Spring 1997

The incremental information content of the cash and cash equivalents definition of funds

Hugh Samuel Riner Jr.
Louisiana Tech University

INFORMATION TO USERS

This manuscript has been reproduced from the microfilm master. UMI films the text directly from the original or copy submitted. Thus, some thesis and dissertation copies are in typewriter face, while others may be from any type of computer printer.

The quality of this reproduction is dependent upon the quality of the copy submitted. Broken or indistinct print, colored or poor quality illustrations and photographs, print bleedthrough, substandard margins, and improper alignment can adversely affect reproduction.

In the unlikely event that the author did not send UMI a complete manuscript and there are missing pages, these will be noted. Also, if unauthorized copyright material had to be removed, a note will indicate the deletion.

Oversize materials (e.g., maps, drawings, charts) are reproduced by sectioning the original, beginning at the upper left-hand corner and continuing from left to right in equal sections with small overlaps. Each original is also photographed in one exposure and is included in reduced form at the back of the book.

Photographs included in the original manuscript have been reproduced xerographically in this copy. Higher quality 6" x 9" black and white photographic prints are available for any photographs or illustrations appearing in this copy for an additional charge. Contact UMI directly to order.

UMI

A Bell & Howell Information Company
300 North Zeeb Road, Ann Arbor MI 48106-1346 USA
313/761-4700 800/521-0600

THE INCREMENTAL INFORMATION CONTENT OF THE CASH AND CASH EQUIVALENTS DEFINITION OF FUNDS

by

H. Sam Riner, Jr., B.B.A., M.B.A., C.P.A.

A dissertation presented in partial fulfillment
of the requirements for the degree
Doctor of Business Administration

COLLEGE OF ADMINISTRATION AND BUSINESS
LOUISIANA TECH UNIVERSITY

May 1997

LOUISIANA TECH UNIVERSITY

THE GRADUATE SCHOOL

May 10, 1997
Date

We hereby recommend that the thesis prepared under our supervision by H. Sam Riner, Jr.

entitled The Incremental Information Content of the Cash and Cash Equivalents Definition of Funds

be accepted in partial fulfillment of the requirements for the Degree of Doctor of Business Administration

Supervisor of Thesis Research

Head of Department

Accounting
Department

Recommendation concurred in:

Advisory Committee

Approved:

Director of Graduate Studies

Dean of the College

Approved:

Dean of Graduate School

GS Form 13
8/96

ABSTRACT

The purpose of this study was to attempt to determine the incremental information content of the cash and cash equivalents definition of funds. The cash and cash equivalents definition of funds is the mandated definition of funds for use in the preparation of a statement of cash flows. Prior to 1988, firms were able to use alternative definitions of funds; working capital was the most widely-used alternative definition.

In order to determine whether the cash and cash equivalents definition of funds has incremental information content, event analysis methodology was utilized to compare the market reaction to the release of financial statements by a sample of firms using the cash and cash equivalents definition with the market reaction to the release of financial statements of a sample of firms using the working capital definition of funds. The tests were conducted over the sample years from 1983 to 1987, and market reaction was measured in terms of both excess stock returns and excess trading volume. Trading volume was measured in two different ways: shares traded and percentage of outstanding shares traded.

The results of this study revealed that there was generally no significant market reaction measured as excess returns at the release of either sample's financial statements. When the market reaction was measured in volume, the results were

mixed. When volume was measured in shares traded, excess volume on the day before the financial statements were filed with the SEC for the cash and cash equivalents sample statistically differed from zero at the .10 level (or better) for all five years of the study. The same result did not occur in the working capital sample tests nor did the results repeat in the cash and cash equivalents sample when volume was measured as a percentage of outstanding shares traded. These results may have occurred because of the greater scrutiny applied to larger firms and the heavier weighting given to them when excess volume is measured in shares.

TABLE OF CONTENTS

LIST OF TABLES

ACKNOWLEDGMENTS

The author wishes to thank his committee members. Dr. Thomas J. Phillips, Jr., my committee chairman, stuck with me and encouraged me throughout the dissertation process. The other committee members, Dr. Roger M. Shelor and Dr. James Robert Michael, provided valuable assistance.

I owe Dr. Bob R. Owens a debt of gratitude that I can never repay. His wisdom and help will never be forgotten. Thanks to Margaret Dunn for her assistance with the manuscript. Thanks to Shirley Wise for being an indispensable source of information and a caring listener. I also wish to acknowledge a true friend, Dr. James A. Connell, Jr., for his constant encouragement.

My wife, Deborah, can never be thanked enough for her unflinching faith and pride in me. My daughter, Rachel, forgave me when I could not spend time with her. Her love for me was and is an inspiration.

CHAPTER I

INTRODUCTION

The Financial Accounting Standards Board (FASB) issued its Statement of Financial Accounting Concepts No. 1 (SFAC No. 1), Objectives of Financial Reporting by Business Enterprises, in 1978. The board defined an important objective of financial reporting as the provision of "information to help present and potential investors and creditors and other users in assessing the amounts, timing, and uncertainty of prospective cash receipts." Further, the FASB maintained that the "prospects for those cash receipts are affected by an enterprise's ability to generate enough cash to meet its obligations when due and its other cash operating needs." It also maintained that investors' and creditors' perceptions about that ability could influence market prices of the entity's securities.

The FASB issued its Statement of Financial Accounting Concepts No. 5 (SFAC No. 5), Recognition and Measurement in Financial Statements of Business Enterprises, in 1984. It had concluded that financial statements constituted the principal means of communicating financial information to those outside an entity and that a full set of financial statements should show cash flows for the reporting period.

The accounting profession has increased its support for that position since then. Some accountants have expressed the belief that traditional accrual accounting numbers obscure evidence of financial difficulties or impending business failure (Koh and Collins, 1987).

The FASB issued its Statement of Financial Accounting Standards No. 95 (FASB Statement No. 95), Statement of Cash Flows, in November of 1987. FASB Statement No. 95 replaced the funds statement then in use--the statement of changes in financial position--with the statement of cash flows.

The statement of cash flows presently defines funds as *cash and cash equivalents*. The FASB had advocated the mandatory use of the *cash and cash equivalents* definition since 1978 (FASB SFAC No. 1, 1978). FASB Statement No. 95 also changed the format of the funds statement by requiring a functional classification of cash flows using operating, financing, and investing categories. These changes greatly reduced the choices available for the definition of funds and reporting format.

Many, including the American Institute of Certified Public Accountants (AICPA), the Financial Executives Institute (FEI), and the Securities and Exchange Commission (SEC) (Koh and Collins, 1987), welcomed the changes mandated by the FASB. A 1984 study sponsored by the FEI had concluded that all groups of users preferred a cash-based definition of funds (Seed, 1984). This perceived demand for cash-related data caused many companies to change the focus of their statements of

changes in financial position from that of explaining what happened to working capital to one which supposedly described cash flows.

The FASB had indicated that a statement of cash flows served the purpose of assisting investors and creditors in determining the liquidity, financial flexibility, and solvency of an entity. Specifically, this information should serve in assessing the ability of a firm to generate future cash flows, meet dividend and debt obligations, and finance replacement and expansion of productive capacity (FASB SFAC No. 1, 1978).

Statement of the Problem

No one knows whether the incremental information content associated with the cash and cash equivalents definition of funds exceeds or falls short of that associated with the working capital definition of funds. This study uses the generally accepted definition of incremental information content as a significant difference in either abnormal stock returns or trading volume. The relevant period for this study consists of the three days before and after the release of a firm's annual financial statements plus the release date.

Purpose of the Study

This study attempts to determine the incremental information content of statements of changes in financial position for companies using the cash and cash equivalents definition of funds.

Hypothesis

This study tests whether there is incremental information contained in a funds statement prepared using the cash and cash equivalents definition of funds when compared to a funds statement prepared using an alternative (no longer applicable) definition of funds.

Sources of Data

The data for this study consist of firm stock and financial statement information gathered from the Work-Load Teleprocessing Display System (WRKD) of the SEC, the Center for Research in Security Prices (CRSP), and Compustat files.

Methodology

Beaver and Dukes (1972) defined information as a change in expectations about the outcome of an event. A firm's cash flow statement information content will lead to a change in investors' assessments of the probability distribution of future returns. Those assessments, in turn, will result in a change in the equilibrium value of the current market price. Specification of the direction or the magnitude of the price change requires knowledge of the expectation model(s) of investors. However, price changes likely will exhibit greater variability on the release date for the cash flow statement than at other times during the year if the statement has information content. Another definition of information states that in addition to a change in expectations, the magnitude of the change must induce a change in the decision maker's behavior. The statement of cash flows will possess information value per this definition only if it alters

the optimal holding of that firm's stock in the portfolios of individual investors. The optimal adjustment might result in an investor's buying more shares or selling some or all of the shares already held. In either event, the shift in portfolio position would affect the volume of shares traded. If statements of cash flow have information content, the number of shares traded likely will increase when the statements are released.

The incremental information value of funds defined as cash and cash equivalents should result in either greater variability of price changes or a higher number of shares traded for those firms than for firms using an alternative funds definition. The hypothesized volume relationship coincides with the Beaver and Dukes (1972) theory that volume reflects a lack of consensus induced by the new information.

This study measures incremental information value as the difference between stock price (and volume) changes for cash-and-cash-equivalent fund firms and the respective changes for firms using an alternative definition of funds. The tests cover the period surrounding the release of the firm's statement of changes in financial position.

Returns Tests

Stock return data for this study covers the five-year period immediately preceding the enactment of FASB Number 95. The study uses the market model in estimating returns of each firm at the event date, defined as the release date of the statement of changes in financial position.

Firm assignments between the two samples depend upon whether the firms use the cash and cash equivalents fund definition to prepare the statement of changes in financial position (The models calculate residuals for each of the firms in the two samples). If funds statements using the cash and cash equivalents definition contain incremental information, the residual of the sample firm should exceed the residual of a sample firm using an alternative definition of funds. The two samples are matched on the basis of size, risk, and industry to control for these effects.

