Financial Reporting in the Sarbanes-Oxley Era: Have Reforms Improved Earnings Quality?

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ABSTRACT

The enactment of the Sarbanes-Oxley Act followed a series of highly publicized scandals that highlighted weaknesses in corporate financial reporting. The newness of many of these reforms has necessarily limited empirical evidence as to their effectiveness. This study provides some preliminary evidence by examining the quality of the earnings reported by public companies both before and after the passage of SOX. Employing unexpected discretionary accruals as a proxy for earnings quality, earnings of over 4,000 firms are examined for the years 2000 – 2005. The results indicate no increase in the quality of reported earnings since the passage of Sarbanes-Oxley.

Keywords: Sarbanes-Oxley, earnings quality, accounting regulation, financial reporting, audit committee

INTRODUCTION

The Sarbanes-Oxley Act of 2002 was intended to enhance the reliability of corporate financial statements in the post-Enron era. Left largely unanswered as the "subprime" crisis of 2008 works its way through the financial system, is whether the Sarbanes-Oxley (SOX) reforms have, in fact, improved the quality of financial reporting. Has the ability of firms to manipulate their reported financial results been reined in by the SOX provisions? This study seeks to provide some preliminary evidence regarding this issue by examining the quality of corporate earnings both before and after the passage of SOX. To the extent that the SOX reforms have reduced the manipulation of corporate financial statements, earnings quality should have increased since the legislation was enacted.

The remainder of this paper is divided into four sections. First is a brief summary of SOX and other factors that might limit the incentive and ability of a firm to manipulate its financial statements. A model for estimating unexpected discretionary accruals, a proxy for earnings quality, is provided in the second section. The third section presents information about the sample and the results of the analysis. The paper closes with a summary and discussion of the findings.

SOX AND EARNINGS MANAGEMENT

In 2002, the Securities and Exchange Commission (SEC) began requiring the Chief Executive Officers and Chief Financial Officers of selected corporations to certify that their financial statements were reliable. SOX extended this requirement to all publicly held firms and established penalties for corporate officials intentionally certifying false financial statements. These sanctions include extended time in prison (a maximum sentence of 20 years) and/or fines up to $5 million (Bhattachyarya, Groznik & Haslem, 2003). The severe consequences for falsely attesting to firm financial statements may reduce management's incentive to manipulate reported earnings in an attempt to reach earnings targets.

Another set of SOX provisions focus on corporate audit committees. The Act requires that all audit committee members be independent of the firm (Section 307), with at least one member designated as an "audit committee financial expert" (Section 407). Firms without a designated financial expert are required to justify this shortcoming in their annual proxy statements. Finally, Section 301 of the Act explicitly gives audit committees the responsibility for the hiring and oversight of the firm's outside auditor. This combination of increased financial expertise, independence, and involvement may strengthen the ability of audit committees to monitor financial reporting, thus reducing management's ability to manipulate earnings.

Perhaps the most publicized provision of SOX has been Section 404, which requires each firm to include in its annual report an assessment of the effectiveness of its internal controls for financial reporting. The company's assessment is then tested and reported on by the firm's independent auditors. Section 404 has provoked

widespread criticism about the costs involved with compliance. In a recent speech, an SEC Commissioner (Casey, 2008) stated:

> Indeed, no other issue in recent years has come to symbolize regulation gone awry than the relatively modest-looking Section 404 of the Sarbanes-Oxley Act. While the spirit and letter of the law never contemplated the costly and burdensome result that this provision has generated, the law's implementation undoubtedly facilitated such a result.

Despite the acknowledged costs, there is some evidence that the Section 404 requirements have been beneficial. For example, Couston, Leinicke, Rexroad and Ostrosky (2004) found a consensus among accounting professionals that ". . . this requirement would increase management's knowledge and concern about the quality of its internal controls structure, thus sending significant signals that management takes such controls very seriously"(p. 43).

Although not an explicit provision of SOX, another aspect of the current corporate governance environment that may restrict earnings manipulation is the increased personal liability of directors charged with oversight of management. Hymowitz (2003) described the new realities for corporate directors:

> The Sarbanes-Oxley Act, which took effect in July 2002, and subsequent rules proposed by two stock exchanges have resulted in dozens of new rules and procedures that have added to directors' duties. They include more regularly scheduled meetings of independent directors separate from company management, more careful oversight of accounting by the board audit committee – and more potential liability if things go awry. (p. R1)

Along the same lines, Bailey, Washburn, and Faust (2002) note that "(t)he perils of acting as a public company director or officer have gone up. Specifically, Sarbanes-Oxley increases directors' and officers' risk in connection with a host of possible claims or violations, either by increasing the odds they will be implicated in such claims or by increasing the resulting penalties" (p. 9).

