

The Impact of Sarbanes-Oxley on Earnings Forecasts

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Abstract

This study provides empirical evidence regarding the credibility of management forecasts during pre-SOX and post-SOX forecasting periods. Bias results indicate that managers exert greater upward earnings management on the forecast during a pre-SOX environment, but tend to exert greater downward earnings management on the forecast during post-SOX time periods. Information content results indicate the presence of incremental information content in management forecasts in a post-SOX environment, and this information content is significantly different from that in a pre-SOX time periods.

Introduction

Prior research in the study of voluntary earnings disclosures finds that managers release information that is unbiased relative to subsequently revealed earnings and that tends to contain more bad news than good news (Baginski 1994, Frankel 1995). Such releases are also found to contain information content (Patell 1976, Waymire 1984, Pownell and Waymire 1989). Although forecast release is costly, credible disclosure will occur if sufficient incentives exist. These incentives include bringing investor/manager expectations in line (Ajinkya and Gift 1984), removing the need for expensive sources of additional information (Diamond 1985), reducing the cost of capital to the firm (Diamond and Verrechia 1987), and reducing potential lawsuits (Lees 1981).

One area that has been researched in recent years is the ramification of the Sarbanes-Oxley Act. Ewert and Wagenhofer (2005) find that tighter accounting standards provide more relevant information to the capital markets. The implication of this finding could be that tighter standards, as evidenced by Sarbanes-Oxley, result in less earnings management, and therefore, less bias and greater information content of earnings disclosures in a post Sarbanes-Oxley environment.

In addressing this line of research, I rely upon literature that indicates different incentive structures that may lead to earnings management. DeAngelo (1986) shows that managers have incentives during management buyouts to manage earnings downward in attempts to reduce buyout compensation. Collins and DeAngelo (1990) show that earnings management occurs during proxy contests, and market reaction to earnings during these contests is different. DeAngelo (1990) finds that managers have incentives during merger activities to manage earnings upward so as to convey to current stockholders that the potential merger will not adversely affect their investment. Perry and Williams (1994) find that management of accounting earnings occurs in the year preceding "going private" buyouts. Stunda (1996) finds that managers exert greater upwards earnings management during mergers and acquisitions, while Stunda (2000) finds that managers tend to manage earnings upward during periods of management changes.

This study assess whether or not there are any significant differences in management forecast credibility in a post-SOX environment versus a pre-SOX environment. In accomplishing this, the presence of earnings forecast management is tested by using bias measures along with the market reaction to the forecasts. The study focus is on firms that have issued earnings forecasts during the period 1992-2002 (pre-SOX) versus firms that issued earnings forecasts during the period 2003-2013 (post-SOX). In addition, firms that had any confounding issues during these periods (i.e., management changes, mergers, acquisitions, etc.) are eliminated from the sample.

Based upon statistical analysis, conclusions are drawn that identify whether SOX becomes a factor that influences management earnings forecasts. Results would have implications for voluntary disclosures in general, and specifically would indicate if such voluntary disclosures are more or less biased in a post-SOX environment.

Background

In July 2002, Congress enacted the Sarbanes-Oxley Act in response to various corporate scandals including Enron, WorldCom, Tyco, and Global Crossing. Some of the major provisions of SOX include:

- The requirement that executive officers certify all Form 10-K and 10-Q reports filed with the Securities and Exchange Commission (SEC);
- The requirement that the CEO and CFO draft a written statement to accompany all financial statements that the latter present fairly the financial condition and results of the company's operations;
- The affirmation by the CEO and CFO that they have evaluated the effectiveness of the firm's internal controls and report any deficiencies or material weaknesses in such controls;
- The section 404 requirement of a report by management on the company's internal controls. The report must include an assessment of internal controls and be reviewed by the firm's auditors;
- A prohibition against an auditor providing certain non-auditing services during the time that firm performs auditing services;
- The establishment of the Public Company Accounting Oversight Board (PCAOB), which is responsible for the promulgation of auditing standards for public companies and performance of inspections of auditors of public firms;
- A tighter Form 8-K filing deadline (four instead of five days); and
- The imposition of harsher penalties for corporate criminal fraud.

The risks associated with auditing increased significantly in the post-SOX period. SOX altered the regulatory regime of auditing by shifting the oversight of audit firms from the AICPA to the PCAOB. Also, Auditing Standard No. 2 lowers the risk threshold by mandating that the auditor examine all internal controls that could impact the occurrence of fraud that could have a material impact on the financial statements (Griffin and Lont 2010). "This standard also results in higher costs for auditors regarding significant deficiencies 'in internal controls' and 'reasonable assurance' that 'no material weakness' exists by defining a deficiency as significant and a weakness as material 'if there is more than a remote likelihood' that a material misstatement will not be prevented or detected (Griffin and Lont 2010).