Volume Tests

Volume tests on the two samples employ the same basic methodology as that described for the returns tests. The volume tests treat the volume variable for a sample firm in one of two ways: (1) the number of a firm's shares traded on a particular day, and (2) the percentage of that firm's outstanding shares traded on a particular day. The residual for a sample firm is calculated by comparing the actual volume variable for the event date to an estimated value obtained from a regression analysis of the period preceding the event date. If a funds statement contains incremental information, the residual for a cash and cash equivalents sample firm should exceed the residual for an alternative definition sample firm.

Pre-Selection Bias

Firms adopting a particular definition of funds may have done so because of information production costs, but they may also have done so for reasons peculiar to their risk or industry classification. The outlined tests controlled for this problem.

Significance of the Study

Implementing mandatory changes in generally accepted accounting principles has entailed a significant amount of time, expense, and effort. The standard-setting process will have attained some of its goals in this case if it results in the transmission of additional information to financial statement users.

Organization of the Study

Chapter II presents a discussion of the literature that summarizes the historical development of funds statements. It examines arguments for and against various ways that funds have been defined and criticisms of the statement of cash flows. It reviews empirical research on the statement of cash flows and the association between cash flows and security returns and volume, as well as empirical research on the distinction between cash flow, working capital, and earnings.

Chapter III presents the procedures used in developing the models for this study. It includes a description of the models used and the components of those models. It also discusses data analysis.

Chapter IV discusses the analyses performed on the empirical research findings. Chapter V presents a summary of the study, a discussion of the conclusions resulting from the findings, and limitations of the study. It also suggests areas for possible future research.

CHAPTER II

LITERATURE REVIEW

Historical Overview

Business enterprises have prepared funds statements for well over a hundred years. In the 1800s, they based funds statements on the cash concept of funds. Preparers expanded the definition of funds so that by the 1900s, funds statements used various concepts of funds that included cash, current assets, and working capital (Rosen and DeCoster, 1969).

By the 1920s, the accounting profession primarily defined funds as working capital. However, this predominance did not translate into a concerted effort to make working capital the mandatory definition of funds. Many writers argued in favor of alternative concepts of funds to help meet the different needs of users of funds statements (Rosen and DeCoster, 1969).

Prior to 1971 the required basic financial statement package did not include a funds statement, but users of financial information had long recognized the need for such a statement. Horngren's 1955 survey, for example, had found that many financial analysts prepared a funds statement themselves before attempting to evaluate the basic financial statements.

Studies by Mason (1961) and Anton (1962) called attention to the perceived need for--and contributed to the development of--the funds statement. Mason based his "Cash Flow" Analysis and the Funds Statement, published by the American Institute of Certified Public Accountants (AICPA), on data from the 1959 annual reports of the 600 industrial firms included in Accounting Trends and Techniques (AICPA, 1960). He found that 32 percent of these companies presented a funds statement with considerable variations in funds reporting.

Mason (1961) concluded that the funds statement should become a major financial statement presented in all annual reports of corporations. His study represented the AICPA's first major contribution on funds statements (Phillips, 1984).

Anton's 1962 study, titled Accounting for the Flow of Funds, presented an in-depth analysis of the funds concept. He also discussed a number of variations in the form and content of the funds statement that he had found during his study of the annual reports of approximately 200 companies.

Although Anton (1962) favored flexibility, he also advocated some degree of standardization. The increased interest in the funds statement that his work elicited constituted Anton's major contribution. He wanted both practitioners and academics to realize that the funds statement had not fully developed to maturity (Phillips, 1984).

In 1963, the Accounting Principles Board (APB) issued Opinion No. 3, The Source and Application of Funds. In the pronouncement, the APB made general comments regarding the funds statement but did not make its inclusion mandatory. Instead, the APB concluded that the funds statement should be optional and presented

as supplementary information, if included, and beyond the required scope of the auditor's report. The board recommended that, if prepared, the funds statement should utilize an "all financial resources" concept with all significant transactions included, even if the funds balance did not change.

Many observers regarded Opinion No. 3 as a step in the right direction. Some practitioners and academics--including Leonard Spacek, a well-known member of the APB--favored the mandatory inclusion of the funds statement. Others criticized the APB for not abolishing the practice of presenting cash-flow information without reference to the funds statement, a problem area that Mason (1961) had addressed earlier (Phillips, 1984).

In 1971, the APB issued Opinion No. 19, Reporting Changes in Financial Position. The opinion required that corporate annual reports include a funds statement, called the statement of changes in financial position. Opinion No. 19 did not dictate one particular definition of funds. Rather, it allowed each preparer to choose one of the following definitions: cash, cash and temporary investments combined, quick assets, and working capital. The APB required that the statement include disclosure of working capital or cash provided by operations and that it separately report the effects of extraordinary items (Koh and Collins, 1987).

Opinion No. 19 also contained some guidance on the format and content of the new funds statement. The statement of changes in financial position could appear in a balanced format or in a format showing the net change in financial position according to the chosen definition of funds. Additionally, the pronouncement required that the

statement disclose net changes in each element of working capital, noncurrent assets, noncurrent liabilities, and stockholders' equity. Opinion No. 19 also reaffirmed the previous opposition of the APB to the presentation of working capital or cash-flow data without reference to an associated funds statement.

Two events that occurred prior to the issuance of Opinion No. 19 blunted its impact. First, the SEC had passed a requirement for including a statement of changes in financial position in financial reports for years ending on or after December 31, 1970. Second, the New York Stock Exchange had passed a similar requirement that companies include an audited statement of changes in financial position (Phillips, 1984).

In 1973, the SEC issued Accounting Series Release No. 142. The release ordered the exclusion of per-share data other than amounts relating to net income, net assets, and dividends. The SEC had felt compelled to issue the release because many firms had continued to ignore the APB's suggested avoidance of presenting working capital or cash-flow data without reference to the funds statement (Phillips, 1984).

In 1978, the Financial Executives Institute published a study, Inflation: Its Impact on Financial Reporting (Seed, 1978), that recommended certain changes in the statement of changes in financial position. The institute recommended: (1) using the cash definition of funds rather than the working capital definition, (2) differentiating between internally and externally generated funds, and (3) dividing capital expenditures into categories.

Loyd C. Heath, one of the most outspoken critics of the statement of changes in financial position, published a monograph (1978a) that presented a broad and detailed study of the statement. In addition to providing a summary of the historical development of funds statements, as well as a comprehensive bibliography, Heath disparaged APB Opinion No. 19. He sharply criticized the APB for not clearly defining the concept of funds. In Heath's words, "the financial statement user as well as the accountant himself are then left to wonder what this elusive, enigmatic, and confusing thing called 'funds' really is!" (p.95).

Heath (1978a) also criticized APB Opinion No. 19 for including funds from operations as a source of funds in the statement of changes in financial position. He contended that, although measured in money, profit did not necessarily translate into a current asset. He also pointed to the confusion over the relationship between net income and the funds statement.

In a subsequent article, Heath (1978b) discounted the definition aspect of the problem with the funds statement. Instead, he insisted that the confusion over the meaning of funds served as a symptom of a more basic problem: confusion over the funds statement's objectives.

Heath (1978b) contended that the solution did not lie in redefining funds but in doing away with the statement of changes in financial position. He characterized the objectives for the funds statement set forth in APB Opinion No. 19 as "unclear, misleading, and unattainable." Heath argued that replacing the funds statement with three other statements would better meet the financial reporting objectives not achieved

by the balance sheet and income statement. He suggested: (1) a statement of cash receipts and payments, (2) a statement of financing activities, and (3) a statement of investing activities.

Heath (1978b) asserted that the most relevant objective of a funds statement should be to report changes in some measure of debt-paying ability. He rejected working capital as that measure in favor of cash. Heath agreed with Dewing (1953) who had argued that in some calamitous events, some entities could not sell their inventories and continue operations. This would render working capital a poor indicator of debt-paying ability.

Heath (1978b) also cited Howard and Upton (1953) in his argument against a working capital measure in favor of a cash measure. Howard and Upton defined the real problem in judging a business's short term financial position as ascertaining

> as closely as possible the future cash-generating ability of the business in relation to the claims upon cash that will have to be met within the near future. . . . It matters not what condition prevails at a given time; the important thing is whether the business in performing its regular operating functions can continue to generate cash in sufficient quantity and in satisfactory time to meet all operating and financial obligations. (p. 135)

Coughlan (1964) had also influenced Heath's opposition to working capital as a measure of debt-paying ability. Coughlan had observed that working capital did not constitute a pool of resources available to short-term creditors. Coughlan wrote that "no one has drawn a check on working capital. Working capital has no bearing on short-term credit standing and it is only useful for whatever implications it may have for cash and cash flow" (p.25).

Heath reiterated his rejection of working capital in a 1980 article. Heath warned that accounting practices developed under conditions existing at one point in time may so influence accountants' thought processes that they "come to be regarded as natural or inevitable" (p. 55). Heath wrote that such practices may prevent objective reexamination and reevaluation when circumstances and conditions change, and that the "practice of classifying assets and liabilities as current or noncurrent to determine the difference between them is one such practice" (p. 55).

Heath (1978b) favored the direct method for computing cash provided by operations within his proposed statement of cash receipts and payments. In his opinion calculating cash provided by operations by the indirect method "is pernicious because it is almost certain to continue to confuse financial statement users by reinforcing the incredible belief that profits and depreciation are sources of cash" (p. 99).

Ultimately, a single statement, the statement of cash flows, replaced the statement of changes in financial position. However, the three-part division of the statement of cash flows into operating, investing, and financing activities now corresponds in many respects with the three separate statements proposed by Heath (1978b).

The FASB Conceptual Framework project focused attention on the need for cash-flow information. After issuing Statement of Financial Accounting Concepts No. 1, Objectives of Financial Reporting by Business Enterprises (1978), the FASB began active work on issues related to cash-flow reporting. The board issued a discussion memorandum entitled "An Analysis of Issues Related to Reporting Funds Flows,

Liquidity, and Financial Flexibility" (1980), followed by an exposure draft, Reporting Income, Cash Flows, and Financial Position of Business Enterprises (1981). The exposure draft proposed cash, rather than working capital, as the basis for funds statements.

