Earnings Performance and Interim Reporting

Dr. David T. Doran, Accounting, Penn State University - Erie

Abstract

This study documents that interim period earnings performance is relatively favorable to year-end earnings performance. Earnings performance is measured as the difference between reported earnings and the Value Line forecast. Additional analysis indicates the observed difference is due to a positive interim earnings performance bias - not any particular negative year-end earnings performance bias. Interim earnings are found to be overstated on average about five cents per interim quarter. Previous studies have argued that since only year-end earnings are audited, they include adjustments for misstatements of previously reported interim earnings (as a result of errors, poor estimates, misallocations, etc.). The results here support the notion that management may have incentive to overstate interim (unaudited) earnings, and may do so by delaying the announcement of bad news, and/or making optimistic estimates of full fiscal year amounts requisite for interim period reporting purposes.

Introduction and Statement of Hypothesis

This study contributes to the literature by empirically testing to determine if interim (unaudited) earnings performance differs from year-end earnings performance. Earnings performance is defined here as the difference between reported earnings and the Value Line forecast. The results indicate that interim earnings performance is more favorable than year-end earnings performance. Additional analysis is conducted in order to scrutinize potential underlying biases that may be causing the observed difference in earnings performance. The conclusion is drawn that the observed difference in earnings performance is due to overstatement of reported interim earnings.

Under Generally Accepted Accounting Principles (GAAP) interim quarterly earnings are considered an "integral" part of the full fiscal reporting period - not "discrete" independent reporting periods (see Accounting Principles Board Opinion No. 28 (1973). For interim reporting under GAAP, estimates of full fiscal year amounts must be made in order that the particular "integral" interim quarter be allocated the appropriate amount of tax expense, factory overhead, management bonus, etc. Misstatements in reported interim earnings are "settled up" at year-end when more definite "actual" amounts replace previous estimates, and are scrutinized in the audit.

Cornell and Landsman (1989), and Kinney and McDaniel (1989) note that since only year-end statements are audited, fourth quarter results may include corrections of previous errors in reported interim earnings. These contentions are consistent with the fourth quarter "settling up" or "dumping" effect described by Collins et al. (1984), and Bathke and Lorek (1984). If misstatements in reported interim earnings have equal probability of occurrence in terms of both direction (overstatement or understatement) and amount, the effects, on average, would offset. Unbiased interim earnings misstatements should have no impact upon average earnings performance. An inherent systematic bias in interim earnings misstatements could result in differences between fiscal year-end and interim period earnings performance.

Year-end earnings performance is scrutinized relative to interim earnings performance in this study by comparing average earnings performance between fiscal year-end (FYE) and nonfiscal year-end (NFYE) sample cases. Relatively positive (negative) earnings performance observed for FYE cases supports the notion of a general under (over) interim earnings misstatement bias, and/or a systematic positive (negative) year-end earnings performance bias. The hypothesis tested (stated in null form) is:

HO There is no difference between interim period earnings performance and fiscal year-end earnings performance.

Data

Expected earnings for this study is the earnings

forecast provided in Value Line's Summary and Index section. The earnings forecast data provided therein is unique in regard to it being issued most frequently (weekly), and the forecast horizon being of a relatively short period. Timely analyst forecasts have been found to be more accurate (see Brown and Kim (1991)), and the short duration of the future forecast horizon allows comparison of interim and year-end earnings performance.

The earnings forecast data were gathered manually by referencing the Value Line Summary and Index publications issued between November 17, 1971 and December 31, 1990. November 17, 1971 was the first issuance of the earnings forecast in the Summary and Index. A random sample of three firms per publication was drawn. For some weeks less than three firms are included in the study due to lack of requisite information (e.g., forecasted earnings was "no meaningful figure"). The realized earnings data were gathered from subsequent issues of the Value Line Ratings and Reports.

