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PROPENSITY TO JUST MEET OR BEAT QUARTERLY EARNINGS FORECASTS: AN EXAMINATION OF THE EFFECTS OF SOX SECTIONS 302 AND 906

Stacy Ann Mastrolia, Bucknell University

This paper examines whether the provisions of SOX Sections 302 and 906 are associated with improved quarterly financial reporting quality. SOX 302 and 906 require that senior managers certify the accuracy of their quarterly financial statements, and false certification now carries criminal penalties. Specifically, this paper examines whether companies are more or less likely to just meet or beat their quarterly earnings forecasts following the implementation of SOX 302 and 906. My results indicate that following Sox 302 and 906, companies are less likely to just meet or beat their quarterly earnings forecasts for quarters 2, 3, and 4, suggesting that SOX 302 and 906 are associated with improved financial reporting quality.

INTRODUCTION

This paper examines whether companies are more or less likely to just meet or beat their quarterly earnings forecasts, a proxy for quarterly financial reporting quality, post-SOX 302 and 906. My results indicate that following SOX 302 and 906, companies are less likely to just meet or beat their quarterly earnings forecasts for quarters 2, 3, and 4, suggesting that SOX 302 and 906 are associated with improved financial reporting quality.

Following disclosure of some of the most shocking corporate frauds in history¹, Congress passed the Sarbanes-Oxley Act of 2002 (SOX). One of the primary goals of SOX is to improve financial reporting quality for public companies. The provisions of Section 302 require that the CEO and CFO of a public company personally certify the accuracy and completeness of the company's financial statements, including the effectiveness of internal control over financial reporting and any material changes in internal control ("Sarbanes-Oxley Act of 2002").² Section 906 imposes severe criminal penalties for false management certifications made knowingly or willfully; these penalties far surpass the previous penalties for lying to the auditors. The Securities and Exchange Commission (SEC) clearly intends that managements' increased ownership of and liability for the accuracy of the financial statements, created by Sections 302 and 906, would improve quarterly (and annual) financial reporting quality.

However, it may be true that the personal certification requirement is no more than symbolic; even before SOX, antifraud law and the rules governing the disclosure of documents to the SEC placed responsibility on corporate managers and directors for both the accuracy and the completeness of financial statement disclosure, and stated the penalty for the failure to disclose (Alverson, 2005; Cunningham, 2002; Fairfax, 2002). Therefore, whether SOX Sections 302 and 906 actually affect a company's

quarterly financial reporting quality is an empirical question, which I investigate in this paper.

In addition to determining quarterly financial reporting quality following the implementation of SOX Sections 302 and 906, I propose that, because these sections directly affect primarily the cost-benefit function of management (not the auditors), these provisions offer researchers a unique environment to try to disentangle the "joint measure of financial reporting quality" that is a limitation in so much of the literature. In most research designs it is not possible to disentangle the separate effects of management and auditors on reporting quality and, as a result, most studies can only evaluate financial reporting quality as a joint measure of the quality of management reporting and the quality of the auditor. Because SOX 302 and 906 in the quarterly environment directly change primarily the consequences (liabilities) to managers, these provisions, in the quarterly reporting environment, should allow us to try to separate these effects. These provisions do not directly change the auditor's role in the quarterly financial reporting process; both before and after the implementation of these provisions, auditors are responsible for reviewing (not auditing) the quarterly financial statements on a contemporaneous basis.

Existing literature indicates that a company's ability to just meet or beat their earnings estimates is a sign of earnings management (or expectations management) and is, therefore, a sign of lower financial reporting quality (Cotter, Tuna, Wysocki, & Callen, 2006; Matsumoto, 2002; Richardson, Teoh, & Wysocki, 2004). This paper adds to that literature by providing evidence of the effect of SOX Sections 302 and 906 on a company's propensity to just meet or beat their quarterly earnings forecasts, and, therefore, on quarterly financial reporting quality.

The quarterly reporting environment is an ideal setting to look at managements' actions for two primary reasons. First, previous research indicates that quarterly financial statements are subject to more management judgment than are annual financial statements because Generally Accepted Accounting Principles (GAAP) allow some discretion in the

¹ Adelphia, Enron, Global Crossing, Tyco, Waste Management, WorldCom, and others.

