic linear relationships (p. 52):

$$(Y - X) = a + bX$$

Where Y = dependent variable
X = independent variable

The left-hand side of the equation utilizes a difference measure in order to "avoid the spurious correlation which might result from having the dependent variable contain a portion of the independent variable" (p. 52). The regressions are run on the cross-sectional data for each of the ten years. The results of the analysis are:

> . . . Working capital and cash flows from operations tend to show strong, though not highly stable, positive linear relationships with income from operations. A strong, linear relationship does not exist between working capital and cash flow from operations (p. 54).

The fact that the relationship is not stable from year-to-year indicates that the measures cannot be easily inferred from each other. Given this fact, and the other results of the study, the authors conclude that "a strong case supporting the need to separately report cash flow from operations has been made" (p. 55).

Gombola and Ketz (1983)

Gombola and Ketz (1983) use factor analysis to determine if financial ratios based on cash flows contain different information than other financial ratios. Factor analysis had been used previously in a study by Pinches, Mingo, and Caruthers (1973). These authors find that 48 financial ratios load on seven factors which they identify as: (1) return on investment, (2) capital intensiveness, (3) inventory intensiveness, (4) financial leverage, (5) receivables intensiveness, (6) short-term liquidity, and (7) cash position. The factors remain stable over time, a result also found by Pinches et al. (1975). The return on investment factor includes cash flow ratios, which suggests that cash flow ratios capture the same characteristic or facet of firm performance as do profitability ratios.

Gombola and Ketz question this result:

> This finding would run counter to the idea that accounting profitability measures indicate operating performance whereas cash-flow measures signify solvency and financial flexibility (p. 106).

They suggest the method used by Pinches, Mingo, and Caruthers to construct the cash flow ratios (net income plus depreciation) may account for their loading on the return on investment factor. Instead of utilizing this proxy for cash flow, Gombola and Ketz further adjust net income for all accruals and deferrals.

They compute 40 financial ratios for 119 firms listed on the COMPUSTAT tape. Only 119 firms are utilized in the study due to the fact that the study examines general price level adjusted ratios as well as historical cost ratios, and many of the firms on COMPUSTAT do not have sufficient information for this. The ratios are determined for a 19-year period from 1962 to 1980. The results of the study indicate that for most of the years studied, eight factors result from the analysis. Seven of these factors are "substantially similar" to those found by Pinches, Mingo, and Caruthers, and the eighth factor is comprised of cash-flow ratios. The authors conclude:

> This result confirms distinct differences between profitability measures and cash-flow measures, and validates the separate purpose of the Statement of Changes in Financial Position (cash basis) from the Income Statement. Moreover, the result also suggests that cash-flow ratios may contain some information not found in profitability ratios (p. 113).

Summary of Results of Research on Predicting Cash Flows

The results of research examining the relative abilities of earnings and cash flow measures to predict

future cash flows is mixed. Studies by Bowen, Burgstahler, and Daley (1986), Thode, Drtina, and Largay (1986), and Gombola and Ketz (1983) find prior cash flows to be a better predictor of future cash flows, or at least to contain different information than is contained in earnings numbers. However, Greenberg, Johnson, and Ramesh (1986) find that earnings is a better predictor of future cash flows.

Prediction of Bankruptcy

The last section reviewed the relative abilities of net income and cash flow measures to predict future cash flows. This aspect of cash flow reporting is important due to the perceived connection between cash flows and security prices. However, cash flows are important to investors for another reason: corporations must generate sufficient amounts of cash to meet obligations when they come due. Since bankruptcy is a function of, among other factors, a company's cash balance and flows, researchers have hypothesized that cash based measures can provide an early warning of impending bankruptcy. This section of the literature review will discuss empirical studies examining this hypothesized relationship. The studies in this area contrast the relative abilities of cash and accrual accounting variables to discern the failure of a firm on a post facto basis.

Largay and Stickney (1980)

Largay and Stickney (1980) were among the first to empirically test the contention that cash flow analysis can be used in the determination of solvency. They examine the W.T. Grant Company bankruptcy which occurred in early 1976. The author's contention is that, while ratio analysis indicated financial problems in 1970, cash flow analysis showed "impending problems as much as a decade before the collapse" (p. 35). The stock market apparently did not heed either of these warning signs, however, as the stock was trading at 20 times earnings as little as two years before liquidation.

The authors graph profitability, turnover, liquidity, and solvency ratios for the ten years prior to failure (p. 36). The graphs indicate downward trends in these ratios, with the most significant deterioration occurring in 1970 and 1971. While these graphs indicate financial difficulty, they are not nearly as explicit as a graph of net income, working capital provided by operations, and cash flow provided by operations (p. 38). The graph shows that "While net income was relatively steady through the 1973 period, operations were a net user, rather than provider, of cash in all but two years (1968 and 1969)" when insignificant amounts of cash were generated (p. 38). The "inability to generate cash from operations should have provided investors with an early signal of problems" (p.

38). An additional observation highlighted by the graph is the fact that working capital provided by operations appears to be a poor substitute for cash flow from operations. Working capital provided by operations mirrored net income throughout the ten years before bankruptcy. However, it has little, if any, correlation with cash flow provided by operations. While these results may not necessarily be representative of all companies, they are worth noting.

Gentry, Newbold, and Whitford (1985a and 1985b)

Gentry, Newbold, and Whitford performed two studies that examined the ability of cash based funds flow ratios to classify failed and nonfailed companies. The authors utilize a previously developed funds flow model, paring it down to eight major components, including (1) funds from operations (net income adjusted for depreciation and amortization), (2) working capital funds flows, (3) funds flows from financing activities, (4) fixed coverage expenses such as interest and lease payments, (5) capital expenditures, (6) dividends, (7) changes in other assets and liabilities, and (8) the change in cash and marketable securities. The first seven components explain the change in the eighth one, cash and marketable securities. Each of the components is divided by the total net flow of funds to determine the percentage each component contributes to the total net flow of funds in each firm. The change in cash

and marketable securities component is omitted from the analysis in order to avoid overidentification (1985a, 147). In both studies, the authors utilize a sample of 33 failed firms and match these with nonfailed firms on the basis of industry classification, asset size, and sales for the fiscal year three years before bankruptcy.

1985a Study

In their first study, the authors utilize multiple discriminate analysis (MDA), probit, and logit techniques to examine the predictive ability of the funds flow components. The authors report only the results of the logit model since it provides the best results. They state that the MDA and probit model do not alter the results (p. 150). The model classifies 77 percent to 83 percent of the failed nonfailed firms (p. 156).

The authors then use the coefficients generated from the logit model tests to classify a secondary sample. The secondary sample consists of 23 companies rated as financially weak and matched them with nonweak companies on the basis of industry and size (p. 157). The model was able to correctly classify 70 percent to 78 percent of these firms (p. 158). Based on these results, the authors conclude that "cash-flow-based funds flow components offer a viable alternative for classifying failed and nonfailed firms" (p. 160).

The authors then add two different measures of cash flow from operations (CFO) to determine if their inclusion increases the accuracy of the model. The results of this test are that the addition of the CFO variables do not improve the classificatory ability of the model. The authors suggest that the reason for this result is that the variance of the CFO measures for failed firms is substantially larger than the variance of CFO for the nonfailed firms (p. 159). Based on these results, the authors conclude that cash flow from operations does not improve the classification of failed and nonfailed companies (p. 160).

1985b

In their second study, the authors substitute five working capital components for the single net working capital component utilized in the first study. They utilize probit analysis to generate coefficients from the funds flow components and use them to predict the probability of failure or nonfailure for the companies in the sample. The model correctly classifies 79 percent of the failed companies and 88 percent of the financially healthy companies using data one year before failure (p. 52). The results are similar to those achieved in the first study they performed.

The authors then test the incremental ability of accrual versus cash flow measures to improve classificatory

accuracy. They add nine accrual-based ratios that had previously proved successful in predicting bankruptcy to the model. The authors utilize the likelihood ratio test to determine if the addition of these ratios provides additional discriminating power to the cash flow ratios. The results of the analysis indicate that the ratios did add explanatory power to the model. The authors then reversed the process by adding cash flow ratios to a model constructed based on the nine accrual-based ratios. The results of this analysis indicate that the cash based measures add explanatory power to the model (pp. 53-54). The authors conclude:

> The addition of cash-based funds flow components to the traditional financial ratios used to discriminate between failed and nonfailed companies results in significantly improved predictive performance. . . . funds flow components measure the interaction of all financial flows within a firm, and they measure the same information regardless of the time period or composition of the data sample (p. 54).

Casey and Bartczak (1984 and 1985)

Casey and Bartczak perform two studies on the ability of cash flow information to help predict bankruptcy. They claim their studies were motivated by the increased demand by users for cash flow information and the findings by other researchers that this information is a useful indicator of impending bankruptcy. This trend in changing the emphasis of financial reporting concerned the authors: "While we applaud attempts to glean better information on corporate

past and future performance, we fear that operating cash flow may come to be regarded as the barometer for gauging company performance" (1984, 62).

Both studies utilize the same sample of 60 firms which had petitioned for bankruptcy during the 1971-1982 period. The sample of nonfailed firms consists of 230 firms selected from COMPUSTAT Industrial Tape on the basis of industry classification. These firms are matched to the bankrupt firms on this basis alone in order to maximize the generalizability of the results of the analysis. In order to avoid the use of financially distressed firms in the sample of nonbankrupt companies, the authors utilize the Predicasts' F and S Index of Corporate Change for the years 1971-1982. This publication "highlights significant company events, including unfavorable financial occurrences" (1985, 390). The authors determine that none of the nonbankrupt companies had unfavorable financial occurrences that might indicate financial distress or possible bankruptcy.

The cash-based independent variables for both studies include cash flow from operations (CFO), CFO divided by current liabilities, and CFO divided by total liabilities. The latter two variables are included because CFO "abstracts from indebtedness, a factor which a priori is likely to be related to the occurrence of bankruptcy" (1985, 390). The six accrual-based independent variables are: (1) net income divided by total assets, (2) cash divided by

total assets, (3) total assets divided by current liabilities, (4) net sales divided by current assets, (5) current assets divided by total assets, and (6) total liabilities divided by owners' equity (1984, 62).

Both of the studies examine the marginal ability of the cash flow variables to predict bankruptcy. They construct multivariate models that do not include these variables as standards for assessing the marginal discriminatory power of the operating cash flow variables (1985, 390). The authors run a total of eight MDA models, which included (1) the six accrual-based ratios only, (2) accrual-based ratios plus one of the accrual-based ratios (three models), (3) accrual-based ratios plus two or more of the cash-based ratios (four models) (1985, 391). The analysis indicates that the classification accuracy is not improved by the addition of the operating cash flow variables (1984, 65, and 1985, 392).

Due to concerns about not meeting the underlying assumptions of MDA, the authors also perform Logit analysis on the data. Logit analysis has fewer underlying assumptions regarding the distribution of the data, and had been used previously for similar analysis (Kaplan and Urwitz 1979, and Ohlson 1980). The results of the logit analysis are similar were similar to those of the MDA analysis (1985, 394).

As a result of the analysis performed in the studies, the authors conclude that operating cash flow data do not provide incremental predictive power over accrual-based ratios (1984, 65, and 1985, 395). The authors suggest one possible reason for this result is the fact that filing for bankruptcy is sometimes a political decision, and is subject to extramarket forces (1984, 65). As a result of this, cash flow data may be useful in the prediction of other financial problems (e.g., loan defaults), where these political forces do not exist (1984, 65).

Summary of the Bankruptcy Prediction Studies

The results of the bankruptcy studies are mixed. Some of the studies find that cash based measures add marginal predictive ability to models constructed with accrual-based ratios. However, other studies find that cash-based measures have no marginal predictive ability when added to accrual-based ratios. Results of still other studies indicate that cash-based measures alone can predict bankruptcy.

Possible Cause of the Conflicting Results

The results of the studies in all three of the major areas of cash flow research are mixed. One possible cause for the conflicting results is the manner in which the variables were defined. This section of the literature review discusses potential problems with the manner in which

cash flow variables are defined and a possible solution to these problems.

Drtina and Largay (1985)

Drtina and Largay (1985) discuss the problems of determining the amount of cash flow from operations when the funds from operations is determined using the indirect method. They discuss the alternative methods of arriving at cash flow from operations (direct and indirect), and the fact that the two methods arrive at the same figure unless "complications" exist (p. 316). These complications include (1) the diversity of formats used by firms in the published SCFP, (2) the various definitions and lack of clarity relating to the label "funds from operations," (3) changes in current accounts that are not caused by operations, and (4) changes in a reporting entity.

In regard to the first complication, the authors find that not only is there variability in the formats used by different companies, but that there is often an inconsistency within a company's SCFP: "The definition of funds used in the statement as a whole is often different from the definition of funds from operations" (p. 316). In regard to the second complication, the authors suggest that the distinctions between operating, financing, and investing activities are ambiguous (p. 316). A result of this ambiguity is a lack of comparability between firms, as

little consistency in the classification of transactions exists between firms.

In regard to the third complication, the indirect adjustment method assumes "that each change in a noncash current account relates an operating source or use of cash to an income statement account" (p. 322). This assumption does not always hold, however. The authors give three examples of this as (1) manufactured inventory, where some costs are paid in cash (e.g., salaries) and others are not (e.g., depreciation), (2) the current portion of long-term leases that are considered operating assets, and the reclassification of current assets (pp. 322-325).

