

# **The Impact of Restatements on Credit Ratings and the Enron Industry-Peer Effect**

**Cathy Zishang Liu**  
**Louisiana Tech University and University of Houston-Downtown**

**Beverly J. Rowe**  
**University of Houston-Downtown**

**Ya-Fang Wang**  
**Providence University**

*Credit-rating agencies have been criticized for not promptly adjusting credit rates following restatement announcements of financial statements. We investigate the link between restatements and credit risk. Our results indicate that restatement magnitude, duration, and the content of the restatement announcement impact the credit-rating response. Additionally, credit rating adjustments for firms making restatements after the Sarbanes-Oxley Act of 2002 provide evidence of the legislation's effectiveness. Our results also point to an Enron industry-peer effect as credit-rating agencies appear to punish oil, gas and energy restatement firms with significantly lower credit ratings in the post-Enron era.*

## **INTRODUCTION**

Restating previously issued financial statements should raise significant questions about the effectiveness of the restating firm's financial reporting. Credit-rating agencies have often been criticized for not responding promptly to the implied shift in the firm's riskiness related to the restatement of financial statements, especially after the Enron crisis. Restatements have differing levels of severity and a variety of characteristics which may provide information about the riskiness of the firm following the restatement. In this study, we investigate the link between restatements and credit risk. Initially, we consider a variety of characteristics and the level of severity in restatements in order to better understand the magnitude of the impact on credit risk of such restatements. We then consider the effect of restatements on credit ratings for the oil, gas and energy (OGE) sector to investigate the presence of an Enron industry-peer effect.

The Enron debacle has played a vital role in alterations made to the process of assurance regarding the usefulness of financial information provided by public companies. The result was the issuance of the Sarbanes-Oxley (SOX) Act and the creation of the Public Company Auditing Oversight Board (PCAOB). One expectation of the stronger SOX law and oversight by the PCAOB is that restatements would be less common and of lower magnitude. Thus one way to consider the effectiveness of the post-Enron period and SOX regulation is to compare the characteristics of restatements pre-SOX and post-SOX. We consider the severity of restatements and various restatement characteristics in pre-SOX and post-SOX

periods to provide empirical evidence of one element in the effectiveness of the SOX law.

The credit-rating agencies have been strongly criticized in particular for their slow response to the Enron crisis. Although Enron announced restatements in October, 2001 for the financial statements from 1997 to 2000, the credit-rating agencies (including Standard and Poor's, and Moody's) did not lower Enron's credit rating until just a few days before Enron's demise in December, 2001. The public's disdain for the credit-rating agencies slow response to Enron's restatement announcements may have led to an industry-wide effect on troubled firms in the oil, gas and energy (OGE) sector. OGE firms that make restatements may suffer greater credit rating reductions following the Enron debacle. We segregate OGE firms to consider whether credit-rating agencies over-adjust OGE firms' credit ratings following restatements as evidence of an Enron industry-peer effect.

Restated financial statements trigger reassessments of future cash flows and the riskiness of the firm (Palmrose et al, 2004). Various studies have found that restating companies tend to be smaller and less profitable (Kinney and McDaniel 1989; Defond and Jiambalvo 1991; Sennetti and Turner 1999). Further studies find that restatements result in increases in executive turnover (Desai et al. 2006; Collins et al. 2009; Burks 2010), increases in cost of capital (Hribar and Jenkins, 2004; Graham et al. 2008), and decreases in market return (DeChow et al. 1996; Palmrose et al. 2004; Scholz 2008; Files et al. 2009). However, no studies have considered the relationship of restatements to credit ratings. Although there is anecdotal evidence indicating connections between credit ratings and restatements based on the financial press, there are no empirical studies providing systematic evidence that the information content of restatements impacts credit ratings. In that restatements affect the assessment of future cash flows and the riskiness of the firm, credit ratings should also shift based on the information content of the restatements.

We first explore the characteristics that relate to the likelihood a firm will restate previously issued financial statements. Our results indicate that increased merger activity, lower growth in sales, higher levels of leverage, and larger firm size are characteristics of the restatement firms. We further the analysis to consider how characteristics of restatement link to credit risk. We find that the magnitude of the restatement, the length of the restatement duration, and whether the restatement announcement is mixed with other offsetting "good news" are characteristics that impact the response of the credit-rating agencies to the restatement. These results begin to shine some light on the mystery of the "black box" credit-rating agencies use to determine credit ratings. We also see evidence of regulatory effectiveness based on the response to restatements in the post-SOX period. Finally we find that credit-rating agencies cannot seem to close their eyes to the fact that Enron was a leader in the oil, gas, and energy sector. We find evidence that an Enron industry-peer effect does indeed exist as credit-rating agencies appear to punish OGE restatement firms with significantly lower credit ratings.