There has been at least one predictable consequence of the potential for increased personal liability. A Grant Thornton (2005) survey of public companies notes that ". . . (f)inding qualified directors has proven more difficult in recent years as shareholder lawsuits have raised concerns about director liability." Corporate directors, dealing with increased responsibilities under SOX, and facing increased personal liability should they fail to fulfill those responsibilities, may react by refusing to accommodate the types of earnings management that they would have allowed in prior years.

Taken together, the provisions of SOX and increased director liability appear to have the potential to greatly reduce the ability of, and incentives for, management to manipulate earnings and thus reduce earnings quality. The following section develops a model for determining whether the quality of reported earnings has, in fact, increased since the passage of SOX.

Financial Reporting in the SOX Era

METHODOLOGY

Because earnings quality itself is not directly observable, prior researchers have developed a proxy for quality by estimating the level of discretionary accruals in reported earnings. Kothari, Leone, and Wasley (2005) note that the "(u)se of discretionary accruals in tests of earnings management and market efficiency is widespread" (p. 164).

All reported earnings incorporate some non-cash accrual items. The magnitude of many of these accruals is often left to the discretion of company management. Firm officials may able to increase reported earnings by manipulating these discretionary accruals. Thus, observed increases in discretionary accruals over the level expected may be a sign of increased earnings management and, equivalently, a decrease in earnings quality.

This study develops a model of firm expected discretionary accruals. The difference between these expected discretionary accruals and actual amounts are termed unexpected discretionary accruals. Following prior research, unexpected discretionary accruals then serve as a proxy for earnings quality.

The measure of unexpected discretionary accruals employed in this study is derived from by Kothari *et al*. (2002). Building on earlier research that indicated a correlation between discretionary accruals and firm performance, Kothari *et al*. (2002) included a firm's lagged Return on Assets (ROA) as a control for performance. Their model began by estimating current accruals:

$$CA_t = y_1(1/ASSET_{t-1}) + y_2(\Delta \text{ Rev}) + y_3(ROA_{t-1})$$

CA_t is current accruals in year *t*, defined as a firm's net income before extraordinary items plus depreciation and amortization minus operating cash flows, scaled by total assets at the beginning of the year. $ASSET_{t-1}$ is defined as total assets at the beginning of the year. Δ Rev is net sales in year *t* less net sales in year *t-1*, scaled by total assets at the beginning of the year. ROA_{t-1} is the firm's return on assets in year *t-1*.

This regression was estimated separately for each two-digit SIC code in their sample. The resulting industry specific parameter estimates ($\hat{y}$) were then used to generate a measure of expected current accruals for each firm – ECA:

$$ECA_t = \hat{y}_1(1/ASSET_{t-1}) + \hat{y}_2\,(\Delta \text{ Rev} - \Delta \text{ AR}) + \hat{y}3\,(ROA_{t-1})$$

where Δ AR is a firm's accounts receivable in year *t* less its accounts receivable in year *t-1*, scaled by total assets at the beginning of the year. As Dechow, Sloan and Sweeney (1995) note, the introduction of this term rests on the assumption that the flexibility firms enjoy with revenue recognition from credit sales makes earnings management much easier than would be possible with the revenue recognized from cash sales. Thus the above model implies that any increase in credit sales still uncollected at year end is due to earnings management.

Finally, unexpected discretionary accruals (UECA) were computed as the difference between actual and expected accruals.

$$UECA_t = CA_t - ECA_t$$

Research has shown that a firm's unexpected discretionary accruals are correlated with other factors. Following prior studies, the following variables were included to control for these factors and the resulting regression model was estimated:

UECA = *f* (BIG5, $ACCRUAL_{t-1}$, EQUITY, MERGER, LEVERAGE, MB, LITIGATION, LOSS, CFO),

where:

BIG5	=	indicator variable, set to 1 is the firm's auditor is a national "Big 5" firm, 0 otherwise;
$ACCRUAL_{t-1}$	=	prior year accruals (net income before extraordinary items plus depreciation and amortization less operating cash flows, scaled by assets at the beginning of the year;
EQUITY	=	natural log of the market value of the firm's equity, defined as the year end price per share of common stock multiplied by the number of shares of common stock outstanding at the end of the year;
MERGER	=	indicator variable set to 1 if the firm has engaged in merger activity during the year (as indicated by a nonzero ACQ), 0 otherwise;
LEVERAGE	=	a firm's total assets less its book value, scaled by total assets;
MB	=	the market value of the firm's equity scaled by the book value of its common stockholders' equity;
LITIGATION	=	indicator variable set to 1 if the firm is in a high litigation industry (SIC codes 2833-2836, 3570-3577, 3600-3674, 5200-5961, and 7370-7370), 0 otherwise;
LOSS	=	indicator variable set to 1 if the firm reported a net loss in the year, 0 otherwise;
CFO	=	cash flow from operations, scaled by total assets as of the beginning of the year.

