

**Audit Firm Size, Industry Specialization and Earnings Management by  
Initial Public Offering Firms**

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# **Audit Firm Size, Industry Specialization and Earnings Management by Initial Public Offering Firms**

## **Abstract**

This paper investigates the relationship between audit quality (measured by audit firm size and industry specialization), and earnings management (measured by discretionary accruals) in the initial public offering process. Earnings management in the IPO process is of particular concern given the information asymmetry between management and investors and the incentive of management to engage in earnings management. We find that Big 5 auditors and industry specialist auditors are related to less earnings management in the IPO process. Our study makes two contributions: (1) we demonstrate that audit quality is an important constraint on earnings management in the IPO process; (2) we find that industry specialization, as a measure of audit quality, also constrains earnings management.

**Keywords:** Earnings management, initial public offerings, auditor specialization, auditor quality.

**Data Availability:** The data used in this study is available from public sources, and is available upon request to the authors.

## I. Introduction

Earnings management, including earnings management in the IPO process, has attracted growing attention in accounting research.<sup>1</sup> Earnings management in the IPO process is of particular concern because of the extent of information asymmetry between the owners-managers and investors (Leland and Pyle 1977), and between informed and uninformed investors (Rock 1986; Beatty and Ritter 1986). Because little information is available about these firms prior to going public, investors have to rely extensively on the prospectus for relevant financial information. The information asymmetry between management and related parties creates an opportunity for management to engage in earnings management. Management also has incentive to engage in earnings management to ensure that the issue is fully subscribed because their compensation and/or reputation depend on the success of the IPO.

Several studies have linked earnings management at the time of the offering with post-issue earning and stock performance. Teoh, Wong and Rao (1998) find that managers use discretionary accruals opportunistically in the IPO process. Earnings at the time of the IPO are high because of high discretionary accruals, and earnings after the issue are low because these high discretionary accruals are not sustained. Teoh, Welch and Wong (1998) find that at-issue earnings management is significantly negatively related to post-issue stock returns.

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<sup>1</sup> See Healy and Wahlen (1999) and Beneish (2001) for a review of the earnings management literature.

Theoretical research shows that auditors play an important role in reducing the adverse impact of information asymmetry in the IPO process. Titman and Trueman (1986) develop a model in which the price of shares in an IPO is increasing in the quality of information provided by the offering company. Datar et al. (1991) find that the information asymmetry in the IPO process is mitigated by the role of auditor and audit quality. Empirical evidence indicates an increased demand for audit quality at the time of the IPO; companies frequently change to a Big 5 auditor prior to the IPO (Carpenter and Strawser 1971; Menon and Williams 1991).

Audit quality research has focused primarily on differences between Big 5 and non-Big 5 firms. Research in the Australian audit market (Craswell et al. 1995) indicates that industry specialist auditors receive a fee premium that represents a significant portion of the premium to Big 5 firms in the Australian audit market. Elder (1999) finds that IPO underpricing is lower for companies that use an industry specialist auditor. These studies indicate that industry specialist auditors provide higher quality of audits compared with non-industry specialist auditors.

Becker et al. (1998) find that discretionary accruals are reduced when existing publicly-traded companies use a Big 5 auditor. They find that clients of non-Big 5 auditors report discretionary accruals that are higher than discretionary accruals of clients of Big 5 auditors. They interpret this as indicating that lower audit quality is associated with greater accounting flexibility. Francis et al. (1999) argue that high-accrual firms have greater opportunity for opportunistic management and have an incentive to hire a Big 5 auditor to provide assurance that earnings are credible. They find that high accrual firms are more

likely to hire a Big 5 auditor, but report lower discretionary accruals, consistent with Big 5 auditors constraining opportunistic reporting of accruals.

This study investigates two relevant questions that have not been addressed in previous research: (1) does audit quality constrain earnings management in the IPO process? and (2) do industry specialist auditors provide higher quality of audits in the IPO process as evidenced by lower earnings management? Earnings management in the IPO process is of particular concern because APB 20 allows IPO firms to change accounting principles in the prospectus as long as financial statements of previous years are restated. This gives management an opportunity to engage in earnings management. Also, the lack of previous information outside the prospectus makes it difficult for investors to undo the effects of any earnings management. Using 1,048 IPO observations from 1996-1998, we find that discretionary accruals for IPO firms are lower when Big 5 auditors are used, suggesting that the Big 5 auditors are associated with reduced management discretion over earnings. We also find that firms audited by industry specialist auditors engage in less earnings management.