After considering the responses to the exposure draft, the FASB decided not to issue a final statement. Instead, it chose to consider the subject in conjunction with its study of recognition and measurement concepts (Koh and Collins, 1987).

In December of 1984, the FASB issued its Statement of Financial Accounting Concepts No. 5, Recognition and Measurement in Financial Statements of Business Enterprises. This statement gave general guidance on a statement of cash flows. In April of 1985, after considering the results of a study by the Financial Executive Research Foundation, the FASB added a project on cash-flow reporting to its agenda. This project produced an exposure draft, Statement of Cash Flows, in 1986 (Koh and Collins, 1987).

Many companies responded to the perceived need for cash-flow information. An American Institute of Certified Public Accountants (AICPA) survey in Accounting Trends and Techniques found that only 7 percent of the companies surveyed in 1978 reported on a cash basis (1979). By 1984, 59 percent of the reporting companies used the cash basis (AICPA Accounting Trends and Techniques, 1985).

While many companies switched to the cash basis, many others continued to use the working capital definition of funds. With the adoption of FASB Statement No. 95,

these companies must not only report on a cash basis for the current year, but they also must restate prior years' statements on a cash basis for comparative purposes.

Criticisms of the Statement

Many practitioners view FASB Statement No. 95 as a tremendous improvement. However, some reservations persist, and the board has made no changes to address the criticisms. The following paragraphs list and discuss their concerns.

1. The inability to assess financial flexibility and liquidity. Some have suggested presenting cash flows in a manner that would separate fixed and variable components of operating cash outflows. Some practitioners and financial statement users have argued the need for such disclosures in order to properly assess the timing and amounts of future cash flows. They believe that future economic conditions and specific managerial actions will affect variable cash outflows differently from fixed cash outflows.

2. Impaired comparability. Allowing two reporting alternatives for presenting operating cash flows may impair comparability. The indirect format, basically a mechanical reconciliation, does not show sources and uses of operating cash flows; the direct format, however, reports real activities--such as operating cash collections and payments--instead of abstractions (Bracken and Volkan, 1988).

By allowing the use of the indirect method rather than requiring the direct method, FASB Statement No. 95 created considerable controversy. While the FASB recommended the use of the direct format, it felt that firms should have an opportunity

to learn and experiment with the indirect method first. The FASB felt that the direct method eventually would become standard practice. The indirect method is much less intuitive and requires a higher level of sophistication than does the direct method (Epstein and Pava, 1992).

3. The lack of timeliness and quarterly reporting. Bracken and Volkan (1988) asserted that the costs associated with making untimely investment and credit decisions had increased.

4. No segment reporting and assessment of future cash flows (Bracken and Volkan, 1988).

5. Difficulty of classifying certain transactions by activity. One study by Thompson and Bitter (1993) found that firms entering into similar transactions (such as selling part of a business) classified the transactions by activity differently. Some firms classified the sale of a subsidiary's stock as an investing activity, and some firms classified the sale as a financing activity. Classification depended on how the firm viewed the transaction.

The rigidly standardized format of FASB Statement No. 95 has not achieved the level of comparability desired because of the use of noncomparable practices in the preparation of the statement of cash flows (Thompson and Bitter, 1993). Users of the statement of cash flows should understand that atypical transactions may require special consideration (Smith, Whitis, and London, 1993).

Empirical Research on the Statement of Cash Flows

Epstein and Pava (1992) examined responses to a survey of New York or American Stock Exchange shareholders. They found that 51.8 percent read the statement of cash flows thoroughly (less than the percentage who read the other financial statements), an increase from the 45.9 percent of stockholders who thoroughly read these statements in 1973. The percentage of stockholders who thoroughly read the income statement decreased while the percentage of stockholders who thoroughly read the balance sheet increased over the same time period.

Additionally, Epstein and Pava (1992) found that 50.2 percent of the respondents ranked the statement of cash flows as somewhat useful in 1992, whereas only 42.1 percent of respondents had found the statement somewhat useful in 1973. The authors concluded that three primary factors contributed to making the statement of cash flows more widely understood and useful than its predecessor. FASB changes in the definition and format of the statement had led to enhanced comparability across firms; investor awareness of the importance of cash to investment decisions had grown; and the credibility of earnings had deteriorated.

Empirical Research on the Significance of Cash Flows

Empirical Research on the Association Between Accounting Data, Including Cash Flows, and Security Returns and Trading Volume

Several studies have addressed the relative association of earnings and cash flows with security returns. Ball and Brown (1968) used monthly data for a sample of

261 firms between 1946 and 1965 to evaluate the usefulness of information in annual reports. The first step in their study separated the firms in the sample according to whether a firm's change in earnings exceeded or fell below the change predicted by a naive time series regression model[1]. They used the results from this regression model to predict the following year's change in earnings[2]. Finally, they compared estimated earnings changes with actual earnings changes. If the actual change in earnings exceeded the estimated earnings change, they put the company into a portfolio with expected positive returns. If the actual change in earnings was less than the estimated earnings changes, they put the company into a portfolio with expected negative returns.

---

[1] Ball and Brown employed the following regression model for a change in earnings:

$$\Delta Ni_{jt} = \hat{a} + \hat{b}_j \Delta m_t + \epsilon_{jt},$$

where
ΔNI_{jt} equaled the change in earnings per share for the jth firm, and
Δm_t equaled the change in the average earnings per share for all firms (other than firm j) in the market.

[2] Ball and Brown computed the next year's change in earnings as follows:

$$\Delta Ni_{j,t+1} = \hat{a} + \hat{b}\Delta m_{t+1},$$

where
$\Delta NI_{j,t+1}$ equaled the predicted change in earnings per share for the jth firm during the (t+1)th time period,
$\hat{a}$ and $\hat{b}$ equaled the coefficients estimated from time series fits of the first equation to the data, and
$\Delta mt+1$ equaled the actual change in market average earnings per share during the (t+1)th time period.

Ball and Brown (1968) found an association between abnormally high returns and higher-than-predicted earnings. Furthermore, they discovered that returns appeared to adjust gradually until, by the time of the annual report, almost all of the adjustment had occurred. This implied that more timely sources captured most of the information in the annual report. They found security prices to have impounded 85 to 90 percent of the information and annual reports to have impounded the remaining 10 to 15 percent.

Alternatively, Ball and Brown (1968) obtained results from the regression model with cash flow, approximated by operating income, as income. The authors found cash flow less accurate than earnings per share in predicting the signs of stock return residuals.

Beaver (1968) conducted one of the initial studies on the association between earnings and security returns. Beaver did not design this study to test for the association of cash flow with security returns, but accounting researchers have continued to use methodologies to measure informational value.

Beaver (1968) studied investor reactions to earnings announcements to determine the information content in such announcements. He concentrated on volume and price movements of common stocks in the weeks surrounding the announcement date, hypothesizing that such movements indicate the presence of information in the announcements.

Beaver based his 1968 study on a sample of 143 firms over the 1961 through 1965 period. He defined the report period as the 17-week period surrounding an

announcement date (eight weeks before and after the week of an announcement) and the nonreport period as that portion of the 261-week study period not included in any 17-week report periods[3].

Beaver (1968) found that the mean volume during week zero of the report period exceeded the nonreport period mean by 30 percent and the mean volume in the weeks prior to the announcement by 40 percent. His results agreed strongly with the contention that earnings announcements had information content.

---

[3] Beaver based his model to capture volume movement on the following regression:

$$V_{it} = a_i + b_i V_{mt} + \epsilon_{it},$$

where
V_{it} equaled the average daily percentage of firm I's outstanding shares traded during week t, and
V_{mt} equaled the average daily percentage of all New York Stock Exchange firms' outstanding shares traded in week t.

Beaver obtained estimates of a_i and b_i from linear regressions over the nonreport period.

Beaver based his 1968 price analysis on the market model developed by Sharpe[4] (1963). The magnitude of the price changes in week zero exceeded the average during the nonreport period by 67 percent. Above-average price changes in the week immediately prior to the announcement may have reflected information leakage. Above normal activity also occurred for two weeks after the announcement, while investors evaluated the annual reports. Again, the evidence strongly suggested that earnings reports possessed informational value.

Beaver and Dukes (1972) examined the association between alternative earnings measurements and security returns. Three measures were examined: earnings as currently reported (deferral earnings), earnings before the tax deferral entries (nondeferral earnings), and cash flow. Earnings before deferral were estimated by adding the change in the balance sheet deferral account to earnings as currently reported. Cash flow was computed by adding depreciation, depletion and amortization to earnings before any tax deferral. The authors examined cash flow because of the contention by many that changes in cash flow provided a better indication of wealth

---

[4] Sharpe's market model:

$$R_{it} = a_i + b_i R_{mt} + \hat{v}_{it},$$

where
a_i represented a constant term determined by the regression,
b_i represented the computed historical beta for security I,
R_{it} measured the price change of security I during period t,
R_{mt} measured average price change during the time period t for 425 industrial New York Stock Exchange firms, and
$\hat{v}_{it}$ served as a random error term.

changes. Attempts by the accountant to measure depreciation and tax charges did not obscure cash flow (Staubus, 1965).

Beaver and Dukes' (1972) study covered 123 New York Stock Exchange firms over the period from 1963 through 1967. They employed five different expectations models in deriving their results. With respect to the three alternative accounting measures, deferral earnings had the highest degree of association with security prices; nondeferral earnings had the next highest association, and cash flows had the lowest. Deferral and nondeferral earnings exhibited pronounced differences in associations with security returns; nondeferral earnings and cash flow produced only small differences.

Patell and Kaplan (1977) based their definition of cash flow on working capital from operations and attempted to control for earnings and test for the incremental information provided by operating cash flow. The high correlation between earnings and cash flow in their study made it difficult to isolate the incremental effects of either variable. While this is not a significant study, the subject of the study was subsequently adressed by several others.

Beaver, Griffin, and Landsman (1982) performed a cross-sectional regression analysis with raw returns as the dependent variable and cash flow (Beaver and Dukes definition[5]) and earnings as independent variables. The cash-flow variable had a significant coefficient and added explanatory power to the earnings variable.