In regard to the fourth complication, the authors state that they discovered the problem when working on this project:

> This problem came to our attention when a firm's adjustments for changes in noncash working capital accounts on the SCFP were not equal to the changes in these same current accounts as reported in the balance sheet (p. 320).

The problem was resolved only through discussions with the company's accountants. While they had to resort to the source of the financial statements to resolve the discrepancy, the authors state that the problem can be resolved through "careful analysis":

> While careful analysis of the individual annual report often will enable the reader to cope with this problem, mechanical application of the indirect method will not. Moreover, this problem in interpreting reported data must raise questions about the validity of empirical studies which calculate CFO by applying the

> indirect adjustment algorithm to data banks such as COMPUSTAT (pp. 321-322).

This last point is an important consideration for cash flow studies. It is one possible explanation for the mixed results of the studies discussed in the literature review. The point is this: Given that there is increased awareness of and demand for cash flow information, why are the results of the empirical research mixed on the usefulness of that information? Perhaps the reason for the mixed results is the fact that the information used in the empirical studies, and by financial statement users, has been misapplied. The information may be too confusing and/or vague for users to understand and interpret it.

The authors conclude their article by summarizing the problems listed above, and with the following statement:

> Since these problems always are present to some extent, the indirect method seems at best to produce an estimate of CFO which differs from actual CFO by an unknown amount of error. Clearly of concern to individual analysts, these problems also contaminate the data used in research studies employing the indirect method. The way out of this quagmire, it seems to us, is obvious. The FASB should first refine the meaning of operating activities and then, if a cash-based SCFP is to be required, insist that reporting companies show cash provided by operations in a schedule of cash receipts and payments as called for in the <u>direct method</u> (p. 325).

Other Authors Supporting the Direct Method

Giese and Klammer (1974) also discuss the problems with the indirect method of determining cash flows from operations. They state that the problems will only worsen

as the economy and financial reporting become more complex. They conclude their article with a recommendation that the direct method be utilized:

> The add-back [indirect] technique evolved as a short cut in the computation of operational flows and does not necessarily provide the most informative format. It is our belief that the flow-through [direct] approach does provide a disclosure that is more comprehensive and easier to understand. For these reasons it better meets the objectives of [APB] Opinion No. 19. This technique reveals all basic flows. It enables an investor to evaluate the trend of resource flows and thus gives him more insight into possible future results (p. 60).

This view is supported by other authors including Moonitz (1943, 266), Vatter (1944), and Sorter (1982). Sorter's argument for the direct method is a natural extension of his "events" theory of accounting (Sorter 1969). He states that accrual accounting and cash flow disclosures are not mutually exclusive. Instead, he suggests that the need for assessing cash-generating ability establishes a logical foundation for the existence and extension of accrual accounting. The extension he suggests is "more disclosure, more disaggregated information" (p. 190). Part of this increased disclosure is the use of the direct method of determining cash flow from operations:

> If users of financial reporting are interested in predicting cash flows, they are interested in assessing changes that produce a cash impact not in those that do not. The add-back [indirect] method which focuses on event, such as depreciation, that do not have cash impact is not useful for this purpose and should not be utilized (p. 193).

Sorter's recommendations (use of the direct method and increased disclosure) fully support the FASB's preference of the direct method for disclosing cash flow from operations in the body of the statement of cash flows and disclosing the indirect method in a supplementary statement.

Support for the direct method is also found in a survey by Seed (1984). See Exhibit 2 for the reasons respondents preferred the direct approach. He finds that:

> Thirteen percent of the financial executives, 21 percent of the financial analysts, 39 percent of the individual investors, 34 percent of the commercial bankers, and 23 percent of the financial executives from companies with less than $100 million revenues who responded to our questionnaire said that they prefer the direct method (p. 33).

Exhibit 2.--Reasons respondents gave for preferring the direct approach

	Percentage of Respondents Preferring		
	Financial Analysts	Individual Investors	Commercial Bankers
Helps users understand and properly evaluate data	40%	59%	47%
Facilitates analysis of cash flows	34	15	37
Permits more extensive information disclosure	22	20	26
Is soundest conceptual approach	16	8	3
Highlights liquidity	12	5	8
Habit	14	13	5

Source: Seed 1984, 38.

Summary of Possible Reasons for Conflicting Results

While users request cash flow information, and there appears to be theoretical support for their request, the results of the empirical research on the significance of cash flow information is mixed. A possible reason for this is the fact that the method a vast majority of corporations use to disclose cash flow information[19] is confusing, and results in only an approximation of the actual amount of cash flow from operations.

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[19]Seed (1984) reported that 94 percent of the companies responding to a questionnaire planned to use the indirect method for reporting funds flow in 1983 (p. 33).

CHAPTER 3

METHODOLOGY

This chapter discusses the research methodology used in the study. The issues discussed will be presented in the following order: research questions; design of research instrument and experimental task; research design; subjects; independent variables; dependent variables; null hypotheses; statistical analysis; and reliability and validity.

Research Questions

The major research questions of the study are:

1) Does the method of presenting cash flow from operations affect bank loan officers' predictions of cash flow from operations?

2) Does the method of presenting cash flow from operations affect the line of credit and interest rate decisions of bank loan officers?

3) Does the method of presenting cash flow from operations affect bank loan officers' feedback on prior expectations?

Design of Research Instrument and Experimental Task

The data used to answer these questions were gathered with a survey instrument. The survey was generated using financial information from two companies. The companies

were selected using three criteria: (1) credit worthiness; (2) trend of operating cash flows; and (3) willingness to participate in the study. The first criterion is important since two of the dependent variables related to the extension of credit, and if the companies are not credit-worthy the responses to the questions could not be analyzed.

The second criterion is important in increasing the external validity of the study. The two companies were selected such that their operating cash flows trended in opposite directions. By utilizing these two companies, the results of the study are more generalizable to all companies, regardless of operating cash flow trend. Exhibit 3 indicates the operating cash flows for the companies used in the study.

Exhibit 3.--Cash flow information for the two companies used in the test instrument

Direction of Cash Flow	19X1	19X2	19X3	19X4	19X5
Increasing	$23,498	$25,670	$26,770	$28,179	$31,159
Decreasing	$ 6,584	$13,122	$13,292	$10,518	$12,670

Years 19X1 through 19X3 were presented in the first task
Years 19X1 through 19X4 were presented in the second task[20]

[20]A more through description of the time periods involved, and the rationale behind those periods, is contained below and in the Research Design section of this chapter.

The third criterion is important in that access to the companies' internal accounting records is necessary to generate the information used in the study. The management of both companies required that the company name and any "inside information" not be used anywhere in the survey or the reporting of results. In other words, the companies required anonymity before they agreed to participate.

As a result of this, the companies are not identified in the test instrument, but are instead referred to as Buddy Foods and Smitty Enterprises. This not only ensures anonymity, but also increases the validity of the study by avoiding problems of familiarity of the subjects with the companies. The methodology of the study assumes the subjects base their decisions only on the information presented to them in the survey instrument. To further ensure this, the financial statements of the companies are factored by 64 percent of their actual amounts as reported in the annual reports.

The test instruments for each company consist of the following, and are attached in Appendices 1 through 4:

1) Introduction/instructions

2) Financial ratios for the three-year period ended 19X3

3) Condensed, comparative financial statements for the three-year period ended 19X3

4) Condensed, comparative financial statements for the four-year period ended 19X4

5) A demographic questionnaire.

The financial statements presented to the subjects were identical in all respects other than the presentation of cash flows from operations. The experimental tasks were to analyze the financial statements and provide (1) the amount of a line of credit for the company, (2) interest rate on the line of credit, and (3) ex ante estimates of the cash flow from operations for 19X4 and 19X5.[21] The survey instrument was pretested before it was employed in the study.

Research Design

The research design can be illustrated as follows where R = random assignment, O_i = observation or task performed by the subjects, and X_i = presentation of information to the subjects:

$$R\ X_1\ O_1\ X_2\ O_2 \quad \text{Direct Group}$$
$$R\ X_3\ O_3\ X_4\ O_4 \quad \text{Indirect Group}$$

This design was repeated for both the increasing and decreasing cash flow companies.

The subjects were randomly assigned to either the direct or indirect group, as well as to either the increasing or decreasing group. Each group received the financial statements discussed above, and were asked to perform the tasks based upon these statements. The

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[21]See Dependent Variables for the justification of these variables.

statements differed between the direct and indirect groups only in the presentation of the cash flow from operations section of the statement of cash flows.

The information presented at time periods X_1 and X_3 consisted of financial statements for the period ended 19X3. This information served as the basis for the first set of tasks, as suggested by the conceptual framework: "Without a knowledge of the past, the basis for a prediction will usually be lacking" (FASB 1980a, par. 51). The first set of tasks (O_1 and O_3) consisted of projecting 19X4 cash flow from operations, and deciding on line of credit and interest rate. These tasks yield evidence on both the predictive value of the alternative presentations and whether the presentations lead to different decisions.

The information presented at time period X_2 and X_4 consisted of financial statements for the period ended 19X4.[22] This information provided the subjects with feedback on their earlier cash flow projection. The final set of tasks (O_2 and O_4) consisted of projecting 19X5 cash flow from operations. This provides further evidence on the predictive value of the alternative presentations as well as

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[22]Once assigned to a treatment group, subjects remained in that group throughout the experiment. As such, individual subjects worked with cash flow statements presented in the same format in each of the time periods.

their feedback values.[23]

As a result of using this design, the study examines two of the characteristics of relevance as defined in the conceptual framework: (1) predictive value and (2) feedback value (FASB 1980a). Both of the cash flow prediction tasks performed by each group yields an indication of the predictive value of the two different presentation formats. Additionally, evidence on the feedback value of the formats is indicated by the change in accuracy of their predictions after receiving feedback on their first prediction.

Subjects

The subjects in the study are bank loan officers. Casey (1980) stated that loan officers are ideal subjects for accounting behavioral studies due to (1) the fact that they rely on accounting data in decision making, (2) they "analyze financial statements with considerably greater sophistication than other large user groups," and (3) they play an influential role in economic resource allocation (p. 37). In addition to the reasons cited by Casey, the use of loan officers as subjects is particularly appropriate in this study due to the fact that the statement of cash flows represents one of the primary sources of information for credit analysis (Heath 1978, 17, and 1987, 51). This

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[23]See Statistical Tests for a description of how the predictive and feedback value of the information was determined and tested.

emphasis on cash flows is highlighted by the response of both individual lenders and the Accounting Policy Committee of the Robert Morris Associates (RMA) to the FASB during the standard-setting process for the statement of cash flows.[24]

The subjects were selected in a non-random manner. Sample size requirements precluded using a laboratory experiment to collect data. A mail survey was not utilized due to problems caused by non-response bias. Instead, individual lenders were contacted and asked to distribute the surveys among loan officers at their institution. Almost all lenders contacted in this manner agreed to participate, though the number of lenders completing the survey at each bank varied. Surveys were completed by commercial lenders in 14 different cities, primarily on the east coast.

Independent Variables

There are two independent variables in the study, each of which have two levels. The first independent variable is the method of presenting cash flow from operations, the levels for which are the direct and indirect methods. The second independent variable is the

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[24]The FASB received almost 200 comment letters from RMA members during the promulgation process. Additionally, the president of the RMA and the Accounting Policy Committee met with members of the FASB during this process to express the ideas, questions, and concerns with the reporting requirements being considered (O'Leary 1988, 22).

trend of cash flow from operations, with increasing and decreasing as levels.

Method of Presentation of Cash Flows From Operations

SFAS 95 allows management to choose between the direct and indirect method of presenting cash flows from operations. These two alternatives are utilized as levels of the first independent variable.

The Direct Method

The direct method entails the reporting of major classes of gross cash receipts and payments and their arithmetic sum (FASB 1987, par. 27). Minimum separate disclosures under this method include:

> The following classes of operating cash receipts and payments:
>
> a. Cash collected from customers, including lessees, licensees, and the like
> b. Interest and dividends received
> c. Other operating cash receipts, if any
> d. Cash paid to employees and other suppliers of goods or services, including suppliers of insurance, advertising, and the like
> e. Interest paid
> f. Income taxes paid
> g. Other operating cash payments, if any (FASB 1987, par. 27).

SFAS 95 encourages, but does not require, the use of the direct method (FASB 1987, par. 27). If the direct method is used as recommended, the financial statements must contain a separate schedule which reconciles net income to net cash flow from operating activities (FASB 1987, par.

30). This last requirement was not adhered to in the survey instrument in order to ensure that the subjects utilized only the disclosures of the direct method when completing the survey. If the reconciliation was provided as a supplementary disclosure, it could not be determined whether the subjects utilized the new information or simply referred to the information with which they were more familiar.

The Indirect Method

The indirect method adjusts net income to reconcile it to net cash flow from operations. As such, it requires the adjustment of net income to remove:

> (a) The effects of all deferrals of past operating cash receipts and payments, such as changes during the period in inventory, deferred income, and the like, and all accruals of expected future operating cash receipts and payments, such as changes during the period in receivables and payables, and (b) the effects of all items whose cash effects are investing or financing cash flows, such as depreciation, amortization of goodwill, and gains or losses on sales of property, plant, and equipment and discontinued operations (which relate to investing activities), and gains or losses on extinguishment of debt (which is a financing activity) (FASB 1987, par. 28).