The remainder of the paper is organized as follows. The next section describes earnings management in the IPO environment and reviews research on audit quality and includes the research hypotheses. Section III describes the research design. Sample selection and tests of the relation between auditor reputation and discretionary accruals are discussed in Section IV. Section V is the summary and conclusion.

## **II. EARNINGS MANAGEMENT, AUDIT QUALITY AND IPOs**

### **Earnings Management and Initial Public Offerings**

An extensive body of earnings management literature has developed (see Healy and Whalen (1999) for a review). Most earnings management studies examine whether companies manage earnings in response to some economic incentives. One setting where management has an incentive to manipulate earnings is at the time of an IPO, since greater earnings may be reflected in a higher offering price and greater proceeds to the company and offering shareholders.

Whether the company benefits from earnings management depends upon whether the market can see through the earnings manipulation. The IPO environment is characterized by information asymmetry between management and investors (Leland and Pyle 1977), and between informed and uninformed investors (Rock 1986; Beatty and Ritter 1986).

Several analytical models demonstrate that the extent of earnings management increases with the level of information asymmetry. For example, Dye (1988) and Trueman and Titman (1988) demonstrate that the existence of information asymmetry between management and shareholders is a necessary condition for earnings management, because shareholders cannot perfectly observe a firm's performance and prospects in an environment in which they have less information than management. In such an environment, management can use its flexibility to manage reported earnings. Furthermore, management's discretionary ability to manage earnings increases as the information asymmetry between management and shareholders increases. Richardson

(1998) provides empirical evidence consistent with this line of reasoning. He finds that the extent of information asymmetry, as measured by the bid-ask spread and the dispersion in analysts' forecasts, is positively related to the degree of earnings management. The information asymmetry in the IPO environment creates an opportunity for management to engage in earnings management because it is difficult for related stakeholders (especially shareholders) to undo this behavior.

Teoh, Wong and Rao (1998) evaluate whether accounting accrual choices during an IPO are informative to investors or opportunistic. They find evidence consistent with opportunism. They find that the net income of IPO firms is significantly higher during the issuing year relative to subsequent years, and to non-issuing industry peers. IPO firms are able to report high earnings during the IPO by reporting discretionary accruals aggressively. After issue when high discretionary accruals cannot be sustained, the IPO firms' earnings underperform relative to their matched firms and non-issuing industry peers. More importantly, they find that discretionary accruals explain the post-issue underperformance in earnings.

## **Audit Quality and Earnings Management**

### Auditor Firm Size

Becker et al. (1998) find that companies with non-Big 5 auditors (a proxy for lower audit quality) report discretionary accruals that significantly increase income compared to companies with Big 5 auditors. They also find that managers respond to debt contracting and income-smoothing incentives by strategically reporting discretionary accruals. In addition, companies with incentives to smooth earnings upwards

(downwards) report significantly greater income-increasing (decreasing) discretionary accruals when they have non-Big 5 auditors.

Francis et al. (1999) argue that high-accrual firms have greater opportunity for opportunistic management and have an incentive to hire a Big 5 auditor to provide assurance that earnings are credible. They find that high accrual firms are more likely to hire a Big 5 auditor, but report lower discretionary accruals, consistent with Big Five auditors constraining opportunistic reporting of accruals.

The Becker et al. (1998) and Francis et al. (1999) studies provide evidence in non-IPO settings that higher quality auditors are associated with reduced levels of earnings management. Previous research suggests that the auditor can play a role in reducing information asymmetry at the time of the IPO.

Balvers et al. (1988) and Hogan (1997) find that Big 5 auditors are associated with lower underpricing of the offering. Balvers et al. (1988) argue that a high quality auditor provides better information about earnings, which makes it easier for the investment banker to price the issue correctly and preserve reputational quality. This information argument is consistent with the model in Titman and Trueman (1986), in which the price of the shares in an IPO is increasing with the quality of the information provided by the offering company, which they argue is partially determined by the quality of the auditor. Evidence that Big 5 auditors are associated with lower discretionary accruals for IPO firms would further support the information hypothesis. We expect that IPO companies that use Big 5 audit firms will engage in less earnings management than IPO companies with non-Big 5 auditors.

H1: IPO firms audited by Big-5 audit firms engage less in earnings management than firms audited by non-Big 5 auditors.

