DO FIRMS MANIPULATE EARNINGS WHEN ENTERING THE BOND MARKET?

Sangshin (Sam) Pae, Arkansas State University
Tina Quinn, Arkansas State University

ABSTRACT

This paper examines whether firms issuing bonds engage in earnings management via either accrual-based or real activities. Based on a sample of bond issuers from 1992 through 2002, we document that bond issuers increase their accruals prior to the issuance then decrease their accruals subsequent to the issuance year. In addition, we also find some evidence that bond issuers engage in real earnings management. Overall, the findings in this study suggest that firms issuing bonds not only manipulate earnings using accruals but also use real operating decisions.

INTRODUCTION

Substantial evidence indicates that managers engage in earnings management. As evidenced by extensive corporate scandals, including Enron, WorldCom and Xerox, it is common knowledge among investors, analysts and regulators that earnings management exists. Previous studies show that managers engage in earnings management to meet or beat analyst forecasts, avoid losses and maintain earnings growth targets (Burgstahler and Dichev, 1997; Degeorge et al., 1999). In addition, a number of studies have documented that executives manipulate earnings around firm-specific events such as initial public offerings (Teoh et al., 1998a), seasoned equity offerings (Teoh et al., 1998b), violation of debt covenants (DeFond and Jiambalvo, 1994; Dichev and Skinner, 2002) and acquisition of other firms (Louis, 2004). However, there is little evidence regarding whether and how firms manipulate earnings when entering the bond market. The purpose of this paper is to investigate whether firms manage earnings through either income increasing discretionary (or abnormal) accruals or real operating decisions during the period in which the debt is issued.

The incentives for earnings management arise because pricing and non-pricing terms such as amount, maturity, collateral and covenants in explicit contracts written between lenders and corporate borrowers are affected by reported earnings. As Leftwich (1983) points out, the conflict of interest between bondholders and shareholders actually is a negative-sum game because it affects the firm's financing, production and investment decisions. Therefore, managers of the firm, who act in the best interest of shareholders, have incentives to mitigate agency cost arising from debt contracting to maximize the firm value.

Even though the literature has long recognized that managers can take accounting actions or real economic actions to meet earnings benchmarks or certain earnings threshold, real earnings management has not received as much attention in the archival literature relative to the attention given to accrual-based earnings management. Recent studies (Graham et al., 2005; Gunny, 2005; Roychowdhury, 2006; Cohen et al., 2008; Cohen and Zarowin, 2008; Chen et al., 2008; Kim and Sohn, 2009) have documented that firms not only use accruals to manipulate earnings but also conduct earnings management through real activities. Therefore, it is important to examine whether management of the firms that issue debt also engage in real economic actions to window-dress financial reports when entering the bond market.

In this study, we use discretionary total accruals (DTACC) as a proxy for accrual-based earnings management (Jones, 1991; Kothari et al., 2004; Teoh et al., 1998a; Teoh et al., 1998b) and abnormal cash flows from operations (CFO), abnormal discretionary expenses and abnormal production costs as proxies for real earnings management (Roychowdhury, 2006; Cohen et al., 2008). We perform cross-sectional regression for every industry and year to estimate the discretionary total accruals, abnormal CFO, abnormal discretionary expenses and abnormal production costs. Then, we test whether these dependent variables (discretionary total accruals, abnormal CFO, abnormal discretionary expenses, abnormal production costs) of issuing firms are higher or lower during the year of the issuance compared to performance matched firms after controlling for other influencing factors.

Using data on a sample of public bond issuers from 1992 through 2002, we find evidence that discretionary total accruals increase prior to the issuance and decline afterwards. In addition, we also find some evidence that the sample firms are engaging in real earnings management but not as strong as accruals. These results suggest that bond issuers prefer to manipulate earnings via accruals compared to real activities.

This paper contributes to the literature on earnings management in several ways. We extend ongoing research investigating the motivations, characteristics and consequences of earnings management. Existing earnings management research predominantly examines incentives of managers related to stock market performance. For example, Teoh et al. (1998) investigate managers' motivations to issue stocks at a higher price to the market. In addition, Cheng and Warfield (2005) test managers' incentives to manipulate earnings when their equity incentives, such as stock-based compensation and stock ownership, are relatively high. We contribute to the literature by documenting incentives for managers related to the debt market. In addition, we use both accrual-based and real activities to measure earnings management. It is important to test both of these measures since recent evidence suggests that managers use both accruals and real operating decisions to manage earnings. Most of the prior studies on earnings management investigate only discretionary accruals; however, as Graham et al. (2005) pointed out, managers engage in real earnings management more frequently than accrual-based manipulation.

The remainder of this paper is organized as follows. In section 2, we develop hypotheses. Section 3 describes details of the sample selection procedures, and section 4 presents the research design. Empirical results are presented in section 5. Finally, we conclude in section 6.