Trend of Cash Flow From Operations

The study utilizes trend of cash flow from operations as a second independent variable in order to increase the external validity of the study. As discussed above, the use of this variable increases the generalizability of the

results of the study to all companies regardless of the direction of the their trend in operating cash flows.

Dependent Variables

The dependent variables in the study are the expectations of cash flow from operations and decisions on line of credit and interest rate.

Expectations of Future Cash Flows

The use of expectations of future cash flows enables the study to examine two of the three characteristics of relevance as given in the conceptual framework: predictive value and feedback value. Additionally, the study tests whether the alternative formats provide differential information useful in assessing future cash flows.

Predictive Value

SFAS 95 states that the "primary purpose of the statement of cash flows is to provide relevant information" about cash flows (FASB 1987, par. 4). Relevance appears in the conceptual framework as one of two primary qualitative characteristics of accounting information that make it useful for decision making purposes. Relevance is defined in terms of ability to make a difference in a decision (FASB 1980, par. 47), and is itself comprised of three characteristics. Predictive value is one of these characteristics (FASB 1980a, par. 51).

SFAS 95 states that one of the uses of the statement of cash flows is to aid in the assessment (or prediction) of future cash flows:

> The information provided in a statement of cash flows, if used with related disclosures and information in the other financial statements, should help investors, creditors, and others to (a) assess the enterprise's ability to generate positive net cash flows; . . . [emphasis added] (FASB 1987, par. 5).

This indicates the importance of predictive value to the usefulness of the statement of cash flows. Therefore, the predictive value of alternative presentation formats is an appropriate dependent variable since it contributes to the relevance of the information provided in the statement of cash flows.

Feedback Value

The use of expectations also enables the study to examine an additional dimension of relevance. Feedback value is a second characteristic of relevance (FASB 1980a, par. 51), and is expressed in terms of confirming or correcting expectations (FASB 1980a, par. 47). Its importance to the statement of cash flows has been discussed by the FASB:

> Reports of actual funds flows also may be used to evaluate previous assessments of enterprise funds flows -- to provide feedback. By comparing estimated results with actual results, users may gain a better understanding of the factors that determine cash flows. Improved knowledge of those factors may help to increase the accuracy of future assessments of cash flows (FASB 1980b, par. 53).

The study tests the feedback value of both presentation formats by comparing the relative accuracy of two cash flow expectations, the second of which was made after feedback was received on the first expectation. As such, the use of expectations aids in determining the feedback value of the presentation formats, which in turn contributes to the relevance of the information presented.

Assessment of Cash Flow From Operations

As indicated in Chapter 2, the reporting of cash flows has received increased attention in the accounting and finance literature. The importance of cash flow reporting is seen by its prominence in the conceptual framework. SFAC 1 details three objectives of financial reporting as providing (FASB 1978):

> [1] Information that is useful to present and potential investors and creditors in making rational investment, credit, and similar decisions (par. 34).
>
> [2] Information to help investors, creditors, and others assess the amounts, timing, and uncertainty of prospective net cash inflows to the . . . [company] (par. 37).
>
> [3] Information about economic resources, the claims to those resources . . . and the effects of transactions, events, and other circumstances that change resources and claims to resources (par. 40).

While the second objective specifically addresses cash flows, the first and third objectives also apply to cash flows. Many of the decisions contemplated in the first objective are made on the basis of cash flows. Investors and creditors are interested in a company's cash flows due

to the impact those cash flows have on the company's ability to pay dividends to investors and interest and principal amounts to creditors. Additionally, the market value of the company's securities, and therefore its cost of capital, may also be affected by market's perceptions of the company's ability to meet its obligations and pay dividends (FASB 1978, par. 37, and Reilly 1985, 277).

The third objective of external reporting also relates to cash since cash is an important resource for all companies. The importance of cash as a resource and changes in that resource is shown in the above discussion about its impact on the decisions of investors and creditors. This importance is also shown by the emphasis placed on liquidity and financial flexibility in the Discussion Memorandum issued by the FASB relating to the statement of cash flows (FASB 1980b). Liquidity is defined as the "nearness to cash" of assets and liabilities (FASB 1980b, par. 186), and financial flexibility is defined as the ability of an enterprise to use its financial resources to adapt to a change (FASB 1980b, v). Both of these attributes relate to the expectations of future cash flows, and are important for investment and credit decisions.

Decisions on Line of Credit and Interest Rate

The use of a decision context as dependent variables is appropriate due to the fact that the stated objective of the statement of cash flows "is to provide <u>relevant</u>

information" about cash flows [emphasis added](FASB 1987, par. 4). The conceptual framework defines relevance in terms of ability to make a difference in a decision (FASB 1980a, par. 47). As such, the purpose of the statement of cash flows is to provide cash flow information that has the capacity to make a difference in decisions made by individuals using that information.

The line of credit and rate of interest are two typical decisions made by bank loan officers. These decisions are made based on information gathered from various sources, which includes the financial statements of the applicant. The statement of cash flows is one of the most important financial statements bankers use in making credit decisions (Backer 1970, 51-52, Heath 1978, 17, and Heath 1987, 51). The significance of the statement of cash flows lies in the realization that interest and principal repayments must be made with cash (Backer 1970, 51, and Heath 1987, 51). Additionally, the statement of cash flows gives an indication of earnings quality, an important consideration in the evaluation of solvency (Backer 1970, 50, and Murray 1971, 329 and 332).

Null Hypotheses

The two independent and three dependent variables result in the null hypotheses listed below.

Predictive Value

The primary research question is whether the two presentation formats alter expectations of future cash flows. The null hypotheses for the primary research question are:

Ho_1: There is no difference between the direct and indirect groups in the mean projection of cash flows for 19X4 for the company with <u>increasing</u> cash flows from operations.

Ho_2: There is no difference between the direct and indirect groups in the mean projection of cash flows for 19X4 for the company with <u>decreasing</u> cash flows from operations.

Ho_3: There is no difference between the direct and indirect groups in the mean projection of cash flows for 19X5 for the company with <u>increasing</u> cash flows from operations.

Ho_4: There is no difference between the direct and indirect groups in the mean projection of cash flows for 19X5 for the company with <u>decreasing</u> cash flows from operations.

<u>Interpretation if the Hypotheses on Predictions are Not Rejected</u>

If Ho_1 through Ho_4 are not rejected, the interpretation would be that there is not a significant difference between the two groups in regard to the expectations formed using the alternative presentation formats. The results of the study would then indicate that no support was found for the view of those members of the FASB who opposed allowing alternative presentation formats for the operations section of the statement of cash flows.

It must be remembered, however, that the results are limited to only one possible use of the statement of cash flows.

Interpretation if the Hypotheses on Predictions are Rejected

If Ho_1 through Ho_4 are rejected, the interpretation would be that the cash flow expectations are significantly different between the direct and indirect groups. The expectations of the two groups can then be examined to determine which group generated the most accurate predictions. The results of this analysis would indicate which presentation format is preferable for predicting cash flow from operations.

A Priori Expectations

Based on the conflicting results of empirical research performed on cash flow reporting, it was anticipated that significant differences would be found between the indirect and direct groups' expectations of cash flows. One possible explanation for the conflicting empirical results is the manner of presenting cash flow information: the indirect method is not "much more than a miscellaneous collection of plus and minus changes in balance sheet items" (Duff & Phelps, 1987, 81-82). Researchers have taken that information at face value and performed some adjustments to arrive at their proxy for cash flow. The proxy is at best only an estimate of actual cash

flow, and differs from actual by some unknown error (Drtina and Largay 1985, 325).

The expectation of significant differences was also based on the disaggregation theory of Sorter (1969). Researchers do not know how users employ cash flow information in their decision models or even what those models are. Given this lack of insight, Sorter states that the purpose of accounting is to deliver disaggregated information that might be useful in a variety of possible decision models (p. 13). Given this viewpoint, Sorter recommends the direct method of presenting cash flows from operations instead of the indirect method (1982, 193).

Finally, differences were expected due to the demand by bank loan officers for the new information provided by the direct method. As stated previously, individual lending officers as well as the Accounting Policy Committee of the RMA lobbied the FASB for the direct method (O'Leary 1988, 22 and 28). The lenders apparently believe that the new information would be beneficial in improving the decisions they make regarding loan amounts and interest rates. Based upon the demand for the direct method, it was anticipated that significant differences would be found.

Loan and Interest Rate Decisions

The second research question examines the effect of the alternative methods of presenting cash flow from

operations on decisions of loan officers. The null hypotheses can be stated as follows:

Ho_5: There is no difference between the direct and indirect groups in the line of credit amount approved for the company with <u>increasing</u> cash flows.

Ho_6: There is no difference between the direct and indirect groups in the line of credit amount approved for the company with <u>decreasing</u> cash flows.

Ho_7: There is no difference between the direct and indirect groups in the interest rate charged for the company with <u>increasing</u> cash flows.

Ho_8: There is no difference between the direct and indirect groups in the interest rate charged for the company with <u>decreasing</u> cash flows.

<u>Interpretation if the Hypotheses on Decisions are Not Rejected</u>

The interpretation of these hypotheses will be discussed together since they are similar. If Ho_5 through Ho_8 are not rejected the interpretation would be that the alternative presentations do not result in different decisions. This result would imply one of the following: (1) the alternative presentations contain the same information content, (2) the alternative presentations are similar in regard to the decision models used by the loan officers, (3) the information is not used in line of credit or interest rate decision, or (4) any differences in cash flow projections are not important enough to impact the line of credit or interest rate decision.

Interpretation if the Hypotheses on Decisions are Rejected

If Ho_5 through Ho_8 are rejected, the interpretation would be that the alternative presentations affect loan officers' decisions. This would imply that the presentations contain different information in regard to the decision models used by the loan officers. However, because there is not a normative solution to the decision, it is not possible to determine which presentation results in a "better" or more accurate decision.

A Priori Expectations

As stated above, it was anticipated that the alternative presentations of cash flow from operations would result in different expectations of cash flows. Also, since bank loan officers consider cash flow information when examining a loan application (Backer 1970, 51; Heath 1978, 17; and Heath 1987, 51), it was anticipated that the alternative presentations would result in different loan amounts and interest rates. Therefore, it was anticipated that Ho_5 through Ho_8 would be rejected.

Feedback Value

The third research question suggests that feedback on prior predictions improves future predictions. This was tested by providing feedback in terms of actual cash flow after the first set of tasks have been completed. After the subjects received the feedback, they were again asked to

predict cash flow from operations for the succeeding year. The change in the accuracy of their predictions is considered the feedback value of the different formats. The null hypotheses for this research question can be stated as follows:

Ho_9: There is no difference between the direct and indirect groups in the change in accuracy of their expectations for the company with increasing cash flows.

Ho_{10}: There is no difference between the direct and indirect groups in the change in accuracy of their expectations for the company with decreasing cash flows.

Interpretation if the Hypothesis on Feedback is Not Rejected

If Ho_9 and Ho_{10} are not rejected, the interpretation would be that there is not a significant difference between the two groups in regard to the feedback from the alternative presentation formats. This result would imply that the alternative presentations possess the same ability to provide feedback to the loan officers.

Interpretation if the Hypothesis on Feedback is Rejected

If Ho_9 and Ho_{10} are rejected, the interpretation would be that the alternative presentations have different abilities to improve loan officers' expectations. This would imply that the presentations contain different information in regard to the decision models used by the loan officers. Given a significant difference in the amount

of feedback, the groups would be examined to determine which method provides better feedback (results in greater improvement in accuracy).

A Priori Expectations

It was anticipated that significant differences in feedback would be found. The reasons for this are essentially the same as those given under the prediction hypotheses (Ho_1 through Ho_4). Some authors suggest that the indirect method of providing cash flow information is confusing (Spiller and Virgil 1974, 116-117 and 129, and Giese and Klammer 1974, 58, among others), and indicate that the direct method is more straightforward. If the direct method is more understandable due to its simplicity, it should provide better feedback on past predictions.[25]

Statistical Analysis

The data was analyzed by use of the a priori, or planned comparisons technique which allows for the testing of specific hypotheses of interest to the study (Kirk 1969, 73). The two-sample t test is the appropriate test if the

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[25]Sorter (1982) addressed this issue: "If users of financial reporting are interested in predicting cash flows, they are interested in assessing changes that produce a cash impact not in those that do not. The add-back [indirect] method . . . is not useful for this purpose and should not be utilized. . . . [the direct method] makes sense in terms of cash-flow emphasis by producing a record of events with cash impact that can be used as feedback . . . on events of the past . . . [and] to predict the cash impact of the future" (pp. 193-194).

assumptions are met (Neter, Wasserman, and Kutner 1985, 585). If the assumptions are not met, the Mann-Whitney test is appropriate (Conover 1980, 215-218). The Bonferroni multiple comparison technique is appropriate where sample sizes are unequal and contrasts are estimated (Neter, Wasserman, and Kutner 1985, 582).