---

[5] Cash flow was computed by adding non-cash expenses to earnings before any tax deferral.

The somewhat contradictory findings in the preceding studies derived in part from the measure used for cash flow. Using factor analysis, Gombola and Ketz (1986) found that cash flow measured as net income plus depreciation correlated highly with earnings-based return ratios. However, with cash flow computed as net income plus adjustments for both current accruals and depreciation, cash flows formed a factor distinct from return ratios. These results indicated that the relative information content of unexpected cash flows and unexpected earnings may have depended on whether the measurement of operating cash flows included an adjustment for current accruals.

Barlev and Livnat (1986) investigated the relationship between statements of changes in financial position and security prices. They used path analysis, and their results indicated that the uses of funds affected the rates of return on securities. The authors also found that sources of funds had negative direct effects on rates of return, but they had an overall positive relationship with the rates of return. The indirect effects of sources of funds on security prices explained these results. They traced the indirect effects to the uses of funds which had positive relationships with rates of return.

The implications of Barlev and Livnat's (1986) study are as follows:

1. Their methodology made it possible to identify the set of financing and investing decisions that had the greatest association with security prices.

2. Assessments of the association between accounting signals and security prices should place more emphasis on the economic activities that the signal summarizes and not on the signal itself. A signal like earnings or funds from operations may have

a negative direct effect on security prices; its total positive effect should accrue from the indirect effects on a set of investment decisions by the firm.

Patell and Kaplan (1977) were unable to control for earnings in measuring the incremental information content of operating cash flow. Wilson (1987) had more success in this respect. He investigated whether the accrual and funds components of earnings had incremental information content beyond earnings.

Wilson (1987) had observed that earnings and revenues appeared in the Wall Street Journal before the annual report's release date, and he alleged that this might have affected the information content of annual reports. Wilson argued that since earnings annual reports contained both accrual and funds components, researchers could measure any incremental information in the two components directly. He further argued that contemporaneous treatment of releases would preclude direct measurement (i.e., Patell and Kaplan). To test his arguments, Wilson (1987) study measured stock returns over the nine-day period surrounding the release of annual reports in 1981 and 1982 for 300 firms; the study also measured new information about the cash and noncash components of earnings released at that time. Wilson found evidence of an association between the stock returns and the new information. This result implied that at least one of these components had information content. After controlling for earnings, he found precisely the same incremental information for the cash and noncash components. Wilson concluded from his results that, for a given amount of earnings, the market reacted more favorably to increases in cash flow and decreases in current accruals. Wilson (1987) found another relationship of vital importance to this study.

He detected information content for cash from operations, but not for working capital from operations. This finding might explain why others who used funds variables that correlated closely with earnings (e.g., working capital from operations) had not found that funds had incremental information content.

Wilson (1986) produced a follow-up to his 1987 study that was published before the original study. He investigated the incremental information content of accruals beyond cash flows. He had hypothesized about the extraction of cash and noncash component information from earnings on announcement dates. Additionally, he had linked the association between stock returns and component information at the earnings announcement to the association between stock returns and component information at the annual report's arrival at the SEC. The results confirmed Wilson's (1987) finding that the cash and total accrual components of earnings had incremental information content beyond earnings. Additionally, Wilson found that the total accrual component of earnings had information content beyond the cash component.

Rayburn (1986) also investigated the association of operating cash flow and accruals with security returns. Using time-series and naive models to estimate expectations for the years 1962 through 1982 for 175 sample firms, she obtained results that supported the association of both operating cash flow and aggregate accruals with abnormal returns. Her study defined operating cash flow as accounting earnings before

extraordinary items, plus the accrual adjustment for depreciation, the change in deferred taxes, and the change in working capital[6].

Bernard and Stober (1989) produced evidence that contradicted the findings of Wilson (1987, 1986) and Rayburn (1986). Their overall test period, from 1977 to 1984, included--but extended--Wilson's test period. They found no evidence of the simple relation observed by Wilson in his two-quarter test period. They then examined progressively more contextual models of the implications of cash flows and accruals. These models also had no success in explaining stock price behavior around the release of detailed financial statements. They concluded that either (1) too highly contextual security price reactions precluded parsimonious modeling, or (2) important uncertainties about the contents of financial statements reached resolution prior to their public release.

Atchison and Sanborn (1989) attempted to build an abrading model to test the usefulness of cash-flow information. The results of their study strengthened the contention that cash-flow data provided useful economic information to investors.

Specifically, Atchison and Sanborn (1989) tested an investment strategy of forming portfolios based on growth rates for earnings, dividends, and cash flow from operations. They first tested the impact of earnings growth alone on the investment decision, and they then added dividend and cash-flow growth data. Adding dividend

---

[6] Rayburn cautioned others not to extend her results to other measures of cash flow; since her sample consisted of large firms, she also stressed that the results might not generalize to smaller firms.

growth to earnings resulted in significant differential returns, thus indicating an incremental information benefit from dividend information. Adding cash flow to earnings growth did not result in significant differential returns. However, combining cash flow and dividend growth with earnings growth increased differential returns significantly over and above those found from dividend growth alone in the trading model. This indicated an incremental benefit from cash-flow data used in conjunction with dividend data.

Charitou and Ketz (1990) developed a cross-sectional equity valuation model to examine the incremental information content of earnings and cash flow in the marketplace. They used a sample of retail firms for the 1980 to 1983 period. Their results indicated that (1) operating earnings had valuation content beyond operating cash flows, (2) operating cash flow did not have valuation content beyond operating earnings, and (3) the components of earnings--namely operating cash flows and accruals--provided the same information in the market about future expected cash flows. With earnings in the model, no other asset flow measure had valuation content; with cash flow in the model, the various accruals did have valuation content. The authors concluded that cash flow alone provided no valuation content.

With regard to the information of aggregate accruals beyond operating cash flow, Charitou and Ketz (1990) produced results similar to those provided by Wilson (1987, 1986) and Rayburn (1986). Their results also showed that the components of the aggregate accruals (e.g., short-term and long-term accruals) had incremental

information content beyond cash flows. Wilson and Rayburn had provided evidence with respect to short-term accruals only.

Many of the above studies examined different time periods and different samples. They used a variety of different methods and minor variations in definitions of flow measures, yet they generated generally similar conclusions; cash flow differed statistically from income and working capital provided by operations.

Barlev and Livnat (1990) studied the information content of funds statement ratios. Their empirical results indicated that funds statement ratios had incremental information content. Moreover, funds statement ratios seemed to correlate more closely with security returns than traditional ratios based on the balance sheet and income statement.

Livnat and Zarowin (1990) examined whether components of operating, financing, and investing cash flows associated differentially with annual security returns. Their studies indicated that disaggregation of net income into cash flow from operations and accruals did not contribute significantly to the association with security returns beyond the contribution of net income alone. However, further disaggregation of financing and operating cash flows into their components significantly improved the degree of association, as predicted by accounting theory. In contrast, they found no evidence of differential associations across components of investing cash flows.

Abarbanell and Bernard (1992) examined whether security analysts underreacted to earnings information and whether any such behavior could explain stock price

movements. They concluded that security analysts' behavior, at best, provided only a partial explanation for stock price movements.

Kim and Verrecchia (1994) examined whether the public disclosure of accounting data provided the most capable market participants and traders with private information through their information processing activities. They could process that information before other market participants who did not follow a particular firm as closely. This created information asymmetry between the traders and the other market participants. They had expected increased trading at the time of disclosure, and their study found that volume increased.

Dechow (1994) investigated circumstances of accruals predicting improved earnings and firm performance, as reflected in stock returns. She concluded that over short measurement intervals, earnings associated more strongly with stock returns than with cash flows.

Dechow also concluded that earnings had a higher association with stock returns than cash flows for firms experiencing large changes in working capital requirements, investment activities, and financing activities. Under those conditions, cash flows had more severe timing and matching problems and less likelihood of reflecting firm performance.

Clubb (1995), who studied the association between accounting information and security returns in the United Kingdom, had results closely resembling those of Dechow (1994). Clubb concluded that accounting earnings data possessed information content

beyond that supplied by cash-flow data alone. He also found only weak support for the usefulness of cash-flow data to investors.

Ali and Pope (1995) investigated the incremental information content of three accounting performance measures for United Kingdom firms: earnings, funds flow, and cash flow. They concluded that all three performance measures had explanatory power for stock returns. They also concluded that earnings, funds flow, and cash flow had incremental information content.

Bamber and Cheon (1995) examined the extent to which accounting data announcements generated heavy trading but minimal price reaction, or vice versa. They concluded that trading volume reacted more than prices when an announcement generated differential belief revisions among individual investors. They also observed differential reactions relative to announcement-specific characteristics.

Sloan (1996) investigated whether stock prices reflected information contained in the accrual and cash-flow components of current earnings. Sloan concluded that the persistence of earnings performance depended on the relative magnitudes of the cash and accrual components of earnings. Additionally, he concluded that stock prices acted as if investors had failed to identify correctly the different properties of these two earnings components.

Bamber, Barron, and Stober (1996) investigated the association between disagreement coincident with earnings announcements and investors' trading decisions. They concluded that three different aspects of investor disagreement played a role in explaining trading volume around earnings announcements: dispersion in prior beliefs,

or expectations before the earnings announcement; divergence in beliefs, or changes in the dispersion in beliefs; and belief jumbling, or investors' beliefs changing positions relative to each other.

Jeong and Sen (1996) provided a trade model whereby investors of differential ability diversely interpreted information announcements, leading to more trading and less liquidity around the announcements. Jeong and Sen concluded that investors differed in interpreting the magnitude and permanence of any earnings surprise. These differences caused investors to arrive at different firm values, even though they used the same valuation model and announcement information. The different beliefs induced trading among investors.

Table 1 summarizes in chronological order the above-cited empirical research on the association between cash flow and security returns.