HYPOTHESES DEVELOPMENT

Prior empirical studies on earnings management show that managers manipulate earnings prior to certain economic events such as initial public offering (IPO), seasoned equity offering (SEO), violation of debt covenants and acquisition of other firms. For example, Teoh et al. (1998b) find that firms that conduct seasoned equity offerings manage earnings through accounting accruals and that subsequent earnings and stock return underperformance are correlated with the level of earnings management during the equity issue period. Teoh et al. (1998a) also find evidence showing earnings management before initial public offerings. Louis (2004) finds strong evidence suggesting that acquiring firms overstate their earnings in the quarter preceding a stock swap announcement. In addition, Dichev and Skinner (2002) test a "debt covenant" hypothesis – the idea that managers make accounting choices to reduce the likelihood that their firms will violate accounting-based debt covenants.

Leftwich (1983) pointed out that the conflict of interest between debtholders and shareholders actually is a negative-sum game because it affects the firm's financing, production and investment decisions, and shareholders will support restrictions on such decisions when the restrictions "lead to the highest firm value." Thus, since managers are acting in the best interest of shareholders, managers have incentive to lower the agency cost of debt as much as possible when negotiating debt contract. In addition, if the firm performance is not good prior to debt issuance, the firm might not be able to issue the amount of funds it needs. Performance of the firm not only affects the amount of funds it borrows but also affects various contract terms such as maturity or collateral. Surprisingly, most earnings management studies on debt focus on detecting the violation of debt covenants. To our knowledge, there is no study that tests the association between earnings management and the bond market.

Following previous earnings management studies (Teoh et al., 1998a, 1998b; Louis, 2004; Cheng and Warfield, 2005) and given shareholders' incentive to mitigate agency cost of debt, we examine whether the issuing firms exhibit unexpected high levels of discretionary accruals compared to their performance matched non-issuing firms. Thus, our first hypothesis related to accrual-based earnings management is as follows (in the alternative form):

H1: Firms that issue bonds are likely to manipulate earnings through income increasing accruals compared to non-issuing firms, ceteris paribus, during the year of bond issuance.

Managers not only use accruals as an earnings management tool but also engage in real operating decisions to manage earnings. Graham et al. (2006) surveyed financial executives from a large number of public U.S. firms and find that financial executives are willing to make small or moderate economic sacrifices in representing the economic value of the firm in order to obtain credibility in the market. They also find that real earnings management is preferred to accrual-based earnings management, which contradicts researchers' assumptions about the higher likelihood of earnings management via accruals. Dechow and Skinner (2000) posit that real earnings management methods used by managers are (1) acceleration of sales, (2) alterations in shipment schedules and (3) delay of research and development (R&D) and maintenance expenditures. Other evidence also indicates that managers engage in real transactions to manipulate earnings. Dechow and Sloan (1991) examine whether CEOs in the final years of their tenure manage discretionary investment to enhance short-term performance and find evidence that the growth in R&D expenditures is reduced over this horizon, but the reduction in R&D expenditures is mitigated through CEO stock ownership. Roychowdhury (2006) provides evidence that firms reporting small positive profits and small positive forecast errors manage earnings through real activities. Therefore, merely testing accrual-based earnings management is sufficient.

The advantage of using real earnings management instead of accrual-based earnings management is that investors are able to second-guess the firm's accounting policies; however, they cannot readily challenge real economic actions that are taken in the ordinary course of business. Thus, while it is more difficult to manage earning via real actions rather than accruals, executives do use real earnings management as documented in prior literature (Dechow and Skinner, 2000; Graham et al., 2005). Therefore, to provide a more complete study of the earnings management during the issuance of bonds, we also examine real earnings management activities over the sample period.

Following Roychowdhury (2006), we use abnormal cash flow from operations (CFO), abnormal discretionary expenses and abnormal production costs as proxy measures for real earnings management (sales manipulation, reduction of discretionary expenditure, and overproduction, respectively). Thus, the next hypotheses regarding the detection of real earnings management are as follows (in the alternative form):

H2: After controlling for sales levels, firms that issue bonds are likely to exhibit low abnormal CFO, ceteris paribus, during the year of debt issue.

H3: After controlling for sales levels, firms that issue bonds are likely to exhibit low abnormal discretionary expenses, ceteris paribus, during the year of debt issue.

H4: After controlling for sales levels, firms that issue bonds are likely to exhibit high abnormal production costs, ceteris paribus, during the year of debt issue.

SAMPLE SELECTION

Our initial sample consists of U.S. public companies that issued bonds between January 1992 and December 2002. We use Securities Data Company (SDC) New Issues database to obtain information on bond issuers. For firms with multiple issuances in a given year, we only include the largest offering amount to avoid overlapping data following Khurana and Raman (2003). We exclude firms in financial industries because these firms are closely regulated and have unique disclosure requirements which make it difficult to manage earnings. In addition, issuing bonds is more like a day-to-day operation rather than a financing activity for financial firms.

We restrict the sample to all non-financial firms with available data and require at least ten observations in each two-digit SIC industry classification per year. For inclusion in the final sample, we also require sufficient data to compute accrual-based measures (i.e., discretionary accruals) and real earnings management proxies (i.e., abnormal CFO, abnormal discretionary expenses, and abnormal production costs). These requirements result in 5,696 bond issues for 420 firms over the period between 1992 and 2002.