The Value Line Summary and Index earnings per share (eps) forecast always includes four sequential fiscal quarters. The period is composed of the two preceding and two subsequent quarters relative to the Value Line Publication date. About every 13 weeks, Value Line rolls the forecast horizon forward by adding a new "future" quarter and dropping the oldest quarter. The number of "future" quarters included in the forecast depends upon when a sample firm announces quarterly earnings, given the forecast horizon. As a result, the number of, and particular "future" fiscal quarters included in the forecast is not uniform across sample events.

The earnings performance for each sample event is measured three ways - 1) Nominal earnings performance (EP), 2) Earnings performance deflated by the absolute value of the forecast (EP%), and 3) Earnings performance deflated by market price of the stock (EP$). Formally stated:

EP = (Reported eps - Forecasted eps) (1)
EP% = (Reported eps - Forecasted eps) / |Forecasted eps| (2)
EP$ = (Reported eps - Forecasted eps) / Stock's Market Price (3)

Deflation of earnings performance allows for comparison across firms with various earnings levels. See for example Philbrick and Ricks (1991), or Givoly and Lakonishok (1984).

Tests and Results

The results of statistical tests of the hypothesis are presented in Table 1. The hypothesis is tested by comparing sample data of the FYE and NFYE groups. The FYE group includes sample cases where the forecast period concludes with a fiscal year-end quarter, while the NFYE group includes cases where all of the "future" quarters in the forecast horizon are interim periods. Those sample cases where the forecast horizon includes a "future" year-end quarter that does not conclude the forecast horizon are excluded[1]. The resulting sample includes 1,642 cases.

Cases where the forecast horizon concludes with a fiscal year-end quarter should reflect full adjustment for possible misstatements of interim earnings. Cases where the "future" forecast horizon does not include a fiscal year-end should reflect no adjustment for interim earnings misstatement. However, those cases where the forecast includes a "future" year-end quarter that does not conclude the forecast horizon would have partial but not complete adjustment for possible interim earnings misstatements.

Inclusion of all 1,642 sample cases results in severe nonnormality of the EP% sample distribution. This is partly caused by the large forecast error bias noted by Fried and Givoly (1982) and Beaver et al. (1989). Large forecast errors (EP%) result from small deviations from forecasted eps when the forecast (denominator) is small. In an effort to control for this bias, sample events where the forecast is small are excluded from parametric statistical analysis.

Table 1 depicts parametric statistical information for the full sample of EP, but restricts EP% to cases where forecasted eps are > or = $1 (consistent with Doran and Nachtmann (1988)). Similar restrictions in the case of EP$ resulted in no reduction of sample size as all had a market price > or = $1. The nonparametric analysis includes all sample data for the three measures of earnings performance.

To determine if there is a significant difference in average earnings performance between the FYE and NFYE groups, the parametric difference of means t test and the nonparametric Mann-Whitney test are applied (for a discussion of the Mann-Whitney test see Conover (1980) or Siegel (1956)). The results of all two sample tests are presented in Table 1.

It is observed that average earnings performance is inferior (more negative) when the forecast horizon concludes at fiscal year-end. The results of the parametric difference of means test are consistent across all forecast error measures and are significant at the 5% level for EP, EP%, and EP$ (t = 2.80, 2.77, and 2.25 respectively). The results of the nonparametric Mann Whitney tests are also consistent and significant at the 5% level (z = 2.33, 2.10, and 2.04 for EP, EP% and EP$ respectively). HO is rejected and it is concluded that earnings performance is more favorable (less