## Auditor Industry Specialization

Recent audit quality research has focused on the role of auditor industry specialization. Hogan and Jeter (1999) find that measures of specialization have increased in both regulated and unregulated industries, consistent with returns to specialization. Craswell et al. (1995) argue that audit firms market themselves in terms of both a general reputation and industry expertise. In a test of audit fees in the Australian audit market, they find that industry specialists receive a significant fee premium, and that this fee premium is a significant component of the fee premium received by Big 5 firms.

Industry specialization is acknowledged in DeAngelo (1981) as one possible reason for the selection of Big 5 auditors by IPO companies. In the Titman and Trueman (1986) model in which the pricing of an IPO is increasing with the quality of information associated with the expertise of the auditor, they suggest that industry knowledge is one element of auditor expertise. Elder (1999) finds that IPO underpricing is lower for companies that use an industry specialist auditor. Accordingly, we hypothesize that industry specialists constrain earnings management in the IPO process.

H2: Firms audited by industry specialist engage less in earnings management in the initial public offering process.

The following section describes the research design, including the model used to estimate discretionary accruals and models used to test the research hypotheses.

### III. RESEARCH DESIGN

#### Discretionary Accruals

Consistent with previous literature on earnings management (Jones 1991; Subramanyam 1996), discretionary accruals are used to measure the extent of earnings management. Dechow et al. (1995) provide evidence that the modified Jones model is the most powerful to detect earnings management among the alternative models to measure discretionary accruals. The modified Jones model is formulated as follows:

$$TACC_{it}/TA_{it-1} = \alpha_1(1/TA_{it-1}) + \alpha_2(\Delta REV_{it} - \Delta REC_{it})/TA_{it-1} + \alpha_3 PPE_{it}/TA_{it-1} + \varepsilon_{it}$$

where:

$TACC_{it}$  = total accruals for firm  $i$  in year  $t$ ,

$\Delta REV_{it}$  = change in revenue for firm  $i$  in year  $t$ ,

$\Delta REC_{it}$  = change in receivables for firm  $i$  in year  $t$ ,

$PPE_{it}$  = gross property, plant and equipment for firm  $i$  in year  $t$ ,

$TA_{it-1}$  = total assets for firm  $i$  in year  $t-1$ .

Normal levels of working capital accruals related to sales are controlled through the changes in revenue adjusted for changes in accounts receivable, and normal levels of depreciation expense and related deferred tax accruals are controlled through the gross property, plant and equipment, and total assets of the previous period are used as a deflator to control for potential scale bias. The residuals from the regression in the above equation are discretionary accruals from the modified Jones model. Similar to previous studies, a two digit SIC industry cross-sectional model is used to estimate discretionary accruals in our study. The cross-sectional model can extract common industry factors applied to discretionary accruals. That is, the discretionary accruals in this model reflect

management's choice rather than an adjustment to industry factor. Also, since the model is estimated year-by-year, changes in industry condition are also factored in the model.

There are two alternative ways to measure total accruals in the literature. The balance sheet approach measures total accruals as the change in balance sheet accounts over successive years. The cash flow approach measures total accruals as the difference between income before extraordinary items and operating cash flows. Collins and Hribar (2000) find that the balance sheet approach to measure total accruals introduces significant measurement error into accrual estimates, and suggest using the cash flow approach to measure total accruals. To address these concerns, the cash flow approach to measure total accruals suggested by Collins and Hribar (2000) is used in this study. Total accruals are measured as follows:

$$TACC_{it} = EBXT_{it} - OCF_{it}$$

where:

$TACC_{it}$  = total accruals for firm  $i$  in year  $t$ ,

$EBXT_{it}$  = earnings before extraordinary items and discontinued operations for firm  $i$  in year  $t$ ,

$OCF_{it}$  = operating cash flow for firm  $i$  in year  $t$ <sup>2</sup>

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<sup>22</sup> Compustat defines net cash flow from operating activities as the change in cash from all items classified in the Operating Activities section on a Statement of Cash Flows (Format code = 7.000). This item includes changes in operating assets and liabilities. Increases in cash are presented as positive numbers, decreases are presented as negative numbers. Also, this item is not available for banks, utilities, life insurance, and property and casualty companies.