RESEARCH DESIGN

Accrual-Based Measure

Different measures have been used in prior studies to proxy for earnings management. One of the most common metrics used to detect earnings management is the magnitude of discretionary (or abnormal or unexpected) accruals, which measures the discretion used by managers to achieve their financial reporting goals. Following previous research (Jones, 1991; Sloan, 1996; Teoh et al., 1998), we run the following regression for a given year using non-issuers in the same two-digit SIC code as the issuer in order to estimate normal accruals:

$$\frac{TAC_{i,t}}{TA_{i,t-1}} = \alpha_0\left(\frac{1}{TA_{i,t-1}}\right) + \alpha_1\left(\frac{\Delta REV_{i,t} - \Delta REC_{i,t}}{TA_{i,t-1}}\right) + \alpha_2\left(\frac{PPE_{i,t}}{TA_{i,t-1}}\right) + \varepsilon_{i,t} \quad (1)$$

where $TAC_{i,t}$ is total accruals in year t for firm i, $\Delta REV_{i,t}$ is change in sales revenue from year t-1 to year t for firm i, $\Delta REC_{i,t}$ is change in accounts receivable from year t-1 to year t for firm i, $PPE_{i,t}$ is property, plant, and equipment in year t for firm i, $TA_{i,t-1}$ is total assets in year t-1 for firm i, and $\varepsilon_{i,t}$ is the error term in year t for firm i. Specifically, total accruals is the change in noncash current

assets minus the change in operating current liabilities minus depreciation, amortization, and depletion:

TAC_t = Δ [current assets (#4) – cash (#1)] - Δ [current liabilities (#5) – current maturity of long term debt (#44)] - DEP_t (#14) (2)

where numbers in parentheses are Compustat item numbers. Discretionary total accruals (*DTACC*) are defined as the difference between realized total accruals and normal accruals.

Real Activities Measure

We rely on prior studies to develop proxies for real earnings management. Following Roychowdhury (2006) and Cohen et al. (2008), we focus on three manipulation methods and their impact on the abnormal levels of CFO, discretionary expenses and production costs. Sales manipulation occurs when managers attempt to temporarily increase sales through temporary price discounts or lenient credit terms. The additional sales will boost current earnings but will result in lower cash flows given sales level. Discretionary expense includes advertising expense, selling, general and administrative (SG&A) expense, and research and development (R&D) expense. Reducing such expenses will immediately boost current earnings. Overproduction occurs when managers produce more units so that fixed overhead costs could be spread over a large number of units to lower fixed cost per unit.

Following Dechow et al. (1998), Roychowdhury (2006), and Cohen et al. (2008), we estimate abnormal cash flows from operations, abnormal discretionary expenses, and abnormal production costs by running the following cross-sectional regression for every industry and year:

$$\frac{CFO_t}{TA_{t-1}} = \beta_0 + \beta_1\left(\frac{1}{TA_{t-1}}\right) + \beta_2\left(\frac{REV_t}{TA_{t-1}}\right) + \beta_3\left(\frac{\Delta REV_{t-1}}{TA_{t-1}}\right) + \varepsilon_t \quad (3)$$

$$\frac{DISEXP_t}{TA_{t-1}} = \beta_0 + \beta_1\left(\frac{1}{TA_{t-1}}\right) + \beta_2\left(\frac{REV_{t-1}}{TA_{t-1}}\right) + \varepsilon_t \quad (4)$$

$$\frac{PROD_t}{TA_{t-1}} = \beta_0 + \beta_1\left(\frac{1}{TA_{t-1}}\right) + \beta_2\left(\frac{REV_t}{TA_{t-1}}\right) + \beta_3\left(\frac{\Delta REV_t}{TA_{t-1}}\right) + \beta_4\left(\frac{\Delta REV_{t-1}}{TA_{t-1}}\right) + \varepsilon_t \quad (5)$$

where TA_{t-1} is total assets in year t-1, REV_t is sales revenue in year t, and ΔREV_t is change in sales revenue from year t-1 to year t. Specifically, CFO is obtained from Compustat (#308), discretionary expense is computed as research and development (R&D, #46) expense plus advertising (#45) expense plus selling, general and administrative (SG&A, #189) expense. Production cost is computed as cost of goods sold (COGS, #44) plus the change in inventory (#3) level. For every firm year, abnormal CFO is the actual CFO minus the normal CFO, abnormal discretionary expense is the actual discretionary expense minus the normal discretionary expense and abnormal production cost is the actual production cost minus the normal production cost.