Given the use of the a priori comparison technique, the error rate per family of tests indicates the level of significance of the resulting analysis. The family level of significance for each company used in the study will be .10. As such, the individual significance level will be .10/4 = .025 (Kirk 1969, 85 and 86, and Neter, Wasserman, and Kutner 1985, 582-584 and 588).

The assumptions of the two-sample t test include: (1) the samples are random and independent of each other, (2) the samples come from populations which have a normal distribution, and (3) the variances of the underlying populations are equal.

Test of Feedback Value of Formats

The subjects provided two sets of cash flow predictions. The first set was based solely on historical data, while the second was based on historical data plus feedback on the previous prediction. The feedback value of the alternative formats is operationalized as the change in the mean absolute prediction error between the two cash flow predictions. The two-sample t test is the appropriate test

for a significant difference between the two groups if the underlying assumptions of normality and equal variances hold. If the assumptions are not met, the Mann-Whitney test is appropriate (Conover 1980, 215-218).

Reliability and Validity

The reliability of the test instrument was increased by use of a pretest. As a result of the pretest, the instrument was shortened and instructions clarified. After the initial pretest, the instrument was tested again to determine that the information and instructions were clear, precise, and unambiguous. Kerlinger (1964) states that this is important to improving the reliability of the instrument (p. 287).

Random assignment of individuals to the groups also increases the validity of the study (Cook and Campbell 1979, 56, and Cherulnik 1983, 268-273). However, the subjects completed the tasks in a field setting wherein few of the controls necessary to maximize internal validity were available. In particular, diffusion of treatments and failing to follow instructions regarding the proper sequence of steps may have been a problem with the study.[26]

In order to minimize these threats to internal

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[26]This was particularly important in this study because of the fact that the subjects were asked to project cash flows from operations for 19X4 in the first set of tasks, and then given the amount for use in completing the second set of tasks.

validity, the author discussed these potential problems with the contact person at each bank. The contact person was asked to ensure that subjects did not discuss the test instrument until all had been returned to the author. With regard to the proper sequence of steps, the contact person read the instructions and had the opportunity to ask for clarifications from the author. He was then asked to stress the importance of following the instructions to the subjects completing the instrument at his bank. The completed instruments were examined to determine if subjects had changed their responses to the cash flow projection for 19X4. It appeared as if no subjects changed their responses to the first set of tasks after examining the information provided for the second set of tasks.

CHAPTER 4

DATA ANALYSIS

The Subjects

A total of 178 individuals completed the survey. Of this total, 42 surveys were not usable due to either omitted responses (11 surveys) or responses which were inappropriate (31 surveys). Subjects who omitted responses generally cited inadequate information to respond to the question. Requested additional information included management projections and economic forecasts for both the industry and the economy. Inappropriate responses were generally the result of subjects projecting the ending cash balance for the succeeding year instead of projecting cash flow from operations.

Exhibit 4 indicates how the 136 usable responses were divided among the cells within the experiment. As can be seen in Exhibit 4, the sample sizes were unequal for both the increasing and decreasing cash flow companies. Equal sample sizes is not a requirement for the statistical procedures utilized in the study.

Exhibit 4.--Distribution of subjects within cells

		Method of presenting cash flow from operations	
		Direct	Indirect
Direction of cash flow trend	Increasing	37	34
	Decreasing	32	33

Exhibit 5 summarizes the demographic data of the subjects completing the survey. As can be seen from the exhibit, most of the subjects have between one and five years of experience. While the years of experience of the subjects might be less than desirable, almost forty percent of the subjects have graduate degrees, and over eighty percent have the title of loan officer or higher. The Kruskal-Wallace test was used to determine if significant differences in the dependent variables resulted from the various levels of the demographic variables. No significant differences were found.

Exhibit 5.--Demographic data

Measure	Count	Percentage
Title		
Executive Vice President	3	2.2
Senior Vice President	4	2.9
Vice President	41	30.1
Assistant Vice President	30	22.1
Loan Officer	31	22.8
Credit Analyst	3	2.2
Account Officer	10	7.4
Other	14	10.3
	136	100.0
Years Experience		
1 - 5 years	62	45.6
6 - 10 years	33	24.2
11 - 15 years	27	19.8
16 - 20 years	9	6.6
over 20 years	5	3.8
	136	100.0
Educational Level		
Bachelors degree	86	63.2
Masters degree	46	33.8
Graduate work beyond masters	4	3.0
	136	100.0

Mean Responses to the Tasks

The experiment resulted in a total of four observations on three dependent variables for the direct and indirect groups. These four observations are: predictions of cash flow from operations for 19X4 and 19X5, line of credit, and interest rate. The mean responses to the tasks will be discussed in that order.

Projections of Operating Cash Flow

Exhibits 6 and 7 list the actual cash flow and the average cash flow projections for both the increasing and decreasing cash flow companies, respectively. As can be seen in these exhibits, the direct method of presentation results in greater cash flow projections for both 19X4 and 19X5, regardless of cash flow trend. The amount of this excess changed after feedback was received, however, and the change was dependent on the direction of cash flow trend.

Increasing Cash Flow Company

For the increasing cash flow company, the excess of the direct group's projection over that of the indirect group increased from $633 for 19X4 to $984 for 19X5. An examination of the cash flow projections gives some insight to this occurrence. While the actual projection model used by the subjects in either group cannot be determined, the indirect group, on average, utilized a martingale model in forming their cash flow projections (Watts and Zimmerman 1986, 30 and 31). Their projection of cash flow for the succeeding year was essentially equal to that of the current year. This can be seen by comparing the projections to the one-year lagged actual amount.

Exhibit 6.--Average cash flow projection for the increasing cash flow company (in thousands of dollars)

	19X3	19X4	19X5
Actual cash flow	$ 26,770	$ 28,179	$ 31,159
Average cash flow projection			
Direct Presentation		27,407	29,354
Indirect Presentation		26,774	28,370

Exhibit 7.--Average cash flow projection for the decreasing cash flow company (in thousands of dollars)

	19X3	19X4	19X5
Actual cash flow	$ 13,292	$ 10,518	$ 12,670
Average cash flow projection			
Direct Presentation		12,698	10,995
Indirect Presentation		12,092	10,773

This is in contrast to the direct group, which apparently did not use a martingale model since their average projection was higher than the current year's cash flow figure. It appears that the direct group used a different cash flow prediction model than did the subjects in the indirect group. This difference cannot be explained by differential levels of sophistication of the subjects between groups, since subjects were randomly assigned to treatment groups.

A possible explanation is that the direct presentation was more understandable to the subjects. If this were the case, the subjects would be able to manipulate the information in an attempt to arrive at a cash flow projection. This is in spite of the fact that many of the subjects had not been exposed to the direct method prior to the experiment.

Decreasing Cash Flow Company

For the decreasing cash flow company, the excess of the direct group's projection over that of the indirect group decreased from $606 in 19X4 to $222 in 19X5. In contrast to the increasing cash flow company, an examination of the projections indicates that the indirect group did not use a martingale model for projecting cash flows. Both the indirect and direct groups projected 19X4 cash flows to be lower than that of 19X3. As such, both groups discerned the fact that the cash flows of the company would decrease in the succeeding year. When given feedback that their projections were still too high, both groups essentially projected 19X5 cash flows to be equal to that of 19X4.

Cash Flow Prediction Errors

The predictions of operating cash flows were compared to actual amounts and the absolute value of prediction errors determined (referred to as prediction errors). The absolute value of prediction errors was used instead of

actual prediction errors due to the interest in accuracy of the predictions, not the direction of the error. Exhibit 8 contains the average prediction errors for both the increasing and decreasing cash flow company. As would be expected, the data shown in the exhibit supports the conclusions drawn above regarding the relative accuracy of the cash flow projections.

Exhibit 8.--Average absolute value of cash flow prediction errors (in thousands of dollars)

	Cash flow projection	
	19X4	19X5
Increasing cash flow company		
Direct presentation	$ 937	$ 1,826
Indirect presentation	1,498	2,789
Decreasing cash flow company		
Direct presentation	2,660	2,334
Indirect presentation	1,784	2,029

Line of Credit and Interest Premium

Exhibit 9 contains the average responses for the line of credit and interest rate premium tasks. The exhibit indicates that, while the direct method resulted in greater cash flow projections, it did not result in a higher line of credit or a decreased interest rate premium. These results appear to be inconsistent given that all of the respondents

indicated that projection of operating cash flows was an important determinant in loan and interest decisions.

Exhibit 9.--Average responses for the line of credit and interest rate premium (in thousands of dollars except interest rate premium information)

	Line of Credit	Interest Rate Premium
Increasing cash flow company		
Direct presentation	$ 5,714	0.76%
Indirect presentation	$ 8,265	0.58%
Decreasing cash flow company		
Direct presentation	$11,081	1.07%
Indirect presentation	$12,024	0.92%

This result may be caused by the subjects lending amounts of money based on factors other than cash flows of the company. If the lenders do not place primary emphasis on the cash flows, any difference in cash flow projections will not impact loan amounts. Additionally, the average line of credit extended is less than the average cash flow projection for each company, which would minimize the effect of differential cash flow projections on the line of credit extended. Finally, the amount of the differences between the groups appears to be relatively small, except in the line of credit for the increasing cash flow company.

Statistical Analysis

The statistical analysis of the data was carried out in two steps. The first step consisted of tests for significant differences between the direct and indirect groups in the mean responses to the four tasks. The second step consisted of tests for significant differences in the amount of feedback of the direct and indirect groups. Prior to the statistical analysis, the data were first tested for normality.

Test for Normality

The data were tested for normality by use of hypothesis tests. Exhibit 10 indicates the results of the Shapiro-Wilk tests for normality of the original variables. It is apparent from the information contained in Exhibit 10 that the data are not normally distributed. The null hypothesis of the distribution being normal is rejected for sixteen of the twenty cells. Various transformations failed to achieve an approximately normal distribution. As such, it is concluded that the data were not normally distributed.

Exhibit 10.--Results of the Shapiro-Wilk test of univariate normality (probability<W)

		Method of presenting cash flow from operations	
		Direct	Indirect
Line of credit			
Direction of cash flow trend	Increasing	.01*	.01*
	Decreasing	.04*	.09
Interest rate			
Direction of cash flow trend	Increasing	.01*	.01*
	Decreasing	.07	.01*
Cash flow projection error, 19X4			
Direction of cash flow trend	Increasing	.01*	.01*
	Decreasing	.20	.03*
Cash flow projection error, 19X5			
Direction of cash flow trend	Increasing	.01*	.01*
	Decreasing	.01*	.01*
Amount of feedback			
Direction of cash flow trend	Increasing	.34	.04*
	Decreasing	.02*	.01*

* The null hypothesis of the distribution being normal is rejected at the .05 level.

Test of the Mean Responses

A two-sample t test is the appropriate parametric statistical test for significant differences of the mean responses. The assumptions of the t test include: (1) the samples are random and independent of each other, (2) the samples come from normally distributed populations, and (3)

the samples come from populations with equal variances. Since the data were not normally distributed, the assumptions of the t test were not met and the nonparametric Mann-Whitney test was employed. The results of both the t test and the Mann-Whitney test will be reported for comparison purposes, however.

Cash Flow Prediction Errors

Cash flow projections were made twice, once before (19X4) and once after (19X5) feedback. The predictions of cash flows from operations were compared against actual amounts and the absolute value of prediction errors determined (referred to as prediction errors). The statistical analysis was performed on the prediction errors.

Exhibit 11 shows the results of the statistical analysis on the 19X4 and 19X5 cash flow prediction errors. The results of the parametric and non-parametric tests are similar. A significant difference between the direct and indirect groups is found twice, once each for the increasing and decreasing cash flow company. For the increasing cash flow company, the significant difference occurs in the 19X5 projection, while a significant difference occurs in the 19X4 projection for the decreasing cash flow company. While the results are not consistent, some evidence is found that the cash flow projections were significantly different between the direct and indirect groups.

Exhibit 11.--Results of the statistical analysis on the cash flow prediction errors

19X4 Cash Flow Prediction Errors

Direction of Cash Flow	Mann-Whitney test		t-test	
	Test Value	Prob.	Test Value	Prob.
Ho_1: Increasing	1.2968	0.1947	1.729	0.0884
Ho_2: Decreasing	2.7933	0.0191*	2.693	0.0091*

19X5 Cash Flow Prediction Errors

Direction of Cash Flow	Mann-Whitney test		t-test	
	Test Value	Prob.	Test Value	Prob.
Ho_3: Increasing	2.6409	0.0098*	2.579	0.0128*
Ho_4: Decreasing	0.6444	0.5193	0.721	0.4755

* The null hypothesis of the means being equal is rejected at the family level of significance of .10 (.10/4 = .0250).

Line of Credit and Interest Rate Premium

Exhibit 12 lists the results of the statistical analysis on the line of credit and interest rate premium. The results of the parametric and nonparametric tests are similar in that neither procedure resulted in rejection of hypotheses Ho_5 through Ho_7. Since the null hypotheses are not rejected, all that can be concluded is that significant differences are not found between the direct and indirect groups for the line of credit extended or interest rate premium charged.

