

# THE WORKING CAPITAL BASIS: TESTING THE CONCEALMENT AND COST HYPOTHESES

Karen M. Collins, Virginia Polytechnic Institute and State University

Hian C. Koh, Virginia Polytechnic Institute and State University

## Abstract

*This paper investigates the validity of two hypotheses concerning the use of the working capital definition of funds in the Funds Statement. Statistical tests do not support the hypothesis that the working capital basis is used to conceal potentially damaging information. However, there is evidence that smaller companies avoid switching to the cash basis because of the costs involved. Thus, the FASB's proposed Statement of Cash Flows, if adopted, would affect smaller companies most.*

## INTRODUCTION

The Financial Accounting Standards Board is considering comments from a recent exposure draft, Statement of Cash Flows [FASB, 1986]. The proposed statement would require companies to include a Statement of Cash Flows in place of the presently required Statement of Changes in Financial Position. This would eliminate the now available, and widely chosen, option of reporting funds on a working capital basis. The FASB has challenged the usefulness of the working capital definition of funds, particularly its ability to provide information about a company's liquidity. The board reports that the relevance of the working capital basis has been questioned by preparers and users of financial statements since positive working capital does not necessarily indicate liquidity while negative working capital does not always indicate illiquidity.

The FASB promotes the use of the cash basis because it believes that cash flow information can be helpful in assessing an entity's liquidity, financial flexibility, profitability, and risk [FASB, 1984]. Thus, it is the board's opinion that a full set of financial statements should show cash flows, rather than

changes in working capital, during the period. However, there are still many companies that have not voluntarily switched to the cash basis of reporting. An interesting question is--given the strong encouragement to switch to a cash basis, why have these companies elected to remain with the working capital basis?

One possible explanation--that managers use the working capital basis to conceal potentially damaging information--is offered by Bryant [1984]. He suggested that the managers of the failed W. T. Grant Company (the nation's largest retailer when it filed for bankruptcy in 1975) used the working capital basis as a shield to conceal potentially damaging information. This opinion is also shared by Largay and Stickney [1980]. An alternative explanation (which is not as critical of managers) is that companies have elected to remain with the working capital basis because they did not want to incur the costs of switching to the cash basis. Because the working capital basis has a long history of use (since the 1920's), companies may elect to follow tradition and remain with this basis, thereby avoiding the costs of

converting to a cash basis. We shall call the first explanation the "concealment hypothesis" and the alternative explanation the "cost hypothesis."

The purpose of this paper is to investigate the validity of the concealment and cost hypotheses in explaining the use of the working capital definition of funds. This investigation is important for the following reasons. First, if the concealment hypothesis is valid, then companies do and can use the working capital basis to conceal potentially damaging information. In this case, users of financial statements (for example, creditors and investors) should be alerted to this possibility. Further, the concealment hypothesis (if valid) would give an additional reason for the FASB to eliminate the working capital basis by requiring the Statement of Cash Flows. Second, if the cost hypothesis is valid, then the cost of switching from the working capital basis to the cash basis is a greater burden for some companies. This means that if the FASB's Statement of Cash Flows is adopted, these companies will incur substantial costs if the cost hypothesis is true. These costs may far outweigh the benefits that may be derived from the switch in the basis of reporting.

From the above, it is clear that an investigation into the validity of the concealment and cost hypotheses has important implications. At the very least, it will shed some light on the effects of the FASB's proposed Statement of Cash Flows which, if adopted, would require all companies to use the cash basis.

## **METHODOLOGY**

### **Formulation of Hypotheses**

If the concealment hypothesis is valid, we can expect companies with potentially damaging information to use the working capital basis to conceal such information. This will result in

significantly different financial characteristics between companies using a working capital basis and companies using a cash basis. In particular, we would expect companies using the working capital basis to have unfavorable financial characteristics as compared to companies using the cash basis.

If the cost hypothesis is valid, companies that find it costly to switch to the cash basis will remain with the working capital basis. We can expect large companies to have the resources and expertise to switch to the cash basis easily and quickly. Therefore, the cost of preparing the Statement of Changes in Financial Position on the new cash basis would fall more heavily on smaller companies. Given this, if the cost hypothesis is valid, we would expect to observe a large percentage of small companies using the working capital basis and a large percentage of large companies using the cash basis.

