Alternative Disclosure Methods For Accounting Changes and Analysts' Earnings Forecasts

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Abstract

Generally accepted accounting principles (GAAP) require that firms changing accounting principles must report the change in one of three ways: the cumulative effect method, the retroactive restatement method, or a no-adjustment (prospective) method. The method a company should use is determined by the type of change being made. This raises the following question: can it be demonstrated that one of these methods is better, in some sense, than the other methods? A major problem in evaluating alternative methods of accounting for the same economic event and in deciding which one method should be adopted as GAAP is that it is impossible to objectively determine which of the alternatives is best. However, it is possible to rank alternatives on one dimension of interest - which method minimizes the income forecasts in years after the change. We obtained a sample of firms making accounting changes and formed three "portfolios" of firms based on the method they used to account for the change in accounting principle. We then compared financial analysts' earnings forecast errors for the firms in the three portfolios. After controlling for relevant variables, we found that, in the year firms made accounting changes the firms making changes requiring retroactive restatement had significantly larger forecast errors than the firms making changes requiring the other forms of disclosure, but in years subsequent to the year of change there were no significant differences in forecast errors. This leads us to the conclusion that, from an earnings forecast accuracy perspective, there is no advantage to calculating and presenting the cumulative effect of an accounting change or in preparing restated or pro-forma financial statements.

Introduction

The Financial Accounting Standards Board (FASB) has stated that the primary objective of financial accounting is to "provide information to help present and potential investors and creditors and other users [assess] the amounts, timing, and uncertainty of prospective net cash inflows to the related enterprise" (FASB, 1978, para. 37). The FASB further believes that, in order to estimate cash flow, users should focus on

earnings numbers rather than on cash flows themselves (FASB, 1978, para. 43). In *Reporting Earnings* (FASB, 1979, para. 8) the FASB identified that relationship as a two step process: (1) past earnings reports are used as a basis for the estimation of future earnings and (2) an adjustment is then made to the estimate of future earnings to make an estimate of future cash flows. The current study, as did Brown (1983), focuses on

step one of this process: the estimation of future earnings. The value of this approach has been demonstrated by Givoly and Lakonishok (1979) who, among others, found that the securities market reacts to a firm's earnings forecast announcement by analysts.

When economic circumstances warrant doing so, enterprises make changes in accounting principles. Researchers have ascribed various reasons for managers making discretionary financial accounting changes (see Watts and Zimmerman, 1990); however, the accounting profession views an accounting change as being "... justified only if the nature of the transactions or events changes so that it becomes necessary to change the accounting method applied to maintain representational faithfulness" (May and Schneider, 1988, p. 8). Regardless of why discretionary changes are made, research indicates that an accounting change, alone, has little effect on a firm's security market price (Eggleton et al., 1976, p. 66). That research suggests that the market sees through an accounting change, unless it is accompanied by an event affecting the economic value of the firm. On the other hand, there is evidence that an important part of the financial market mechanism is unable to fully take into account changes in accounting principles. Biddle and Ricks (1988) and Elliott and Philbrick (1990) (among others) found that financial analysts may not fully revise their earnings forecasts in the year a firm changes accounting principles. That finding may not be very surprising if analysts are not aware (1) that a change was made, (2) of the magnitude of the cumulative effect included in income (if any), or (3) of the effect of the use of the new method itself on income in the year of the change (Hughes and Ricks, 1986).

The accounting profession has long held that when a company makes a discretionary change in accounting principles, the company's balance sheet (as of the beginning of the year in which the change was made) should be adjusted so that it appears as if the company had *always* used the newly adopted method. Invariably, this means there will be an adjustment (directly or indirectly) to the company's Retained Earnings, since the

different methods would have resulted in different profits having been reported in the past.