## **RESEARCH DESIGN**

### **Sample Selection**

We hand-collected data of initial restatement announcements from Lexis-Nexis News Library, EDGAR, GAO report (2003 and 2006), SEC Filing Library, Accounting Today News, BNET Today News, CFO.com News and Compliance Week News. Our sample resulted in 487 restatement firms. We matched the restating sample with 487 non-restatement firms. Our data spans the period from 1997 – 2005, allowing us to consider pre-SOX and post-SOX criteria. Table 1 provides the details of the sample selection.

For company credit ratings, we use the long-term issuer credit ratings compiled by Standard & Poor's. Standard & Poor's credit ratings are collected from the COMPUSTAT annual database. The ratings range from AAA (highest rating) to D (lowest rating-debt in payment default), and reflect Standard & Poor's assessment of the creditworthiness of the obligor with respect to its senior debt obligations. Company-level accounting data are obtained from the Standard & Poor's COMPUSTAT Annual Industrial, Research, and Full Coverage files.

**TABLE 1**  
**SAMPLE SELECTION AND DESCRIPTION**

<b>Panel A: Number of observations lost due to data requirements</b>	<i>n</i>
Sample of 10-K or 10-Q restatements	1,838
Restatements of technical reasons	(101)
Observations without perm number, cusip, gvkey, cnum, etc.	(12)
Observations with missing restatement data	(162)
Observations not on Compustat or with missing Compustat data	(232)
Observations missing credit ratings data	(844)
Restating sample	487
Non-restating sample	487
Total sample	<u>974</u>

**Panel B: Distribution of restating companies by years of announcement**

Year	1997	1998	1999	2000	2001	2002	2003	2004	2005	Total
Obs.	4	10	25	30	59	53	76	97	133	487
%	0.82	2.05	5.13	6.16	12.11	10.88	15.61	19.92	27.31	100

**Matching Model**

In order to examine whether restatements affect credit ratings, we use the propensity-score matching model to match on a broad range of company characteristics. We first estimate equation 1 (Figure 1) to calculate the probability of restatements for each company. We then match each of our restating companies on year, industry, and propensity-score with non-restating companies to create our matched sample.

**FIGURE 1**  
**MATCHING MODEL EQUATION 1**

$$RESTATE_{i,t} = \alpha_0 + \alpha_1 BIGN_{i,t-1} + \alpha_2 MA_{i,t-1} + \alpha_3 ROA_{i,t-1} + \alpha_4 GROWTH_{i,t-1} + \alpha_5 OCF_{i,t-1} + \alpha_6 LEV_{i,t-1} + \alpha_7 SIZE_{i,t-1} + \varepsilon_{i,t} \quad (1)$$

where

- $RESTATE_{i,t}$  = 1 if financial statements were restated, and 0 otherwise;
- $BIGN_{i,t-1}$  = 1 if the company's auditor is a Big N firm, and 0 otherwise;
- $MA_{i,t-1}$  = 1 if the company experiences a merger or acquisition, and 0 otherwise;
- $ROA_{i,t-1}$  = Net income divided by book value of total assets;
- $GROWTH_{i,t-1}$  = One-year percentage change in sales;
- $OCF_{i,t-1}$  = Cash flows from operating activity deflated by beginning total assets;
- $LEV_{i,t-1}$  = Book value of long-term debt divided by book value of total assets;
- $SIZE_{i,t-1}$  = Natural log of book value of total assets;
- $\varepsilon$  = the residual term.

In equation 1, the dependent variable, *RESTATE*, is a binomial variable which equals one if the company announced restatements in the year, and zero otherwise. Our control variables include major determinants affecting companies' restating decisions identified in prior studies. For example, Farber (2005) and Lennox and Pittman (2010) report a smaller proportion of brand-name audit firms in fraud companies compared with control companies. Therefore, we include Big N CPA firms (*BIGN*) to control

for auditors' brand-name reputation and predict its coefficient to be negative. Following Stanley and DeZoort (2007), Kinney et al. (2004), and Palmrose et al. (2004), we identified companies undergoing mergers and acquisitions (MA) because acquisition activity was positively related to restatements. ROA, LEV, OCF and GROWTH are included to control for the company financial condition (Stanley and DeZoort 2007; Cahan and Zhang 2006; Abbott et al. 2004). We predict that the coefficients of ROA, OCF and GROWTH (or LEV) will be negative (or positive) because profitable (or unprofitable) companies are less (or more) likely to require restatements. The company size (SIZE) is controlled in the model using the natural log of total assets.

We estimate equation 2 (Figure 2) to examine the differences in credit-rating agencies' reactions to restatements. Matched samples are employed in equation 2 to examine the difference in credit ratings of restatement and non-restatement companies. The following ordered probit model (Ederington 1985) is used to examine the impact of restatements on company credit ratings.