Exhibit 12.--Results of the statistical analysis on the line of credit and interest rate premium

Line of Credit				
Direction of Cash Flow	Mann-Whitney test		t-test	
	Test Value	Prob.	Test Value	Prob.
Ho_5: Increasing	0.6655	0.5057	1.863	0.0669
Ho_6: Decreasing	0.5015	0.6161	0.548	0.5877

Interest Rate				
Direction of Cash Flow	Mann-Whitney test		t-test	
	Test Value	Prob.	Test Value	Prob.
Ho_7: Increasing	1.3748	0.1692	1.204	0.2324
Ho_8: Decreasing	1.2298	0.2188	1.095	0.2777

None of the null hypotheses of the means being equal are rejected at the family level of significance of .10 (.10/4 = .0250).

Test of Feedback Value of Formats

The subjects provided two sets of cash flow predictions, one before and one after feedback was received. The feedback value of the alternative formats is operationalized as the change in the mean absolute prediction errors between the two cash flow predictions. The cash flow prediction errors are listed in Exhibit 8 on page 88, and indicate that only one of the four groups increased the accuracy of their cash flow predictions after receiving feedback. As such, neither presentation provided feedback which consistently improved prediction accuracy.

The feedback was tested to determine if there is a significant difference between the direct and indirect

groups. The results of this analysis are shown in Exhibit 13. As can be seen in the exhibit, the null hypotheses cannot be rejected. There is not a significant difference between the alternative presentations in regard to their feedback value.

Exhibit 13.--Results of the statistical analysis on the feedback value of the alternative formats

Direction of Cash Flow	Mann-Whitney test		t-test	
	Test Value	Prob.	Test Value	Prob.
Ho_9: Increasing	1.4068	0.1595	1.127	0.2644
Ho_{10}: Decreasing	0.6891	0.4908	0.980	0.3310

Neither of the null hypotheses of the means being equal is rejected at the .05 level of significance.

Summary of the Results

The results of the hypotheses tested are summarized in Exhibit 14. A family-level of significance of .10 was used for Ho_1 through Ho_8, and a significance level of .05 was used for Ho_9 through Ho_{10}. The alternative presentations of cash flow from operations result in significant differences in the absolute value of the cash flow prediction errors in two of the four hypotheses tested. Significant differences are found once each in the increasing and decreasing cash flow company. For the decreasing cash flow company, the 19X4 cash flow prediction error is found to be significantly different. For the increasing cash flow

company, the 19X5 cash flow prediction error is found to be significantly different between the two groups.

The relative accuracy of the two presentation methods was determined by examination of the average cash flow prediction errors. This analysis was performed for the two predictions which resulted in significant differences. The results of this analysis indicate that the indirect method of presentation is significantly more accurate than the direct method for decreasing cash flow company for 19X4. In contrast to this, however, the direct method of presentation results in cash flow projections which are significantly more accurate than that of the indirect method for the increasing cash flow company for 19X5. The results of this analysis therefore indicate that neither presentation format results in predictions which are consistently more accurate.

The hypotheses on line of credit and interest rate premium are not rejected, which indicates that the alternative presentation formats do not result in significant differences in loan decisions. Feedback was operationalized as the change in the absolute value of prediction errors for the two cash flow projections made by the direct and indirect groups. The hypotheses on feedback are not rejected, which indicates that the alternative presentation formats do not contain significantly different levels of feedback.

Exhibit 14.--Summary of hypothesis tests

Hypothesis/Variable	Outcome
Cash Flow Prediction Errors	
First Year (19X4)	
Ho_1: Increasing Cash Flow	Fail to reject
Ho_2: Decreasing Cash Flow	Reject*
Second Year (19X5)	
Ho_3: Increasing Cash Flow	Reject*
Ho_4: Decreasing Cash Flow	Fail to reject
Line of Credit	
Ho_5: Increasing Cash Flow	Fail to reject
Ho_6: Decreasing Cash Flow	Fail to reject
Interest Rate	
Ho_7: Increasing Cash Flow	Fail to reject
Ho_8: Decreasing Cash Flow	Fail to reject
Feedback	
Ho_9: Increasing Cash Flow	Fail to reject
Ho_{10}: Decreasing Cash Flow	Fail to reject

* Rejected at the family level of significance of .10 (.10/4 = .0250)

CHAPTER 5

SUMMARY AND CONCLUSIONS

In November of 1987, the FASB released SFAS 95, Statement of Cash Flows, which supersedes APB 19. SFAS 95 requires companies to present a statement of cash flows rather than a statement of changes in financial position. The FASB cites the flexibility in the form, content, and cerminology of the statement of changes as the reason for its failure to fulfill its objectives (FASB 1987, par. 2). As such, SFAS 95 eliminates much of the flexibility allowed under APB 19. Not all of the flexibility has been eliminated, however. The operating section of the statement of cash flows can be presented in either the direct or the indirect format. The alternative formats reflect different methods of determining cash flows from operations. Both methods were allowed under APB 19, though over 95 percent of companies use the indirect method of presenting cash flows from operations.

While the indirect method is used by almost all companies, there has been growing dissatisfaction with the approach. Accounting researchers (Drtina and Largay 1985, Giese and Klammer 1974, and others), accounting theoreticians (Moonitz 1943, Vatter 1944, and Sorter 1982),

bank loan officers (O'Leary 1988), and others (Seed 1984), prefer the direct method of presenting cash flows from operations. Their views seem to be supported by empirical research performed on data presented under the indirect method. The research has shown conflicting results in attempts to assess the ability of cash flows to predict both bankruptcy and future cash flows, as well as explain stock returns.

This controversy arises in a time when cash flow reporting is receiving increased attention and emphasis. The conceptual framework lists the ability to assess future cash flows as one of the three objectives of financial reporting (FASB 1978, par. 37). The conceptual framework also states that a full set of financial statements should include information on cash flows (FASB 1984, par. 13). Additionally, the focus of credit analysis has been placed on cash flows (Heath 1987, 17), which is reflected in the great amount of interest and input the Robert Morris Associates had during the promulgation process for SFAS 95 (O'Leary 1988, 28).

Method

This study examines the effect of the alternative methods of presenting cash flow from operations on loan decisions. In particular, the study looks at the impact of the alternative presentations of cash flow from operations on line of credit and interest rate decisions, and on the

ability to predict future cash flows from operations. Additionally, the study examines the ability of the alternative presentations to provide feedback on the cash flow projections. Feedback is operationalized as the change in absolute value of two prediction errors, one before and one after feedback was received.

Bank loan officers were randomly assigned to two groups and asked to project cash flow from operations and make a line of credit and interest rate premium decision based upon a set of financial statements. The financial statements for both groups were exactly the same except for the presentation of cash flows from operations. One group received the indirect presentation, while the other received the direct presentation. Each group received only one presentation of cash flows from operations, even though SFAS 95 requires supplemental disclosure of the indirect method if the direct method is used in the body of the statement. This requirement was not adhered to in order to ensure that the subjects in the direct group utilized only the disclosures of the direct method. If the indirect method had also been supplied to the direct group, it could not be determined which presentation the subjects examined when performing the tasks.

The experiment was performed twice, once for a company with increasing cash flows from operations, and again for a company with decreasing cash flows from operations. The

use of these two companies makes the results of the study more generalizable to all companies, regardless of the trend of their cash flows. The financial statements were developed from two existing companies, and were factored such that the subjects could not identify the companies.

Because actual companies are used, the cash flow projections can be compared to actual amounts and prediction errors determined. The absolute value of these prediction errors were analyzed due to the interest in accuracy of the predictions, rather than direction of the error. All statistical testing was done using nonparametric procedures due to the non-normality of the data. The prediction errors, line of credit, and interest rate premium were analyzed using the Mann-Whitney test with the Bonferroni multiple comparison technique. The Mann-Whitney test was also used to test the feedback variable.

Results

The results of the research are inconclusive in regard to the impact of alternative presentation formats on the ability to project cash flows from operations. Two of the four cash flow prediction errors are significantly different at the family level of significance of .10, once each for the increasing and decreasing cash flow companies. The significant differences occur in the 19X4 prediction errors for the decreasing cash flow company and in 19X5 prediction errors for the increasing cash flow company. The

null hypotheses of no significant difference in mean prediction errors are not rejected for the other two cash flow projections, however. The results of the analysis are therefore inconclusive, though some evidence is found to support the research hypothesis that the alterative presentations of cash flows from operations would impact the subjects' ability to predict cash flow from operations.

An examination of the average prediction errors for the years in which significant differences are found yields an indication of which presentation results in more accurate projections. This analysis indicates that the projections based on the indirect method are more accurate for the decreasing cash flow company, while the direct method results in more accurate projections for the increasing cash flow company. As such, it cannot be concluded that either of the alternative presentation formats results in projections which are consistently more accurate.

The results of the study indicate that the alternative presentation formats do not result in significant differences for the line of credit, the interest rate premium, or the feedback variables. As such no support is found for the second and third research hypotheses.

Implications of the Research Findings

The results of the analysis provide some evidence that the alternative presentations of cash flow from operations differ in terms of predictive ability. The results also indicate that neither presentation format is always superior to the other in terms of predictive accuracy. The primary implication of the study is therefore that the FASB should reevaluate the optional disclosure of the direct format. The direct method may provide additional, relevant information to investors and creditors in certain situations. Additionally, requiring the disclosure of the direct method would eliminate the remaining flexibility allowed in the presentation of the statement of cash flows. This last fact is important in that the FASB cited too much flexibility as the reason the statement of changes in financial position failed to fulfill its objective in financial reporting.

While the implication of the study is that the direct method should be a required disclosure, this must be tempered by both the inconsistent results of the hypotheses on cash flows and by the lack of rejection of the other hypotheses of the study. Only two of the four hypotheses on cash flow projections result in significantly different prediction errors. The fact that the other two cash flow projection hypotheses are not rejected indicates that the results of the study are not consistent and/or strong in

regard to the conclusions about the predictive ability of the alternative presentation formats. Additionally, none of the other hypotheses of the study are rejected, which does not lend support to the conclusion that the alternative presentations provide different, relevant information.

Limitations

The primary limitation of the study is its lack of generalizability across populations, settings, and time. Several factors contribute to this lack of generalizability. First, the number of loan officers participating in the study is small relative to the total number of loan officers. Second, the subjects in the study were not randomly selected from all loan officers. As such, the subjects may not be representative of loan officers in general, and therefore the results cannot be generalized to this group. Third, the tasks performed in the study represent only a small subset of the possible uses of the financial statements and cash flow information. The results of the study cannot be generalized to other possible uses of the information.

The generalizability of the results is also limited by the fact that the tasks in the study were performed in a setting other than which the subjects typically work. This had two effects on the study. First, the subjects had little to gain or lose as a result of their decisions, and therefore may not have taken the decisions seriously.

Second, the subjects were provided only limited amounts of information in order to minimize the time required to complete the tasks. As such, the subjects were not provided with some of the information they may typically use in making these types of decisions. Given these two effects of the experimental setting, responses may not be typical of those which would be made in a non-experimental setting.

An additional limitation relates to the fact that most of the subjects were unfamiliar with the both the statement of cash flows and the direct method. The responses of the subjects in the direct group may not be typical of responses that would be received if the subjects had been more familiar with the direct method and had previously utilized the information in making cash flow projections and lending decisions. As such, the data gathered in this study may well be different from that gathered in a similar study performed later.

A final limitation is that the study utilized only two companies. Both an increasing and a decreasing cash flow company are used in the study to increase the generalizability of the results regardless of cash flow trend. However, the results cannot be generalized beyond these two companies, since all companies will have different circumstances and financial conditions.

Future Research

Given the inconsistent findings of the study in regard to the cash flow projection hypotheses, the answer to the primary research question is unresolved. Future research could be centered around answering this question. A possible method to answering the question is to focus on individual lenders rather than to test groups of lenders. Multiple dimensional scaling is one method of examining the model used by individuals in making their decisions, and could be used to determine if the different formats have differential impacts on theses models.

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APPENDIX 1

SURVEY INSTRUMENT

DECREASING CASH FLOW COMPANY
DIRECT METHOD OF PRESENTATION

Buddy Foods

Introduction

Attached you will find a bank lending situation in which you will be asked to make a line of credit decision. Please treat this situation as if it occurred in your organization: follow the normal practices and procedures you would use in making a decision of this type.

The study will be conducted in three phases. In the first phase, you should review the attached condensed financial statements for the three-year period ended 19X3 and perform three tasks: (1) determine amount of the line of credit, (2) determine the interest rate premium over the prime rate, and (3) estimate the cash flows from operations for 19X4.

Once you have completed the first phase of the study, you should begin the second phase. Please do not refer to thee first phase of the study when completing the second.

In the second phase of the study, you should review the condensed financial statements for 19X4. These statements are intended to give you feedback on the decisions you made in the first phase of the study. Based on these financial statements, you are asked to estimate the cash flows from operations for 19X5.

The third phase of the study consists of a brief demographic questionnaire.

Background Information

Buddy Foods is a large ($370,000,000 in sales) public corporation. Buddy Foods is seeking to obtain a long-term revolving credit agreement. The line of credit will be used for meeting operational needs as they arise, and will be secured by accounts receivable. There are no liens against the Company's accounts receivable.