The Accounting Principles Board (APB) (APB, 1971) determined that, depending on the type of accounting change, the adjustment to a company's Retained Earnings will be made in one of two ways: (1) a direct adjustment to a firm's Retained Earnings (the "retroactive restatement" method)--which requires that prior financial statements that are presented must be restated, or (2) an indirect adjustment to a firm's Retained Earnings (the "cumulative effect" method)--which does not allow retroactive restatement; however, pro-forma disclosure of prior net income and earnings per share based on the new method are required.

The APB provided a third alternative (the "no-adjustment" or "prospective method") for situations where a company cannot determine both the cumulative effect and the necessary pro-forma information. In these cases, in the year of the change, the company begins using the newly adopted method (and provides adequate financial statement notes). A typical example of a type of change accounted for with the prospective method is a change in inventory method from FIFO to LIFO.¹

APB Opinion No. 20 specifies which of the three alternatives discussed above a company should use when making a voluntary accounting change -- the method used being determined by the type of change made. For example, a change in depreciation method should be accounted for using the cumulative effect method while a change in the method of accounting for long term contracts should be accounted for using the retroactive restatement method. All three methods result in different earnings being reported in the year of the change in accounting principle. In years subsequent to the change, however, the cumulative effect and retroactive restatement methods result in the same income being reported, while the prospective method will result in different income than the other two. The APB believed that restating prior years financial statements had the potential to dilute public confidence in financial

statements; therefore, it concluded that in most cases the cumulative effect adjustment should appear in the Income Statement and prior year's financial statements should not be restated (APB, 1971, para. 18). However, certain changes in accounting principles are such that the APB felt the advantages of retroactive treatment in prior period's reports outweighed the disadvantages (para. 27).

Forecast Accuracy

The issue addressed in this research concerns whether one of the alternative methods of disclosing the voluntary change in accounting principles results in a different level of forecast accuracy in years subsequent to that change. Brown (1983) investigated earnings for firms making five specific changes in accounting principles; his results indicated that, for four of the changes, there was no significant loss of forecast accuracy in the year after the change. His research was conducted on specific changes in accounting principles, so he did not study the forecast accuracy of the three alternative *methods* of disclosing the change in accounting principle.² In addition, three of his changes were mandated changes³ and four of his changes required use of the prospective method; the other required retroactive restatement. Our research addresses a more general question than that studied by Brown. Specifically, the purposes of this research are to determine (1) if the different methods of disclosing discretionary accounting changes result in differences in forecast accuracy of a firm's earnings in the year after the change in accounting principle and (2) if there is a difference in accuracy that year, for how many subsequent years does the difference in accuracy exist. A related issue is the cost/benefit of implementing the methods. Calculating the cumulative effect of an accounting change and preparing pro-forma or restated financial statements is a costly process. To justify the added cost of the cumulative effect and retroactive restatement methods over the prospective method there should be a related benefit. It is our purpose to see if increased forecast accuracy is the resulting benefit.

While this research is somewhat exploratory in nature, one could develop some expectations about the results. If analysts are naive (that is, base their forecasts on past reported EPS on the income statement in the year of the change and ignore interim earnings announcements and other disclosure in the subsequent year), one would expect forecasts for firms using the retroactive restatement method to have, in years after an accounting change, the lowest forecast error since those firms will have had at least two years of data presented in the financial statements using the new method. However, if analysts incorporate pro-forma information found in the notes to the financial statements and/or other data sources, one would expect forecasts for firms using the retroactive restatement method and the cumulative effect method to have, in years after the accounting change, similar forecast errors.⁴ In either case one would expect firms making accounting changes using the prospective method to have the largest forecast error in years after an accounting change because of the lack of comparable past annual earnings data.

We developed two hypotheses to test these expectations. The first hypothesis tests the assumption that, for analysts, more information regarding the consistent application of an accounting principle will result in more accurate forecasts than less information.

H₁: Analysts EPS forecasts for firms reporting accounting changes using either the retroactive restatement method or the cumulative effect method will be more accurate in years immediately after the accounting change than forecasts for firms using the prospective method.