Cross-Sectional Regression Analysis

We use the multiple regression model to estimate the impact of bond issues on abnormal (or discretionary) accruals. Specifically, we employ the following regression to test the first hypothesis:

$$DTACC_{i,t} = \gamma_0 + \gamma_1 ISSUE_{i,t} + \gamma_2 SIZE_{i,t} + \gamma_3 MTB_{i,t} + \gamma_4 ROA_{i,t} + \gamma_5 LEV_{i,t} + \xi_{i,t} \quad (6)$$

where $ISSUE_{i,t}$ is an indicator variable set equal to one if the firm issued a bond in year t and zero otherwise, $SIZE_{i,t}$ is natural logarithm of market value (in million dollars) at the end of the fiscal year t, $MTB_{i,t}$ is market-to-book ratio at the end of the fiscal year t, $ROA_{i,t}$ is proxy for firm performance at the end of the fiscal year t and $LEV_{i,t}$ is leverage of the firm at the end of fiscal year t. Specifically, market value is computed as price at the end of fiscal year (#199) multiplied by common shares outstanding (#25), market-to-book ratio is computed as market value of equity deflated by book value of equity (#60), $ROA_{i,t}$ is computed as net income before extraordinary items (#18) scaled by total assets (#6) and $LEV_{i,t}$ is computed as sum of long-term debt (#9) and debt in current liabilities (#34) divided by total assets (#6).

In testing all of our hypotheses, we use a matched-sample design where each firm that issued bonds is matched to a control firm that did not issue bonds. Following Kothari et al. (2004), we use two-digit SIC codes and ROA in the same fiscal year to identify potential control firms.

We use discretionary total accruals as a dependent variable rather than using current abnormal accruals because all of the control variables are related not only to the current portion but also to the non-current portion. In addition, Richardson et al. (2005) find that estimation error of accruals is significant for both current and non-current assets and liabilities. Therefore, total accruals should provide a more comprehensive measure of abnormal accruals.

The indicator variable, denoted as *ISSUE*, is set equal to one if a firm issued bonds and zero for performance matched control samples. We expect that this *ISSUE* variable, which is the main variable of interest, will be significantly positive for bond issuers due to managers' aggressive accounting manipulations prior to bond issuance. We use a series of control variables based on the evidence in prior studies: firm size, market-to-book ratio, firm performance and leverage. We use

natural log of market value denoted as *SIZE* to proxy for the size of the firm. Positive accounting theory suggests that managers tend to manage earnings to decrease political costs. Prior studies (Cheng and Warfield, 2005; Collins et al., 2007) use firm size to proxy political costs. In addition, Kim et al. (2003) examine the relation of corporate earnings management to firm size. They find that small-sized firms engage in more earnings management to avoid reporting losses than do large-sized firms. Warfield et al. (1995) indicate that riskier and high-growth firms have more abnormal accruals. We use the ratio of the market value of common equity to the book value of common equity, denoted as *MTB*, to proxy for the growth potential. Return on assets (*ROA*) and leverage ratio (*LEV*) are included to control for any potential impact of firm performance and debt possession.

Next, we examine the relation between the real earnings management and the issuance of bonds (second, third, and fourth hypotheses) by estimating the following regression:

$$Y_{i,t} = \gamma_0 + \gamma_1 ISSUE_{i,t} + \gamma_2 SIZE_{i,t} + \gamma_3 MTB_{i,t} + \gamma_4 ROA_{i,t} + \gamma_5 LEV_{i,t} + \xi_{i,t} \quad (7)$$

where $Y_{i,t}$ is either abnormal CFO, abnormal discretionary expenses, or abnormal production costs. We expect the abnormal CFO to be significantly negative, abnormal discretionary expenses to be significantly negative, and abnormal production costs to be significantly positive during the year of the bond issuance.

RESULTS

Descriptive Statistics

Table 1, Panel A shows the distribution of bond issues by year. The table indicates that the frequency of bond issues tends to be stable over time. Panel B of Table 1 reports the descriptive statistics for the sample of 5,696 firm-year observations from 1992 to 2002. The average sample firm has a market-to-book ratio (*MTB*; (Compustat #25 * Compustat #199)/Compustat #60) of 2.800, return on asset (*ROA*; Compustat #18/Compustat #6) of 0.0375 and leverage (*LEV*; (Compustat #9 + Compustat #34)/ Compustat #6) of 0.343.

Panel C of Table 1 reports the Pearson correlation coefficients among the variables. *SIZE* is significantly positively correlated with *MTB* and *ROA*. This positive relationship indicates that (at least in our sample) large firms have higher market-to-book ratio and are more profitable. *LEV* is significantly negatively correlated with *SIZE*, *MTB* and *ROA*. This negative relationship indicates that firms with high leverage tend to be small, have a low market-to-book ratio and be less profitable.

Table 1. Characteristics of Bond Issuance between 1992-2002

This table provides the characteristics of the sample. Panel A presents event-year distribution of a sample of bond issues. Panel B presents descriptive statistics. Panel C provides the value of correlation between each of the variables used in subsequent tests. To be included in this table, a firm-year observation must be accompanied by sufficient data to compute the variables displayed below. Therefore, the statistics for all variables are based on 5,696 firm-year observations. Firm-year observations are drawn from the period between 1992 and 2002. ***, **, and * denote two-tailed significance at the 0.01, 0.05, and 0.10 levels, respectively. Variable definitions are as follows: **SIZE**=natural log of market value at the end of the fiscal year. **MTB**=market-to-book ratio; computed as market value of equity divided by total book value of equity at the end of the fiscal year. **ROA**=return on assets; computed as net income before extraordinary items scaled by total assets at the end of the fiscal year. **LEV**=leverage ratio; computed as long-term debt divided by total assets at the end of the fiscal year.