Table 1

Empirical Research on the Association Between Accounting Data and Security Returns and Volume

AUTHOR (DATE)	SUBJECT	RESULTS
Ball and Brown (1968)	Usefulness of information in annual reports	Cash flow not as successful as e.p.s. in predicting signs of stock return residuals
Beaver (1968)	Investor reactions to earnings announcements	Earnings announcements possess informational value
Beaver and Dukes (1972)	Association of alternative accounting methods of measuring earnings with security returns	Deferral earnings has highest degree of association with security returns, followed by nondeferral earnings and cash flow
Patell and Kaplan (1977)	Incremental information provided by operating cash flow	High correlation between earnings and cash flow made isolation of cash flow's incremental effects difficult
Beaver, Griffin, and Landsman (1982)	Cross-sectional study of cash flow's association with raw returns	Coefficient of cash-flow variable was significant
Gombola and Ketz (1986)	Factor analysis of cash flows and earnings-based return ratios	Cash flows computed as net income plus adjustments for current accruals and depreciation formed factor distinct from return ratios

Table 1 (continued)

AUTHOR (DATE)	SUBJECT	RESULTS
Barlev and Livnat (1986)	Path analysis of relationship between statement of changes in financial position and security prices	Uses of funds affect rates of return on securities
Wilson (1987)	Whether accrual and funds components have information content beyond earnings	Market reacts more favorably to increases in cash flow and decreases in current accruals
Wilson (1986)	Incremental information content of accruals beyond cash flows	Cash and total accrual components of earnings have information content beyond earnings
Rayburn (1986)	Association of operating cash flow and accruals with security returns	Results support the association of both operating cash flow and aggregate accruals with abnormal returns
Bernard and Stober (1989)	The amount of information in cash flows and accruals	Findings are contradictory to those of Wilson (1987b, 1986a) and Rayburn (1986)
Atchison and Sanborn (1989)	Usefulness of cash-flow information in a trading model	Strengthened contention that cash-flow data provides useful economic information to investors
Charitou and Ketz (1990)	Cross-sectional equity evaluation model used to evaluate information content of earnings and cash flow	Operating cash flow does not have valuation content beyond operating earnings

Table 1 (continued)

AUTHOR (DATE)	SUBJECT	RESULTS
Barlev and Livnat (1990)	Information content of funds statement ratios	Funds statement ratios more highly correlated with security returns than traditional earning-based ratios
Abarbanell and Bernard (1992)	Impact of security analysts' to underreaction earnings announcements on stock returns	Underreaction of security analysts to earnings announcements has little or no effect on stock returns
Kim and Verrecchia (1994)	Whether traders gain private information from disclosure of accounting data	Typical increase in trading volume at time of disclosure is consistent with theory
Dechow (1994)	Whether accruals have information content beyond cash flows, as reflected in stock prices	For short measurement intervals, earnings are more strongly associated with stock returns than cash flows
Clubb (1995)	Association between accounting information and security returns in the United Kingdom	Accounting earnings data possesses information content beyond that supplied by cash-flow data alone. Weak support for the usefulness of cash-flow data to investors
Ali and Pope (1995)	Incremental information content of earnings, funds flow, and cash-flow data found in accounting data of United Kingdom firms	All three performance measures have explanatory power for stock returns and possess incremental information content

Table 1 (continued)

AUTHOR (DATE)	SUBJECT	RESULTS
Bamber and Cheon (1995)	Extent to which accounting data announcements generate heavier trading but minimal price reaction, or vice versa	Trading volume is likely to be high relative to price reaction when an announcement generates differential belief revisions among investors
Sloan (1996)	Whether stock prices reflect information contained in the accrual and cash components of earnings	Persistence of earnings depends on the relative magnitude of each. Investors fail to identify correctly the different properties of each
Bamber, Barron, and Stober (1996)	Association between disagreement coincident with earnings announcements and investors' trading decisions	Dispersion in prior beliefs, divergence in beliefs, and belief jumbling each play an incremental role in explaining trading volume around earnings announcements
Jeong and Sen (1996)	Why trading volume is affected by information announcements	Investors differ in interpreting how much of any earnings surprise is permanent or transitory, leading to differential firm valuations, and inducing trading among investors

Empirical Research on the Distinction Between Cash Flow, Working Capital, and Earnings

Bowen, Burgstahler, and Daley (1986) examined relationships between earnings and various cash-flow measures. They found relatively high correlations between working capital from operations and earnings measured as first differences or percentage changes; they found relatively low parallel correlations between cash flow and earnings. They found similarities between earnings and working capital from operations--as well as substantial differences between cash flow and earnings--for most companies.

Thode, Drtina, and Largay (1986) studied the extent to which income from continuing operations and working capital from operations proxied cash flow from operations for the Standard and Poor's 400 Industrials. They concluded that cash flow from operations did not systematically relate to other conventional performance measures.

Finger (1994) found that earnings significantly predicted future earnings for most of her sample firms and that cash flow predicted short-term cash flow better than did earnings. Her evidence indicated that earnings helped predict future earnings and cash flow, but they did not support the FASB (1978) statement that earnings served as a better predictor of cash flow than did cash flow.

Lorek and Willinger (1996) examined the predictive capability of cash-flow data. Their results supported the FASB position that the inclusion of earnings and accrual accounting data could improve cash-flow prediction.

Rationales for the Difference Between Cash Flow, Working Capital, and Earnings

Hawkins (1987) presented an argument for cash-flow measures possibly having incremental information content. He stated that various factors, including generally accepted accounting principles promulgated in the 1960s and 1970s, had the effect of moving accrual income further away from operational cash flow. The requirement of accrual accounting for pensions, interperiod income tax allocation, recognition and amortization of combination goodwill, and accrual of undistributed subsidiary earnings all could have affected on reporting entities.

Franz and Thies (1988) presented other factors which they believed differentiated cash flow, working capital, and income from operations. They suggested that periods of inflation and business expansion or contraction could affect the difference between such measures. The authors found that while cash flow and income from operations grossly correlated, they progressively diverged over time. Their findings suggested that Opinion No. 19 may have resulted in a misleading heterogeneity of funds-flow data, cross-sectionally among companies which adopted different definitions, as well as intemporally for companies which changed the definition employed over time. Opinion No. 19 had allowed considerable discretion in the definition of accounting flow measures for the statement of changes in financial position; they believed that it addressed this problem by requiring more--and more uniform--disclosure of cash-flow data.

Other Empirical Research

Koh and Collins (1987) found that the majority (54.7 percent) of the firms that they studied used a working capital basis in 1985. Their results indicated that size had a significant impact on the definition of funds used. They found that 18.8 percent of large companies with at least $2 billion in total assets used the working capital basis, while 79.9 percent of small companies with less than $100 million in total assets used the working capital basis. This finding supported their hypothesis that companies may have elected to follow tradition, thereby avoiding the costs of converting to the cash definition of funds. This possibility inferred that large companies had the resources and expertise to switch to the cash basis easily and quickly. Small companies, however, may have found the cost of switching to the cash basis too great and not offset by possible benefits.

Koh and Collins (1987) also found that firms' definitions of funds significantly depended on the industry grouping. They found that three industries used the working capital basis most: apparel and textiles (80 percent), leather (77 percent), and nondurable wholesale (77 percent). They had no rationale for this result. They also found that the definition of funds depended significantly on the auditing firm engaged by the company. While 76 percent of the companies audited by non-Big Eight auditing firms used the working capital basis, only 52 percent of the companies audited by Big Eight firms did so. Percentages also differed widely among Big Eight firms.

Ismail and Kim (1989) found that cash flows possessed incremental information content in the context of explaining market risk. Their results indicated that cash-flow

risk measures (betas) provided incremental explanatory power over that provided by an earnings risk measure (beta) relative to variability in the market beta. Their results implied that with respect to market risk, the information in accrual earnings appeared as a subset of the broader set of information contained in the cash flows.

Concluding Remarks

The literature reviewed in this study supported the assertion that the definition of funds employed in an analysis affected the information content of funds-flow statements. The literature also supported the hypothesis that cash flows had a significant incremental information value over and above that found in earnings and working capital.

It seems reasonable to conclude that size, to some degree, influenced firms' willingness to adopt the cash and cash equivalents definition of funds. Cost considerations may have made smaller firms reluctant to switch from an alternative definition of funds to the cash and cash equivalents definition now required by FASB Statement No. 95.

CHAPTER III

HYPOTHESES, MODELS, AND METHODOLOGIES

Introduction

This study attempts to determine whether statements of changes in financial position contain incremental information for those companies using the cash and cash equivalents definition of funds. This chapter discusses the hypotheses, models, and methodologies utilized in making this determination.

Hypotheses

This study has examined the following hypotheses:

H_0: Funds statements that incorporate the cash and cash equivalents funds definition contain no incremental information when compared with funds statements that use an alternative (no longer applicable) funds definition.

H_A: Funds statements that incorporate the cash and cash equivalents funds definition do contain incremental information when compared with funds statements that use an alternative (no longer applicable) funds definition.

Research Steps

The following paragraphs detail the data sources and procedural steps utilized in testing these hypotheses:

1. The Compustat data base served as the source of information for selecting sample firms. The initial sample included all industrial firms--sorted by funds definition criteria--that prepared statements of changes in financial position for fiscal years ending during any year from 1983 through 1987.

2. The CRSP tapes provided a list of New York Stock Exchange firms with return and volume data for any portion of the period from 1983 through 1987. Firms without sufficient CRSP data for computing an annual beta for the one-year period preceding the event date were rejected.

3. Firms on both lists--and with available financial statement release dates--qualified for inclusion in the sample. The WRKD index located in the Public Reference Room of the SEC in Washington, District of Columbia, served as the source of financial statement public release dates. The study defined the release date as the one on which the firm filed its Form 10-K with the SEC.

4. After dividing the remaining firm data into test and control samples by funds definition and by reporting year, the research process pair-matched control sample firms with test sample firms on the basis of size, risk, and industry. The final samples ranged in size from 165 for the 1987 sample year to 256 for the 1984 sample year. The models were used to compute expected returns for the firms in both samples for the event date and the three trading days before and after the event date. Return prediction

errors (return residuals) for each firm were computed by subtracting predicted returns from actual returns; tests of significance on the return residuals for each sample were performed, and the results of the tests of each sample were compared.