The second hypothesis tests whether or not restating prior years financial statements as if the newly adopted accounting method had been in effect in those years leads to more accurate forecasts than if the prior periods are not restated, but that information is disclosed in pro-forma manner.

H₂: Analysts EPS forecasts for firms reporting accounting changes using the retroactive

restatement method will be more accurate in years immediately after the accounting change than forecasts for firms reporting accounting changes using the cumulative effect method.

This research is important for several reasons. One is that The Commission on Auditors' Responsibility has recommended that the FASB amend the disclosure required by APB Opinion No. 20 (1978, p. 81).⁵ If the FASB does follow the Commission's recommendation, it would be an opportune time to consider the alternative reporting requirements as well. Another reason is that the relation of security prices to the magnitude of forecast errors has long been an issue to accounting and finance researchers (see Givoly and Lakonishok, 1984 for a summary). If it is found that one of the methods of accounting for changes in accounting principles results in larger forecast errors in the year after an accounting change, or larger forecast errors for more years after the accounting change, then that would be additional evidence to the profession that it needs to reconsider that topic as well. A final reason is the proposition that management uses accounting changes as a means to confuse financial statement users (Palepu, 1987). That suggests that if one method lends itself to more efficient adjustment (in the form of smaller forecast errors or more rapid elimination of errors) it should be the method of choice, other things the same.

The reason we looked only at voluntary accounting changes is because firms have (to a limited extent) an opportunity to select the accounting changes they make and therefore the method of portraying the change. That is, if a firm wants to make a cumulative effect type change they can select (for example) a change in depreciation method; the same would apply to a company wanting to select a retroactive restatement type change. Firms making mandatory changes usually do not have that flexibility.

Methodology

Accounting Changes

Firms making voluntary changes in

accounting principles were identified by searching the AICPA's National Automated Accounting Retrieval System (NAARS) database for consistency qualifications in audit opinions and footnote descriptions of those changes in the years 1981 to 1986.⁶ Criteria for inclusion in the study were that a firm (1) was a U.S. corporation, (2) made a discretionary accounting change, (3) did not report accounting changes in two successive years, and (4) did not change fiscal year end in either of the years immediately surrounding the year they made an accounting change. Two hundred twenty-five change firms were identified as satisfying the criteria on NAARS. The Institutional Brokers Estimate System (I/B/E/S) data base was then searched to find analysts' forecasts for the firms identified on NAARS.⁷ Firms' actual earnings were also obtained from I/B/E/S. Ninety-nine (of the 225) firms reporting an accounting change had forecast data on the I/B/E/S data base for the years required for our analysis. The names of the firms used in the study and the fiscal year of their accounting change are available from either author.

Research by Ashton and Ashton (1985) in an experimental setting and by Conroy and Harris (1987) using analyst's forecasts has shown that when the number of forecasts increases, then the mean forecast becomes more accurate. Hence, large firms, which would have more analysts following them, would be expected to have a smaller forecast error. To control for this, the number of analysts forecasting firms' earnings was also obtained from I/B/E/S. In addition, Conroy and Harris (1987) found that the higher the dispersion of analysts forecasts, the higher the forecast error. To control for this measure of uncertainty surrounding forecasts, we obtained the standard deviation from I/B/E/S as well.

Table 1 Panel A shows the number of firms identified by NAARS by year and the number of firms deleted because of missing data. Panel B shows the number of firms using each method to account for the accounting change and the years the changes were reported. Because we were interested in the effects of an accounting change on forecast accuracy in years *subsequent* to

the change and the number of years those effects might linger, we studied the four years following the change. To establish that there were no *a priori* differences between the firms, we included the year before the accounting change. We also included the year of the change, but with no expectations as to the differences we might find in that year. To be included in the sample, firms had to have forecasts available on I/B/E/S for at least the year of the accounting change and the years immediately before and after the change year. Table 2 Panel A shows the specific type of accounting change made by the firms in each portfolio. Panel B of Table 2 shows the number of firms in the sample classified by type of change by year.