Panel A. Sample Distribution by Year

	Bond Issues			
Year	Freq.	%	Cumul.	
1992	269	4.72	269	
1993	307	5.39	576	
1994	400	7.02	976	
1995	415	7.29	1,391	
1996	497	8.73	1,888	
1997	629	11.04	2,517	
1998	600	10.53	3,117	
1999	605	10.62	3,722	
2000	623	10.94	4,345	
2001	681	11.96	5,026	
2002	670	11.76	5,696	

Panel B. Descriptive Statistics

Bond Issuer				
Variable	Mean	Median	Std. Dev.	
SIZE	7.8459	7.9119	1.7741	
MTB	2.8006	2.0461	16.7396	
ROA	0.0375	0.0392	0.0785	
LEV	0.3428	0.3350	0.1574	

Panel C. Pearson Correlations Matrix between Independent Variables

	SIZE	MTB	ROA	LEV
SIZE	1			
MTB	0.1128***	1		
ROA	0.1410***	0.0483***	1	
LEV	-0.0521***	-0.0452***	-0.4438***	1

Multiple Regression Results

The results for testing accrual-based earnings management are reported in Table 2. Table 2 presents the results from estimating Equation (6) for a sample of bond issuers, where the sample is combined with performance matched firms. For each sample and control firm, we estimate cross-sectional regressions of discretionary total accruals (*DTACC*) on *ISSUE*, the main variable of interest, and a series of control variables based on the evidence in prior studies: firm size, market-to-book ratio, return on assets and leverage ratio. As mentioned earlier in the paper, the control firms are matched based on same industry (two-digit SIC codes) and similar performance (ROA) following Kothari et al. (2004). The results show that bond issuers have significantly higher levels of discretionary total accruals compared to non-issuers (controlled sample) during the year of issuance. Consistent with the first hypothesis, the coefficient on bond issuers is positive (0.014) and significant at the 5% level (t = 2.18). This result suggests that bond issuers do engage in earnings management through income increasing accruals compared to non-issuers.

Table 2. Levels of Discretionary Total Accruals

This table provides the results of multiple regression with the dependent variable Discretionary Total Accruals (*DTACC*). To be included in this table, a firm-year observation must be accompanied by sufficient data to compute the variables displayed below. Therefore, the statistics for all variables are based on 11,392 firm-year observations (bond issuer and performance-matched sample). Firm-year observations are drawn from the period between 1992 and 2002. ***, **, and * denote two-tailed significance at the 0.01, 0.05, and 0.10 levels, respectively. Variable definitions are as follows: **SIZE**=natural log of market value at the end of the fiscal year. **MTB**=market-to-book ratio; computed as market value of equity divided by total book value of equity at the end of the fiscal year. **ROA**=return on assets; computed as net income before extraordinary items scaled by total assets at the end of the fiscal year. **LEV**=leverage ratio; computed as long-term debt divided by total assets at the end of the fiscal year.

$$DTACC_{i,t} = \gamma_0 + \gamma_1 ISSUE_{i,t} + \gamma_2 SIZE_{i,t} + \gamma_3 MTB_{i,t} + \gamma_4 ROA_{i,t} + \gamma_5 LEV_{i,t} + \xi_{i,t}$$

	DTACC	
	Coefficient	*t*-stat
Intercept	-0.1049	-2.15**
ISSUE	0.0135	2.18**
SIZE	-0.0006	-1.69*
MTB	0.0012	2.26**
ROA	0.0263	2.47**
LEV	0.0687	2.12**
Obs.	11,392	
Adj. R^2	0.03	

The results for testing real earnings management are reported in Table 3, which presents the results from estimating Equation (7). Column 1 of Table 3 provides evidence on Hypothesis 2. When the dependent variable in regression (7) is abnormal CFO, the coefficient on *ISSUE* for bond issuers is negative (-0.003) and significant at the 10% level (t = -1.74). This result suggests that bond issuers exhibit lower levels of abnormal CFO compared to performance matched firms which is consistent with the hypothesis. This result also indicates that firms issuing bonds manipulate earnings via real actions, such as using price discounts or lenient credit terms to boost sales.

In the second column of Table 3, abnormal discretionary expense is used as a dependent variable. However, we do not find any evidence that the sample firms that issue bonds are reducing discretionary expense during the issuance year. The coefficient on *ISSUE* for the sample is positive (0.0327) but not statistically significant. This result indicates that bond issuers are not using discretionary expense as an earnings management tool to manipulate their earnings. We conjecture that bond issuers are not using discretionary expense because it is easily detected by creditors.

