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THE IMPACT OF FASB STATEMENT NO. 34's DISCLOSURES ON STOCK PRICES

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ABSTRACT

This study provides empirical evidence that the disclosures required by FASB Statement No. 34 had an impact on common stock prices in the initial year of release, 1980, but not in the subsequent year. Weekly data for 123 NYSE sample companies were used to estimate the regression coefficients via the GMM using a GLS with a lag of 3 due to the presence of autocorrelation. Statistical analysis of the average residual indicated that it was significantly different from zero. The evidence of this study supports the hypothesis that FASB 34 affected the capital market equilibrium via users' reactions to the required disclosures.

Background

The accounting for interest, the cost of using debt, was a subject of controversy from the beginning of the century until the late 1970s, with a 40 year period of dormancy starting in the late 1920s. The issue centered around whether the interest should be shown as an expense on the income statement or whether part of it should be capitalized (i.e., be included in the cost of an asset). In 1979, the FASB [1979] issued Statement No. 34, Capitalization of Interest Cost, hereafter referred to as FASB 34, which requires the capitalization of interest for certain qualifying assets. FASB 34 also specifies that the total amount of the interest incurred in the period as well as any amount capitalized must be disclosed in the financial statements or related notes.

Given this background, the objective of this study was to test whether the disclosure of the capitalization of interest as required by FASB 34 had any impact on common stock prices of affected firms. It was hypothesized that, assuming the market is efficient, FASB 34's disclosures are included in the information set impounded by the market in setting prices. At this stage, two points concerning the research hypothesis should be made. First, the assumption of capital market efficiency underlies the framework of the research. The efficient market hypothesis has been thoroughly discussed in the literature, (see Griffin [1982] for a review of empirical research in this area) and consequently, it will not be discussed here. Second, there is no one particular statistical technique for testing the hypothesis. Instead, a general review of the literature shows that although the same share price generating model has been used, several different procedures have been

proposed as a basis for analyzing returns and for testing for statistical significance.

Expected Market Reaction

Gonedes and Dopuch [1974] posit that an accounting change can affect capital market equilibrium in three ways: (i) by providing new information that was not previously available; (ii) by being associated with another change in the operating or financing activities of the firms; or (iii) by being a significant economic event in its own right.

Regarding the first possible catalyst to the change in security prices (viz., new information that was not previously available), it appears that the disclosure requirements of FASB 34 negate this as a possibility, for the following reason. For an accounting period in which no interest is capitalized, the total amount of interest cost incurred and charged to expense during the period must be disclosed. Similarly, for an accounting period in which some interest capitalized, the total amount of the interest cost incurred during the period, as well as the amount capitalized must also be disclosed. As a result, no new information that was not previously available is provided. Thus, in order to argue that the different disclosures would affect share prices, one would have to prove both that the accounting numbers are different; and that they could neither be restated by users, nor that the information was available elsewhere.

The second reason offered by Gonedes and Dopuch, (viz., changes in share price could be associated with a change in the operating or financing activities of the firm) is more likely to be applicable. Prakash and Rappaport [1977] offer an explanation known as "information inductance," a process by which management, by anticipating changes in the perceived behavior of information users, chooses to modify its own behavior.

In the context of FASB 34, one reason that managerial actions might be perceived to be affected is that although the "real earnings" (long-term cash flow) of the firms that now capitalize interest is not affected by the ruling, there might be future financial consequences due to certain contractual agreements (i.e., debt covenants or managerial profit sharing arrangements) based on historical cost earnings. In the case of the former, interest rates might be reduced, causing operating income to be higher. However, with regard to the latter, managerial bonuses based on this figure would also be higher.

The third reason for changes in security prices, (viz., that the actual accounting change represents a significant economic event in its own right), does not appear to be applicable to FASB 34, since neither the tax liability of the firm was affected by the ruling, nor was the cost of providing the new information expected to be material.

Thus, of the three possible reasons engendering a change in security prices, the second, (viz., the change being associated with other operating or financing activities of the firm), seems likely to be the most applicable. Futhermore, since the historical cost income numbers would be higher in the earlier years after capitalization, because the former interest that was expensed is now being capitalized, interest coverage would be improved, possibly enabling the firm to borrow at lower interest rates. Against this,

managerial bonuses based upon the revised net income might be higher, although these increased cash outlays would be less than the net cash savings from the reduced interest. As a result, any security price changes of the affected firms would be expected to be positive.

Research Methodology

The research methodology used in this study involved the following five steps: 1) selecting the time periods; 2) selecting the sample of companies; 3) estimating the relationship between the returns of the individual companies' common stocks and the market portfolio; 4) calculating the residuals; 5) and, statistically analyzing the residuals. Each of these steps will be discussed briefly in the following paragraphs.