Forecast Error

Forecast error can be measured in several

ways. McEwen (1989, p. 125) has shown that the form of "error metric choice affects the results of a comparative analysis of the forecast accuracy of analysts and mechanical models." The ex-ante choice of a metric depends on the assumed related user loss function (McEwen, 1989, p. 115). Since we have no *a priori* expectation of the users loss function, we selected the absolute percentage error, APE, (which has been used by several studies, including Conroy and Harris (1987), Brown (1983), Collins and Hopwood (1980), and Chant (1980)) as the measure of forecast accuracy:

$$APE_{i,t} = |(A_{i,t} - F_{i,t}) / A_{i,t}|$$

where:

$APE_{i,t}$ = the absolute value of analysts' forecast error for firm *i* in year *t*,

$A_{i,t}$ = the actual earnings per share reported by firm *i* for year *t*, and

$F_{i,t}$ = the mean value of analysts' last earnings forecast prior to the announcement of firm *i*'s actual EPS for year *t*.

This error metric was chosen over others (such as average absolute error, used by O'Brien (1990)), because it deflates the analysts' mean forecast error by the firm's actual earnings and it is intuitively interpretable as the percentage error in the estimate.⁷ We used the absolute value operator for the whole right side of the equation (rather than just the numerator, as have several researchers who did not use firms with negative actual EPS), because we have no reason to believe that negative forecast errors induce different loss functions than positive forecast errors.

Using the last forecast made prior to the announcement of the actual earnings (one to three months after the end of the fiscal year) insures that, in the year after the accounting change, analysts will have had the

Table 1

Panel A

NAARS Sample Restriction

<u>Year</u>	<u>Total</u>	<u>Deleted</u>	<u>Final Sample</u>
1981	4	4	0
1982	39	24	15
1983	49	31	18
1984	64	37	27
1985	56	23	33
1986	<u>13</u>	<u>7</u>	<u>6</u>
	<u>225</u>	<u>126</u>	<u>99</u>

Panel B

Final Sample - Type of Presentation by Year

<u>Year</u>	<u>Sample</u>	<u>Final Effect</u>	<u>Cumulative Restatement</u>	<u>Retroactive Prospective</u>
1981	0	0	0	0
1982	15	14	0	1
1983	18	8	4	6
1984	27	10	10	7
1985	33	19	9	5
1986	<u>6</u>	<u>2</u>	<u>2</u>	<u>2</u>
	<u>99</u>	<u>53</u>	<u>25</u>	<u>21</u>

Table 2
Panel A
Types of Accounting Changes Made by Reporting Method

Cumulative Effect Type Change:

Change to the flow-through method for ITC	18
Change in the method of revenue recognition	15
Change in the method of expense recognition	15
Change in depreciation method	6
Change in inventory method	<u>2</u>
TOTAL	<u>56*</u>

Retroactive Restatement Type Change:

Change from the LIFO inventory method	15
Change from full cost	6
Change in accounting for long term contracts	3
Change to full cost	<u>1</u>
TOTAL	<u>25</u>

Prospective Type Change:

Change to the LIFO inventory method	13
Change in depreciation method for all assets	4
Change in inventory method (other than to LIFO)	1
Change in method of revenue recognition	1
Change in method of expense recognition	1
Change to the flow-through method for ITC	<u>1</u>
TOTAL	<u>21</u>

Panel B
Number of Sample Firms by Type of Change by Year

<u>Year Relative</u> <u>to Change Year</u>	<u>Cumulative</u> <u>Effect</u>	<u>Retroactive</u> <u>Restatement</u>	<u>Prospective</u>	<u>Total</u>
-1	53	25	21	99
0	53	25	21	99
1	53	25	21	99
2	44	21	19	84
3	41	15	17	73
4	26	6	13	45