Table 3. Levels of Real Earnings Management Proxies

This table provides the results of multiple regression with the dependent variable abnormal CFO, abnormal discretionary expense, and abnormal production cost. To be included in this table, a firm-year observation must be accompanied by sufficient data to compute the variables displayed below. Therefore, the statistics for all variables are based on 11,392 firm-year observations (bond issuer and performance-matched sample). Firm-year observations are drawn from the period between 1992 and 2002. ***, **, and * denote two-tailed significance at the 0.01, 0.05, and 0.10 levels, respectively. Variable definitions are as follows: **SIZE**=natural log of market value at the end of the fiscal year. **MTB**=market-to-book ratio; computed as market value of equity divided by total book value of equity at the end of the fiscal year. **ROA**=return on assets; computed as net income before extraordinary items scaled by total assets at the end of the fiscal year. **LEV**=leverage ratio; computed as long-term debt divided by total assets at the end of the fiscal year.

$$Y_{i,t} = \gamma_0 + \gamma_1 ISSUE_{i,t} + \gamma_2 SIZE_{i,t} + \gamma_3 MTB_{i,t} + \gamma_4 ROA_{i,t} + \gamma_5 LEV_{i,t} + \xi_{i,t}$$

	Abnormal CFO		Abnormal Disc. Exp.		Abnormal Prod. Cost	
	Coefficient	*t*-stat	Coefficient	*t*-stat	Coefficient	*t*-stat
Intercept	0.0277	1.16	-0.0232	-3.62***	-0.0118	-1.77*
ISSUE	-0.0030	-1.74*	0.0327	1.02	0.0208	2.19**
SIZE	0.0051	1.64	-0.0300	-1.76*	0.0040	2.08**
MTB	0.0009	2.08***	-0.0056	-1.79*	-0.0020	-2.47***
ROA	0.0289	3.32***	0.0881	1.75*	-0.0617	-4.64***
LEV	-0.0701	-2.02**	0.0151	1.69*	0.0087	1.72*
Obs.	11,392		11,392		11,392	
Adj. R^2	0.02		0.03		0.03	

Column 3 of Table 3 provides evidence on Hypothesis 4. Bond issuers exhibit high levels of abnormal production costs. The coefficient on *ISSUE* is positive (0.021) and significant at the 5% level. This result indicates that bond issuers engage in earnings management through overproduction in order to report lower cost of goods sold (COGS).

Sensitivity Analysis

To further examine whether the results are indeed driven by income increasing accruals and real actions, we conduct additional tests that examine the pattern surrounding the event period. Specifically, we use changes in dependent variables before and after the issuance by running the following regressions:

$$\Delta DTACC_{i,x} = \gamma_0 + \gamma_1 ISSUE_{i,t} + \gamma_2 SIZE_{i,t} + \gamma_3 MTB_{i,t} + \gamma_4 ROA_{i,t} + \gamma_5 LEV_{i,t} + \xi_{i,t} \quad (8)$$

$$\Delta Y_{i,x} = \gamma_0 + \gamma_1 ISSUE_{i,t} + \gamma_2 SIZE_{i,t} + \gamma_3 MTB_{i,t} + \gamma_4 ROA_{i,t} + \gamma_5 LEV_{i,t} + \xi_{i,t} \quad (9)$$

where $\Delta DTACC_{i,x}$ is change in discretionary total accruals, $\Delta Y_{i,x}$ is either change in abnormal CFO, change in abnormal discretionary expenses, or change in abnormal production costs, and x indicates the change in time period of either (t-1 ~ t) or (t ~ t+1).

Table 4 presents the results for the changes in discretionary accruals prior to and past bond issuance. The coefficient on *ISSUE* is positive (0.013) and significant at the 1% level (t = 3.13) for the first column, which indicates that discretionary accruals of bond issuers increase by 0.013 on average from the year prior to issuance to the year of issuance. The second column presents the changes in discretionary total accruals from the year of issuance to the past year. The coefficient on *ISSUE* is negative (-0.042) and significant at the 1% level (t = -2.96). When combined with Table 2, these results show that bond issuers manipulate earnings through income increasing accruals and then accruals reverse after the issuance declining to the normal level. This is consistent with our hypothesis that firms issuing bonds have incentives to manipulate earnings via accruals similar to other firm specific events such as IPO and SEO.

Panel A, B, and C of Table 5 present the results of changes in real earnings management proxies surrounding the issue year. In Table 5 Panel A, abnormal CFO of bond issuers shows a decreasing pattern prior to debt issuance followed by an increase after the year of issuance. The coefficient on *ISSUE* is negative (-0.004) for the period from t-1 to t and significant at the 10% level. In addition, the coefficient on *ISSUE* is positive (0.016) for the period from t to t+1 and significant at the 10% level.

Table 5 Panel B presents the results of changes in abnormal discretionary expense. The results show that the level of abnormal discretionary expense decreases by (0.029) on average and significant at the 10% level before the bond issue.