Ratios for Buddy Foods

	19X3	19X2	19X1
Current ratio	1.22	1.38	1.30
Asset turnover	3.27	3.31	3.24
Gross profit percentage	41.83%	43.20%	42.93%
Net income/sales	0.79%	1.35%	1.19%
Net income/average assets	2.59%	4.48%	3.85%
Debt/assets	.59	.58	.58
Debt/equity	1.44	1.40	1.40
Times interest earned	2.31	3.66	3.33

For purposes of this study, please assume the following:

- You are not limited in the amount of credit you may extend;
- The integrity and capability of the Company's management is judged to be satisfactory;
- There are no legal or contractual restrictions that would hinder the Company's credit worthiness;
- The Company has been audited by a "Big Eight" accounting firm, and has received an unqualified (or "clean") opinion on the financial statements for each of the years presented.

BUDDY FOODS
BALANCE SHEET
DECEMBER 31,
(in thousands)

ASSETS

	19X3	19X2	19X1
Current assets:			
Cash and cash equivalents	$ 5,289	$ 6,579	$ 2,890
Accounts receivable - net	22,894	21,828	19,793
Inventories	9,997	8,369	8,351
Prepaid expenses	1,830	1,722	1,691
Total current assets	40,010	38,498	32,725
Net property, plant and equipment and other assets	78,047	70,577	65,498
Total assets	$118,057	$109,075	$ 98,223

LIABILITIES AND STOCKHOLDERS' EQUITY

Current liabilities:			
Current portion of long-term debt	$ 3,425	$ 3,443	$ 4,616
Accounts payable	29,328	23,576	20,263
Accrued income taxes	11	969	214
Total current liabilities	32,764	27,988	25,093
Non-current liabilities	36,921	35,616	32,231
Total liabilities	69,685	63,604	57,324
Stockholders' equity	48,372	45,471	40,899
Total liabilities & stockholders' equity	$118,057	$109,075	$ 98,223

BUDDY FOODS
INCOME STATEMENT
For the Years Ended December 31,
(in thousands except per share data)

	19X3	19X2	19X1
Sales	$371,300	$343,332	$295,087
Less cost of goods sold	215,981	195,002	168,407
Gross profit	155,319	148,330	126,680
Operating expenses	151,518	140,981	121,745
Earnings before income taxes	3,801	7,349	4,935
Income taxes	854	2,708	1,426
Net income	$ 2,947	$ 4,641	$ 3,509
Earnings per share	$ 0.59	$ 0.93	$ 0.70

BUDDY FOODS
STATEMENT OF CASH FLOWS
For the Years Ended December 31,
(in thousands)

	19X3	19X2	19X1
Cash flows from operating activities:			
Cash received from customers	$369,937	$340,966	$292,010
Cash paid to suppliers and employees	(353,142)	(321,838)	(282,560)
Interest paid (net of amount capitalized)	(2,906)	(2,760)	(2,115)
Income taxes paid	(597)	(3,246)	(751)
Net cash provided by operating activities	13,292	13,122	6,584
Net cash used in investing activities	(16,288)	(10,920)	(17,276)
Net cash provided by financing activities	1,706	1,487	9,994
Net increase (decrease) in cash and cash equivalents	(1,290)	3,689	(698)
Cash and cash equivalents at beginning of year	6,579	2,890	3,588
Cash and cash equivalents at end of year	$ 5,289	$ 6,579	$ 2,890

PLEASE ANSWER THE FOLLOWING QUESTIONS

1) Based on your review of the financial statements, what amount would you approve for the company's line of credit?

$_____

2) What interest rate premium over the prime rate would you charge?

_____%

3) What is your estimate of cash flows from operations for the year ended 19X4?

$_____

BUDDY FOODS
BALANCE SHEET
DECEMBER 31,
(in thousands)

ASSETS

	19X4	19X3	19X2	19X1
Current assets:				
Cash and cash equivalents	$ 2,925	$ 5,289	$ 6,579	$ 2,890
Accounts receivable - net	26,118	22,894	21,828	19,793
Inventories	10,981	9,997	8,369	8,351
Prepaid expenses	1,561	1,830	1,722	1,691
Total current assets	41,585	40,010	38,498	32,725
Net property, plant and equipment and other assets	78,489	78,047	70,577	65,498
Total assets	$120,074	$118,057	$109,075	$ 98,223

LIABILITIES AND STOCKHOLDERS' EQUITY

Current liabilities:				
Current portion of long-term debt	$ 3,062	$ 3,425	$ 3,443	$ 4,616
Accounts payable	30,883	29,328	23,576	20,263
Accrued income taxes	189	11	969	214
Total current liabilities	34,134	32,764	27,988	25,093
Non-current liabilities	34,434	36,921	35,616	32,231
Total liabilities	68,568	69,685	63,604	57,324
Stockholders' equity	51,506	48,372	45,471	40,899
Total liabilities & stockholders' equity	$120,074	$118,057	$109,075	$ 98,223

BUDDY FOODS
INCOME STATEMENT
For the Years Ended December 31,
(in thousands except per share data)

	19X4	19X3	19X2	19X1
Sales	$402,249	$371,300	$343,332	$295,087
Less cost of goods sold	234,609	215,981	195,002	168,407
Gross profit	167,640	155,319	148,330	126,680
Operating expenses	162,946	151,518	140,981	121,745
Earnings before income taxes	4,694	3,801	7,349	4,935
Income taxes	1,539	854	2,708	1,426
Net income	$ 3,155	$ 2,947	$ 4,641	$ 3,509
Earnings per share	$ 0.63	$ 0.59	$ 0.93	$ 0.70

BUDDY FOODS
STATEMENT OF CASH FLOWS
For the Years Ended December 31,
(in thousands)

	19X4	19X3	19X2	19X1
Cash flows from operating activities:				
Cash received from customers	$398,732	$369,937	$340,966	$292,010
Cash paid to suppliers and employees	(385,619)	(353,142)	(321,838)	(282,560)
Interest paid (net of amount capitalized)	(2,568)	(2,906)	(2,760)	(2,115)
Income taxes paid	(27)	(597)	(3,246)	(751)
Net cash provided by operating activities	10,518	13,292	13,122	6,584
Net cash used in investing activities	(9,226)	(16,288)	(10,920)	(17,276)
Net cash provided by financing activities	(3,656)	1,706	1,487	9,994
Net increase (decrease) in cash and cash equivalents	(2,364)	(1,290)	3,689	(698)
Cash and cash equivalents at beginning of year	5,289	6,579	2,890	3,588
Cash and cash equivalents at end of year	$ 2,925	$ 5,289	$ 6,579	$ 2,890

PLEASE ANSWER THE FOLLOWING QUESTION

1) What is your estimate of cash flows from operations for the year ended 19X5?

$_____

DEMOGRAPHIC INFORMATION

1) Please specify additional information you would require in making this type of decision.

_____

_____

_____

2) Is the analysis of cash flows from operations important in determining loan decisions at your bank?

_____ Yes _____ No

3) What is your title at the bank? _____

4) How many years have you served in this position? _____ Years

5) How many years have you been involved in banking? _____ Years

6) What is the highest educational level that you have completed?

_____ High School _____ Bachelors degree
_____ Masters degree _____ Graduate work beyond masters degree

7) Please indicate if you have any of the following certifications.

_____ Certified Public Accountant _____ Certified Managerial Accountant
_____ Certified Financial Analyst _____ Certified Financial Planner

8) Do you have an industry specialization?

_____ No _____ Yes If yes, in what industry? _____

9) What is the approximate size of your bank in terms of assets?

_____ under $25,000,000 _____ $25,000,000 to $50,000,000
_____ $51,000,000 to $100,000,000 _____ $101,000,000 to $500,000,000
_____ $501,000,000 to $1,000,000,000 _____ above $1,000,000,000

10) What is the average loan size that you normally recommend?

_____ under $50,000 _____ $50,000 to $100,000
_____ $100,001 to $200,000 _____ $200,001 to $400,000
_____ above $400,000

11) In the bank for which you work, are loans approved by yourself or by committee? _____ yourself
_____ committee
_____ other (please specify)

APPENDIX 2

SURVEY INSTRUMENT

DECREASING CASH FLOW COMPANY
INDIRECT METHOD OF PRESENTATION

Buddi Foods

Introduction

Attached you will find a bank lending situation in which you will be asked to make a line of credit decision. Please treat this situation as if it occurred in your organization: follow the normal practices and procedures you would use in making a decision of this type.

The study will be conducted in three phases. In the first phase, you should review the attached condensed financial statements for the three-year period ended 19X3 and perform three tasks: (1) determine amount of the line of credit, (2) determine the interest rate premium over the prime rate, and (3) estimate the cash flows from operations for 19X4.

Once you have completed the first phase of the study, you should begin the second phase. Please do not refer to the first phase of the study when completing the second.

In the second phase of the study, you should review the condensed financial statements for 19X4. These statements are intended to give you feedback on the decisions you made in the first phase of the study. Based on these financial statements, you are asked to estimate the cash flows from operations for 19X5.

The third phase of the study consists of a brief demographic questionnaire.

Background Information

Buddi Foods is a large ($370,000,000 in sales) public corporation. Buddi Foods is seeking to obtain a long-term revolving credit agreement. The line of credit will be used for meeting operational needs as they arise, and will be secured by accounts receivable. There are no liens against the Company's accounts receivable.

Ratios for Buddi Foods

	19X3	19X2	19X1
Current ratio	1.22	1.38	1.30
Asset turnover	3.27	3.31	3.24
Gross profit percentage	41.83%	43.20%	42.93%
Net income/sales	0.79%	1.35%	1.19%
Net income/average assets	2.59%	4.48%	3.85%
Debt/assets	.59	.58	.58
Debt/equity	1.44	1.40	1.40
Times interest earned	2.31	3.66	3.33

For purposes of this study, please assume the following:

- You are not limited in the amount of credit you may extend;
- The integrity and capability of the Company's management is judged to be satisfactory;
- There are no legal or contractual restrictions that would hinder the Company's credit worthiness;
- The Company has been audited by a "Big Eight" accounting firm, and has received an unqualified (or "clean") opinion on the financial statements for each of the years presented.

BUDDI FOODS
BALANCE SHEET
DECEMBER 31,
(in thousands)

ASSETS

	19X3	19X2	19X1
Current assets:			
Cash and cash equivalents	$ 5,289	$ 6,579	$ 2,890
Accounts receivable - net	22,894	21,828	19,793
Inventories	9,997	8,369	8,351
Prepaid expenses	1,830	1,722	1,691
Total current assets	40,010	38,498	32,725
Net property, plant and equipment and other assets	78,047	70,577	65,498
Total assets	$118,057	$109,075	$ 98,223

LIABILITIES AND STOCKHOLDERS' EQUITY

Current liabilities:			
Current portion of long-term debt	$ 3,425	$ 3,443	$ 4,616
Accounts payable	29,328	23,576	20,263
Accrued income taxes	11	969	214
Total current liabilities	32,764	27,988	25,093
Non-current liabilities	36,921	35,616	32,231
Total liabilities	69,685	63,604	57,324
Stockholders' equity	48,372	45,471	40,899
Total liabilities & stockholders' equity	$118,057	$109,075	$ 98,223

BUDDI FOODS
INCOME STATEMENT
For the Years Ended December 31,
(in thousands except per share data)

	19X3	19X2	19X1
Sales	$371,300	$343,332	$295,087
Less cost of goods sold	215,981	195,002	168,407
Gross profit	155,319	148,330	126,680
Operating expenses	151,518	140,981	121,745
Earnings before income taxes	3,801	7,349	4,935
Income taxes	854	2,708	1,426
Net income	$ 2,947	$ 4,641	$ 3,509
Earnings per share	$ 0.59	$ 0.93	$ 0.70

BUDDI FOODS
STATEMENT OF CASH FLOWS
For the Years Ended December 31,
(in thousands)

	19X3	19X2	19X1
Cash flows from operating activities:			
Net income	$ 2,947	$ 4,641	$ 3,509
Adjustments to reconcile net income to net cash provided by operating activities:			
Depreciation of assets	7,789	6,893	6,092
Amortization of other assets	216	207	7
Provision for deferred taxes	608	(395)	536
Provision for bad debts	299	332	211
(Gain) loss on disposal of assets	(260)	(208)	(725)
(Increase) decrease in assets			
Receivables	(1,365)	(2,367)	(3,078)
Inventory	(1,628)	(18)	(1,411)
Prepaid expenses	(108)	(31)	(249)
Increase (decrease) in liabilities			
Accounts payable	5,752	3,313	1,982
Taxes payable	(958)	755	(290)
Net cash provided by operating activities	13,292	13,122	6,584
Net cash used in investing activities	(16,288)	(10,920)	(17,276)
Net cash provided by financing activities	1,706	1,487	9,994
Net increase (decrease) in cash and cash equivalents	(1,290)	3,689	(698)
Cash and cash equivalents at beginning of year	6,579	2,890	3,588
Cash and cash equivalents at end of year	$ 5,289	$ 6,579	$ 2,890

PLEASE ANSWER THE FOLLOWING QUESTIONS

1) Based on your review of the financial statements, what amount would you approve for the company's line of credit?

$_____

2) What interest rate premium over the prime rate would you charge?

_____%

3) What is your estimate of cash flows from operations for the year ended 19X4?