In addition, the insurance and other liability-related costs increased significantly in the post-SOX period (Rama and Read 2006). Increased auditor risks and costs may have led to a rise in auditor conservatism in the issuance of audit reports. Auditing firms may have implicitly raised the threshold for issuance of an unqualified audit opinion by overhauling and improving the audit process (Bryan-Low 2003). Hence, SOX may have brought about a change in the implications of a qualified audit report. Investors' concerns over and reaction to a qualified audit report may have significantly changed after SOX.

Purpose and Contribution

One purpose of this study is to examine investor reaction to firms' earnings forecasts in a post-SOX environment. Extant research on market reaction to voluntary earnings releases focuses on periods that either exclude post-SOX time periods or are inclusive of these same periods. This study will isolate those firms in solely a post-SOX time frame.

This study also sheds light on the market's perception of the ramifications of SOX, including its enhanced audit requirements, risks and costs, all of which have a bearing on any publicly traded firm today, but perhaps magnified for a firm issuing an earnings forecast. This paper contributes to the literature by focusing on investor reaction to firms issuing voluntary earnings releases in a post-SOX environment and assesses these firms to similar firms issuing the same in a pre-SOX environment. The underlying question is, if there is a difference, has SOX played a contributing role?

Literature Review

A significant question to ask is "apart from the earnings forecast issue, has SOX had any stock price impact on public firms to date?"

From an auditor resignation perspective, Griffin and Lont (2010) compare market reactions to auditor resignations for pre- and post-SOX periods. Cumulative mean excess returns of -1.202 percent occurred for timely resignations for event days -1 to +3 in the pre-SOX period. In the post-SOX period, mean excess returns were -10.20 percent for event days -1 to +3 for timely resignations. Wells and Loudder (2007) found significantly negative abnormal returns for a two-day event window (0, +1). DeFond et al. (2007) document a significant negative share price reaction involving 37 auditor resignations between 2004 and 2007 using three different event windows. Dunn et al. (2007) find a negative market reaction for this same period.

When looking at a qualified opinion perspective, Ameen et al. (2010) found a significant negative market reaction for a sample of 177 qualified firm audit reports for the period 2004-2008 surrounding the disclosure of the qualified audit opinion. This study also found that the market reacts to the circumstances, positive or negative, underlying the qualification, prior to the audit report release. Chen et al. (2009) examined share price reactions to qualified audit opinions of 96 firms from 2004-2007. These researchers found significant negative share price reactions to the disclosure of qualified audit opinions. Martinez et al. (2010) assessed the share price reaction of 129 firms from 2005-2009 to qualified audit reports, and compared the results to 1995-1999. Study results showed significant negative share price responses to release of qualified audit reports in the 2005-2009 (post-SOX) time period.

As can be seen, extant research indicates that a post-SOX environment does seem to affect firms differently when it comes to auditors and auditor opinions. Both of these factors may also weigh heavily on firms issuing earnings forecasts.

Hypotheses Development

Hypothesis about Bias of Management Forecast

If the same degree of earnings management (whether positive or negative) exists in both the forecast of earnings and actual earnings, the expectation is that there would be no difference in forecast error. If, however, the ability to perform earnings management is anticipated but not realized, some difference of forecast error would be present. If greater upward earnings management of the forecast occurs (or less actual earnings management), a negative forecast error should exist. If greater downward earnings management of the forecast occurs (or less actual earnings management), a positive forecast error should exist. Thus, the first hypothesis tests for the existence of forecast error. The null hypothesis tested is:

H1: Average management forecast error (actual EPS – management forecast of EPS) is not significantly different for firms in pre-SOX versus post-SOX periods.

Test of hypothesis 1

The management forecasts of earnings must be related to actual earnings in order to determine if bias exists. McNichols (1989) analyzes bias through the determination of forecast error. Stated in statistical form the hypothesis is represented as follows:

$$\sum_{n=0} \frac{fe_i}{n}$$

Where: fe_i = forecast error of firm i (forecast error = actual eps – management forecast of eps), deflated by the firm's stock price 180 days prior to the forecast.