This study uses an "estimation period" in which the coefficients of the regression line are estimated, and a "test period" in which the residuals are examined to test the research hypothesis. The estimation period consisted of 104 of the weekly closing prices of the company's common stock, commencing 108 weeks prior to the week the company released its 1980 or 1981 annual report. The test period consisted of a nine-week period. It covers the event week, the week in which the individual companies released their 1980 or 1981 annual reports, and four weeks prior and after the event week.

Assuming the market is efficient, any change in the stock's return due to FASB 34's disclosures should take place during or immediately following event week. However, "leaks" or delays may have occurred prior to or following the event week. Accordingly, a nine week test period was used, commencing four weeks before the event week. NAARS was used to identify those companies disclosing the capitalization of interest in their 1980 annual reports. NAARS identified 508 companies. From this population a sample of 123 NYSE companies was selected, using nine criteria based on the findings of past empirical studies. These criteria were used to minimize any ambiguity associated with an observed reaction during the test periods. Without these criteria there might have been several factors affecting the change in the common stock returns and it would be impossible to attribute these changes to FASB 34's required disclosures.

The model used to estimate the relationship between the returns of the individual companies' common stocks and the market portfolio was the General Market Model (GMM). This two-parameter model states that there is a linear relationship that exists between the expected return on a single security and the expected value of the market factor. The GMM is defined by Beaver [1980] as:

$$R_{it} = a_i + B_i R_{mt} + e_{it} \qquad (1)$$

Where R_{it} is the rate of return, adjusted for dividends and stock splits on security i in period t; a_i and B_i are the intercept and the slope, respectively, of security i; R_{mt} is the rate of return on the proxy market portfolio (S & P 500 Composite Stock Price Index) in period t; and e_{it} is the error term of security of i in period t. The value of the regression coefficients, a_i and B_i, were empirically estimated by apply a time series regression.

The fourth step of the methodology was to calculate the residuals, the

difference between the actual returns and the forecasted returns, for each week of the test periods. The residuals, u_{it}, were calculated using the equation presented by Sunder [1973] as:

$$u_{it} = R_{it} - (a_i + B_i R_{mt}) \qquad (2)$$

By definition, if the GMM as expressed in equation (1) is valid in the test period for company i, and there is no event which can have an impact on the common stock return of that company, then the expected value of u_{it} should be equal to e_{it}, which in turn should approximate to zero. Any significant positive or negative differences reflect abnormal returns for security i in each week of the test period which is not associated with the market factor R_{mt}.

The final step of the methodology was to analyze statistically the residuals computed from equation (2). Various studies have used different means of analyzing share price residuals. The approach used in this study was to calculate the average residual (AR) a method frequently used by researchers, including recently Brown [1980] and Murray [1982]. The AR is the mean of the securities residuals during the test period, and it was computed as:

$$AR = (\quad u_{it})/N \qquad (3)$$

Where N equals the number of observations during the test period. ARs for 1980 and 1981 were computed and designated as AR80 and AR81, respectively.

Findings

As discussed above, the regression coefficients a_i and B_i were estimated by applying a time series regression. Initially, ordinary least square (OLS) was used. However, when testing to determine whether the assumptions of OLS (homoscedasticity, nonautocorrelation, independence of the error terms and explanatory variables, and non-correlation with that of another regression model) were met, it was determined that over 40 percent of the sampled companies had autocorrelation problems. To reduce this problem substantially, the error terms had to be lagged and the method thus approximated generalized least squares (GLS). In fact, an autoregressive procedure with a lag of 3 was used in this study, which was similar to the procedure adopted in the study by Benjamin and McEnroe [1981].

The average beta, B_i, was approximately .75 for each year, which suggested that the portfolio of the sample companies was below the average risk relative to the market proxy as a whole. On an individual security basis, the betas ranged from .01 to 2.15.

For 1980 and 1981 the average R^2, the coefficient of determination, was .12 and .14, respectively. This means that on average, less than 15 percent of the variation in a security's returns could be explained by the variation in the rate of return for the market. In general, the low explanatory power of R_{mt} for the changes in R_{it} is a major deficiency in the GMM as a procedure for detecting price reactions to different sets of information.

While the values of R^2 were low, the statistic used for testing for the goodness of fit of the regression equation, the F statistic, was high, being

in excess of 14, which indicated significance at less than the .01 level. This indicated that a linear relationship between the common stocks' rate of return and the market's rate of return existed, and, hence, use of the model was appropriate.

The primary objective of this study was to determine whether the AR for the entire test period for each year was significantly different from zero, while a secondary aim was to establish whether there was significant difference between the weekly ARs of each year and zero. Table 1 shows the summary of the average residuals during the test periods for 1980 and 1981.