$_____

BUDDI FOODS
BALANCE SHEET
DECEMBER 31,
(in thousands)

ASSETS

	19X4	19X3	19X2	19X1
Current assets:				
Cash and cash equivalents	$ 2,925	$ 5,289	$ 6,579	$ 2,890
Accounts receivable - net	26,118	22,894	21,828	19,793
Inventories	10,981	9,997	8,369	8,351
Prepaid expenses	1,561	1,830	1,722	1,691
Total current assets	41,585	40,010	38,498	32,725
Net property, plant and equipment and other assets	78,489	78,047	70,577	65,498
Total assets	$120,074	$118,057	$109,075	$ 98,223

LIABILITIES AND STOCKHOLDERS' EQUITY

Current liabilities:				
Current portion of long-term debt	$ 3,062	$ 3,425	$ 3,443	$ 4,616
Accounts payable	30,883	29,328	23,576	20,263
Accrued income taxes	189	11	969	214
Total current liabilities	34,134	32,764	27,988	25,093
Non-current liabilities	34,434	36,921	35,616	32,231
Total liabilities	68,568	69,685	63,604	57,324
Stockholders' equity	51,506	48,372	45,471	40,899
Total liabilities & stockholders' equity	$120,074	$118,057	$109,075	$ 98,223

BUDDI FOODS
INCOME STATEMENT
For the Years Ended December 31,
(in thousands except per share data)

	19X4	19X3	19X2	19X1
Sales	$402,249	$371,300	$343,332	$295,087
Less cost of goods sold	234,609	215,981	195,002	168,407
Gross profit	167,640	155,319	148,330	126,680
Operating expenses	162,946	151,518	140,981	121,745
Earnings before income taxes	4,694	3,801	7,349	4,935
Income taxes	1,539	854	2,708	1,426
Net income	$ 3,155	$ 2,947	$ 4,641	$ 3,509
Earnings per share	$ 0.63	$ 0.59	$ 0.93	$ 0.70

BUDDI FOODS
STATEMENT OF CASH FLOWS
For the Years Ended December 31,
(in thousands)

	19X4	19X3	19X2	19X1
Cash flows from operating activities:				
Net income	$ 3,155	$ 2,947	$ 4,641	$ 3,509
Adjustments to reconcile net income to net cash provided by operating activities:				
Depreciation of assets	8,311	7,789	6,893	6,092
Amortization of other assets	222	216	207	7
Provision for deferred taxes	1,105	608	(395)	536
Provision for bad debts	297	299	332	211
(Gain) loss on disposal of assets	(69)	(260)	(208)	(725)
(Increase) decrease in assets				
Receivables	(3,521)	(1,365)	(2,367)	(3,078)
Inventory	(984)	(1,628)	(18)	(1,411)
Prepaid expenses	269	(108)	(31)	(249)
Increase (decrease) in liabilities				
Accounts payable	1,555	5,752	3,313	1,982
Taxes payable	178	(958)	755	(290)
Net cash provided by operating activities	10,518	13,292	13,122	6,584
Net cash used in investing activities	(9,226)	(16,288)	(10,920)	(17,276)
Net cash provided by financing activities	(3,656)	1,706	1,487	9,994
Net increase (decrease) in cash and cash equivalents	(2,364)	(1,290)	3,689	(698)
Cash and cash equivalents at beginning of year	5,289	6,579	2,890	3,588
Cash and cash equivalents at end of year	$ 2,925	$ 5,289	$ 6,579	$ 2,890

PLEASE ANSWER THE FOLLOWING QUESTION

1) What is your estimate of cash flows from operations for the year ended 19X5?

$_____

DEMOGRAPHIC INFORMATION

1) Please specify additional information you would require in making this type of decision.

_____

_____

_____

2) Is the analysis of cash flows from operations important in determining loan decisions at your bank?

_____ Yes _____ No

3) What is your title at the bank? _____

4) How many years have you served in this position? _____ Years

5) How many years have you been involved in banking? _____ Years

6) What is the highest educational level that you have completed?

_____ High School _____ Bachelors degree
_____ Masters degree _____ Graduate work beyond masters degree

7) Please indicate if you have any of the following certifications.

_____ Certified Public Accountant _____ Certified Managerial Accountant
_____ Certified Financial Analyst _____ Certified Financial Planner

8) Do you have an industry specialization?

_____ No _____ Yes If yes, in what industry? _____

9) What is the approximate size of your bank in terms of assets?

_____ under $25,000,000 _____ $25,000,000 to $50,000,000
_____ $51,000,000 to $100,000,000 _____ $101,000,000 to $500,000,000
_____ $501,000,000 to $1,000,000,000 _____ above $1,000,000,000

10) What is the average loan size that you normally recommend?

_____ under $50,000 _____ $50,000 to $100,000
_____ $100,001 to $200,000 _____ $200,001 to $400,000
_____ above $400,000

11) In the bank for which you work, are loans approved by yourself or by committee? _____ yourself
_____ committee
_____ other (please specify)

APPENDIX 3

SURVEY INSTRUMENT

INCREASING CASH FLOW COMPANY
DIRECT METHOD OF PRESENTATION

Smitty Enterprises

Introduction

Attached you will find a bank lending situation in which you will be asked to make a line of credit decision. Please treat this situation as if it occurred in your organization: follow the normal practices and procedures you would use in making a decision of this type.

The study will be conducted in three phases. In the first phase, you should review the attached condensed financial statements for the three-year period ended 19X3 and perform three tasks: (1) determine amount of the line of credit, (2) determine the interest rate premium over the prime rate, and (3) estimate the cash flows from operations for 19X4.

Once you have completed the first phase of the study, you should begin the second phase. Please do not refer to the first phase of the study when completing the second.

In the second phase of the study, you should review the condensed financial statements for 19X4. These statements are intended to give you feedback on the decisions you made in the first phase of the study. Based on these financial statements, you are asked to estimate the cash flows from operations for 19X5.

The third phase of the study consists of a brief demographic questionnaire.

Background Information

Smitty Enterprises is a large ($300,000,000 in sales) public corporation. Smitty Enterprises is seeking to obtain a long-term revolving credit agreement. The line of credit will be used for meeting operational needs as they arise, and will be secured by accounts receivable. There are no liens against the Company's accounts receivable.

Ratios for Smitty Enterprises

	19X3	19X2	19X1
Current ratio	1.44	0.90	1.09
Asset turnover	1.70	1.92	1.96
Gross profit percentage	53.24%	52.83%	52.38%
Net income/sales	4.68%	5.11%	5.46%
Net income/average assets	7.96%	9.79%	10.71%
Debt/assets	.45	.41	.43
Debt/equity	.83	.71	.75
Times interest earned	20.46	22.88	25.95

For purposes of this study, please assume the following:

- You are not limited in the amount of credit you may extend;
- The integrity and capability of the Company's management is judged to be satisfactory;
- There are no legal or contractual restrictions that would hinder the Company's credit worthiness;
- The Company has been audited by a "Big Eight" accounting firm, and has received an unqualified (or "clean") opinion on the financial statements for each of the years presented.

SMITTY ENTERPRISES
BALANCE SHEET
DECEMBER 31,
(in thousands)

ASSETS

	19X3	19X2	19X1
Current assets:			
Cash	$ 15,036	$ 4,082	$ 5,790
Accounts receivable - net	5,051	4,483	4,482
Inventories	19,283	16,564	15,549
Prepaid expenses	861	943	594
Total current assets	40,231	26,072	26,415
Net property, plant and equipment and other assets	148,779	126,559	106,043
Total assets	$189,010	$152,631	$132,458

LIABILITIES AND STOCKHOLDERS' EQUITY

Current liabilities:			
Current portion of long-term debt	$ 643	$ 4,963	$ 2,266
Accounts payable	15,079	15,324	11,629
Accrued liabilities	10,326	7,623	8,568
Accrued income taxes	1,862	1,058	1,809
Total current liabilities	27,910	28,968	24,272
Non-current liabilities	58,043	34,314	32,688
Total liabilities	85,953	63,282	56,960
Stockholders' equity	103,057	89,349	75,498
Total liabilities & stockholders' equity	$189,010	$152,631	$132,458

SMITTY ENTERPRISES
INCOME STATEMENT
For the Years Ended December 31,
(in thousands except per share data)

	19X3	19X2	19X1
Sales	$290,599	$273,315	$242,836
Less cost of goods sold	135,889	128,915	115,633
Gross profit	154,710	144,400	127,203
Operating expenses	129,955	119,278	103,097
Earnings before income taxes	24,755	25,122	24,106
Income taxes	11,165	11,169	10,836
Net income	$ 13,590	$ 13,953	$ 13,270
Net income per share	$ 0.86	$ 0.89	$ 0.86

SMITTY ENTERPRISES
STATEMENT OF CASH FLOWS
For the Years Ended December 31,
(in thousands)

	19X3	19X2	19X1
Cash flows from operating activities:			
Cash received from customers	$290,374	$273,288	$242,090
Cash paid to suppliers and employees	(253,411)	(234,628)	(205,776)
Interest received	982	432	611
Interest paid (net of amount capitalized)	(3,383)	(3,400)	(3,433)
Income taxes paid	(7,792)	(10,022)	(9,994)
Net cash provided by operating activities	26,770	25,670	23,498
Net cash used in investing activities	(32,193)	(29,699)	(22,963)
Net cash provided by financing activities	16,377	2,321	(437)
Net increase (decrease) in cash and cash equivalents	10,954	(1,708)	98
Cash and cash equivalents at beginning of year	4,082	5,790	5,692
Cash and cash equivalents at end of year	$ 15,036	$ 4,082	$ 5,790

PLEASE ANSWER THE FOLLOWING QUESTIONS

1) Based on your review of the financial statements, what amount would you approve for the company's line of credit?

$_____

2) What interest rate premium over the prime rate would you charge?

_____%

3) What is your estimate of cash flows from operations for the year ended 19X4?

$_____

SMITTY ENTERPRISES
BALANCE SHEET
DECEMBER 31,
(in thousands)

ASSETS

	19X4	19X3	19X2	19X1
Current assets:				
Cash	$ 19,840	$ 15,036	$ 4,082	$ 5,790
Accounts receivable - net	6,196	5,051	4,483	4,482
Inventories	15,009	19,283	16,564	15,549
Prepaid expenses	714	861	943	594
Total current assets	41,759	40,231	26,072	26,415
Net property, plant and equipment and other assets	156,036	148,779	126,559	106,043
Total assets	$197,795	$189,010	$152,631	$132,458

LIABILITIES AND STOCKHOLDERS' EQUITY

Current liabilities:				
Current portion of long-term debt	$ 1,685	$ 643	$ 4,963	$ 2,266
Accounts payable	12,959	15,079	15,324	11,629
Accrued liabilities	10,248	10,326	7,623	8,568
Accrued income taxes	2,554	1,862	1,058	1,809
Total current liabilities	27,446	27,910	28,968	24,272
Non-current liabilities	54,982	58,043	34,314	32,688
Total liabilities	82,428	85,953	63,282	56,960
Stockholders' equity	115,367	103,057	89,349	75,498
Total liabilities & stockholders' equity	$197,795	$189,010	$152,631	$132,458

SMITTY ENTERPRISES
INCOME STATEMENT
For the Years Ended December 31,
(in thousands except per share data)

	19X4	19X3	19X2	19X1
Sales	$317,732	$290,599	$273,315	$242,836
Less cost of goods sold	150,567	135,889	128,915	115,633
Gross profit	167,165	154,710	144,400	127,203
Operating expenses	143,902	129,955	119,278	103,097
Earnings before income taxes	23,263	24,755	25,122	24,106
Income taxes	10,236	11,165	11,169	10,836
Net income	$ 13,027	$ 13,590	$ 13,953	$ 13,270
Net income per share	$ 0.83	$ 0.86	$ 0.89	$ 0.86

SMITTY ENTERPRISES
STATEMENT OF CASH FLOWS
For the Years Ended December 31,
(in thousands)

	19X4	19X3	19X2	19X1
Cash flows from operating activities:				
Cash received from customers	$316,644	$290,374	$273,288	$242,090
Cash paid to suppliers and employees	(277,731)	(253,411)	(234,628)	(205,776)
Interest received	2,513	982	432	611
Interest paid (net of amount capitalized)	(5,430)	(3,383)	(3,400)	(3,433)
Income taxes paid	(7,817)	(7,792)	(10,022)	(9,994)
Net cash provided by operating activities	28,179	26,770	25,670	23,498
Net cash used in investing activities	(19,226)	(32,193)	(29,699)	(22,963)
Net cash provided by financing activities	(4,149)	16,377	2,321	(437)
Net increase (decrease) in cash and cash equivalents	4,804	10,954	(1,708)	98
Cash and cash equivalents at beginning of year	15,036	4,082	5,790	5,692
Cash and cash equivalents at end of year	$ 19,840	$ 15,036	$ 4,082	$ 5,790

PLEASE ANSWER THE FOLLOWING QUESTION

1) What is your estimate of cash flows from operations for the year ended 19X5?

$_____

DEMOGRAPHIC INFORMATION

1) Please specify additional information you would require in making this type of decision.

_____

_____

_____

2) Is the analysis of cash flows from operations important in determining loan decisions at your bank?

_____ Yes _____ No

3) What is your title at the bank? _____

4) How many years have you served in this position? _____ Years

5) How many years have you been involved in banking? _____ Years

6) What is the highest educational level that you have completed?

_____ High School _____ Bachelors degree
_____ Masters degree _____ Graduate work beyond masters degree

7) Please indicate if you have any of the following certifications.