Table 1
Interim Periods vs. Year-end Earnings Performance Analysis

Forecast Horizon End with Fiscal Year-end Quarter?	YES	NO
Panel A - EP		
Parametric Statistics:		
Sample Size	658	984
Mean EP	-.274	-.126
(std. error)	(.043)	(.030)
Difference of means t statistic	-2.80*	
Nonparametric Statistics:		
Sample Size	658	984
Percent Positive	38	43
First Quartile	-.423	-.328
Second Quartile	-.070	-.050
Third Quartile	.090	.150
Mean Rank	788	844
Mann Whitney z	-2.33*	
Panel B - EP%		
Parametric Statistics:		
Sample Size	550	816
Mean EP%	-.103	-.032
(std. error)	(.023)	(.011)
Difference of means t statistic	-2.77*	
Nonparametric Statistics:		
Sample Size	657	984
Percent Positive	38	43
First Quartile	-.192	-.153
Second Quartile	-.032	-.025
Third Quartile	.045	.062
Mean Rank	791	841
Mann Whitney z	-2.10*	
Panel C - EP$		
Parametric Statistics:		
Sample Size	658	984
Mean EP$	-.030	-.015
(std. error)	(.005)	(.004)
Difference of means t statistic	-2.25*	
Nonparametric Statistics:		
Sample Size	658	984
Percent Positive	38	43
First Quartile	-.020	-.017
Second Quartile	-.003	-.002
Third Quartile	.004	.006
Mean Rank	792	841
Mann Whitney z	-2.04*	

* Indicates significance at the 5% level

negative) for interim periods.

Additional Analysis

Additional analysis is conducted to determine if the observed difference in earnings performance is due to interim earnings performance being positively biased, and/or year-end earnings performance being negatively biased. Earnings performance has been found to be negatively related to the length of the Value Line "future" forecast horizon (see Collins et al. (1984)). A regression is performed to more closely scrutinize the observed difference in earnings performance, and to control for the length of the "future" forecast horizon. The formal model is:

$$\text{Reported} = a + b_1 \text{Forecasted} + b_2 \text{Length} + b_3 \text{NFYE} \quad (4)$$

Reported and Forecasted represent reported and forecasted eps respectively, Length indicates the number of "future" quarters included in the forecast, and NFYE is a dummy variable that is assigned a value of 1 if the future forecast horizon includes only interim periods (NFYE firms).

This regression includes the same 1,642 sample cases tested in Table 1. The results indicate an F value of 3,294 and adjusted R^2 of .86 with the following individual coefficients and t values:

Reported = -.005 + 1.030 Forecasted - .142 Length + .121 NFYE

std error	.142	.010	.055	.052
t stat	-.04	98.95	-2.58	2.33

The intercept is insignificant, while all coefficients of the independent variables are significant at the 5% level.

Tests of the independent variables were conducted to assure that collinearity is not a problem. In addition to low standard errors, the following correlation table also indicates the lack of collinearity between the independent variables:

	Length	NFYE
Forecasted	.05670	-.01068
Length		.17745

Tests of multicollinearity yielded "tolerance" measures (portion of the variability of a particular independent variable not explained by the other independent variables) of .968, .996, and .965 for NFYE, Forecasted, and Length, respectively. The high tolerance levels indicate no difficulty with multicollinearity.

To further scrutinize the interim earnings misstatement bias and include cases where the future forecast horizon includes a fiscal year-end that does not conclude the forecast horizon, an additional regression is conducted. The formal model is:

$$\text{Reported} = a + b_1 \text{Forecasted} + b_2 \text{Length} + b_3 \text{Intbias} \quad (5)$$

The variables included in this regression are the same as those included in the previous equation except Intbias is substituted for NFYE. Intbias is assigned a value of zero if the forecast horizon concludes at fiscal year-end. Otherwise, Intbias is assigned a value of the particular fiscal quarter that concludes the forecast horizon (i.e., 1, 2 or 3). The second regression includes the full 2,696 sample cases.

The following correlation table indicates no problem of collinearity between the independent variables.

	Length	Intbias
Forecasted	.07137	.01032
Length		.00931

The tolerance measures of .999, .995, and .995 again indicate no problem with multicollinearity.

The results indicate an F value of 6,058 and adjusted R^2 of .87 with the following individual coefficients and t values:

Reported = -.041 + 1.036 Forecasted - .133 Length + .049 Intbias

std error	.103	.008	.039	.017
t stat	-.40	134.12	-3.41	2.85

Again all coefficients of the independent variables are significant at the 5% level. The significance of the INTBIAS variable indicates that interim earnings tend to be overstated about $.05 per share per interim quarter. The intercept term is again insignificant. The consistent insignificance of the intercept term indicates that forecasts concluding at fiscal year-end are not associated with any particular earnings performance bias.[2]

The regression analysis indicates that the observed inferiority of fiscal year-end earnings performance is attributed to an interim period earnings overstatement bias. The regression analysis also indicates there is no particular negative earnings bias associated with the fiscal year-end.