5. Regressions over the period not included in the event window produced the expected trading volumes for the event date and the three trading days before and after the event date. This study defined expected trading volume as both the number of shares traded and the percentage of shares traded on a given day.

6. Volume prediction errors (volume residuals) for each of the firms in the samples were computed by subtracting predicted trading volume from actual trading volume.

7. As final steps in the procedure, the models prepared tests of significance on the volume residuals for each sample and compared the tests for each sample.

Methodology

Return Analysis

Patell (1976) developed the event analysis methodology used in this study, and Dodd and Warner (1983) popularized it. Henderson (1990) published an excellent summary of the event analysis methodology employed. Additionally, the study adopted the semi-strong form of the Efficient Markets Hypothesis that assumed quick security price assimilation of any public information. Therefore, prediction errors (residuals) should have equaled zero. However, unexpected information releases concerning security returns could have created abnormal returns for a short period.

The single index market model, written as follows, estimated expected returns.

$$\text{Model 1: } R_{jt} = \alpha_j + \beta_j R_{mt} + \epsilon_{jt},$$

where

R_{jt} equaled the rate of return of firm j on day t,

α_j equaled alpha, an intercept estimated by the equation,

β_j equaled beta, the sensitivity of security j to the return on the market,

R_{mt} equaled the rate of return for the market index on day t, and

ϵ_{jt} was an error term.

This study utilized the single index market model that Brown and Warner (1985) had found to perform as well as more complicated approaches. The value-weighted CRSP index served as a proxy for market returns (R_{mt}). The methodology based beta estimates on an estimation period of 100 days preceding the observation period, and the study defined the event date as the day the public first received the information.

The prediction error (PE) for a firm equaled the actual return minus the expected return:

$$PE_{jt} = R_{jt} - (\alpha_j + \beta_j R_{mt})$$

Trading Volume Analysis

The trading volume analysis employed the regression model developed by Beaver (1968):

$$\text{Models 2 and 3: } V_{jt} = \alpha_j + \beta_j V_{mt} + \epsilon_{jt}$$

where

V_{jt} equaled the number of shares traded on a given day in Model 2, and the percentage of shares traded on a given day in Model 3.

α_j equaled alpha, an intercept estimated by the regression,

β_j equaled beta, the sensitivity of firm j to the level of trading volume in the market,

V_{mt} equaled the level of trading volume for all firms in the market, and

ϵ_{jt} was an error term.

Estimates of α_j and β_j were derived from linear regressions over the 100 trading days preceding the observation period. The following equation computed residual analysis for the report period:

$$\epsilon_{jt} = V_{jt} - \alpha_j - \beta_j V_{mt}$$

Summary

This study used two samples ranging in size from 165 to 256 firms for each of the five years preceding the implementation of FASB Statement No. 95. The study sought to determine whether financial statements that express funds as cash and cash

equivalents contained incremental information. One sample consisted of firms using the cash and cash equivalents definition of funds as mandated by FASB Statement No. 95. With the exception of the firms' choice of funds definition, the samples matched on the bases of size, risk, and industry.

The study employed event analysis methodology to determine the stock return and volume reaction to the public release of financial statements. The dates of 10-K filing with the SEC defined the dates of public release. The next chapter reports the results of the study and interprets the findings in relation to the research hypotheses.

CHAPTER IV

RESEARCH RESULTS

This study utilized two samples for each year from 1983 through 1987. One sample consisted of firms using the working capital definition of funds, and the other sample consisted of firms using the cash and cash equivalents definition of funds. The samples matched on the basis of size, industry, and risk. Table 2 details sample sizes for each year. This chapter reports the results for the various tests of this study's hypotheses.

Table 2

Sample Size

YEAR	CASH AND CASH EQUIVALENTS (n)	WORKING CAPITAL (n)
1983	212	212
1984	256	256
1985	242	242
1986	216	216
1987	165	165

Tests of Expected Returns

Three models tested incremental information content. The single index market model (Model 1) yielded an estimate of expected returns around and on the event date. The prediction error for a firm equaled the actual return minus the expected return.

Investors could have viewed any incremental information content gained from a sample firm's funds statement either positively or negatively. This precluded hypothesizing the direction of return prediction errors for the sample firms. Firms with incremental information viewed positively should have had positive prediction errors, and firms with incremental information viewed negatively should have had negative prediction errors. When combined, the prediction errors should have, to some degree, offset one another.

The results of the statistical tests of return prediction errors confirmed this expectation. The three days preceding the event date, the event date, and the three days after the event date contained no consistently significant prediction errors for either cash and cash equivalents firms or for working capital firms. Table 3 shows the results for each sample year and each event window date.

Table 3

Tests of Expected Return Prediction Errors

DAY/ YEAR		CASH AND CASH EQUIVALENTS		WORKING CAPITAL	
		t statistic	Prob. > t	t statistic	Prob. > t
-3	83	-0.3371997	.7363	+0.6897212	.4911
-3	84	-1.0607317	.2898	-0.7034104	.4824
-3	85	+0.7623719	.4466	+0.1636506	.8701
-3	86	-9.7089965	.4791	+0.6654328	.5065
-3	87	+1.1030339	.2717	-0.8811072	.3796
-2	83	+0.5816812	.5614	+1.0091034	.3141
-2	84	-0.5658650	.5720	+0.5039828	.6147
-2	85	+0.5290724	.5972	+0.4495266	.6535
-2	86	+0.7089965	.4791	+2.8329234	.0051
-2	87	-1.5731335	.1177	-0.4576012	.6485
-1	83	+0.2557599	.7984	-0.7680824	.4433
-1	84	-0.3126897	.7548	-0.4701213	.6387
-1	85	-0.0288519	.9770	-0.1972180	.8438
-1	86	-0.4993117	.6258	+0.7352574	.4630
-1	87	+0.2160065	.8293	+1.9199865	.0566
0	83	-0.2647158	.7915	+1.4245742	.1588
0	84	-0.2038513	.8386	+0.5387198	.5906
0	85	-2.5053580	.0129	+0.5444821	.5866
0	86	+0.1586537	.8741	+0.5366390	.5921
0	87	+0.1954508	.8453	-0.4916188	.6237
+1	83	+0.3074115	.7588	-2.1070974	.0363

Table 3 (continued)

DAY/ YEAR		CASH AND CASH EQUIVALENTS		WORKING CAPITAL	
		t statistic	Prob. > t	t statistic	Prob. > t
+1	84	+0.0888641	.9293	-0.1547590	.8771
+1	85	-0.6647726	.5068	+0.2443994	.8071
+1	86	-0.7538840	.4518	-1.5096923	.1326
+1	87	+0.1954508	.8453	-1.5096923	.3018
+2	83	+1.1658685	.2450	+1.2788986	.2023
+2	84	-1.6578303	.0986	+1.2342840	.2182
+2	85	-0.1141985	.9092	+1.1010278	.2720
+2	86	+1.1506035	.2512	-0.3539764	.7237
+2	87	-0.0790482	.9371	+0.1974308	.8437
+3	83	+1.3385164	.1822	-0.9202086	.3585
+3	84	+0.3878023	.6985	-2.2636537	.0244
+3	85	+0.2681691	.7088	+0.3493905	.7271
+3	86	-0.5658284	.5721	-1.1418699	.2548
+3	87	0.9937239	.3219	+0.3147341	.7534

Tests of Expected Volume

Model 2 predicted trading volume in shares. The volume prediction error for each firm was computed as actual trading volume minus expected volume.

The results contained prediction errors significant at the .10 level for the cash and cash equivalent firms, with significant prediction errors at the .10 level for the day before the event date in each of the five years. Data for other days in the event window

did not produce consistently significant results for either the cash and cash equivalents firms or the working capital firms. However, the cash and cash equivalents firms generally had less probability of a greater |t|. Table 4 shows the results of the statistical tests of volume prediction errors for the second model for each sample year and each window event date.

Table 4

Tests of Expected Volume Prediction Errors

DAY/ YEAR		CASH AND CASH EQUIVALENTS		WORKING CAPITAL	
		t statistic	Prob. > t	t statistic	Prob. > t
-3	83	-1.1186025	.2646	+1.0071719	.3150
-3	84	+0.5448191	.5864	+0.1006597	.9199
-3	85	+1.2774855	.2027	+0.3150615	.7530
-3	86	+2.1945811	.0293	+0.9927241	.3220
-3	87	-0.5819416	.5614	-2.7805417	.0061
-2	83	-1.0957740	.2744	+1.5941435	.1124
-2	84	-0.2912116	.7711	-1.1872432	.2362
-2	85	+1.8251876	.0692	+0.4268816	.6699
-2	86	+1.3822639	.1684	+2.1719220	.0310
-2	87	-2.1039697	.0369	-2.7248619	.0071
-1	83	-1.9065701	.0579	+1.7069704	.0893
-1	84	-1.7847881	.0755	-0.8149956	.4150
-1	85	+2.0579152	.0407	+0.4931993	.6223
-1	86	+1.6756154	.0953	+0.1546768	.8772
-1	87	-2.4077522	.0172	+2.4876618	.0139
0	83	-0.9963104	.3202	+0.9445341	.3460
0	84	-1.8486043	.0657	-1.9516775	.0521
0	85	+1.1226429	.2627	+0.8673077	.3866
0	86	+0.7993369	.4250	+0.2923013	.7703
0	87	-3.4282209	.0008	-1.9163894	.0571
+1	83	-2.3871371	.0179	+0.8310004	.4069
+1	84	-1.8613866	.0638	-1.5792227	.1155

Table 4 (continued)

DAY/ YEAR		CASH AND CASH EQUIVALENTS		WORKING CAPITAL	
		t statistic	Prob. > t	t statistic	Prob. > t
+1	85	-0.5149213	.6071	-0.0013412	.9989
+1	86	+2.2597900	.0249	-0.6226847	.5342
+1	87	+1.6237862	.1064	-3.0664667	.0025
+2	83	-0.1871997	.8517	-0.0661854	.9473
+2	84	+0.2369606	.8129	+0.2897428	.0722
+2	85	+0.5913024	.5549	-0.6549226	.5132
+2	86	+1.0595754	.2905	+0.2554644	.7986
+2	87	-1.8441363	.0670	-1.2368290	.2179
+3	83	+0.7298726	.4633	-0.1865945	.8522
+3	84	-0.3043085	.7611	-1.0043483	.3162
+3	85	+1.2465547	.2138	-0.5832422	.5603
+3	86	+1.5582304	.1207	+1.2347450	.2183
+3	87	-2.8141719	.0055	-1.9923880	.0480

Analysts and the financial press had potential access to each financial statement on the day preceding its filing with the SEC. Consistent significance at the .10 level for the cash and cash equivalent firm data on this date provided a possible basis for rejecting the null hypothesis.