BIG5 controls for the possibility that one of the national auditors may be better able to restrict earnings management than would a smaller audit firm (Frankel, Johnson & Nelson, 2002). $ACCRUAL_{t-1}$ is intended to capture the effect of a firm's reversal of accruals over time (Ashbaugh, LaFond & Mayhew, 2003), while EQUITY and MB both proxy for audit complexity. Firms engaged in merger (MERGER) activities will likely be subjected to additional scrutiny by auditors and other outside parties. Becker, DeFond, Jiambalvo, and Subramanyam (1998) found a correlation between discretionary accruals and firm debt levels (LEVERAGE). Matsumoto (2002) notes that firms subject to high litigation risk may be more sensitive to, and take steps to avoid, negative earnings surprises. Following Francis, Philbrick, and Schipper (1994) and Frankel *et al*.

(2002), firms in industries with SIC codes noted above were classified as high litigation risk (LITIGATION). Ashbaugh *et al*. (2003) report that prior research indicates that firms reporting a net LOSS in the prior year are less likely to report positive unexpected discretionary accruals. Finally, they also note that firms with high operating cash flows (CFO) may have less need to meet earnings targets through manipulation of discretionary accruals.

SAMPLE SELECTION AND RESULTS

Firms with financial and auditor data available on the S&P Research Insight database comprised the sample for this study. To be included in the final sample, firms had to have full data available for the years 2000 – 2005. This time period covers both the abuses that lead to the enactment of SOX and the subsequent issuance of financial statements covered by its provisions. A total of 25,854 firm-year observations were collected for analysis.

The regression model described above was estimated for each year from 2000 to 2005. The results are presented in Table 1. As the table indicates, some independent variables ($ACCRUAL_{t-1}$, LEVERAGE, CFO) are statistically significant for all years, while others achieve significance in some years, but in others. However, the F statistics for the regression models are statistically significant for each of the years examined.

Table 1: Unexpected Discretionary Accruals Over Time: 2000 – 2005

UECA = f (BIG5, $ACCRUAL_{t-1}$, EQUITY, MERGER, LEVERAGE, MB, LITIGATION, LOSS, CFO)

	2000	2001	2002	2003	2004	2005
Mean UECA	-.292	-.327	-.299	-.332	-.086	-.552
Variable	**2000**	**2001**	**2002**	**2003**	**2004**	**2005**
Intercept	1.217	-.364	-.281	-.567	.726	-.729
BIG5	-.754	-1.253**	-.038	.335*	-.090	1.996
$ACCRUAL_{t-1}$	.557***	5.170***	.868***	.396***	.259***	-1.998***
EQUITY	-.056	.063	.043**	.044	-.067	-.226
MERGER	-.615	.425	.137	-.161	-.244	.560
LEVERAGE	-.757***	1.449***	.334***	.241***	-.133***	-.178***
MB	-.004**	.003	.000	.000	-.008***	.029
LITIGATION	.167	.429	-.631***	.088	-.314**	1.015
LOSS	-.540	1.063**	-.424***	-.270*	.310**	-1.425
CFO	.882***	1.379***	.493***	-.149***	.307***	1.219***
R2	.832	.486	.421	.861	.545	.048
F	2368.45***	454.40***	349.42***	2978.28***	574.51***	25.06***

* p < .10
** p < .05
*** p < .01

The behavior of the mean UECA for each year, also presented in Table 1, is of interest. Although there is variation from year to year, the unexpected discretionary accruals of the sample firms show no evidence of decreasing over time, and in fact reach their highest level in 2005, the final year examined.

To better assess the behavior of unexpected discretionary accruals over the period examined, the regression model was re-estimated using combined data from all six years. A new dependent variable, YEAR, was added to this cross-sectional regression. YEAR was assigned a value ranging from 2000 to 2005, corresponding to the year being analyzed. If financial statement quality is increasing in the SOX era, the level of unexpected discretionary accruals should decrease over time, resulting in a negative coefficient for the dependent variable. Table 2 presents the results of this cross-sectional regression analysis.