## **Auditor Industry Specialization**

A sales-based measure of auditor industry specialization is used in this study. This measure assumes that an audit firm gains expertise and specialization through experience in an industry. Audit firm industry specialization is defined as follows:

$$\text{m-firm sales ratio} = \sum_{i=1}^m [s_{ij} / S]$$

where:

$s_i$  = firm i's sales, while firm i is audited by auditor j  
 $S$  = the sum of sales,  $s_i$ , for all firms in the industry

When auditor j's market share is greater than 15 percent in a 3-digit SIC code industry, the auditor j is treated as an industry specialist.

## **Approach to Testing**

Our hypotheses relate earnings management as measured by discretionary accruals to audit quality as measured by auditor type and industry specialization. Many other variables may play a role in management's discretionary accruals decision in the IPO process. Exchange listing may influence managers' discretionary accruals decisions because national stock exchanges impose stricter standards and requirements for listing. These stricter requirements may deter managers from engaging in excessive earnings management. Market-to-book value at the end of the IPO offering year is used as a surrogate for growth opportunity because information communication might play a role in some managers' earnings management decision, even though Teoh, Wong and Rao (1999) find that managers use discretionary accruals opportunistically in the IPO process. Managers may try to signal the firm's future prospects through discretionary accruals.

Leverage may also be associated with the earnings management in the IPO process. DeFond and Jiambalvo (1994) and Sweeney (1994) find that managers use discretionary accruals to satisfy debt covenant requirements. The log of total assets is used as an independent variable to control for the possible effect of size on earnings management in the IPO process. Large firms may have less incentive to engage in earnings management because they are subject to more scrutiny from financial analysts and investors. The absolute value of total accruals is used as a control variable because Becker et al. (1998) provide evidence that this is significantly negatively related to discretionary accruals. Also Francis et al. (1999) find that the likelihood of using a Big 5 auditor is increasing in firms' endogenous propensity for accruals. Capital intensity is used as a control variable because Baginski et al. (1999) report that earnings persistence is significantly negatively related to capital intensity, and Lev (1983) finds a strong negative relation between capital intensity and the sample autocorrelations of earnings.

Inclusion of these control variables results in the following regression model:

$$DACC_{it} = \beta_0 + \beta_1 AUDIT_{it} + \beta_2 SPEL_{it} + \beta_3 EXCHG_{it} + \beta_4 MTB_{it} + \beta_5 LEV_{it} + \beta_6 LGTA_{it} + \beta_7 ABSTA_{it} + \beta_8 CAPINT_{it} + \varepsilon_{it}$$

where:

- DACC<sub>it</sub> = discretionary accruals based on modified Jones model
- AUDIT<sub>it</sub> = 1 if the auditor is member of Big 5; 0 otherwise
- SPEL<sub>it</sub> = 1 if the auditor is an industry specialist; 0 otherwise
- EXCHG<sub>it</sub> = 1 if offering is NYSE, AMEX or NMS, 0 if OTC
- MTB<sub>it</sub> = market to book ratio
- LEV<sub>it</sub> = leverage, defined as total liabilities over total assets
- LGTA<sub>it</sub> = log of total assets
- ABSTA<sub>it</sub> = absolute value of total accruals
- CAPINT<sub>it</sub> = capital intensity, defined as depreciation over sales

Our main variables of interest are AUDIT and SPEL, and the coefficients on these two variables are expected to be negative. As predicted in the research hypotheses, firms audited by Big 5 auditors and industry specialists are expected to engage less in earnings management in the IPO process.

#### **IV. SAMPLE SELECTION AND RESULTS**

Our initial sample consists of 1,966 observations of IPOs between 1996 and 1998 from the 1999 Compact Disclosure database. Matching the sample with data from the Compustat database reduces the sample to 1,083 observations. The final sample that satisfies the necessary data requirements for calculating the dependent and independent variables is 1,048 observations.

Panel A of Table 1 provides details about the sample distribution by year and by auditor type. There are 521 (49.71%), 348 (33.21%), 179 (17.08%) observations respectively in 1996, 1997 and 1998. As expected, the majority of IPOs are audited by Big 5 firms.

Panel B of Table 1 provides the industry distribution of the sample firms. The sample includes 60 separate 2-digit SIC codes, with 35 of these representing at least one percent of the sample (11 IPOs), indicating a wide distribution of industries. Computer equipment and services has the largest concentration of IPOs, with more than 28 percent of the total observations. The remaining sample firms are widely distributed across SIC codes; no other SIC code contains more than eight percent of the sample firms.