Data from the cash and cash equivalents sample had significance at the .10 level on 15 of the 35 event window days over the five-year period; data for the working capital sample had that level of significance on only nine days. While inconclusive, this

gave some credence to the view that cash and cash equivalent firms' financial statements contained more incremental information than did those of the working capital sample firms.

This had led to the expectation that the results for 1987 would show significance on many of the event window days. The beta estimation period for many firms included October, 1987, the month of the stock market crash.

Model 3 was used for testing expected volume as percentages rather than expected volume in shares. This model should have produced results less biased toward larger firms because of equal weighting for each firm. The model for computing the expected volume percentage differed from the second model only because it expressed expected volume as the percentage of the outstanding shares traded on that date. The volume prediction error equaled the difference between the actual volume percentage and the expected volume percentage. Table 5 gives results for the third model.

Table 5

Tests of Expected Volume Percentage
Prediction Errors

DAY/ YEAR		CASH AND CASH EQUIVALENTS		WORKING CAPITAL	
		t statistic	Prob. > t	t statistic	Prob. > t
-3	83	-1.2761442	.2033	0.3617306	.7179
-3	84	0.3307650	.7411	-0.5817952	.5612
-3	85	0.0016443	.9987	-0.5986426	.5500
-3	86	1.9957081	.0473	1.0271078	.3058
-3	87	0.4245966	.6717	-1.4190367	.1578
-2	83	-1.1651974	.2453	0.8551400	.3934
-2	84	-1.9003805	.0585	-1.2473644	.2134
-2	85	0.6431832	.5207	0.6119022	.5412
-2	86	1.1901907	.2353	1.0250674	.3065
-2	87	-2.7926126	.0059	-0.3790933	.7051
-1	83	-1.0195873	.3091	1.3980422	.1636
-1	84	-0.5604052	.5757	-0.8717927	.3841
-1	85	1.5186654	.1302	0.2491366	.8035
-1	86	1.3266192	.1861	0.9513812	.3425
-1	87	-1.0909652	.2769	0.8701796	.3855
0	83	-2.3976137	.0174	0.2446005	.8070
0	84	0.5434364	.6151	-1.2079564	.2282
0	85	1.9549329	.0518	1.0353979	.3015
0	86	0.8247590	.4104	0.8117329	.4179
0	87	-1.2661814	.2073	0.8263940	.4098

Table 5 (continued)

DAY/ YEAR		CASH AND CASH EQUIVALENTS		WORKING CAPITAL	
		t statistic	Prob. > t	t statistic	Prob. > t
+1	83	-1.7545141	.0808	1.5154000	.1312
+1	84	0.2334447	.8156	-0.6734163	.5013
+1	85	1.8125331	.0721	-0.5017321	.6163
+1	86	1.3266192	.1861	0.7513965	.4532
+1	87	-1.0909652	.2769	-4.2984262	.0001
+2	83	-2.6708650	.0082	1.7545099	.0808
+2	84	-0.1594294	.8735	0.2002797	.8414
+2	85	1.4665461	.1438	1.1361660	.2570
+2	86	1.3133674	.1902	0.9794722	.3285
+2	87	0.2118970	.8324	-0.6127237	.5409
+3	83	0.8492150	.3967	0.6966919	.4868
+3	84	1.1959925	.2328	-0.1852158	.8532
+3	85	1.3468880	.1793	0.3697088	.7119
+3	86	0.5235350	.6012	-0.6167390	.5381
+3	87	-2.4188223	.0167	-1.6682946	.0972

The test results for volume expressed as percentages did not reveal the same patterns of significance as the previous model that measured volume in shares. This may have indicated that the larger firms did, in fact, have a greater impact on the results.

Equally weighting each firm in the sample may have removed bias toward larger firms, but it also may have masked the fact that analysts scrutinized larger firms more than they did smaller firms. With all firms subject to the same amount of scrutiny, the results of the third model may have more closely coincided with those of the second model.

As with the first model, firms in the cash and cash equivalents sample showed significance at the .10 level for a greater number of days than did firms in the working capital sample. Although inconclusive, these findings partially supported the view that the cash and cash equivalents firms' financial statements contained more incremental information than those of working capital sample firms.

CHAPTER V

SUMMARY, CONCLUSIONS, AND IMPLICATIONS FOR FUTURE RESEARCH

The definition of funds used in preparing a funds statement could have an impact on the decisions of financial statement users. This impact could result from computing excess returns and volume at the time the firm releases its financial statements and comparing them according to the definition of funds used.

In theory the cash and cash equivalents definition for a funds statement should produce greater information content than alternatively defined funds. FASB Statement No. 95 mandated the use of cash and cash equivalents definition to produce the funds statement.

The five years preceding the enactment of FASB Statement No. 95 served as the basis for this study. During that time, two definitions of funds prevailed: working capital and cash and cash equivalents. In 1983, the beginning of the five- year period for this study, the number of working capital firms exceeded the number of cash and cash equivalents firms. By the end of the period, however, cash and cash equivalents firms comprised a majority; and many firms had already chosen to use the new funds statement format mandated by FASB Statement No. 95.

A combination of factors may have caused those firms to switch to the cash and cash equivalents definition of funds. Preparers of financial statements may have anticipated the cash and cash equivalents definition, and they already may have implemented the inevitable change. The perceived demand for cash-related data, also, may have contributed to their decision.

Summary of Methodology

This study developed samples of firms using the two prevalent definitions of funds, cash and cash equivalents and working capital, for each of the five study years. Data for all firms included in the sample must have appeared on both the CRSP and Compustat tapes during at least one of the five years. The CRSP tapes provided information about firms' returns and volume, while Compustat tapes provided information about the definition of funds firms used to prepare their funds statements. Additionally, the SEC's Work-Load Teleprocessing Display System had to provide the dates that the firms filed their Form 10-K's with the SEC.

The study matched samples according to their size, industry, and beta so that each year's sample contained an equal number of firms for the two funds definitions. The number of sample firms for each of the five years varied from 165 in 1987 to 256 in 1984. The smaller sample for 1987 indicated a marked decrease in firms using the working capital definition of funds and an early adoption of the cash-flow statement by many firms.

One event study model measured and tested statistical significance of the excess returns for the sample firms around their financial statement release dates. Similarly, two models measured and tested statistical significance of the sample firms' excess volume.

Two volume models measured volume. The first model measured volume in shares, and the second model measured volume as percentages of the outstanding shares traded.

Summary of Findings

The tests of excess returns showed no pattern of consistent statistical significance for either of the sample groups for any of the days around the financial statements release dates. The study design had anticipated this outcome; no one could hypothesize whether users perceived the information in the sample firms' funds statement as positive or negative. Therefore, positive excess returns may have canceled out negative excess returns.

The model that tested excess volume in shares did show one consistent pattern of significance. On the day before financial statements filing with the SEC, excess volume of the cash and cash equivalents sample statistically differed from zero at the .10 level of significance (or better) for all five years of the study. The same result did not occur in the working capital sample tests.

The model that tested excess volume as a percentage of the outstanding shares traded did not show the same patterns of significance. No consistent pattern of

significance of excess volume occurred on any of the days surrounding the release of the financial statements for either of the sample groups.

Conclusions

1. Excess returns had no statistical significance for either of the sample groups. The inability to hypothesize either positive or negative excess results for each sample firm likely led to this result.

2. Use of the cash and cash equivalents definition to produce a funds statement did produce incremental information content for excess volume measured in shares. This contradicted the findings in the model for excess volume measured as percentages of outstanding shares. This may have occurred because of the greater scrutiny applied to larger firms and the heavier weighting that measured excess volume in shares.

Limitations of the Study

The samples used in this study may have suffered from self-selection bias since each firm chose its own definition of funds. Some researchers have controlled this limitation by including firms not affected by a pronouncement under investigation. This study, however, could not do that because all firms had to prepare a funds statement, and they had freedom to choose any acceptable definition of funds prior to implementation of FASB Statement No. 95.

Additionally, confounding events could have impacted the events selected. For example, many of the event days in the 1987 showed significance, but the beta

estimation period for the 1987 sample firms generally included the May, 1987, stock market crash on that date that may have distorted the 1987 beta estimates.

This study used an estimation period of 100 days prior to the event window to calculate firm betas. A different estimation period might have produced different results; however, some research studies have indicated that the length of time for the estimation period did not significantly affect the results. A number of other variables--such as the event dates selected and the market model used--also could have influenced these results.

Finally, the funds statement comprised only one of the statements included in a set of financial statements. This study could not determine whether the incremental information content derived in whole or in part from the funds statement. Additionally, the firms in the samples had the freedom to choose from alternative generally accepted accounting principles that could impair comparability.

Implications for Further Research

Further research could target firms that use the current funds statement. The use of volume appears likely to provide the better way to measure incremental information content.

The statement of cash flows departs in format from the statement of changes in financial position. If the format change has merit, the statement of cash flows should provide greater information content than the statement of financial position. Another study might compare the information content of changes in financial position with those

of cash-flow statements. The statement of changes in the financial position sample might consist only of firms using the cash and cash equivalents definition of funds; this would isolate the impact of the new format on information content.

REFERENCES

Books

Anton, Hector R. Accounting for the Flow of Funds. Boston: Houghton Mifflin Company, 1962.

Dewing, Arthur S. The Financial Policy of Corporations, 5th edition. vol. 1. New York: The Ronald Press Co., 1953.

Howard, Bion B., and Miller Upton. Introduction to Business Finance. New York: McGraw-Hill Book Co., 1953.