Table 4. Changes in Discretionary Total Accruals

This table provides the results of multiple regression with the dependent variable Changes in Discretionary Total Accruals (?*DTACC*) during pre- and post-issue. To be included in this table, a firm-year observation must be accompanied by sufficient data to compute the variables displayed below. Therefore, the statistics for all variables are based on 11,392 firm-year observations (bond issuer and performance-matched sample). Firm-year observations are drawn from the period between 1992 and 2002. ***, **, and * denote two-tailed significance at the 0.01, 0.05, and 0.10 levels, respectively. Variable definitions are as follows: **SIZE**=natural log of market value at the end of the fiscal year. **MTB**=market-to-book ratio; computed as market value of equity divided by total book value of equity at the end of the fiscal year. **ROA**=return on assets; computed as net income before extraordinary items scaled by total assets at the end of the fiscal year. **LEV**=leverage ratio; computed as long-term debt divided by total assets at the end of the fiscal year.

$$\Delta DTACC_{i,t} = \gamma_0 + \gamma_1 ISSUE_{i,t} + \gamma_2 SIZE_{i,t} + \gamma_3 MTB_{i,t} + \gamma_4 ROA_{i,t} + \gamma_5 LEV_{i,t} + \xi_{i,t}$$

	t-1 to *t*		*t* to *t*+1	
	Coefficient	*t*-stat	Coefficient	*t*-stat
Intercept	0.1054	2.09**	0.0252	6.62***
ISSUE	0.0126	3.13***	-0.0417	-2.96***
SIZE	-0.0015	-2.49**	0.0139	2.86***
MTB	-0.0032	-3.70***	0.0008	2.26**
ROA	-0.0377	-2.09**	-0.0388	-2.84***
LEV	-0.1457	-2.03**	0.0021	1.66*
Obs.	11,392		11,392	
Adj. R^2	0.13		0.10	

Table 5 Panel C presents the results of changes in abnormal production cost. The results show that abnormal production cost of bond issuers increases prior to the issuance, which indicates that firms increase their production level to report lower COGS.

Overall, the results suggest that firms that issue bonds use both accrual-based and real activities to manipulate earnings. However, they tend to manage earnings through income increasing accruals more heavily than compared to taking real actions.

Table 5. Changes in Real Earnings Management Proxies

This table provides the results of multiple regression with the dependent variable Changes in abnormal CFO, abnormal discretionary expense, and abnormal production cost during pre- and post-issue. To be included in this table, a firm-year observation must be accompanied by sufficient data to compute the variables displayed below. Therefore, the statistics for all variables are based on 11,392 firm-year observations (bond issuer and performance-matched sample). Firm-year observations are drawn from the period between 1992 and 2002. ***, **, and * denote two-tailed significance at the 0.01, 0.05, and 0.10 levels, respectively. Variable definitions are as follows: **SIZE**=natural log of market value at the end of the fiscal year. **MTB**=market-to-book ratio; computed as market value of equity divided by total book value of equity at the end of the fiscal year. **ROA**=return on assets; computed as net income before extraordinary items scaled by total assets at the end of the fiscal year. **LEV**=leverage ratio; computed as long-term debt divided by total assets at the end of the fiscal year.

$$\Delta Y_{i,t} = \gamma_0 + \gamma_1 ISSUE_{i,t} + \gamma_2 SIZE_{i,t} + \gamma_3 MTB_{i,t} + \gamma_4 ROA_{i,t} + \gamma_5 LEV_{i,t} + \xi_{i,t}$$

Panel A. Abnormal CFO

	t-1 to *t*		*t* to *t*+1	
	Coefficient	*t*-stat	Coefficient	*t*-stat
Intercept	-0.0443	-2.23**	0.0185	3.39***
ISSUE	-0.0042	-1.71*	0.0162	1.91*
SIZE	0.0090	2.50**	0.0017	1.76*
MTB	-0.0037	-4.35***	-0.0015	-2.49**
ROA	0.1219	1.99**	0.0519	1.78*
LEV	-0.0268	-1.82*	-0.0770	-2.19**
Obs.	11,392		11,392	
Adj. R^2	0.02		0.03	

Panel B. Abnormal Discretionary Expense

	t-1 to *t*		*t* to *t*+1	
	Coefficient	*t*-stat	Coefficient	*t*-stat
Intercept	0.0516	2.41**	-0.0535	-1.47
ISSUE	-0.0285	-1.80*	-0.026	-1.09
SIZE	0.0310	1.72*	0.1364	0.08*
MTB	0.0066	1.76*	-0.0199	-1.76*
ROA	-0.0276	-1.65*	0.0427	2.19**
LEV	-0.0110	-1.90*	0.0977	2.49**
Obs.	11,392		11,392	

Table 5. Changes in Real Earnings Management Proxies				
Adj. R^2	0.04		0.04	
Panel C. Abnormal Production Cost				
	t-1 to *t*		*t* to *t*+1	
	Coefficient	*t*-stat	Coefficient	*t*-stat
Intercept	-0.0715	-1.31	-0.0822	-0.86
ISSUE	0.0106	1.79*	0.0384	0.71
SIZE	-0.0014	-1.73*	0.0159	2.34**
MTB	0.0005	1.87*	-0.0010	-1.91*
ROA	0.0378	1.90*	-0.0374	-2.19**
LEV	0.1565	2.79***	-0.1239	-2.08**
Obs.	11,392		11,392	
Adj. R^2	0.04		0.03	