[Insert Table 1 about here]

Table 2 provides descriptive statistics for the sample. The average discretionary accruals is 0.01 and the standard deviation of discretionary accruals is 0.25. Big 5 auditors

are used by 64 percent of the sample firms, and around 43 percent of the firms use industry specialist auditors. Approximately 78 percent of the offerings were on a national exchange, primarily the NASDAQ National Market System. The average market-to-book ratio at the end of the offering year is 4.49. The mean and median leverage are 0.42 and 0.28, respectively, and the average log of total assets is 18.21. The mean and median of absolute value of total accruals are 0.19 and 0.20 respectively.

[Insert Table 2 about here]

Table 3 shows the correlation among the dependent and independent variables. The Spearman correlation is shown above the diagonal while the Pearson correlation is shown below the diagonal. Discretionary accruals are negatively related to Big 5 auditors and industry specialist auditors, although the relation is not statistically significant. Discretionary accruals are negatively related to the absolute value of total accruals, and are also negatively related to capital intensity.

As expected, there is a positive correlation between the Big 5 and industry specialist variables, since all specialists firms are Big 5 firms. However, the correlation between these two variables is comparatively low, since not all Big 5 auditors are specialists. Companies with offerings on national stock exchanges also tend to choose Big 5 firms and industry specialists as auditors. Large firms are more likely to use Big 5 firms and industry specialists auditors. Both Big 5 auditors and industry specialists are significantly negatively related to the absolute value of total accruals. This suggests that Big 5 auditors and industry specialists provide higher quality auditing which forces firms to exercise less discretion in their accruals.

[Insert Table 3 about here]

The tests of the first hypothesis that firms audited by Big-5 auditors engage less in earnings management in the initial public offering process are reported in Table 4. Four specifications of the regression model are tested. Auditor type is significantly negatively related to discretionary accruals at the .05 level in three of the four model specifications tested, and significant at the .10 level in the remaining model. These results suggest that Big 5 auditors are associated with lower discretionary accruals, and audit quality plays an important role in reducing earnings management in the IPO process. That Big 5 auditors reduce earnings management in the IPO process may partially explain the result that Balvers et al. (1988) and Hogan (1997) find that Big 5 auditors are associated with lower underpricing of the offering. Investors might presume that Big 5 auditors reduce earnings management in the IPO process and be more confident about the quality of earnings, so they are willing to pay more for the issue.

[Insert Table 4 about here]

Several control variables are significantly related to discretionary accruals. Total assets are negatively related to discretionary accruals, which shows that large firms tend to engage less in earnings management in the IPO process. Consistent with Becker et al. (1998), discretionary accruals are negatively related to absolute value of total accruals. Capital intensity is also negatively related to discretionary accruals.

[Insert Table 5 about here]

Tests of the second hypothesis that firms audited by industry specialist engage less in earnings management in the initial public offering process are reported in Table 5. The coefficient on industry specialists is significantly negative in all model specifications.

When the industry specialist variable is included, auditor size still has the expected sign, but is no longer statistically significant. This is consistent with the findings in Craswell et al. (1995) that industry specialization is an important element in auditor quality. It also supports the argument that auditor industry specialization is important in providing finer information in an IPO environment. The multivariate regression results in Table 5 shows that industry specialists effectively limit earnings management in IPO process.

### Robustness Tests

To test whether our results are driven by measurement error in the discretionary accruals model, the Teoh, Welch and Wong (1998) measure of earnings management is also used in our study. Teoh, Welch and Wong classify accrual variables into four components: discretionary current accruals (DCA), non-discretionary current accruals (NDCA), discretionary long-term accruals (DLA), and non-discretionary long-term accruals (DLA). The discretionary current accruals are used to measure earnings management. The current accruals are calculated as follows:

$$CACC = \Delta[\text{accounts receivable} + \text{inventory} + \text{other current assets}] - \Delta[\text{accounts payable} + \text{tax payable} + \text{other current liabilities}]$$

We first run the following cross-sectional regression:

$$CACC_{it}/TA_{it-1} = \alpha_1(1/TA_{it-1}) + \alpha_2\Delta REV_{it}/TA_{it-1} + \varepsilon_{it}$$

where:

$CACC_{it}$  = current accruals for firm  $i$  in year  $t$ ,

$\Delta REV_{it}$  = change in revenue for firm  $i$  in year  $t$ ,

$PPE_{it}$  = gross property, plant and equipment for firm  $i$  in year  $t$ ,

$TA_{it-1}$  = total assets for firm  $i$  in year  $t-1$ .