Table 2: Unexpected Discretionary Accruals Over Time: 2000 – 2005

UECA = f (BIG5, L1ACCRUAL, EQUITY, MERGER, LEVERAGE, MB, LITIGATION, LOSS, CFO, YEAR)

Variable	B	t	Sig.
Intercept	10.721	.079	.937
BIG5	.193	.616	.538
$ACCRUAL_{t-1}$	.428	64.918	.000
EQUITY	-.007	-.120	.905
MERGER	-.045	-.177	.859
LEVERAGE	-.133	-35.669	.000
MB	-.001	-.649	.516
LITIGATION	.100	.377	.706
LOSS	-.132	-.517	.605
CFO	.142	16.247	.000
YEAR	-.005	-.080	.936
R^2	.142		
F	427.990	(p < .001)	

As with the yearly analyses, the explanatory power of the model is strong, with several variables (again, $ACCRUAL_{t-1}$, LEVERAGE, CFO) highly significant in explaining unexpected discretionary accruals. However, the results for YEAR are notable only for their marked lack of statistical significance.

The results reported so far do not differentiate firms with positive unexpected discretionary accruals from firms with negative discretionary accruals. Yet the circumstances and motivation of a management attempting to increase reported earnings may be quite different from that of a management attempting to decrease that level. Accordingly, following Ashbaugh *et al*. (2003), the cross-sectional regression model was re-estimated for firms with a positive UECA, and then for firms with a negative UECA. The results of this analysis are presented in Table 3.

Table 3 does reveal some differences in the factors affecting unexpected discretionary accruals, depending on whether those accruals increase or decrease earnings. Although the regression models are statistically significant for both sets of firms, the explanatory power of the regression is much greater for firms with positive UECA. In neither model, however, is YEAR a statistically significant explanatory variable.

Table 3:Unexpected Discretionary Accruals Over Time: 2000 – 2005
Positive and Negative UECA Examined Separately

UECA = f (BIG5, ACCRUAL $_{t-1}$, EQUITY, MERGER, LEVERAGE, MB, LITIGATION,LOSS, CFO, YEAR)

Panel A: UECA > 0

Variable	B	t	Sig.
Intercept	-24.329	-.455	.649
BIG5	-.375	-3.089	.002
ACCRUAL $_{t-1}$	-.373	-96.687	.000
EQUITY	-.098	-4.221	.000
MERGER	.067	.622	.534
LEVERAGE	-.126	-56.368	.000
MB	-.002	-3.281	.001
LITIGATION	-.137	-1.288	.198
LOSS	-.024	-.236	.813
CFO	-.611	-124.340	.000
YEAR	.013	.477	.633
R2	.830		
F	5147.839	(p < .001)	

Panel B: UECA < 0

Variable	B	t	Sig.
Intercept	6.225	.029	.977
BIG5	1.340	2.696	.007
ACCRUAL $_{t-1}$	.460	30.185	.000
EQUITY	.073	.839	.402
MERGER	.032	.085	.932
LEVERAGE	-.120	-20.595	.000
MB	.000	-.069	.945
LITIGATION	.271	.665	.506
LOSS	-.437	-1.097	.273
CFO	.343	18.338	.000
YEAR	-.004	-.038	.969
R2	.193		
F	366.431	(p < .001)	

SUMMARY AND CONCLUSIONS

A series of highly publicized accounting and auditing failures led to passage of the Sarbanes-Oxley Act in 2002. Measures such as requiring management to certify

the accuracy of their firm's financial statements, increasing the financial expertise of corporate audit committees, and requiring effective internal controls over financial reporting were all designed to limit the ability of management to manipulate reported earnings. The primary goal of these provisions was to improve the quality of corporate financial reporting.

As the sub-prime mortgage crisis of 2008 has demonstrated, the risk of misleading financial statements has not been eliminated. However, the extent to which SOX has improved the quality of corporate financial reporting remains an unsettled question.

This study examined whether the goal of more reliable financial reporting has, in fact, been met. Reported earnings of firms were examined for a period of time before and after the passage of the Sarbanes-Oxley Act. Following prior research, unexpected discretionary accruals were used as a proxy for earnings quality. The results indicate that, after controlling for other variables that affect accruals, there is no observed reduction in unexpected discretionary accruals over the time frame examined. Thus, this study finds no evidence of increased earnings quality resulting from the Sarbanes-Oxley Act of 2002.

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