_____ Certified Public Accountant _____ Certified Managerial Accountant
_____ Certified Financial Analyst _____ Certified Financial Planner

8) Do you have an industry specialization?

_____ No _____ Yes If yes, in what industry? _____

9) What is the approximate size of your bank in terms of assets?

_____ under $25,000,000 _____ $25,000,000 to $50,000,000
_____ $51,000,000 to $100,000,000 _____ $101,000,000 to $500,000,000
_____ $501,000,000 to $1,000,000,000 _____ above $1,000,000,000

10) What is the average loan size that you normally recommend?

_____ under $50,000 _____ $50,000 to $100,000
_____ $100,001 to $200,000 _____ $200,001 to $400,000
_____ above $400,000

11) In the bank for which you work, are loans approved by yourself or by committee? _____ yourself
_____ committee
_____ other (please specify)

APPENDIX 4

SURVEY INSTRUMENT

INCREASING CASH FLOW COMPANY
INDIRECT METHOD OF PRESENTATION

Smitti Enterprises

Introduction

Attached you will find a bank lending situation in which you will be asked to make a line of credit decision. Please treat this situation as if it occurred in your organization: follow the normal practices and procedures you would use in making a decision of this type.

The study will be conducted in three phases. In the first phase, you should review the attached condensed financial statements for the three-year period ended 19X3 and perform three tasks: (1) determine amount of the line of credit, (2) determine the interest rate premium over the prime rate, and (3) estimate the cash flows from operations for 19X4.

Once you have completed the first phase of the study, you should begin the second phase. Please do not refer to the first phase of the study when completing the second.

In the second phase of the study, you should review the condensed financial statements for 19X4. These statements are intended to give you feedback on the decisions you made in the first phase of the study. Based on these financial statements, you are asked to estimate the cash flows from operations for 19X5.

The third phase of the study consists of a brief demographic questionnaire.

Background Information

Smitti Enterprises is a large ($300,000,000 in sales) public corporation. Smitti Enterprises is seeking to obtain a long-term revolving credit agreement. The line of credit will be used for meeting operational needs as they arise, and will be secured by accounts receivable. There are no liens against the Company's accounts receivable.

Ratios for Smitti Enterprises

	19X3	19X2	19X1
Current ratio	1.44	0.90	1.09
Asset turnover	1.70	1.92	1.96
Gross profit percentage	53.24%	52.83%	52.38%
Net income/sales	4.68%	5.11%	5.46%
Net income/average assets	7.96%	9.79%	10.71%
Debt/assets	.45	.41	.43
Debt/equity	.83	.71	.75
Times interest earned	20.46	22.88	25.95

For purposes of this study, please assume the following:

- You are not limited in the amount of credit you may extend;
- The integrity and capability of the Company's management is judged to be satisfactory;
- There are no legal or contractual restrictions that would hinder the Company's credit worthiness;
- The Company has been audited by a "Big Eight" accounting firm, and has received an unqualified (or "clean") opinion on the financial statements for each of the years presented.

SMITTI ENTERPRISES
BALANCE SHEET
DECEMBER 31,
(in thousands)

ASSETS

	19X3	19X2	19X1
Current assets:			
Cash	$ 15,036	$ 4,082	$ 5,790
Accounts receivable - net	5,051	4,483	4,482
.nventories	19,283	16,564	15,549
Prepaid expenses	861	943	594
Total current assets	40,231	26,072	26,415
Net property, plant and equipment and other assets	148,779	126,559	106,043
Total assets	$189,010	$152,631	$132,458

LIABILITIES AND STOCKHOLDERS' EQUITY

Current liabilities:			
Current portion of long-term debt	$ 643	$ 4,963	$ 2,266
Accounts payable	15,079	15,324	11,629
Accrued liabilities	10,326	7,623	8,568
Accrued income taxes	1,862	1,058	1,809
Total current liabilities	27,910	28,968	24,272
Non-current liabilities	58,043	34,314	32,688
Total liabilities	85,953	63,282	56,960
Stockholders' equity	103,057	89,349	75,498
Total liabilities & stockholders' equity	$189,010	$152,631	$132,458

SMITTI ENTERPRISES
INCOME STATEMENT
For the Years Ended December 31,
(in thousands except per share data)

	19X3	19X2	19X1
Sales	$290,599	$273,315	$242,836
Less cost of goods sold	135,889	128,915	115,633
Gross profit	154,710	144,400	127,203
Operating expenses	129,955	119,278	103,097
Earnings before income taxes	24,755	25,122	24,106
Income taxes	11,165	11,169	10,836
Net income	$ 13,590	$ 13,953	$ 13,270
Net income per share	$ 0.86	$ 0.89	$ 0.86

SMITTI ENTERPRISES
STATEMENT OF CASH FLOWS
For the Years Ended December 31,
(in thousands)

	19X3	19X2	19X1
Cash flows from operating activities:			
Net income	$ 13,590	$ 13,953	$ 13,270
Adjustments to reconcile net income to net cash provided by operating activities:			
Depreciation & amortization	10,528	9,210	7,746
Deferred taxes	2,327	1,729	1,110
Tax benefit of stock options exercised	241	170	287
(Gain) loss on sale of assets	27	(26)	(106)
(Increase) decrease in assets			
Receivables	(568)	(1)	(645)
Inventory	(2,719)	(1,015)	(1,187)
Prepaid expenses	82	(349)	149
Increase (decrease) in liabilities			
Accounts payable	(245)	3,695	1,165
Accrued expenses	2,703	(945)	2,264
Taxes payable	804	(751)	(555)
Net cash provided by operating activities	26,770	25,670	23,498
Net cash used in investing activities	(32,193)	(29,699)	(22,963)
Net cash provided by financing activities	16,377	2,321	(437)
Net increase (decrease) in cash and cash equivalents	10,954	(1,708)	98
Cash and cash equivalents at beginning of year	4,082	5,790	5,692
Cash and cash equivalents at end of year	$ 15,036	$ 4,082	$ 5,790

PLEASE ANSWER THE FOLLOWING QUESTIONS

1) Based on your review of the financial statements, what amount would you approve for the company's line of credit?

$_____

2) What interest rate premium over the prime rate would you charge?

_____%

3) What is your estimate of cash flows from operations for the year ended 19X4?

$_____

SMITTI ENTERPRISES
BALANCE SHEET
DECEMBER 31,
(in thousands)

ASSETS

	19X4	19X3	19X2	19X1
Current assets:				
Cash	$ 19,840	$ 15,036	$ 4,082	$ 5,790
Accounts receivable - net	6,196	5,051	4,483	4,482
Inventories	15,009	19,283	16,564	15,549
Prepaid expenses	714	861	943	594
Total current assets	41,759	40,231	26,072	26,415
Net property, plant and equipment and other assets	156,036	148,779	126,559	106,043
Total assets	$197,795	$189,010	$152,631	$132,458

LIABILITIES AND STOCKHOLDERS' EQUITY

Current liabilities:				
Current portion of long-term debt	$ 1,685	$ 643	$ 4,963	$ 2,266
Accounts payable	12,959	15,079	15,324	11,629
Accrued liabilities	10,248	10,326	7,623	8,568
Accrued income taxes	2,554	1,862	1,058	1,809
Total current liabilities	27,446	27,910	28,968	24,272
Non-current liabilities	54,982	58,043	34,314	32,688
Total liabilities	82,428	85,953	63,282	56,960
Stockholders' equity	115,367	103,057	89,349	75,498
Total liabilities & stockholders' equity	$197,795	$189,010	$152,631	$132,458

SMITTI ENTERPRISES
INCOME STATEMENT
For the Years Ended December 31,
(in thousands except per share data)

	19X4	19X3	19X2	19X1
Sales	$317,732	$290,599	$273,315	$242,836
Less cost of goods sold	150,567	135,889	128,915	115,633
Gross profit	167,165	154,710	144,400	127,203
Operating expenses	143,902	129,955	119,278	103,097
Earnings before income taxes	23,263	24,755	25,122	24,106
Income taxes	10,236	11,165	11,169	10,836
Net income	$ 13,027	$ 13,590	$ 13,953	$ 13,270
Net income per share	$ 0.83	$ 0.86	$ 0.89	$ 0.86

SMITTI ENTERPRISES
STATEMENT OF CASH FLOWS
For the Years Ended December 31,
(in thousands)

	19X4	19X3	19X2	19X1
Cash flows from operating activities:				
Net income	$ 13,027	$ 13,590	$ 13,953	$ 13,270
Adjustments to reconcile net income to net cash provided by operating activities:				
Depreciation & amortization	11,859	10,528	9,210	7,746
Deferred taxes	1,581	2,327	1,729	1,110
Tax benefit of stock options exercised	147	241	170	287
(Gain) loss on sale of assets	36	27	(26)	(106)
Gain on sale of securities	(241)	-	-	-
(Increase) decrease in assets				
Receivables	(1,145)	(568)	(1)	(645)
Inventory	4,274	(2,719)	(1,015)	(1,187)
Prepaid expenses	147	82	(349)	149
Increase (decrease) in liabilities				
Accounts payable	(2,120)	(245)	3,695	1,165
Accrued expenses	(78)	2,703	(945)	2,264
Taxes payable	692	804	(751)	(555)
Net cash provided by operating activities	28,179	26,770	25,670	23,498
Net cash used in investing activities	(19,226)	(32,193)	(29,699)	(22,963)
Net cash provided by financing activities	(4,149)	16,377	2,321	(437)
Net increase (decrease) in cash and cash equivalents	4,804	10,954	(1,708)	98
Cash and cash equivalents at beginning of year	15,036	4,082	5,790	5,692
Cash and cash equivalents at end of year	$ 19,840	$ 15,036	$ 4,082	$ 5,790

PLEASE ANSWER THE FOLLOWING QUESTION

1) What is your estimate of cash flows from operations for the year ended 19X5?

$_____

DEMOGRAPHIC INFORMATION

1) Please specify additional information you would require in making this type of decision.

_____

_____

_____

2) Is the analysis of cash flows from operations important in determining loan decisions at your bank?

_____ Yes _____ No

3) What is your title at the bank? _____

4) How many years have you served in this position? _____ Years

5) How many years have you been involved in banking? _____ Years

6) What is the highest educational level that you have completed?

_____ High School _____ Bachelors degree
_____ Masters degree _____ Graduate work beyond mas' ~s degree

7) Please indicate if you have any of the following certifications.

_____ Certified Public Accountant _____ Certified Managerial Accountant
_____ Certified Financial Analyst _____ Certified Financial Planner

8) Do you have an industry specialization?

_____ No _____ Yes If yes, in what industry? _____

9) What is the approximate size of your bank in terms of assets?

_____ under $25,000,000 _____ $25,000,000 to $50,000,000
_____ $51,000,000 to $100,000,000 _____ $101,000,000 to $500,000,000
_____ $501,000,000 to $1,000,000,000 _____ above $1,000,000,000

10) What is the average loan size that you normally recommend?

_____ under $50,000 _____ $50,000 to $100,000
_____ $100,001 to $200,000 _____ $200,001 to $400,000
_____ above $400,000

11) In the bank for which you work, are loans approved by yourself or by committee? _____ yourself
_____ committee
_____ other (please specify)

DAVID W. CORNELL, CPA, CMA, MBA

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(504) 286-6432 (Office)
(504) 484-6461 (Home)

ACADEMIC CREDENTIALS:

Accounting Doctoral student
Louisiana State University
Anticipated graduation date, May 1989

Masters of Business Administration
Eastern Kentucky University, August 1985

Bachelor of Science in Accounting
University of Kentucky, May 1978

TEACHING EXPERIENCE:

University of New Orleans (visiting professor)
First Intermediate
Principles of Accounting

Louisiana State University
First Intermediate
Managerial Accounting

ACCOUNTING WORK EXPERIENCE:

1981 - 1984 Jerrico, Inc. -- Lexington, Kentucky
Manager of Corporate Reporting
Responsibilities included:

- Supervision and review of all phases of production of annual and quarterly reports to shareholders
- Writing and technical review of filings with the Securities and Exchange Commission
- Preparation and review of monthly financial reports
- Preparation of annual master budget from submitted corporate budgets in addition to the preparation and maintenance of the annual general and administrative expense budgets

1978 - Coopers & Lybrand -- Lexington, Kentucky
1981 Staff Accountant
Responsibilities included:

- Completion of all phases of audit, including preparation of financial statements and report
- Preparation of both corporate and individual tax returns

PROFESSIONAL CERTIFICATIONS:

Certified as a Public Accountant -- September 1980
Certified as a Managerial Accountant -- October 1982

PROFESSIONAL ASSOCIATIONS:

American Accounting Association
American Institute of Certified Public Accountants
Kentucky Society of Certified Public Accountants
Institute of Management Accountants

DOCTORAL EXAMINATION AND DISSERTATION REPORT

Candidate: David W. Cornell

Major Field: Accounting

Title of Dissertation: THE IMPACT OF ALTERNATIVE PRESENTATIONS OF CASH FLOWS FROM OPERATIONS ON THE RELEVANCE OF FUNDS FLOW INFORMATION

Approved:

Major Professor and Chairman

Dean of the Graduate School

EXAMINING COMMITTEE:

Date of Examination:

April 17, 1989