² The scope of this certification surpasses the assertions previously made in the management letter provided to the auditor.

quarterly timing of recording certain adjustments.³ Second, quarterly financial statements are reviewed but not audited by the external auditor, potentially allowing more management discretion (Mendenhall & Nichols, 1988). I anticipate that Sections 302 and 906 will increase the quality of reported quarterly earnings both by providing an incentive to managers to improve their estimation process and by curbing deliberate earnings management.

The results of my tests indicate that quarterly financial reporting quality improves in the post-SOX period for quarters 2, 3, and 4. This study makes several contributions to the literature. First, the goal of SOX is to improve financial reporting quality and this study provides evidence that quarterly financial reporting quality improves following the implementation of these provisions. Second, because SOX 302 and 906 primarily affect managements' incentives to improve quarterly financial reporting quality, and financial reporting quality improves in interim quarters as well as the fourth quarter, this study provides some evidence that management has improved financial reporting quality separate from the effect of the auditor on the financial statements. Third, because my results indicate improved financial reporting quality, this study provides some indication of an association between increased individual criminal liability and changes in managers' behaviors when faced with relatively higher potential personal cost versus relatively lower potential personal cost while holding the gain function essentially constant. The results of this study should be interesting to policy setters and regulators (SEC and PCAOB), auditors, investors, academic researchers, and managers.

BACKGROUND, LITERATURE REVIEW, AND HYPOTHESIS

Selected Sarbanes-Oxley Act Provisions

SOX instituted many corporate reporting, corporate governance and auditor-related changes including those detailed in Sections 302, 906 and 404. Section 302 of SOX became effective for all SEC registrants for fiscal years ending after August 29, 2002. Section 302 requires the CEO and CFO of a public company to personally certify the accuracy and completeness of the company's financial statements filed with the SEC,⁴ including the effectiveness of internal control over financial reporting and any material changes in internal control.

³ While quarterly revenues are recognized on the same basis as annual fiscal periods, APB 28 allows certain costs, that must be expensed during the year, to be deferred or accrued at the end of an interim quarter based on managements' expectations about the results for the entire fiscal year. For example, certain expenses (management bonuses, warranty costs, advertising costs) may be recorded to expense in interim quarters based on forecasted annual sales and adjusted to actual sales at year end (Mendenhall & Nichols, 1988).

⁴ The public filings and Section 302 certifications for all public companies are available at www.sec.gov.

Some legal professionals have stated that the provisions of SOX have altered significantly the prosecutorial landscape on which the Justice Department and agency investigations will play out (Clayton & Mackintosh, 2002). Specifically, Section 302 targets the preferred defense of "who me?" offered by individual senior managers during a corporate fraud investigation. Using this defense, the senior manager usually demonstrated that he had no knowledge of the problem and would have remedied the problem if he had known and, the defense went, because the problem was a corporate issue not an individual issue, the senior manager should not be charged. Section 302 now requires by law that senior managers maintain a system of internal controls designed to ensure that material information concerning corporate activities are made known to them. Additionally, the senior management of a company is responsible for validating that the system of internal controls is functional. Fairfax (2002) states that the 302 certification requirement is not nominal, but rather subjects a senior manager, who signs the certification knowing that it contains material inaccuracies, to both civil and criminal liability.

Recently two accounting studies have examined the relation between SOX Section 302 and financial reporting quality (Bédard, 2006; Cohen, Dey, & Lys, 2008; Doyle, Ge, & McVay, 2007; Ge & McVay, 2005; Lobo & Zhou, 2006; McEnroe, 2007). The results of these studies indicate that annual financial reporting quality improved following SOX. However, there are two significant differences between these studies and my study. First, I examine quarterly, not annual, financial reporting quality and, as I explain in this article, there are critical differences between quarterly reported earnings and annual reported earnings. For that reason, I believe it is important to examine the relation between Section 302 and quarterly financial reporting quality, in addition to the existing studies on annual financial reporting quality. Second, by using the quarterly reporting environment following the implementation of Sections 302 and 906, this study offers some opportunity to disentangle managements' effect on quarterly financial reporting quality from the auditor's effect; it is impossible to disentangle the separate effects of managers and auditors on financial reporting quality when examining annual financial reports. There is one current working paper I am aware of that examines quarterly financial reporting quality following SOX; the results in Mastrolia (2010) indicate that companies exhibiting aggressive quarterly earnings management pre-SOX are associated with improved quarterly financial reporting quality post-SOX.