**FIGURE 2**  
**MATCHING MODEL EQUATION 2**

$$RATINGS_{i,t} = \alpha_0 + \alpha_1 RESTATE_{i,t} + \alpha_2 SEVERITY_{i,t} + \alpha_3 DEBT_{i,t} + \alpha_4 GROWTH_{i,t} + \alpha_5 OCF_{i,t} + \alpha_6 LEV_{i,t} + \alpha_7 SIZE_{i,t} + \alpha_8 RATINGS_{i,t-1} + \alpha_9 [Fixed\ Effects] + \varepsilon_{i,t} \quad (2)$$

where

- $RATINGS_{i,t}$  = S&P bond rating for company i at year t, calculated based on a numerical conversion process in which an AAA-rated bond is assigned a value of 1, and as the bond rating declines the numerical rating increases by 1;
- $SEVERITY_{i,t}$  = Combines four characteristics of restatement severity (*AMOUNT*, *ACCOUNTS*, *RYEARS*, *BGNEWS*) with equal weights into a single composite variable;
- $DEBT_{i,t}$  = 1 if the company has notes payable, and 0 otherwise;
- Fixed Effects* = Dummy variables controlling for fixed effects of industries and calendar years;
- $\varepsilon$  = the residual term.

All other variables are defined above.

Consistent with various studies in the restatement literature (Ahmed et al. 2002; Mansi et al. 2004; Francis et al. 2005; Ashbaugh-Skaife et al. 2006; Cheng and Subramanyam 2008; and Gul and Goodwin 2010), the dependent variable, RATINGS, is assigned a value of 1 if the company is rated AAA, and is increased by 1 as the bond rating declines by one notch (i.e., AA+ equals 2, AA equals 3, etc.). Standard & Poor's (S&P) usually assigns each company a long-term "issuer rating" for measuring the ability of a company to meet its senior obligations, and specific ratings for each debt issuance, according to the debt contract. Senior debt ratings are usually the same as the issuer rating. We obtain senior debt ratings of companies from the annual Compustat file between 1997 and 2005.

### **Characteristic Variables**

The first characteristic variable identifies the magnitude effect of restatement amounts (*AMOUNT*), which measures the size (magnitude) effect of a restatement on net income. The magnitude of a restatement is positively associated with the probability of a lawsuit (Palmrose and Scholz 2004), and restatements of greater magnitudes are more of a concern to investors (Palmrose and Scholz 2004; Palmrose et al. 2004; Lev et al. 2007). Thus, we include a measure of the magnitude effect (*AMOUNT*) as a restatement characteristic. Following extant literature, (Palmrose et al. 2004; Srinivasan 2005) we compute *AMOUNT* as the restated income (loss) less originally reported income (loss), scaled by the book value of total assets at the year-end immediately preceding the restatement announcement. We expect that credit-rating agencies are more likely to assign unfavorable ratings to restating companies if

restatements involve greater misstatement amounts.

Second, because a restatement may involve several accounts and cause more negative reactions (Palmrose et al. 2004), we measure the number of account groups affected (denoted by ACCOUNTS). The ACCOUNTS variable allows us to consider the pervasiveness of the restatement and examine whether credit-rating agencies consider the detailed line items (within the income statement) involved in a restatement. We follow Palmrose et al. (2004) by focusing on seven account groups in the income statement (i.e., revenue, cost of sales, operating expenses, one-time/special items, merger-related, non-operating expenses, and other items) and expect ACCOUNTS (which can range from one to seven) to be positively associated with unfavorable ratings.

Third, like Palmrose et al. (2004) and Srinivasan (2005) we also include the number of years restated as one restatement characteristic. Duration of the misstatement (denoted by RYEARS) is measured by the number of years financial statements are restated in a single restatement (where a fiscal year = 1 and a quarter = 0.25). Therefore, RYEARS captures the “cumulative compromise” of financial reporting quality over a specific length of time. We expect a positive association between RYEARS and unfavorable ratings.

Fourth, following Palmrose et al. (2004) we consider the situation of announcing restatements and future perspectives. The test variable, BGNEWS, is an indicator variable which equals one if a restatement is not announced simultaneously with good news related to earnings releases, earnings forecasts or perspectives. We expect that credit-rating agencies are more likely to assign unfavorable ratings to restating companies which do not simultaneously announce a good perspective in their operation.