Based on the above discussion, the concealment and cost hypotheses can be tested with the following null hypotheses:

**H1:** Companies using the working capital definition of funds in preparing the Statement of Changes in Financial Position do not have financial characteristics that differ significantly from those of companies using the cash definition of funds.

**H2:** The definition of funds used in the Statement of Changes in Financial Position does not depend on the size of the company.

If H1 is rejected, then companies that use the working capital basis have financial characteristics that are significantly different from companies that use the cash basis. In this case, by examining the financial characteristics, one can determine if managers who use the working capital basis have potentially damaging information to conceal.

If they do, then the view that managers in companies with unfavorable financial characteristics use the working capital basis to conceal potentially damaging information (i.e. the concealment hypothesis) is consistent with empirical evidence.

If H2 is rejected, then the decision of a company to use a particular definition of funds depends on the size of that company. In this case, by examining the relationship between the percentage of companies using each method and the size of the companies, one can determine if the smaller the company, the more likely it is for that company to use the working capital basis. This will enable one to accept or reject the cost hypothesis.

### **Sample Data**

The sample for this study consists of 1404 non-financial companies listed on the 1985 COMPUSTAT annual industrial tape. A large sample size is chosen so that the test of the hypotheses covers a large cross-section of companies, thereby allowing the results to be more general. The 1985 COMPUSTAT tape is used because it provides current and complete financial data for public companies of wide interest to investors and creditors. The majority (55%) of these companies used a working capital basis in 1985.

### **Financial Characteristics of Companies**

The financial characteristics of a company are often reflected in the company's financial ratios. Although a large number of financial ratios can be computed, only a few are necessary to adequately assess the financial position of a company. Many studies have attempted to identify ratios that accurately signal potentially damaging information. In particular, Casey and Bartczak [1985] found the following six ratios to have high predictive ability in identifying companies under financial distress:

- (1) Cash/Total Assets,
- (2) Current Assets/Total Assets,
- (3) Current Assets/Current Liabilities,
- (4) Sales/Current Assets,
- (5) Net Income/Total Assets, and
- (6) Total Liabilities/Owners' Equity.

In general, the first three ratios measure the cash and liquidity position of a company whereas the last three ratios measure the company's activity, profitability, and leverage. The first five ratios were also used in an earlier bankruptcy study by Libby [1975]. These studies show that it is reasonable to expect the important financial characteristics of companies to be captured by these ratios. Therefore, the six ratios above are used in this study to capture the key financial characteristics of companies and to detect the presence of potentially damaging information.

### **Statistical Methods**

To test the null hypotheses, two statistical methods are used. First, the Mann-Whitney U test is used to test if companies using the working capital definition of funds differ significantly from companies using the cash definition of funds (i.e. H1). Basically, the Mann-Whitney U test examines each of the six ratios (financial characteristics) one at a time and generates a test statistic for each ratio. From the magnitude of the test statistic, one can determine if the two groups differ significantly in that ratio. Second, a Chi-square test is used to test if the decision of a company to use a particular definition of funds depends on the size of that company (i.e. H2). The Chi-square test examines the cross-tabulation of the definition of funds with size and generates a test statistic to determine if the two are independent.

## **ANALYSIS AND RESULTS**

### **Hypothesis 1**

As indicated above, a very large

sample of 1404 public companies is used in this study. This sample includes public companies that vary widely in size, as measured by total assets. To control for size effects, this large sample is divided into small companies (i.e. companies with less than \$200 million of total assets), medium companies (i.e. companies with at least \$200 million but less than \$1000 million of total assets) and large companies (i.e. companies with at least \$1000 million of total assets). The Mann-Whitney U test is performed on each of these three categories of companies and the results are presented in Table 1 below.

As can be seen, for small companies, none of the financial ratios is significantly different at a 0.05 level of significance. In fact, only the net income to total assets ratio (a measure of profitability) has a significance level of less than 0.15. Therefore, at a significance level of 0.05, H1 cannot be rejected. In other words, there is no evidence to suggest that small companies that use the working capital basis have financial characteristics that are significantly different from those of small companies that use the cash basis.