CONCLUSION

In this paper, we investigate whether firms that enter the bond market manipulate earnings similar to firms entering the stock market (Teoh et al., 1998a; Teoh et al., 1998b). In addition, we also examine how these firms engage in earnings management (i.e., accrual-based earnings management versus real earnings management). Based on all firm-years with available data over the 1992-2002 period, we find discretionary accruals of bond issuers are significantly higher than non-issuers during the year of issuance. Further analyses show that bond issuers increase their accruals prior to the issuance and then decrease their accruals subsequent to the issue year. In addition, we find some evidence that bond issuers engage in real earnings management. However, the findings suggest that among three methods of real earnings management, sales manipulation is much more prominent compared to other real earnings manipulation methods. Overall, the results provide strong evidence that bond issuers use both accrual-based and real actions to manipulate earnings.

REFERENCES

Burgstahler, D., Dichev, I., 1997. Earnings management to avoid earnings decreases and losses. *Journal of Accounting and Economics* 24, 99-126.

Chen, J., Rees, L., Sivaramakrishnan, S., 2008. On the use of accounting vs. real earnings management to meet earnings expectations – A market analysis. Working paper, SSRN.

Cheng, Q., Warfield, T., 2005. Equity incentives and earnings management. *The Accounting Review* 80, 441-476.

Cohen, D., Dey, A., Lys, T., 2008. Real and accrual-based earnings management in the pre- and post-Sarbanes-Oxley periods. *The Accounting Review* 83, 757-787.

Cohen, D., Zarowin, P., 2008. Accrual-based and real earnings management activities around seasoned equity offerings. Working paper, SSRN.

Collins, D., Gong, G., Li, H., 2007. Corporate governance and backdating of stock option exercise dates. Working paper, SSRN.

Dechow, P., Kothari, S., Watts, R., 1998. The relation between earnings and cash flows. *Journal of Accounting and Economics* 25, 133-168.

Dechow, P., Skinner, D., 2000. Earnings management: reconciling the views of accounting academics, practitioners and regulators, *Accounting Horizons* 14, 235 – 250.

Dechow, P., Sloan, R., 1991. Executive incentives and the horizon problem: An empirical investigation. *Journal of Accounting and Economics* 14, 51-89.

DeFond, M., Jiambalvo, J., 1994. Debt covenant violation and manipulation of accruals. *Journal of Accounting and Economics* 17, 145-176.

Degeorge, F., Patel, J., Zeckhauser, R., 1999. Earnings management to exceed thresholds. *Journal of Business* 72, 1-33.

Dichev, I., Skinner, D., 2002. Large-sample evidence on the debt covenant hypothesis. *Journal of Accounting Research* 40, 1091-1123.

Graham, J., Harvey, C., Rajgopal, S., 2005. The economic implications of corporate financial reporting. *Journal of Accounting and Economics* 40, 3-73.

Gunny, K., 2006. What are the consequences of real earnings management? Working paper, University of Colorado.

Jones, J., 1991. Earnings management during import relief investigation. *Journal of Accounting Research* 29, 193-228.

Khurana, I., Raman, K., 2003. Are fundamentals priced in the bond market? *Contemporary Accounting Research* 20, 465-494.

Kim, J., Chung, R., Firth, M., 2003. Auditor conservatism, asymmetric monitoring and earnings management. *Contemporary Accounting Research* 20, 29-48.

Kim, J., Sohn, B., 2009. Real versus accrual-based earnings management and implied cost of equity capital. Working paper, SSRN.

Kothari, S., Leone, A., Wasley, C., 2004. Performance matched discretionary accrual measures. *Journal of Accounting and Economics* 39, 163-197.

Leftwich, R., 1983. Accounting information in private markets: Evidence from private lending agreements. *The Accounting Review* 58, 23-42.

Louis, H., 2004. Earnings management and the market performance of acquiring firms. *Journal of Financial Economics* 74, 121-148.

Roychowdhury, S., 2006. Earnings management through real activities manipulation. *Journal of Accounting and Economics* 42, 335-370.

Sloan, R., 1996. Do stock prices fully reflect information in accruals and cash flows about future earnings? *The Accounting Review* 77, 289-315.

Teoh, S., Welch, I., Wong, T., 1998a. Earnings management and the long-run underperformance of initial public offerings. *Journal of Finance* 53, 1935-1974.

Teoh, S., Welch, I., Wong, T., 1998b. Earnings management and the long-run underperformance of seasoned equity offerings. *Journal of Financial Economics* 50, 63-100.

Warfield, T., Wild, J., Wild, K., 1995. Managerial ownership, accounting choices, and informativeness of earnings. *Journal of Accounting and Economics* 20, 61-91.