*Totals more than the number of firms in this group because three of the firms made two accounting changes in the same year.

benefit of three interim earnings announcements to judge the effect of the new accounting principle on the companies' earnings in each year subsequent to the accounting change. Several studies have

shown that analysts' forecast accuracy improves as the actual announcement date nears (Conroy and Harris (1987), Brown, et al. (1985), and Elton et al. (1984)). Furthermore, Elton et al. (1984)

partitioned forecast error and found that, by the end of the year, error became more company specific (increasing from 60.7% in January to 83.7% in December) and less economy (2.0% to 0.8%) and industry (37.3% to 15.5%) specific. Therefore, differences found in forecast accuracy using the last forecast should be due more to presentation and less to variables exogenous to the firm.

Data Analysis

The data was analyzed using multiple regression. Comparisons of the three different accounting treatments was done by means of orthogonal polynomial contrast coded independent variables. (Judd and McClelland, 1989, p. 300) The regression equation also included the number of analysts and the standard deviation of all analysts forecasts. The APE was used as the dependent variable in the equation.

An analysis of the residuals for the model showed them to be right skewed and leptokurtic; the sample also contained some extreme outliers (e.g. observations of 7400 and 5600 percent in year zero). When the normality of the distribution of residuals assumption for multiple regression is violated it may be remedied by means of a non-linear transformation of y . (Box and Cox 1964, p. 211) A number of transformations were tried and a visual inspection of the residuals indicated that a natural log transformation had the best effect of normalizing the data.⁸ Log transformations have an additional advantage of reducing extreme observations, which effectively eliminated all outliers. The resulting regression equation is:

$$\text{LN}(\text{APE}_{i,t}) = B_0 + B_1 \text{NOADJ} + B_2 \text{CUMRES} + B_3 \text{NUM}_{i,t} + B_4 \text{STD}_{i,t}$$

where:

$\text{LN}(\text{APE}_{i,t})$ = the natural log of the absolute percentage error for firm i in year t .

NOADJ = the contrast codes for the comparison of cumulative effect and retro-active restatement together to prospective.

CUMRES = the contrast codes for the comparison of cumulative effect and retroactive re-

statement.

$\text{NUM}_{i,t}$ = the number of analysts forecasting firm i in year t .

$\text{STD}_{i,t}$ = the standard deviation of analysts mean forecasts for firm i in year t .

Results

Table 3 shows the mean, median, and standard deviation of the forecast error by method of recording the accounting change before (Panel A) and after (Panel B) the log transformation. Where applicable, the antilogs of the log adjusted data are given. A comparison of the sample means and medians in panel A illustrates how non-normally distributed the data was. Prior studies have shown mean forecast errors to be approximately 10% in the periods immediately preceding the earnings announcement (Brown et al, 1985, Collins and Hopwood, 1980).⁹ A comparison of the sample means and medians in panel B shows that the transformed total sample means are much closer to the total sample median and are also more consistent with those of prior studies. The transformed total sample mean forecast errors are 10% the year before the change, peak at 22% the year of the change then drop off to 8% four years after the change. Table 3 also contains the means of the three individual portfolios. The cumulative effect and retroactive restatement follow the same trend as the total sample, but the prospective change firms follow a slightly different trend. The antilogs of the mean of the forecast errors by portfolio by year are plotted in Figure 1.