Descriptive statistics calculated on the ARs indicated skewed distributions. As Siegel [1956] has stated, one of the assumptions of parametric statistics is that the observations must be drawn from normally distributed populations. Futhermore, if the assumptions are not met, it is difficult, if not impossible, to determine the power of the test (i.e., the probability of rejecting the null hypothesis when it is in fact false). In addition, it is difficult to estimate the extent to which a probability statement about the hypothesis in question is meaningful when that probability statement results from the unacceptable application of a test. Accordingly, all hypothesis testing was performed using nonparametric statistics.

Table 1

Summary of the Average Residuals During the Test Periods

Week	1980	1981
-4	0.00795336	-.00654744
-3	0.00839404	-.00646359
-2	0.00886849	-.00485618
-1	-.00811713	0.02030657
0	0.00147151	-.00019770
+1	0.00316155	-.00034033
+2	0.00429691	-.00020343
+3	0.00475202	-.00050499
+4	-.00527963	-.00208740
Entire test period	0.00283346	-.00009937

The Wilcoxon matched-pairs signed-ranks test was applied to the following hypothesis:

Null hypothesis: $AR = 0$
Alternative hypothesis: $AR \neq 0$

As stated above, the primary purpose of this study was to determine whether the AR for the entire nine-week test period for each year was significantly different from zero. A secondary aim was whether there were significant differences between the weekly ARs of each year and zero. Accordingly, ten tests of the above hypothesis were undertaken for each of the two years, 1980 and 1981. These ten Wilcoxon tests comprised nine tests for significant differences between the weekly ARs and zero, and one to test for a significant difference between the AR for the entire test period and zero. The results are presented in Table 2.

As the statistics indicate, for the entire test period the null hypothesis can be rejected at the .01 level of significance for 1980, but for 1981 it cannot be rejected at even the .10 level. Thus, the disclosure of the capitalization of interest did appear to have a significant impact on common stock prices in 1980, but not in 1981. The direction of the 1980 change was consistent with the a priori expectation, namely that a higher historical cost net income might precipitate more positive stockholder expectations and lead to higher security prices. This is consistent with the efficient market hypothesis, even though the 1981 disclosures may have included additional amounts of capitalized interest, because investors may have anticipated such disclosures in 1981.

As regards to the secondary objective of the study (i.e., significant differences between the weekly ARs and zero), Table 2 indicates that for 1980, over 55% of the weekly ARs were significantly different from zero at the .10 or .05 level of significance. For 1981, only 33% of the weekly ARs were significantly different from zero at the .10 or .05 level of significance. Thus, the null hypothesis could be rejected approximately 55% of the time for 1980, but only 33% of the time for the 1981 weekly ARs.

The preceding paragraphs provided evidence to reject the null hypothesis for 1980, but not for 1981. Therefore, FASB 34's required disclosures appeared to have an impact on stock prices during the 1980 test period but not for the 1981 test period. This provides some support for acceptance of the research hypothesis, taking into account the year in question.

Table 2

Results of Wilcoxon Tests

Week of the Test Period	Z Statistics 1980	1981
-4	-1.744**	-2.193**
-3	-1.562*	-1.318*
-2	-2.095**	-1.310*
-1	-1.903**	-0.775
0	-0.197	-0.729
+1	-0.288	-0.487
+2	-0.974	-0.121
+3	-1.151	-0.502
+4	-1.492*	-0.308
For the entire test period	-2.519***	-0.144

* significant at the .10 level
** significant at the .05 level
*** significant at the .01 level

As a further test, the Mann-Whitney U test was utilized to determine if two independent groups (i.e., AR80 and AR81) were drawn from the same population. The rationale for using this test was to ensure the results and their inferences of one year could be compared to those of the other year under investigation. Accordingly, the following hypothesis was tested:

Null hypothesis: AR80 = AR81
Alternative hypothesis: AR80 ≠ AR81

The computed z value was 2.2183. Thus, the null hypothesis could be rejected at the .05 level of significance. Therefore, it appears that the average residuals for 1980 and 1981 were drawn from the same population and, therefore, the results and conclusions made about one year could be compared to those of the other.

Summary and Conclusions

This study was undertaken to provide empirical evidence to test whether the disclosure required by FASB 34 had any impact on common stock prices. Weekly data for two years prior to each of the test periods for each of the 123 sample companies were used to estimate the regression coefficients via the GMM using a GLS with a lag of 3 due to the presence of autocorrelation. The residuals, the difference between the actual and predicted returns, were averaged to form the ARs. Statistical analysis indicated the AR for 1980 was significantly different from zero. The evidence developed by this study provided strong support that FASB 34's required disclosures did have an significant impact on common stock prices in the initial year of release, 1980, but not in the subsequent year. Therefore, the evidence of this study supports the hypothesis that FASB 34 affected the capital market equilibrium via users' reactions to the required disclosures.

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