Seed, Allen H., III. Inflation: Its Impact on Financial Reporting and Decision Making. New York: Financial Executives Research Foundation, 1978.

Periodicals

Abarbanell, Jeffery, and Victor Bernard. "Tests of Analysts' Overreaction/ Underreaction to Earnings Information as an Explanation for Anomalous Stock Price Behavior." Journal of Finance (1992): 1181-1206.

Ali, Ashiq, and Peter Pope. "The Incremental Information Content of Earnings, Funds Flow, and Cash Flow: The UK Evidence." Journal of Business Finance and Accounting (January 1995): 19-34.

Atchison, Michael D., and Robert H. Sanborn. "A Trading Model Demonstrating the Usefulness of Accounting-Reported Cash Flow Information." Akron Business and Economic Review (Winter 1989): 93-103.

Ball, Ray, and Philip Brown. "An Empirical Examination of Accounting Income Numbers." Journal of Accounting Research (Autumn 1968): 159-178.

Bamber, Linda S., Orie E. Barron, and Thomas L. Stober. "Trading Volume and Different Aspects of Disagreement Coincident with Earnings Announcements." Working Paper (September 1996).

Bamber, Linda, and Youngsoon Cheon. "Differential Price and Volume Reactions to Accounting Earning Announcements." Accounting Review (July 1995): 417-441.

Barlev, Benzion, and Joshua Livnat. "The Statement of Changes in Financial Position: Its Relationship with Security Prices." Journal of Business, Finance and Accounting (Summer 1986): 223-238.

_____. "The Information Content of Funds Statement Ratios." Journal of Accounting, Auditing and Finance (Summer 1990): 411-433.

Beaver, William H. "The Information Content of Earnings Announcements." Journal of Accounting Research (Supplement 1968): 67-92.

Beaver, William H., and Roland E. Dukes. "Interperiod Tax Allocation, Earnings Expectations, and the Behavior of Security Prices." The Accounting Review (April 1972): 320-332.

Beaver, William H., P. Griffin, and W. Landsman. "The Incremental Information Content of Replacement Cost Earnings." Journal of Accounting and Economics (July 1982): 15-39.

Bernard, Victor L., and Thomas L. Stober. "The Nature and Amount of Information in Cash Flows and Accruals." The Accounting Review (October 1989): 624-652.

Bowen, Robert M., David Burgstahler, and Lane A. Daley. "Evidence on the Relationship Between Earnings and Various Measures of Cash Flow." The Accounting Review (October 1986): 713-724.

Bracken, Robert M., and Ara G. Volkan. "Cash Flows: A New Reporting Format for Turbulent Times." Management Accounting (January 1988): 38-41.

Brown, Stephen J., and Jerold B. Warner. "Using Daily Stock Returns: The Case of Event Studies." Journal of Financial Economics 14 (1985): 3-31.

Charitou, Andreas, and J. Edward Ketz. "Valuation of Earnings, Cash Flows and Their Components: An Empirical Investigation." Journal of Accounting, Auditing and Finance (Fall 1990): 475-500.

Clubb, Colin. "An Empirical Study of the Information Content of Accounting Earnings, Funds Flows and Cash Flows in the UK." Journal of Business Finance and Accounting (January 1995): 35-52.

Coughlan, John W. "Funds and Income." NAA Bulletin (September 1964): 25.

Dechow, Patricia. "Accounting Earnings and Cash Flows as Measures of Firm Performance: The Role of Accounting Accruals." The Journal of Accounting and Economics (July 1994): 3-42.

Dodd, Peter, and Jerold B. Warner. "On Corporate Governance: A Study of Proxy Contests." Journal of Financial Economics 11 (1983): 401-438.

Epstein, Marc, and Moses Pava. "How Useful Is the Statement of Cash Flows." Management Accounting (July 1992): 52-55.

Finger, Catherine. "The Ability of Earnings to Predict Future Earnings and Cash Flow." Journal of Accounting Research (August 1994): 210-223.

Franz, David P., and James B. Thies. "Intemporal Divergence Among Cash Flow, Working Capital, and Income from Operations." Review of Business and Economic Research (Spring 1988): 18-28.

Gombola, Michael J. and J. Edward Ketz. "A Caveat on Measuring Cash Flow and Solvency." Financial Analysts Journal (September/October 1986): 66-72.

Hawkins, David F. "Toward an Old Theory of Equity Valuation." Financial Analysts Journal (November/December 1987): 48-52.

Heath, Loyd C. "Let's Scrap the Funds Statement." The Journal of Accountancy (October 1978a): 94-103.

_____. "Is Working Capital Really Working?" Journal of Accountancy (August 1980): 55-62.

Henderson, Glenn. "Problems and Solutions in Conducting Event Studies." Journal of Risk and Insurance 57 (June 1990): 282-306.

Horngren, Charles T. "Security Analysts and the Price Level." The Accounting Review (October 1955): 575-581.

Ismail, Badr E., and Moon K. Kim. "On the Association of Cash Flow Variables with Market Risk: Further Evidence." The Accounting Review (January 1989): 125-135.

Jeong, Seok W., and Pradyot K. Sen. "Price and Trading Volume Reactions Around Earnings Announcements: An Analytical Examination." Working Paper (August 1996).

Kim, Oliver, and Robert Verrecchia. "Market Liquidity and Volume Around Earnings Announcements." The Journal of Accounting and Economics (January 1994): 41-67.

Koh, Hian C., and Karen M. Collins. "FASB's Proposed Statement of Cash Flows: Its Differential Impact on Companies and Auditors." The Woman CPA (October 1987): 3-6.

Livnat, Joshua, and Paul Zarowin. "The Incremental Information Content of Cash-flow Components." Journal of Accounting and Economics (1990): 25-46.

Lorek, Kenneth, and G. Lee Willinger. "A Multivariate Time-Series Prediction Model for Cash-Flow Data." Accounting Review (January 1996): 81-102.

Patell, James M. "Corporate Forecasts of Earnings Per Share and Stock Price Behavior: Empirical Tests." Journal of Accounting Research 14 (1976): 246-276.

Patell, J., and R. Kaplan. "The Information Content of Cash Flow Data Relative to Annual Earnings: Preliminary Tests." Working Paper, Stanford University (August 1977).

Rayburn, Judy. "The Association of Operating Cash Flow and Accruals with Security Returns." Journal of Accounting Research (Supplement 1986): 112-133.

Rosen, L.S., and Don T. DeCoster. "'Funds' Statements: A Historical Perspective." The Accounting Review (January 1969): 124-136.

Sharpe, William F. "A Simplified Model for Portfolio Analysis." Management Science (January 1963): 277-293.

Sloan, Richard G. "Do Stock Prices Fully Reflect Information in Accruals and Cash Flows About Future Earnings?" The Accounting Review (July 1996): 289-315.

Smith, Keith, Robert Whitis, and Coy London. "Treatment of Certain Practice Problems in the Statement of Cash Flows." The CPA Journal (May 1992): 60-61.

Staubus, George. "The Association of Financial Accounting Variables with Common Stock Variables." The Accounting Review (January 1965): 119-134.

Thode, S., R. Drtina, and J. Largay, III. "Operating Cash Flows: A Growing Need for Separate Reporting." Journal of Accounting, Auditing, and Finance (Winter 1986): 46-61.

Thompson, James, and James Bitter. "The Imperfect Standard: Why All Cashflow Statements Still Aren't Created Equal." The National Public Accountant (March 1993): 18-21.

Wilson, G. Peter. "The Incremental Information Content of Accruals and Cash Flows: Combined Evidence at the Earnings Announcement and Annual Report Release Date." Journal of Accounting Research (Supplement 1986): 165-203.

_____. "The Incremental Information Content of the Accrual and Funds Components of Earnings After Controlling for Earnings." The Accounting Review (April 1987): 293-322.

Miscellaneous

Accounting Principles Board. Opinion No. 3. The Statement of Source and Application of Funds. New York: American Institute of Certified Public Accountants, 1963.

_____. Opinion No. 19. Reporting Changes in Financial Position. New York: American Institute of Certified Public Accountants, 1971.

American Institute of Certified Public Accountants. Accounting Trends and Techniques. New York: American Institute of Certified Public Accountants, 1960.

_____. Accounting Trends and Techniques. New York: American Institute of Certified Public Accountants, 1979.

_____. Accounting Trends and Techniques. New York: American Institute of Certified Public Accountants, 1985.

Financial Accounting Standards Board. Discussion Memorandum. An Analysis of Issues Related to Reporting Funds Flows, Liquidity, and Financial Flexibility. Stamford, Connecticut: Financial Accounting Standards Board, 1980.

_____. Exposure Draft. Reporting Income, Cash Flows, and Financial Position of Business Enterprises. Stamford, Connecticut: Financial Accounting Standards Board, 1981.

_____. Exposure Draft. Statement of Cash Flows. Stamford, Connecticut: Financial Accounting Standards Board, 1986.

_____. Statement of Financial Accounting Concepts No. 1. Objectives of Financial Reporting by Business Enterprises. Stamford, Connecticut: Financial Accounting Standards Board, 1978.

_____. Statement of Financial Accounting Concepts No. 5. Recognition and Measurement in Financial Statements of Business Enterprises. Stamford, Connecticut: Financial Accounting Standards Board, 1984.

_____. Statement of Financial Accounting Standards No. 95. Statement of Cash Flows. Stamford, Connecticut: Financial Accounting Standards Board, 1987.

Heath, Loyd C. Financial Reporting and the Evaluation of Solvency. New York: American Institute of Certified Public Accountants, 1978b.

Mason, Perry. "Cash Flow" Analysis and the Funds Statement. New York: American Institute of Certified Public Accountants, 1961.

Phillips, Thomas J., Jr. "An Empirical Investigation and Analysis of the Usefulness of Selected Revisions in Concept, Form, and Content of the Statement of Changes in Financial Position." Ph.D. dissertation, Georgia State University, 1984.

United States Securities and Exchange Commission. "Reporting Cash Flow and Other Related Data." Accounting Series Release Number 142. New York: Commerce Clearing House, 1973.