In order to test hypothesis 1, firm forecasts are analyzed for the pre-SOX and post-SOX periods. Statistical analysis is performed on the sample in order to determine if the average forecast error is zero. McNichols (1989) and DeAngelo (1990) conduct a t-test on their respective samples in addition to a Wilcoxon signed rank test. Lehman (1975) reports that the Wilcoxon test has an efficiency of about 95% relative to a t-test for data that are normally distributed, and that the Wilcoxon test can be more efficient than the t-test for non-normal distributions. Therefore, this analysis consists of performing a t-test and a Wilcoxon signed rank test on the average cross-sectional differences between actual earnings per share and the management forecast of earnings per share.

Hypothesis about Information Content of Management Forecasts

If investors interpret earnings forecasts as just additional noise, the market would discount this information.

If, however, investors view the earnings forecast as a positive (or negative) signal from management, the market would not discount the information. The expectation for information content of management forecasts would revolve around these two notions. These alternative notions suggest the following null hypothesis:

H2: The information content of management forecasts in pre-SOX periods is equal to the information content of management forecasts in post-SOX periods.

Test of hypothesis 2

The purpose of this test is to assess the relative information content of management earnings forecasts in pre-SOX and post-SOX periods. The following model is used to evaluate information content:

$$CAR_{it} = a + b1UE_{it} + b2D1_{it}UE_{it} + b3MBit + b4Bit + b5MV_{it} + b6Hit + e_{it}$$

Where: CAR_{it} = Cumulative abnormal return firm i, time t

a = Intercept term

UE_{it} = Unexpected earnings for firm i, time t,

$D1_{it}$ = Dummy variable, 0 for pre-SOX, 1 for post-SOX

$MBit$ = Market to book value of equity as proxy for growth and persistence

Bit = Market model slope coefficient as proxy for systematic risk

MV_{it} = Market value of equity as proxy for firm size

Hit = Horizon of forecast, measured as days into year before forecast

e_{it} = Error term for firm i, time t

The coefficient a in the above equation measures the intercept. The coefficient $b1$ is the earnings response coefficient (ERC) for all firms in the sample (during both pre-SOX and post-SOX periods). The coefficient $b2$ captures the difference in the information content for firms in pre-SOX and post-SOX periods. The coefficients $b3$, $b4$, $b5$, and $b6$ are contributions to the ERC for all firms in the sample. To investigate the effects of the information content of management forecasts on ERC, there must be some control for variables shown by prior studies to be determinants of ERC. For this reason, the variables represented by coefficients $b3$ through $b6$ are included in the study.

Unexpected earnings (UE_{it}) is measured as the difference between the management earnings forecast (MF_{it}) and the security market participants' expectations for earnings proxied by consensus analyst following as per Investment Brokers Estimate Service (IBES). The unexpected earnings are scaled by the firm's stock price (P_i) 180 days prior to the forecast. This is represented by the statistical formula in equation (2) as follows:

$$UE_{it} = \frac{MF_{it} - EX_{it}}{P_i}$$

The abnormal return for each sample firm (AR_{it}) is compiled for event days -1, 0, and +1. This way the model can capture any significant changes in market expectations. Market model parameters were estimated based on trading data for the period 180 days prior to the event date until 91 days prior to the event date. Abnormal returns for days -1, 0, and +1 were summed to calculate cumulative abnormal returns (CAR_{it}). Hypothesis 2 is tested by examining the coefficient associated with unexpected earnings of the forecast, $b2$, during post-SOX periods. There are two possible conclusions; the forecast may be noisy, which in this event, $b2 \leq 0$, or it will possess an information-enhancing signal to the investor, which will result in $b2 \geq 0$.

Sample

The sample consists of management forecast point estimates made during 1992-2002 (pre-SOX), and 2003-2013 (post-SOX), meeting the following criteria: 1) The management earnings forecast was recorded by the Dow Jones News Retrieval Service (DJNRS). 2) Management change information was obtained from the Wall Street Journal (WSJ). 3) Security price data was obtained from the Center for Research on Security Prices (CRSP). 4) Earnings data was obtained from Compustat. The overall sample consists of firms which made at least one management earnings forecast during the pre-SOX and post-SOX periods. Table 1 provides the summary of the sample used in the study

Table 1. Sample Summary		Pre-SOX	Post-SOX
(1992-2002)	(2003-2013)		
Original sample	1,829	1,934	
Firms removed due to insufficient Compustat data	34 42		
Firms removed due to insufficient CRSP data	12	14	
Final overall sample	1,783	1,878	

Results

Table 2 contains the results of the hypothesis 1 test. Panel A of Table 2 indicates results for the sample of 1,783 firm forecast for the pre-SOX period. Mean forecast error for these firms is -.07 with a p-value of .01. Using the distribution-free rank test, significance is observed at the .01 level. Panel B of Table 2 indicates results for the sample of 1,878 firms for the post-SOX period. Mean forecast error for these firms is .04 with a p-value of .01. Using the distribution-free rank test, significance is observed at the .01 level. The results associated with these statistics are consistent with the notion of greater upward earnings management of the forecast for the pre-SOX periods, and greater downward earnings management of the forecast for the post-SOX periods. Results, therefore, lead to a rejection of hypothesis 1 that average management forecast error equals zero for both periods. In fact, results indicate that management forecasts are significantly more conservative in post-SOX periods.