Again from Table 1, for medium companies, total liabilities to equity (a measure of leverage) is significant at a 0.001 level. In particular, medium companies that use the working capital basis have higher leverage (a measure of indebtedness) than medium companies that use the cash basis. However, none of the other ratios has a significance level of less than 0.15. Therefore, H1 can be rejected at a 0.05 significance level only for leverage. The two groups of medium companies are similar with respect to all the five other financial characteristics.

The results for large companies are similar to the results for small companies (see Table 1). First, none of the financial ratios is significantly different at a 0.05 level of significance.

Second, only the net income to total assets ratio (a measure of profitability) has a significance level of less than 0.15. Therefore, H1 cannot be rejected at a significance level of 0.05 for any of the ratios. Consequently, there is no evidence to suggest that large companies that use the working capital basis have significantly different financial characteristics as compared to large companies that use the cash basis.

Looking at the results of the Mann-Whitney U test for all the small, medium, and large companies as a whole, there is no evidence to suggest that companies that use the working capital basis and companies that use the cash basis have significantly different financial characteristics. There are no systematic differences in the financial characteristics between these two groups of companies. This conclusion has two important implications. First, on the average, companies that use the working capital basis do not have different, in particular unfavorable, financial characteristics as compared to companies that use the cash basis. Therefore, the former may not even have potentially damaging information to conceal when compared to the latter. Second, even if they do, a firm's decision to use a particular definition of funds does not appear to depend on the firm's financial characteristics. Otherwise, companies that use different definitions of funds will have different financial characteristics and this will show up in the Mann-Whitney U test. Thus, the view that managers in companies with unfavorable financial characteristics use the working capital basis to conceal potentially damaging information is not consistent with empirical evidence.

A further examination of Table 1 reveals an interesting observation. It appears that the decision to use a particular definition of funds depends on the size of the firm. In particular, 74.25% of the small companies use the working capital basis but only 22.15% of

TABLE 1  
MANN-WHITNEY U TEST

A. Small Companies With Less Than \$200 Million Of Total Assets (N = 703)

| Working Capital Basis<br>N = 522 (74.25%) |           | Cash Basis<br>N = 181 (25.75%) |         |        |
|-------------------------------------------|-----------|--------------------------------|---------|--------|
| Ratio                                     | Mean Rank | Mean Rank                      | Z-Value | Prob.  |
| X1                                        | 351.15    | 354.46                         | -0.1812 | 0.8499 |
| X2                                        | 358.37    | 333.63                         | -1.4123 | 0.1579 |
| X3                                        | 348.60    | 361.81                         | -0.7539 | 0.4509 |
| X4                                        | 348.26    | 362.78                         | -0.8287 | 0.4073 |
| X5                                        | 344.00    | 375.08                         | -1.7746 | 0.0760 |
| X6                                        | 349.70    | 358.64                         | -0.5101 | 0.6100 |

B. Medium Companies With At Least \$200 Million But Less Than \$1000 Million Of Total Assets  
(N = 385)

| Working Capital Basis<br>N = 176 (45.71%) |           | Cash Basis<br>N = 209 (54.29%) |         |        |
|-------------------------------------------|-----------|--------------------------------|---------|--------|
| Ratio                                     | Mean Rank | Mean Rank                      | Z-Value | Prob.  |
| X1                                        | 191.17    | 194.54                         | -0.2965 | 0.7669 |
| X2                                        | 200.44    | 186.74                         | -1.2034 | 0.2288 |
| X3                                        | 184.14    | 200.46                         | -1.4341 | 0.1515 |
| X4                                        | 194.99    | 191.33                         | -0.3218 | 0.7476 |
| X5                                        | 185.00    | 199.74                         | -1.2944 | 0.1955 |
| X6                                        | 213.41    | 175.81                         | -3.3031 | 0.0010 |

C. Large Companies With At Least \$1000 Million Of Total Assets (N = 316)

| Working Capital Basis<br>N = 70 (22.15%) |           | Cash Basis<br>N = 246 (77.85%) |         |        |  |
|------------------------------------------|-----------|--------------------------------|---------|--------|--|
| Ratio                                    | Mean Rank | Mean Rank                      | Z-Value | Prob.  |  |
| X1                                       | 149.01    | 161.20                         | -0.9845 | 0.3249 |  |
| X2                                       | 160.90    | 157.82                         | -0.2491 | 0.8033 |  |
| X3                                       | 150.11    | 160.89                         | -0.8703 | 0.3841 |  |
| X4                                       | 149.74    | 160.99                         | -0.9089 | 0.3634 |  |
| X5                                       | 140.86    | 163.52                         | -1.8311 | 0.0671 |  |
| X6                                       | 164.95    | 156.66                         | -0.6694 | 0.5032 |  |