Section 906 requires that each periodic financial report containing financial statements filed with the SEC include a written statement by the CEO and CFO certifying that the report fully complies with the regulations of the Securities Exchange Act of 1934 and that the information in the report fairly presents, in all material respects, the financial

condition and results of operations of the filer.^{5,6} Section 906 also imposes severe criminal penalties for CEOs and CFOs who knowingly or willfully provide false certifications of periodic financial reports. Executives, who knowingly certify a filing that does not meet all of the requirements of this section, can be fined not more than \$1,000,000, or be imprisoned not more than 10 years, or both. Additionally, anyone who willfully certifies a statement as noted above, knowing that the filing does not meet all of the requirements of this section, can be fined not more than \$5,000,000, or be imprisoned not more than 20 years, or both.

To date, Section 906 has not been the subject of much accounting research. Levinsohn (2003) cites a June 2003 survey by the Association for Financial Professionals⁷ regarding the prevalence of a “subcertification” affidavit among corporate managers.⁸ According to Levinsohn, the frequency and scope of “subcertifications” would seem to indicate that CEOs and CFOs considered the penalties identified in Section 906 to be concerning.

Section 404 of SOX became effective for accelerated filers for fiscal years ending after November 15, 2004.⁹ Section 404 requires that each annual report (1) contain an internal control report which states the responsibility of management for establishing and maintaining an adequate internal control system and related procedures for financial reporting; (2) contain an assessment by management of the effectiveness of the internal control structure and procedures at the end of the most recent fiscal year; and (3) contain a statement that the audit firm issuing the audit report attests to, and reports on, the assessment of internal controls made by management.

This study attempts to isolate the effect of Section 302 certifications and the Section 906 penalties on quarterly financial reporting quality, in part because it is within this environment that this study can offer some contribution regarding the actions and motivations of management separate from the actions and motivations of the auditor. The Section 404 certifications require both managements’ certification and an auditor’s opinion resulting in financial statements that provide a joint measure of financial reporting quality. In an attempt to separate the effects of Sections 302

and 906 from those of Section 404, I compare the quarterly financial reporting quality for 2001 and 2003.¹⁰

Importance of Quarterly Reporting

Existing literature indicates that reported quarterly earnings are valuable to investors. Beaver (1998) developed three theoretical links between earnings and share prices: current earnings provide information to predict future earnings, future earnings provide information about future dividends, and future dividends provide information to determine share value. Extensive literature has shown that negative earnings surprises often have severe adverse valuation consequences (Brown & Caylor, 2005; Dechow, Richardson, & Tuna, 2003; Skinner & Sloan, 2002) and that executives appear to use earnings management techniques in order to avoid negative earnings surprises (Barton & Simko, 2002; Bartov, Givoly, & Hayn, 2002; Burgstahler & Eames, 2006; Matsumoto, 2002).

Management can influence interim quarter reported earnings for two primary reasons: first the accounting rules allow for more management judgment when reporting earnings for interim quarters and second, auditors review, but do not audit, interim period results. The Accounting Principles Board Opinion No. 28 - Interim Financial Reporting (APB 28) contains GAAP for interim financial statements (Accounting Principles Board Opinion No. 28: Interim Financial Reporting, 1973). As an example, APB 28 requires that interim financial reports contain reasonable estimates of costs or expenses based on all available information applied consistently across periods. However, period costs that benefit more than one interim period may be expensed as incurred or allocated between interim periods based on several methods.¹¹ Because managers use their expectations to form cost estimates in interim periods, they have greater influence over interim quarterly earnings than over fourth quarter earnings.

Also, because interim quarter reported earnings are reviewed but not audited, managers have more discretion over interim quarter reported results than over annual results. Statement on Auditing Standards No. 100: Interim Financial Information (SAS 100) states that a review of interim financial information is significantly different from an audit of financial information because a review consists primarily of inquiry and analytical procedures while an audit includes substantive audit tests and the collection of corroborative evidence (Statement on Auditing Standards No. 100: Interim Financial Information, 2002). The limited scope of the auditor’s involvement in the quarterly financial reporting process potentially allows management more discretion and, thereby, provides a unique environment for this research

⁵ This sounds similar to the provisions of Section 302, however Section 906 additionally requires CEOs and CFOs to certify that the report “fully complies” with the requirements of the Securities Exchange Act.

⁶ The public filings and Section 906 certifications for all public companies are available at www.sec.gov.