Fifth, similar to DeFond et al. (2005), we develop a comprehensive index that combines the aforementioned characteristics of the restatement (AMOUNT, ACCOUNTS, RYEARS, BGNEWS) into a single composite severity measurement (SEVERITY) to capture the company’s overall restatement severity. We code company characteristics equal to 1 if a company’s AMOUNT, ACCOUNTS or RYEARS is above the median of the samples, and 0 otherwise. Then, we construct our composite restatement severity measure (SEVERITY) by summing the three dichotomous measures for each sample observation and the BGNEWS variable. We expect SEVERITY (ranging from zero to four) to be positively associated with unfavorable ratings.

### **Control Variables**

Banks, as senior debt claimants, can monitor and provide a third party certification for the company (Diamond 1984; Fama 1985; Mansi et al. 2004). Therefore, we control for the information as well as monitoring effects of companies with bank loans (DEBT) and expect a negative association between the presence of bank debt and credit rating. Prior research finds that companies with low risk also have lower debt costs (Ahmed et al., 2002; Campbell and Taksler 2003; Jiang 2008). Hence we include operating cash flows (OCF) and sales growth rate (GROWTH) as additional controls for default risk. We expect a negative association between the risk variables and credit rating. Similar to previous studies (Dechow et al. 1996; Richardson et al. 2003; Desai et al. 2006; Jiang 2008), we control for company’s size effect (SIZE) and leverage (LEV) as these variables capture company-specific risks. Additionally, we include company prior year rating (RATINGS<sub>i,t-1</sub>) to control for the effects of positive autocorrelation among error terms as well as potentially correlated omitted variables that may influence credit ratings (Wooldridge 2000; Jiang 2008).

## **EMPIRICAL RESULTS AND DISCUSSION**

### **Characteristics of Restatement Firms**

We considered the impact of the type of external auditor, extent of merger activity, return on assets, growth in sales, operating cash flows, leverage, and size as potential characteristics of restatement firms. Table 2, Panel A reflects the multivariate results of the propensity-score matched samples. Consistent

**TABLE 2**  
**UNIVARIATE AND MULIVARIATE TESTS OF PROPENSITY-SCORE MATCHED SAMPLES**

<b>Panel A: Propensity-score model results</b>						
Variable <sup>a</sup>			Pred. Sign	Coefficients <sup>b</sup>		
<i>INTERCEPT</i>			?	-1.62*** (6.20)		
<i>BIGN<sub>i,t-1</sub></i>			-	0.01 (0.01)		
<i>MA<sub>i,t-1</sub></i>			+	0.23** (2.03)		
<i>ROA<sub>i,t-1</sub></i>			-	0.43 (0.48)		
<i>GROWTH<sub>i,t-1</sub></i>			-	-0.12* (1.50)		
<i>OCF<sub>i,t-1</sub></i>			-	0.45 (0.84)		
<i>LEV<sub>i,t-1</sub></i>			+	0.95*** (4.90)		
<i>SIZE<sub>i,t-1</sub></i>			?	0.17*** (6.87)		
Pseudo-R <sup>2</sup> (%)				6.91		
N				974		

  

<b>Panel B: Descriptive statistics of propensity-score matched samples</b>						
Variable <sup>a</sup>	Restating (A)		Non-restating (B)		Differences <sup>b</sup> (A) vs. (B)	
	Mean	Median	Mean	Median	Mean	Median
<i>BIGN<sub>i,t-1</sub></i>	0.963	1.000	0.947	1.000	-0.016	-0.000
<i>MA<sub>i,t-1</sub></i>	0.189	0.000	0.160	0.000	-0.029	-0.000
<i>ROA<sub>i,t-1</sub></i>	0.023	0.024	0.018	0.027	-0.006	0.003
<i>GROWTH<sub>i,t-1</sub></i>	0.166	0.078	0.231	0.085	0.065*	0.007
<i>OCF<sub>i,t-1</sub></i>	0.085	0.077	0.076	0.075	-0.009	-0.002
<i>LEV<sub>i,t-1</sub></i>	0.297	0.251	0.213	0.157	-0.084***	-0.094***
<i>SIZE<sub>i,t-1</sub></i>	8.390	8.173	7.486	6.913	-0.904***	-1.260***

<sup>a</sup> The definitions of the variables reported in this table are: *RESTATE* = 1 if financial statements were restated, and 0 otherwise; *RATINGS* = S&P bond rating, calculated based on a numerical conversion process in which an AAA-rated bond is assigned a value of 1, and as the bond rating declines the numerical rating increases by 1; *BIGN* = 1 if the company's auditor is a Big N firm, and 0 otherwise; *MA* = 1 if the company experiences a merger or acquisition, and 0 otherwise; *ROA* = Net income divided by book value of total assets, both reported at the announcement year; *GROWTH* = One-year percentage change in sales reported at announcement year; *OCF* = Cash flows from operating activities deflated by beginning total assets reported at the announcement year; *LEV* = Book value of long-term debt divided by book value of total assets, both reported at announcement year; *SIZE* = Natural log of book value of total assets reported at announcement year.