Key:

|                                 |                                     |
|---------------------------------|-------------------------------------|
| X1 = Cash to Total Assets       | X2 = Current Assets to Total Assets |
| X3 = Current Ratio              | X4 = Sales to Current Assets        |
| X5 = Net Income to Total Assets | X6 = Total Liabilities to Equity    |

the large companies use the working capital basis. This suggests intuitively that H2 may not be consistent with empirical evidence.

## Hypothesis 2

To test H2 formally, a Chi-square test of independence is performed. For this test, the sample is divided into eight categories on the basis of total assets (a measure of size). This finer division of eight categories of size instead of just three (small, medium or large) allows a more powerful test. The results of the Chi-square test are presented in Table 2 below.

As can be seen, H2 can be rejected at a 0.01 level of significance, indicating that the definition of funds that is used does depend significantly on the size of the company. Furthermore, an examination of Table 2 shows that the smaller the company, the more likely it is for that company to use the working capital basis. For example, while 79.9% of small companies with less than \$100 million of total assets

use the working capital basis, only 18.8% of large companies with at least \$2000 million of total assets use the working capital basis. Thus, the cost hypothesis is consistent with empirical evidence.

## SUMMARY AND CONCLUSION

We have investigated the validity of the concealment and cost hypotheses as possible explanations for the use of the working capital definition of funds. The test of these hypotheses is based on the data of 1404 non-financial companies from the 1985 COMPUSTAT annual industrial tape.

In testing the concealment hypothesis, six financial ratios are computed and analyzed with the Mann-Whitney U test. The analysis indicates that there is no evidence to show that a company's decision to use a particular definition of funds depends on the financial characteristics of that company. In particular, the desire to conceal potentially damaging information is not the motivation for choosing the

TABLE 2  
CHI-SQUARE TEST OF INDEPENDENCE  
WORKING CAPITAL VS. CASH BASIS BY FIRM SIZE (N = 1404)

| Total Assets (\$ Million) | Working Capital |      | Cash |      |
|---------------------------|-----------------|------|------|------|
|                           | No.             | %    | No.  | %    |
| Less than 100             | 386             | 79.9 | 97   | 20.1 |
| 100 to less than 200      | 136             | 61.8 | 84   | 38.2 |
| 200 to less than 400      | 95              | 52.8 | 85   | 47.2 |
| 400 to less than 600      | 33              | 42.3 | 45   | 57.7 |
| 600 to less than 800      | 32              | 41.6 | 45   | 58.4 |
| 800 to less than 1000     | 16              | 32.0 | 34   | 68.0 |
| 1000 to less than 2000    | 34              | 27.4 | 90   | 72.6 |
| At least 2000             | 36              | 18.8 | 156  | 81.3 |
| Total Sample              | 768             | 54.7 | 636  | 45.3 |

Chi-Square 286.70  
Significance .0000

working capital basis. As such, the concealment hypothesis is not supported by empirical evidence and therefore can be rejected.

The cost hypothesis is tested by means of a Chi-square test of independence. For this test, the companies are categorized into eight groups, ranging from very small to very large companies. The results indicate that there is strong evidence to show that a company's decision to use a particular definition of funds depends on the size of that company. In particular, the smaller the company, the more likely it is for that company to use the working capital basis. As such, the cost hypothesis is consistent with empirical evidence. This suggests that the desire

to avoid additional costs is a plausible explanation for the reluctance of many companies to switch from a working capital basis to a cash basis.

The FASB may soon require companies to issue a Statement of Cash Flows in place of the Statement of Changes in Financial Position, thereby eliminating the option of reporting on a working capital basis. This study implies that the impact of switching to a cash flow statement will not be felt uniformly by all companies. Because smaller companies are less likely to have made the switch to a cash basis, the burden of switching to a Statement of Cash Flows will be felt most heavily by these smaller companies.

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