Table 3 contains the results of the hypothesis 2 test. As indicated in the table, the coefficient representing the variable which is the incremental ERC for post-SOX periods (b₂), has a value of .09 with a p-value of .01. The coefficient representing the overall ERC for all firms (b₁), has a value of .15 with a p-value of .01. All other control variables are not significant at conventional levels. These findings indicate that not only do forecasts contain information content, there is a difference in the information content of management forecasts in post-SOX periods versus pre-SOX periods. Results, therefore suggest rejection of the hypothesis that information content of management forecasts during these two periods is equal.

In addition, whenever regression variables are employed, there is a probability of the presence of multicollinearity within the set of independent variables which may be problematic from an interpretive perspective. To assess the presence of multicollinearity, the Variance Inflation Factor (VIP) was utilized. Values of VIP exceeding 10 are often regarded as indicating multicollinearity. In the test of hypothesis 2, a VIP of 2.1 was observed, thus indicating a non-presence of significant multicollinearity

Table 2: Test of Hypothesis 1				
Table Entry is Average Management Forecast Error Deflated by Firm’s Stock Price 180 Days Prior to Forecast				
Model: $fe_i = \sum_{n=0}^n$				
Panel A- management forecast error for pre-SOX period forecasts				
Mean				Standard
(t-statistic)	Median	Minimum	Maximum	Deviation
-.07	-.02 ^b -.051	-.193		.0012
(2.46) ^a				
^a Significant at the .01 level (two-sided test)				
^b Significant at the .01 level using the non-parametric sign rank test				
fe _i = forecast error of firm i (actual – management forecast of eps)				
n = 1,783 firm forecasts for the pre-SOX period of 1992-2002				
Panel B- management forecast error for post-SOX period forecasts				
Mean				Standard
(t-statistic)	Median	Minimum	Maximum	Deviation
.04	.01 ^b	.003	.204	.0013
(2.39) ^a				
^a Significant at the .01 level (two-sided test)				
^b Significant at the .01 level using the non-parametric sign rank test				
fe _i = forecast error of firm i (actual – management forecast of eps)				
n = 1,878 firm forecasts for the post-SOX period of 2003-2013				

Table 3: Test of Hypothesis 2

Model: $CAR_{it} = a + b_1UE_{it} + b_2D1UE_{it} + b_3MBit + b_4Bit + b_5MV_{it} + b_6Hit + eit$							
a	b ₁	b ₂	b ₃	b ₄	b ₅	b ₆	Adj. R ²
.11	.15	.09	.09	.19	-.07	.03	.238
(0.55)	(2.36) ^a	(2.44) ^a	(.13)	(.32)	(-.44)	(.36)	
^a Significant of the 0.01 level (one-sided test)							
Where: CAR_{it} = Cumulative abnormal return firm i, time t a = Intercept term UE_{it} = Unexpected earnings for firm i, time t, $D1it$ = Dummy variable, 0 for pre-SOX, 1 for post-SOX $MBit$ = Market to book value of equity as proxy for growth and persistence Bit = Market model slope coefficient as proxy for systematic risk MV_{it} = Market value of equity as proxy for firm size Hit = Horizon of forecast, measured as days into year before forecast eit = Error term for firm i, time t							

Conclusions

This study provides empirical evidence regarding the credibility of management forecasts during pre-SOX and post-SOX forecasting periods. Bias results indicate that managers exert greater upward earnings management on the forecast during a pre-SOX environment, but tend to exert greater downward earnings management on the forecast during post-SOX time periods. Information content results indicate the presence of incremental information content in management forecasts in a post-SOX environment, and this information content is significantly different from that in a pre-SOX time periods.

These results encompass a greater study period than previous earnings forecast studies. In addition, the earnings forecast is evaluated in light of data now available from a post-SOX perspective. The results have implications for managers issuing earnings forecasts and investors utilizing those forecasts in a post-SOX environment.

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