Discussion

The observed results support prior research indicating the expectation of an interim period earnings overstatement bias. For example, Pennman (1987), Atiase et al. (1989), and McNichols (1988) contend that management tends to delay announcing earnings that convey "bad news". Pastena and Ronen (1979) argue that management delays announcing bad news as long as possible - fiscal year-end when the annual audit is performed.

Mendenhall and Nichols (1988) assert that the market reacts more intensely to interim bad news earnings information because to do so indicates the bad news is so acute that management could not postpone announcement until year-end.

The delay bad news theory is consistent with the notion that management has a tendency to overstate interim (unaudited) earnings. This could be accomplished for example by making optimistic total annual estimates of costs and sales for interim (integral) reporting periods. Per Watts and Zimmerman (1986), management may benefit from temporary earnings overstatement for their responsibility units if they are rewarded based upon the subunit's performance; and, reassignment occurs before year-end. In these cases, management may benefit from interim earnings overstatement without being held accountable in the future when year-end adjustment occurs.

The results of this study consistently support the notion that management may overstate interim reported earnings by delaying bad news, and/or making optimistic full fiscal year estimates for interim period reporting purposes that results in relatively favorable interim earnings performance.

Other previous studies have identified management's incentive to sometimes orchestrate future earnings performance by lowering year-end results in particularly good or bad years. Healy (1985) contends that many firms grant earnings based bonus incentives over a limited range of earnings performance levels. If management anticipates annual earnings will exceed the upper limit of the range, they may use various revenue deferrals and expense accruals to shift the excess earnings to future (higher bonus) periods. The "big bath" theory argues that management may record excessive losses in a particularly bad year in order to enhance the likelihood of future profit. Elliott and Shaw (1988) find that discretionary write-offs (big baths) occur disproportionately often in the fourth quarter. These theories indicate that earnings performance of the FYE group should be relatively weak due to a particular negative year-end earnings performance bias. The regression analysis indicates that the observed earnings performance superiority of the NFYE group is due to overstatement of interim reported earnings bias rather than an understatement of year-end reported earnings bias.

Conclusion

This study compares interim period and year-end earnings performance (relative to analyst forecasts) by analyzing two groups of firms. One group is restricted to firms with only interim future quarters included in the earnings forecast, while the other group is restricted to firms where the forecast concludes at fiscal year-end. The results indicate that the fiscal year-end group demonstrates relatively unfavorable earnings performance. Regression analysis indicates that the observed difference in earnings performance is due to an interim period earnings overstatement bias - not any particular negative earnings performance bias associated with the year-end. The results seem most consistent with the notion that management may have incentives to overstate interim earnings. They may do so by delaying bad news and/or making optimistic full fiscal year estimates for interim reporting purposes.

Future Research

This study used manually gathered Value Line Summary and Index earnings forecast data. The weekly Summary and Index provides one forecast amount (a point estimate) for four consecutive quarters. The individual quarter's earnings forecasts are not provided. The quarterly Value Line Ratings and Reports provides earnings forecasts on a quarter by quarter basis. Replication of this study using Value Line Ratings and Reports forecasts would allow closer scrutiny of each fiscal quarter's earnings performance. However, this data would also need to be manually developed (a very time consuming process) since it is not available in computer readable form. ❧

Footnotes

1. There were 1054 of these cases with the following mean and median values respectively: EP = -.229, -.06; EP% = -.0765, -.033; EP$ = -.027, -.003. These sample cases are included later as part of the regression analysis.
2. A stepwise regression was conducted that included a dummy variable that was assigned a value of one if the forecast horizon concluded at fiscal year end. The dummy variable was not entered into the regression equation due to its negligible explanatory power.

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