⁷ <http://www.afponline.org>

⁸ Levinsohn suggests that CEOs and CFOs require “subcertification” because they typically do not personally prepare the financial information included in the 10-Ks and 10-Qs.

⁹ Accelerated filers are defined by SEC rule 13b-2 and generally refer to public companies with market capitalization of at least \$75 million.

¹⁰ Section 302 and 906 became effective in 2002 and Section 404 became effective in late 2004, so this research design offers an opportunity to isolate the effects of Sections 302 and 906 from the effects of Section 404.

¹¹ For example: estimate of time period expired, benefit received, expected sales, expected volumes, etc.

project to try to separate the joint measure of financial reporting quality.

Measuring Quarterly Financial Reporting Quality

This study investigates whether Sections 302 and 906 affect managers' behaviors, resulting in improved quarterly financial reporting quality as proxied by a company's likelihood to just meet or beat their quarterly earnings forecasts. Previous literature indicates that the ability of a company to just meet or beat by just \$0.01 their earnings estimate is a sign of earnings management (or expectations management) and is therefore indicative of lower financial reporting quality (Bhojraj, Hribar, Picconi, & McInnis, 2009; Cotter, et al., 2006; Matsumoto, 2002; Richardson, et al., 2004). Specifically, Graham et al. (Graham, Harvey, & Rajgopal, 2005) surveyed 400 financial executives who admitted to a range of activities they would undertake in order to meet or just beat an earnings forecast, including decreasing discretionary spending, drawing down existing reserves, recording revenues in the current quarter rather than the following quarter, and postponing an accounting charge. These authors find that 78% of the surveyed executives are willing to give up economic value to meet the earnings expectations of analysts and investors. Graham et al. also provide an extensive discussion and survey results on why executives are driven to just meet or beat by just \$0.01 earnings benchmarks. A large body of empirical literature also provides evidence that companies have capital market incentives to achieve earnings forecasts (Bartov, et al., 2002; Brown & Pinello, 2008; Skinner & Sloan, 2002). Based on this existing literature, I would expect that if Sections 302 and 906 are effective in modifying corporate managers' earnings management behavior, companies would be less likely to just meet or beat by just \$0.01 their quarterly earnings forecasts post-SOX Sections 302 and 906 (2003) than pre-SOX Sections 302 and 906 (2001). This leads to my hypothesis:

Hypothesis: Companies will be less likely to just meet or beat by just \$0.01 their quarterly earnings forecasts for each of the four quarters post-SOX Sections 302 and 906 (2003) as compared to the respective same-quarter pre-SOX Sections 302 and 906 (2001).

I test the relation between Sections 302 and 906 and quarterly financial reporting quality by comparing the "same-quarter" periods before and after the implementation of these Sections. I limit my study to companies with December 31st year-ends in order to eliminate the confounding effects of different year-end dates and different seasonality effects.¹² The four calendar quarters of 2001 are

defined as the pre-SOX period and the four calendar quarters of 2003 as the post-SOX period. For example, this study will compare management's propensity to just meet or beat earnings forecasts for Q1 (Q2, Q3, Q4) of 2001 with Q1 (Q2, Q3, Q4) of 2003.

I expect the interim quarter results (Q1, Q2 and Q3) to indicate the change in reporting quality due primarily to the managers' effect on financial reporting quality because, as stated previously, the auditor's role in quarterly financial reporting did not directly change during the test period. However, I expect the Q4 results to indicate the change in reporting quality due to both the managers' effect and the auditor's effect on financial reporting quality as both parties play a significant role in the reporting quality for the fourth quarter results. An evaluation of the interim quarter results and the fourth quarter results should provide information about the relative change in reporting quality attributable to both managers and auditors in the time period surrounding the implementation of SOX.

RESEARCH DESIGN

Data

The provisions of SOX that I am interested in testing apply to all U.S. publicly traded companies with December 31st year ends and available data on IBES and Compustat quarterly industrial files in order to calculate the model for the four quarters of 2001 and the four quarters of 2003.^{13,14} All forecast data are the consensus forecasts from IBES. All accounting data are retrieved from the Compustat quarterly industrial files.