<sup>b</sup> Asterisks \*, \*\*, \*\*\* indicate significance at the 0.10, 0.05, and 0.01 levels, respectively. One-tailed for directional expectations, two-tailed for others.

with prior studies (Abbott et al. 2004; Cahan and Zhang 2006; Stanley and DeZoort 2007), our results indicate that increased merger activity, lower growth in sales, higher leverage, and larger firm size are all likely characteristics of restatement firms. Additionally, in Table 2, Panel B we see from the univariate results that there are no significant control variable differences other than leverage and size. This provides

confirmation that using the propensity-score to develop the paired-sample match of restatement firms to non-restatement firms is effective.

### Linking Restatement Characteristics to Credit Ratings

Credit rating adjustments following restatements remain a mystery for the most part. It is the proverbial “black-box” for those outside the credit-rating agencies. Identifying characteristics that impact the adjustment of credit ratings following restatements allows us to peek into the black-box. Initially we explored the correlations between credit ratings and our characteristic variables. Our credit rating variable (RATINGS) measures the S&P bond rating, with a value of 1 assigned to the highest possible rating (AAA). Thus a low RATINGS value reflects a high credit rating. We found RATINGS is positively correlated with the magnitude of the restatement (AMOUNT), the duration of the restatement period (RYEARS), and whether the restatement news accompanied other earnings “good news” announcements (BGNEWS). SEVERITY, which is our composite variable that captures these characteristics along with the number of account groups affected (ACCOUNTS) is also positively correlated with RATINGS. This evidence suggests that credit-rating agencies consider these characteristic variables in evaluating firm credit ratings. The control variables DEBT (negative), OCF (negative), LEV (positive), and SIZE (negative), are also correlated with RATINGS, indicating that the presence of bank debt, higher operating cash flows, lower leverage, and larger size relate to stronger credit ratings.

### Regulatory Effectiveness in the Post-SOX Period

Table 3 presents evidence that firms making restatements in the post-SOX period suffer significantly higher restatement severity (SEVERITY) and receive significantly lower credit ratings (RATINGS) than those making restatements in the pre-SOX period. Further comparison of the pre-SOX and post-SOX periods reveals that restatements announced prior to the SOX legislation had shorter duration (RYEARS), more account groups restated (ACCOUNTS), and that the pre-SOX restatements were more likely to be announced simultaneously with other good news related to earnings (BGNEWS). It appears that credit-rating agencies respond more stringently to restatements in the post-SOX period while firms reframe from restatements unless the characteristic variables indicate a high level of severity. These observations provide favorable evidence for SOX regulatory effectiveness.

**TABLE 3**  
**DESCRIPTIVE STATISTICS OF RESTATING COMPANIES**

Variable <sup>b</sup>	Pre-SOX (n=160) <sup>a</sup>		Post-SOX (n=327)		Differences <sup>c</sup>	
	(A)	(A)	(B)	(B)	(A) vs. (B)	(A) vs. (B)
	Mean	Median	Mean	Median	Mean	Median
<i>RATINGS</i> <sub><i>i,t</i></sub>	10.360	10.000	11.150	12.000	0.790**	2.000***
<i>AMOUNT</i> <sub><i>i,t</i></sub>	0.012	0.002	0.009	0.002	-0.003	-0.000
<i>ACCOUNTS</i> <sub><i>i,t</i></sub>	1.260	1.000	1.130	1.000	-0.130**	-0.000**
<i>RYEARS</i> <sub><i>i,t</i></sub>	1.063	0.750	1.757	1.000	0.694***	0.250***
<i>BGNEWS</i> <sub><i>i,t</i></sub>	0.510	1.000	0.710	1.000	0.200***	0.000***
<i>SEVERITY</i> <sub><i>i,t</i></sub>	1.490	1.000	1.770	2.000	0.280***	1.000***
<i>DEBT</i> <sub><i>i,t</i></sub>	0.580	1.000	0.410	0.000	-0.170***	-1.000***
<i>GROWTH</i> <sub><i>i,t</i></sub>	0.089	0.049	0.089	0.072	0.000	0.023
<i>OCF</i> <sub><i>i,t</i></sub>	0.086	0.081	0.084	0.071	-0.002	-0.010
<i>LEV</i> <sub><i>i,t</i></sub>	0.318	0.249	0.300	0.249	-0.018	0.000
<i>SIZE</i> <sub><i>i,t</i></sub>	8.065	8.014	8.595	8.354	0.530***	0.340**

<sup>a</sup> Pre-SOX (Post-SOX) denotes restatements announced before (after) August 1, 2002.