Table 4 gives the results of the regressions for each year. Except for the year of change, the number of analysts proved to be significantly correlated with forecast accuracy. That is, forecast accuracy increased with an increase in the number of analysts predicting EPS when controlling for the dispersion of forecasts and the presentation of the accounting change. The standard deviation was not as consistently correlated. In three of the four years following the accounting change, forecast accuracy decreased as the dispersion of analysts' forecasts increased after controlling for the number of forecasts and the

Table 3
Sample Means

Panel A
Absolute Percentage Error

Year	Total Sample			Cumulative Effect		Retroactive Restatement		Prospective	
	Mean	Median	Stdev	Mean	Stdev	Mean	Stdev	Mean	Stdev
-1	0.607	0.123	1.856	0.454	0.787	1.104	3.448	0.402	0.771
0	2.084	0.230	9.298	0.695	1.044	6.269	17.275	0.608	1.946
1	0.557	0.136	1.146	0.442	0.840	0.945	1.840	0.382	0.533
2	0.476	0.111	1.478	0.544	1.942	0.503	0.810	0.290	0.532
3	0.964	0.080	3.464	0.969	4.011	0.853	2.482	1.048	2.892
4	0.349	0.047	0.786	0.294	0.502	0.807	1.772	0.249	0.556

Panel B
Antilog of Log Adjusted Absolute Percentage Error

Year	Total Sample			Cumulative Effect		Retroactive Restatement		Prospective	
	Mean	Median	Stdev	Mean	Stdev	Mean	Stdev	Mean	Stdev
-1	0.103	0.124	2.126	0.109	1.960	0.133	2.203	0.067	2.462
0	0.221	0.231	2.083	0.212	1.946	0.498	2.227	0.094	1.970
1	0.128	0.137	1.997	0.129	1.759	0.134	2.616	0.118	1.808
2	0.114	0.112	1.760	0.119	1.532	0.130	2.184	0.089	1.815
3	0.099	0.081	2.092	0.100	2.044	0.117	2.161	0.084	2.258
4	0.076	0.048	1.703	0.069	1.779	0.096	2.158	0.082	1.429

• Standard deviations are for the natural logs of the data.

method of presentation of the accounting change. The dispersion of analysts' forecasts was not highly correlated with forecast accuracy in years -1, 0, and 3.

The variables NOADJ and CUMRES tested hypothesis 1 and 2 respectively. The year before the change (Year -1) was analyzed to establish that there were no systematic differences between the firms making the three types of accounting changes, which appears to be the case. The null hypotheses of no difference between the prospective firms and the firms adjusting their financial statements (Hypothesis 1) and no difference between restating financial statements and doing a one period adjustment without restatement (Hypothesis 2) cannot be rejected in

any of the four years following the accounting change. This suggests that there were no significant differences in analysts forecast error for the firms in the three portfolios.

Limitations and Conclusion

This study examined the effect of the different methods of presenting an accounting change on analysts' EPS forecast accuracy in the years subsequent to that change; we found that the method did not make a difference. That is, analysts' forecast accuracy is unaffected by the method of presentation. One could conclude, given these results, that the cost incurred in calculating cumulative effects and pro-forma amounts is unnecessary from a forecast accuracy perspective.

Using our methodology it is not possible to directly differentiate the effect of the accounting disclosure of the change and the effect of the change itself. That is, because of the small number of firms that did not follow GAAP in accounting for their accounting change, we cannot test the possibility that if (for example) a firm making a change in the method of accounting for long term contracts had used the prospective method the forecast error in years after the accounting change would have been the same as when it used the retroactive restatement method. However, there is no intuitive reason to believe that this would have been the case.

Suggestions for Future Research

This study included only firms making voluntarily accounting changes; we excluded mandated changes.¹⁰ It might be argued that restricting the population to voluntary changes may have resulted in a biased sample since the agency literature suggests that managers try to manipulate financial statement numbers using voluntary accounting changes (Watts and Zimmerman, 1986). It is possible that what we found was related to the motivation of the managers choosing the accounting change. However, regardless of why firms were motivated to make accounting changes, the method of presenting the change does

not impact annual earnings beyond the year of the change. One extension of the research would be to examine the affect on forecast accuracy of mandated accounting changes and the method of implementing those changes.