Empirical Model

I use a logistic regression model to evaluate the likelihood that a company would just meet or beat by just \$0.01 their quarterly earnings forecast before and after SOX 302 and 906.¹⁵ The dependent variable is the likelihood of a company to just meet or beat their quarterly earnings forecast amounts. The test variable is the pre-SOX versus post-SOX periods. The model includes control variables for factors prior research shows are significant in predicting a company's likelihood of meeting analysts' forecasts: whether a company reports a loss in the period, company size and company growth (Brown, 2001; Matsumoto, 2002; Richardson, et al., 2004; Skinner & Sloan, 2002). My test model is as follows:

¹³ I will exclude ADRs from this analysis to focus on U.S. companies.

¹⁴ This restriction likely introduces survivorship bias into the sample resulting in the inclusion of a higher number of larger and more stable companies. I expect that this bias would cause me to be less likely to find results, thereby creating a more conservative test of my research question.

¹⁵ As noted above, the pre-SOX period is 2001 and the post-SOX period is 2003.

¹² For example Q2 may not be comparable between a retailer with a December 31st year end and a retailer with a June 30th year end.

$$MBE_{it} = \alpha_0 + \beta_1 SOX_{it} + \beta_2 Loss_{it} + \beta_3 Size_{it} + \beta_4 Growth_{it} + \varepsilon$$

Where:

- MBE_{it} = is a binary variable that equals 1 if the company either exactly meets or just beats (by \$0.01) their quarterly earnings forecast for company i in quarter t , 0 otherwise;
- SOX_{it} = is a binary variable that equals 1 if the quarterly financial statement is for a quarter in 2003, 0 otherwise;
- $Loss_{it}$ = is a binary variable that equals 1 if the company reports a loss for company i in quarter t , 0 otherwise;
- $Size_{it}$ = natural log of the market value of equity for company i at the end of the quarter ($t-1$);
- $Growth_{it}$ = natural log of the market to book ratio for company i at the end of the quarter ($t-1$).

My model includes two observations for each company: the pre-SOX 302 and 906 period and the post-SOX 302 and 906 period. Because having multiple observations from one company can result in serial correlation of the error terms, I use robust standard errors in my main analysis and perform a robustness test using a panel data fixed effects model.

RESULTS

Table 1 reports the descriptive statistics for the companies in the sample. Panel A provides the variable descriptive statistics for all observations (10,088 firm quarters in total). Panel B presents the variable descriptive statistics for all observations divided into two subgroups: (1) observations in which earnings per share does either meet or just beat the forecast and (2) observations in which earnings per share does not meet or just beat the forecast. Panel C provides the percent of observations that: (1) exactly meet the forecast, (2) miss the forecast by more than \$0.01, (3) miss the forecast by exactly \$0.01, (4) beat the forecast by more than \$0.01, (5) beat the forecast by exactly \$0.01, and (6) exactly meet or beat the forecast by exactly \$0.01. These percents are identified for all observations and separately for the pre-SOX and post-SOX observations.

Table 2 reports the correlation matrix. No correlation coefficient exceeds 0.32, indicating that multicollinearity is not a factor in the results.

Table 3 displays the multiple regression results in the odds ratio format. These results indicate that companies are less likely, post-SOX, to just meet or beat their quarterly earnings forecasts in quarters 2, 3 and 4, compared to the pre-SOX period. There is no difference in the likelihood to just meet or beat their quarterly earnings forecasts in quarter 1. Specifically, the odds ratio of a company either meeting or just beating the earnings forecast post-SOX is .70 to 1 in quarter 2. Said differently, the chances of a company either meeting or just beating the earnings forecast post-SOX is only about 70% of the odds of a firm meeting or just beating the forecast in the pre-SOX regime; the odds are lower in the post-SOX regime. Overall, these results support my hypothesis and provide some indication that companies have improved quarterly financial reporting quality following the implementation of SOX 302 and 906. The likelihood ratio chi-square values of 27.11 to 72.02 with p-values of less than 0.0001 tells us that my test model as a whole fits significantly better than a model with no predictors. Additionally I ran both Pearson and Hosmer-Lemeshow goodness of fit tests the results of which suggest that the models fit well.

Table 4 presents the logistic regression results (from Table 3) using predicted probabilities to aid in interpreting the results. The results in Table 4 indicate that, with all other variables held constant at their mean, the probability of a company just meeting or beating by just \$0.01 their quarterly earnings estimates in quarter 2 was 0.32 in the pre-SOX period and 0.25 in the post-SOX period. In quarters 3 and 4, the probability of a company just meeting or beating their quarterly earnings estimates in the pre-SOX period was 0.31 and .29, respectively, and 0.24 (for both quarters) in the post-SOX period.