<sup>b</sup> The definitions of the variables reported in this table are: *RATINGS* = S&P bond rating, calculated based on a numerical conversion process in which an AAA-rated bond is assigned a value of 1, and as the bond rating declines the numerical rating increases by 1; *AMOUNT* = Absolute value of cumulative restated income scaled by total assets in the year prior to the restatement announcement; *ACCOUNTS* = Number of account groups affected in a restatement. The seven account groups are revenue, cost of sales, operating expenses, one-time/special items, merger-related, non-operating expenses, and other items; *RYEARS* = Sum of years restated, where a fiscal year = 1 and each additional quarter = 0.25; *BGNEWS* = 1 if restatements are not announced simultaneously with positive earnings announcements, earnings forecasts or perspectives, and 0 otherwise; *SEVERITY* = Combines four restatement characteristics (*AMOUNT*, *ACCOUNTS*, *RYEARS*, *BGNEWS*) into a single composite variable; *DEBT* = 1 if the company has notes payable, and 0 otherwise; *GROWTH* = One-year percentage change in sales reported at announcement year; *OCF* = Cash flows from operating activity deflated by beginning total assets reported at the announcement year; *LEV* = Book value of long-term debt divided by book value of total assets, both reported at announcement year; *SIZE* = Natural log of book value of total assets reported at announcement year. <sup>c</sup> Asterisks \*, \*\*, \*\*\* indicate two-tailed significance at the 0.10, 0.05, and 0.01 levels, respectively

### Enron Industry-Peer Effect on Oil, Gas and Energy Firms

In Table 4 we introduce an identifier variable to isolate the restatement effect of OGE firms. In column 1 we consider equation 2 without our composite variable that measures the severity of the restatement (*SEVERITY*). In column 2 we consider equation 2 including the severity measure. The overall result is that restatement firms in general do not suffer lowered credit ratings. However, when we control the model for the OGE industry (*IND*), we find that the interaction of restatement with OGE firms in both models (with and without severity) is significant. OGE firms receive more unfavorable credit ratings if they restate previously issued financial statements (*RESTATE\*IND*). Also, OGE firms receive a higher penalty in the form of lower credit ratings if they suffer higher restatement severity (*RESTATE\*IND\*SEVERITY*).

**TABLE 4**  
**CREDIT RATINGS AND FINANCIAL RESTATEMENTS**

Variable <sup>a</sup>	Pred. Sign	( 1 ) <sup>b</sup>	( 2 )	( 3 )	( 4 )
<i>RESTATE</i> <sub><i>i,t</i></sub>	+	-0.22*** (2.96)	-0.35*** (3.24)	4.00*** (6.70)	3.98*** (6.66)
<i>IND</i> <sub><i>i,t</i></sub>	+	0.06 (0.28)	0.05 (0.25)	0.08 (0.40)	0.08 (0.38)
<i>SEVERITY</i> <sub><i>i,t</i></sub>	+		0.08** (1.68)		0.12*** (2.71)
<i>RESTATE</i> × <i>IND</i> <sub><i>i,t</i></sub>	+	0.65*** (2.37)	0.19 (0.51)	0.58** (2.05)	0.13 (0.33)
<i>RESTATE</i> × <i>IND</i> × <i>SEVERITY</i> <sub><i>i,t</i></sub>	+		0.33** (1.86)		0.35** (1.94)
<i>DEBT</i> <sub><i>i,t</i></sub>	-	-0.10* (1.44)	-0.09 (1.21)	-0.05 (0.48)	-0.05 (0.49)
<i>GROWTH</i> <sub><i>i,t</i></sub>	-	-0.00 (0.04)	0.00 (0.01)	-0.00 (0.24)	-0.00 (0.24)
<i>OCF</i> <sub><i>i,t</i></sub>	-	-0.04 (0.41)	-0.04 (0.35)	0.01 (0.07)	0.01 (0.08)
<i>LEV</i> <sub><i>i,t</i></sub>	+	0.35*** (2.42)	0.36*** (2.51)	0.08 (0.32)	0.08 (0.34)
<i>SIZE</i> <sub><i>i,t</i></sub>	-	-0.09*** (3.63)	-0.09*** (3.77)	0.00 (0.02)	0.0 (0.03)
<i>RATINGS</i> <sub><i>i,t-1</i></sub>	+	0.58*** (32.90)	0.58*** (32.86)	0.68*** (30.79)	0.69*** (30.88)
<i>Fixed Effect</i>		Included	Included	Included	Included
Pseudo-R <sup>2</sup> (%)		35.67	35.83	37.11	37.38
n		974	974	974	974