We choose the last forecast before the earnings announcements to ensure that analysts would have the most information available prior to earnings announcements. However, users who rely on forecasts do so throughout the year, not just immediately before the earnings announcement. It may be that earlier forecasts, in the year after the change, are more affected by the method of accounting change than those that come later in the year. Brown et al. (1985) showed that forecast errors decrease as the fiscal year progresses; a future study could compare the decreases in forecast errors for the different disclosure methods in the year after the change to determine if they are different. □

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Table 4
Regression Results

Year (Sample Size)	Year-1 (99)	Year 0 (99)	Year+1 (99)	Year+2 (84)	Year+3 (73)	Year+4 (45)
Variable	COEF.	COEF.	COEF.	COEF.	COEF.	COEF.
Noadj	1.18	-0.426	-0.033	-0.044	-0.157	-0.072
Cumres	0.01	-0.380	0.150	0.086	0.098	-0.029
Resnoadj	0.92	-0.829	0.026	-0.023	-0.186	-0.122
Cumnoadj	1.01	-0.449	-0.124	-0.109	-0.284	-0.093
N0. Analysts	6.40*	-0.034	-0.074	-0.049	-0.083	-0.110
Standard Dev.	0.21	-0.000	0.022	0.021	0.009	0.036
Model R Square	2.33	0.092	0.178	0.123	0.129	0.463
	F	F	F	F	F	F
	1.18	6.31*	0.04	0.09	0.65	0.21
	0.01	2.34	0.43	0.14	0.10	0.01
	0.92	7.61**	0.02	0.01	0.27	0.14
	1.01	2.88	0.26	0.22	0.91	0.17
	6.40*	1.67	8.90**	4.26*	8.09**	22.44**
	0.21	0.15	14.07**	7.31**	2.35	13.08**
	2.33	2.38	5.08**	2.77*	2.51*	8.61**

* = Significance $P < .05$

** = Significance $P < .01$

Endnotes

1. In addition, the prospective method may have to be used in some mandated accounting changes (Mellman and Seiler 1986).
2. The changes studied by Brown were (1) foreign currency translation, (2) lease capitalization, (3) interest capitalization, (4) LIFO adoption or extension, and (5) actuarial changes for pensions; the last change was the only one with significantly worse forecast error.
3. Analysts may have a forecasting advantage when a firm makes a mandated accounting change vis-à-vis a discretionary change because (1) of public disclosure of FASB actions and (2) some firms disclose their intent to adopt a mandated method in the financial statements a year prior to the adoption.
4. earnings that would have been prepared using the currently adopted accounting principle.
5. The Commission recommended that the FASB amend APB Opinion No. 20 to require a standard note to the financial statements that would disclose all changes that materially affect comparability, including both changes in accounting principles and changes in accounting estimates.
6. While there is evidence that an opinion modified for a consistency exception is more likely for discretionary accounting changes than for nondiscretionary accounting changes (Chewning et al., 1989), there is no evidence that there are differences in audit reports for different types of changes in accounting principles. Therefore, there should not be a bias towards selecting certain types of changes in accounting principles and not selecting others.
7. This recognizes that a \$.10 forecast error is less important for a firm with a \$4.00 actual EPS (2.5% error) than for one with a \$.50 actual EPS (20% error).
8. One problem with using log transformations is that logs cannot be taken of zero and negative numbers. Because we used absolute values for our error terms the problem of

negative numbers was eliminated. However, some mean forecast EPS were exactly equal to the actual EPS, resulting in zero error. To eliminate this problem .001 was added to each APE before the log was taken (Mosteller and Tukey, 1977, p. 112).

9. Brown et al. (1985) excluded firms with negative EPS and got a sample mean two months before the earnings announcement of .102. Collins and Hopwood (1980) obtained their forecasts from the *Value Line Investment Survey*, and got a mean fourth quarter forecast error of .1003. They set any errors greater than 300% to 300%. It should be noted that both studies used much larger samples and different years.
10. Mandated by either the FASB or a governmental agency (such as a Public Utility Commission).

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