My sample includes two observations for each company, introducing serial correlation of the error terms. To address this issue, I also run a panel data fixed effects model. These results (untabulated) are very similar to my primary model results for the test variable.

TABLE 1
Descriptive Statistics

Panel A: Variable Descriptive Statistics – All Firms						
<i>Variable</i>	<i>Number of Firms</i>	<i>Mean</i>	<i>Median</i>	<i>Standard Deviation</i>	<i>Minimum</i>	<i>Maximum</i>
MBE	10,088	0.283	0	0.451	0	1
SOX	10,088	0.500	0.500	0.500	0	1
Loss	10,088	0.269	0	0.444	0	1
Size	10,088	6.843	6.706	1.744	0.749	13.091
Growth	10,088	0.803	0.734	0.763	-2.459	6.518
Actual EPS	10,088	0.520	0.250	17.031	-586	1004
Forecast EPS	10,088	0.515	0.250	15.272	-500	867
Forecast error	10,088	0.005	0.010	2.759	-176	137
Panel B: Variable Descriptive Statistics Partitioned by MBE Variable						
<i>Variable</i>	<i>Number of Firms</i>	<i>Mean</i>	<i>Median</i>	<i>Standard Deviation</i>	<i>Minimum</i>	<i>Maximum</i>
MBE Firms						
SOX	2,857	0.463	0	0.499	0	1
Loss	2,857	0.222	0	0.415	0	1
Size	2,857	7.075	6.951	1.763	1.459	13.091
Growth	2,857	0.942	0.862	0.744	-1.533	5.529
Actual EPS	2,857	0.286	0.270	0.325	-2.75	2.02
Forecast EPS	2,857	0.282	0.265	0.325	-2.75	2.02
Forecast error	2,857	0.004	0.000	0.005	0	0.01
Non-MBE Firms						
SOX	7,231	0.514	1	0.500	0	1
Loss	7,231	0.288	0	0.453	0	1
Size	7,231	6.751	6.609	1.728	0.749	12.819
Growth	7,231	0.784	0.688	0.764	-2.459	6.518
Actual EPS	7,231	0.612	0.250	20.115	-586	1004
Forecast EPS	7,231	0.607	0.240	18.037	-500	867
Forecast error	7,231	0.005	0.020	3.259	-176	137
Panel C: Composition of MBE Variable Partitioned by SOX Variable						
<i>Condition</i>	<i>All Firms</i>	<i>Pre-SOX</i>	<i>Post-SOX</i>			
Meet	16%	17%	15%			
Miss	20%	20%	21%			
Just Miss	5%	5%	5%			
Beat	47%	45%	48%			
Just Beat	12%	13%	11%			
MBE2	28%	30%	26%			

Variable Definitions (firm and quarter subscripts are not presented for simplicity):

- MBE_{it}** = is a binary variable that equals 1 if the company either meets or just beats (by \$0.01) their quarterly earnings forecast for company *i* in quarter *t*, 0 otherwise;
- SOX_{it}** = is a binary variable that equals 1 if the quarterly financial statement is for a quarter in 2003, 0 otherwise;
- Loss_{it}** = is a binary variable that equals 1 if the company reports a loss for company *i* in quarter *t*, 0 otherwise;
- Size_{it}** = natural log of the market value of equity for company *i* at the end of the quarter (*t*-1);
- Growth_{it}** = natural log of the market to book ratio for company *i* at the end of the quarter (*t*-1);
- Actual EPS_{it}** = actual earnings per share for company *i* in quarter *t*;
- Forecast EPS_{it}** = analysts' forecasted earnings per share for company *i* in quarter *t*;
- Forecast error_{it}** = difference between **Actual EPS** and **Forecast EPS** for company *i* in quarter *t*;
- Meet_{it}** = percent of firms that exactly meet their earnings per share forecast for company *i* in quarter *t*;
- Miss_{it}** = percent of firms that failed to meet their earnings per share forecast by more than \$0.01 for company *i* in quarter *t*;
- Just Miss_{it}** = percent of firms that failed to meet their earnings per share forecast by exactly \$0.01 for company *i* in quarter *t*;
- Beat_{it}** = percent of firms that meet their earnings per share forecast by more than \$0.01 for company *i* in quarter *t*;
- Just Beat_{it}** = percent of firms that meet their earnings per share forecast by exactly \$0.01 for company *i* in quarter *t*;
- MBE2_{it}** = percent of firms that either exactly meet (**Meet**) or beat by exactly \$0.01 (**Just Beat**) their earnings per share forecast for company *i* in quarter *t*.