<sup>a</sup> The definitions of the variables reported in this table are: *RATINGS* = S&P bond rating, calculated based on a numerical conversion process in which an AAA-rated bond is assigned a value of 1, and as the bond rating declines the numerical rating increases by 1; *RESTATE* = 1 if financial statements were restated, and 0 otherwise; *IND* = 1 if the company is energy industries, and 0 otherwise; *RESTATE* × *IND* = This interaction is the *RESTATE* and *IND*; *SEVERITY* = Combines four restatement characteristics (*AMOUNT*, *ACCOUNTS*, *RYEARS*, *BGNEWS*) into a single composite variable; *RESTATE* × *IND* = This interaction is the *RESTATE* and *IND*; *RESTATE* × *IND* × *SEVERITY* = This interaction is the *RESTATE*, *IND*, and *SEVERITY*; *DEBT* = 1 if the company has notes payable, and 0 otherwise; *GROWTH* = One-year percentage change in sales reported at announcement year; *OCF* = Cash flows from operating activity deflated by beginning total assets reported at the announcement year; *LEV* = Book value of long-term debt divided by book value of total assets, both reported at announcement year; *SIZE* = Natural log of book value of total assets reported at announcement year

<sup>b</sup> Asterisks \*, \*\*, \*\*\* indicate significance at the 0.10, 0.05, and 0.01 levels, respectively. One-tailed for directional expectations, two-tailed for others.

## CONCLUSION

In this study we focus on the restatements of previously issued financial statements and the impact of such restatements on credit ratings. We investigate restatements from three perspectives: what are the restatement characteristics that impact credit ratings; what is the regulatory effectiveness of SOX based on investigation of restatements; and do OGE restatement firms bear a heavier credit-rating burden than other industry firms based on an industry-peer perception emanating from the Enron debacle? To evaluate our first perspective, we consider different degrees of severity and the characteristics that might explain the severity of restatements. Restatement severity and the characteristics of severity may impact a firm's perceived credit-risk at differing levels. Hence, credit-rating agencies may consider the degree of severity and the varying severity characteristics as part of the basis for assigning different credit ratings. Second, we consider the relationship of restatements and credit-ratings in the pre-SOX and the post-SOX periods to evaluate the impact of the SOX regulation on the response of credit-rating agencies to restatements. Finally we focus on the OGE restatement firms to investigate whether the OGE industry suffers additional credit-rating penalty for restatements in the post-Enron era.

We find that increased merger activity, lower growth in sales, higher levels of leverage, and larger firm size are characteristics of firms that restate previously issued financial statements. When we consider restatement firms, we find that the magnitude of the restatement, the length of time related to the restatement, and whether the restatement announcement was issued with other earnings information bearing "good news" are characteristics that relate to credit rating adjustments. This finding in particular identifies some of the information used by credit-rating agencies in the mysterious "black-box" used to assess the restatement impact on credit risk. When we consider pre and post-SOX periods, we find that post-SOX restatements involve higher levels of severity, longer duration, and are less likely to be accompanied by other earnings "good news" that offsets some of the restatement impact. We interpret these findings to suggest that SOX regulation has been effective in its intention to decrease the frequency and magnitude of restatements to correct previously issued financial statements that do not comply with generally accepted accounting principles. Finally, we find the presence of what we consider to be an Enron industry-peer effect that punishes OGE firms with lower credit ratings than other industries in the face of restatements. OGE firms suffer more and stronger credit-rating penalties for restatements than other industries, particularly if the restatements are severe.

## REFERENCES

Abbott, L. J., Y. Park, & S. Parker. (2004). Audit committee characteristics and restatements. *Auditing: A Journal of Practice and Theory*, 23, 69-87.

Ahmed, A., B. Billing, R. Morton & M. Stanfor-Harris. (2002). The role of accounting conservatism in mitigating bondholder-shareholder conflicts over dividend policy and in reducing cost of debts. *The Accounting Review*, 77, 867-890.

Ashbaugh-Skaife, H., D. W. Collins, & R. LaFond. (2006). The effects of corporate governance on firms' credit ratings. *Journal of Accounting & Economics*, 42, 203-243.