TABLE 2
Correlation Matrix

<i>Variable</i>	<i>MBE</i>	<i>SOX</i>	<i>Loss</i>	<i>Size</i>	<i>Growth</i>
MBE	1.000				
SOX	-0.046	1.000			
Loss	-0.068	-0.057	1.00		
Size	0.084	0.013	-0.254	1.000	
Growth	0.114	-0.018	-0.103	0.319	1.000

All variables are defined at Table 1.

TABLE 3
Multiple Regression Results: Odds Ratio Output

$$MBE_{it} = \alpha_0 + \beta_1 SOX_{it} + \beta_2 Loss_{it} + \beta_3 Size_{it} + \beta_4 Growth_{it} + \varepsilon$$

	<i>Q1</i>	<i>Q2</i>	<i>Q3</i>	<i>Q4</i>
SOX	1.033	0.704***	0.702***	0.805**
Loss	0.795**	0.774**	0.743***	0.745***
Size	1.043	1.047*	1.067**	1.072***
Growth	1.226***	1.292***	1.390***	1.481***
Observations	2352	2486	2582	2668
Chi2	27.11	50.10	64.44	72.02
Prob>Chi2	0.000	0.000	0.000	0.000
Pseudo R2	0.009	0.018	0.023	0.025

* significant at 10%; ** significant at 5%; *** significant at 1%

All Variables are defined at Table 1.

TABLE 4
Predicted Possibility of MBE = 1

	<i>Pre-SOX</i>	<i>Post-SOX</i>
Q1	0.2879	0.2947
Q2	0.3204	0.2491
Q3	0.3127	0.2420
Q4	0.2858	0.2437

SUMMARY AND LIMITATIONS

This study examines whether the provisions of SOX Sections 302 and 906 are associated with improved quarterly financial reporting quality. The results of my study indicate that companies are less likely to just meet or beat by just \$0.01 their quarterly earnings forecasts following the implementation of SOX Sections 302 and 906 for quarters 2, 3, and 4.

Because the provisions of SOX Sections 302 and 906 directly change primarily the expectations of management related to quarterly filings, this study provides some

evidence regarding the managers' effect on financial reporting quality separate from the auditor's effect, to the extent that financial reporting quality improved in the interim quarters as well as the fourth quarter. These results would seem to indicate that managers modified their earnings management behavior in the post-SOX Sections 302 and 906 period resulting in improved quarterly financial reporting quality.

A limitation of this study is the inability to isolate the effect on quarterly financial reporting quality of actions taken by management on their own initiative versus actions taken by management or by the auditor at the request of the

Board of Directors or the Audit Committee. It is possible that either the Board or the Audit Committee required management or the auditor to take certain actions or make specific changes to their normal processes during the time period of my analysis either as a result of SOX or the macro-environment in general. Because I cannot observe the actions of the Board or Audit Committee, the result is (best case) noise in my model or (worst case) correlated omitted variables. While I have tried to isolate the effects of Sections 302 and 906 in my research design this study, at the very least, should provide useful information about quarterly financial reporting quality during this very interesting time.

Another limitation of this study is the use of a company's propensity to just meet or beat earnings estimates as a proxy for financial reporting quality. A company's likelihood to just meet or beat their earnings forecasts could be the result of earnings management or expectations management. I propose that it is unlikely that the provisions of SOX or the general investor climate during my test period had a direct effect on a company's intent to manage expectations so I attribute the results of this study, and least primarily, to the result of earnings management.

Subject to these limitations, this study makes several contributions to the literature. First, it provides evidence that the implementation of Sections 302 and 906 is associated with improved quarterly financial reporting quality. Second, it provides some evidence regarding managements' effect on quarterly financial reporting quality separate from the auditor's effect because this study indicates that the interim quarters 2 and 3 are associated with improved quarterly financial reporting quality as well as the fourth quarter. Third, my results provide an indication of an association between increased individual criminal liability and changes in manager's behavior. As a result of these contributions, the results of this study should be interesting to policy setters and regulators (SEC and PCAOB), auditors, investors, academic researchers, and managers.

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