- Burks, J.T. 2010. Disciplinary measures in response to restatements after Sarbanes-Oxley. *Journal of Accounting and Public Policy*, 25, 121-139.
- Cahan, S.F. & W. Zhang. (2006). After Enron: Auditor conservatism and ex-Andersen clients. *The Accounting Review*, 81, 49-82.
- Campbell, J. Y., & G. Taksler. (2003). Equity volatility and corporate bond yields. *Journal of Finance*, 58, 2321-2349.
- Cheng, M., & K. R. Subramanyam. (2008). Analyst following and credit ratings. *Contemporary Accounting Research*, 25, 1007-1043.
- Collins, D., A. Masli, A. L. Reitenga, & J. M. Sanchez. (2009). Earnings restatements, the Sarbanes-Oxley Act and the disciplining of chief financial officers. *Journal of Accounting, Auditing & Finance*, 24, 1-34.
- Dechow, P. M., R. G. Sloan, & A. Sweeney. (1996). Causes and consequences of earnings manipulation: An analysis of firms subject to enforcement actions by the SEC. *Contemporary Accounting Research*, 13, 1-36.
- DeFond, M. L., & J. Jiambalvo. (1991). Incidence and circumstances of accounting errors. *The Accounting Review*, 66, 643-655.
- DeFond, M. L., R. N. Hann, & X. Hu. (2005). Does the market value financial expertise on audit committees of boards of directors? *Journal of Accounting Research*, 43, 153-193.
- Desai, H., C. Hogan, & M. S. Wilkins. (2006). The reputational penalty for aggressive accounting: earnings restatements and management turnover. *The Accounting Review*, 81, 83-112.
- Diamond, D. W. (1984). Financial intermediation and delegated monitoring. *Review of Economic Studies*, 51, 393-414.
- Ederington, L.H. (1985). Classification models and bond ratings. *The Financial Review*, 20, 237-261.
- Fama, E. (1985). What's different about banks? *Journal of Monetary Economics*, 15, 29-39.
- Farber, D. 2005. Restoring trust after fraud: Does corporate governance matter? *The Accounting Review*, 80, 539-561.
- Files, R., E.P. Swanson, & S. Tse. (2009). Stealth disclosure of accounting restatements. *The Accounting Review*, 84, 1495-1520.
- Francis, J. R., I. K. Khurana, & R. Pereira. (2005). Disclosure incentives and effects on cost of capital around the world. *The Accounting Review*, 80, 125-162.
- Government Accountability Office. (2003). Financial statement restatements: Trends, market impacts, regulatory responses, and remaining challenges, GAO-03-138.
- Government Accountability Office. (2006). Financial statement restatements: Updates of public company trends, market impacts, and regulatory enforcement actions, GAO-06-678.
- Graham, J. R., S. Li, & J. Qiu. (2008). Corporate misreporting and bank loan contracting. *Journal of Financial Economics*, 89, 44-61.

- Gul, F., & J. Goodwin. (2010). Short-term debt maturity structures, credit ratings, and the pricing of audit services. *The Accounting Review*, 85, 877-909.
- Hribar, P., & N. Jenkins. (2004). The effect of accounting restatements on earnings revisions and the estimated cost of capital. *Review of Accounting Studies*, 9, 337-356.
- Jiang, J. (2008). Beating earnings benchmarks and the cost of debt. *The Accounting Review*, 83, 377-416.
- Kinney, W. R., & L. S. McDaniel. (1989). Characteristics of firms correcting previously reported quarterly earnings. *Journal of Accounting and Economics*, 11, 71-93.
- Kinney, W. R., Z-V. Palmrose, & S. Scholz. (2004). Auditor independence, non-audit services, and restatements: Was the U.S. government right? *Journal of Accounting Research*, 42, 561-588.
- Lennox, C., & J. A. Pittman. (2010). Big five audits and accounting fraud. *Contemporary Accounting Research*, 27, 209-247.
- Lev, B., S. G. Ryan, & M. Wu. (2007). Rewriting earnings history. *Review of Accounting Studies*, 12, 355-384.
- Mansi, S. A., W. F. Maxwell, & D. P. Miller. (2004). Does auditor quality and tenure matter to investors? Evidence from the bond market. *Journal of Accounting Research*, 42, 755-793.
- Palmrose, Z-V., & S. Scholz. (2004). The circumstances and legal consequences of non-GAAP reporting: Evidence from restatements. *Contemporary Accounting Research*, 21, 139-180.
- Palmrose, Z-V., V. J. Richardson, & S. Scholz. (2004). Determinants of markets reactions to restatement announcements. *Journal of Accounting & Economics*, 37, 58-89.
- Richardson, S., I. Tuna, & M. Wu. (2003). Predicting earnings management: The case of earnings restatements. *Working paper*, University of Pennsylvania.
- Scholz, S. 2008. The changing nature and consequences of public company financial restatements 1997-2006. Washington, DC, PCAOB.
- Sennetti, J. T., & J. L. Turner. (1999). Post-audit restatement risk and brand-name audits. *Working Paper*, Nova Southeastern University.
- Srinivasan, S. (2005). Consequences of financial reporting failure for outside directors: Evidence from accounting restatements and audit committee members. *Journal of Accounting Research*, 43, 291-334.
- Stanley, J.D. & F.T. Dezoort. (2007). Audit firm tenure and financial restatements: An analysis of industry specialization and fee effects. *Journal of Accounting and Public Policy*, 26, 131-159.
- Wooldridge, J. (2000). *Introductory econometrics: A modern approach*. Cincinnati, OH: South-Western.