Non-discretionary current accruals are calculated as:

$$\text{NDCA}_{it} = \alpha_1(1/\text{TA}_{it-1}) + \alpha_2(\Delta\text{REV}_{it} - \Delta\text{REC}_{it})/\text{TA}_{it-1}$$

Discretionary current accruals is calculated as the difference between current accruals (CACC) and non-discretionary current accruals (NDCA). Similar results (not reported) consistent with the research hypotheses are obtained for the auditor size and specialization variables.

## V. SUMMARY AND CONCLUSIONS

In this study, we examine whether auditor size and industry specialization are associated with lower earnings management (lower discretionary accruals) for IPO companies. We find that both measures are associated with lower discretionary accruals, consistent with high quality auditors constraining earnings management and providing more precise information. Our results are robust to alternative definition of earnings management. Our research indicates that audit quality constrains earnings management in the IPO process. This is important given information asymmetry and the lack of information about IPO firms that limits the ability of investors to undo the effects of the earnings management. Our research might be of interest to investors of IPO firms given that discretionary accruals at the time of the offering are opportunistic and Teoh, Welch and Wong (1998) find that at-issue discretionary accruals are negatively related to post issue earnings performance and stock return.

Our results show that higher audit quality as evidenced by auditor size and industry specialization is associated with less earnings management. Our results complement the theoretical propositions of Titman and Trueman (1986) and Datar et al. (1991) that auditor

reputation plays an important role in the underpricing of new issues. These results may offer one explanation why underpricing may be lower for IPOs with high quality auditors. We find that audit quality constrains earnings management in the IPO process. Since earnings management is significantly negatively related to post-issue earnings and stock performance (Teoh, Wong and Rao, 1998; Teoh, Welch and Wong, 1998), investors should be willing to pay more for issues audited by high quality audit firms.

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**TABLE 1**  
**Sample Selection**

Sample characteristics for 1048 firms conducting initial public offerings during the period of 1996 to 1998 from Compact Disclosure database

**Panel A:** Sample IPO Firms by Year and by Audit

<b>Year</b>	<b>1996</b>	<b>1997</b>	<b>1998</b>	<b>Total</b>
Big 5	337 (64.68%)	221 (63.51%)	108 (60.34%)	666 (63.55%)
Non-Big 5	184 (35.32%)	127 (36.49%)	71 (39.66%)	382 (36.45%)
Total	521	348	179	1,048
Freq	49.71%	33.21%	17.08%	100.00%

**Panel B:** SIC distribution\*

<b>Industry</b>	<b>Codes</b>	<b>Freq</b>	<b>%</b>
Oil and Gas	13	25	2.39%
Food Products	20	21	2.00%
Paper and Paper Products	24,25,26,27	20	1.91%
Chemical Products	28	64	6.11%
Manufacturing	30-34	32	3.05%
Computer Equipment and Services	35,73	295	28.14%
Electronic Equipment	36	66	6.30%
Transportation	37,39,40-42,44,45	54	5.15%
Scientific Instruments	38	76	7.25%
Communications	48	54	5.15%
Durable Goods	50	27	2.58%
Retail	53,54,56,57,59	53	5.06%
Eating and Drinking Establishments	58	17	1.62%
Financial Services	60-65	54	5.15%
Entertainment Services	70,78,79	30	2.86%
Health	80	16	1.53%
All others	1,2,12,15,16, 17,21,22,23,29, 46,47,49,51,52, 67,72,73,75,76, 81,82,83,87,99	144	13.74%

\* The percentage may not add up to 100% because of rounding.

**TABLE 2**  
**Variable Descriptive Statistics**  
(n=1048 unless otherwise specified)

<b>Var</b>	<b>Mean</b>	<b>Stdev</b>	<b>Lower quartile</b>	<b>Median</b>	<b>Upper quartile</b>
DACC	0.01	0.25	-0.09	0.01	0.14
AUDIT	0.64	0.48	0	1	1
SPEL	0.43	0.50	0	0	1
EXCHG	0.78	0.41	1	1	1
MTB	4.49	15.73	1.92	2.97	4.92
LEV	0.42	0.28	0.19	0.36	0.60
LGTA	18.21	1.74	17.12	17.96	19.06
ABSTA	0.19	0.20	0.05	0.13	0.27
CAPINT	0.12	0.54	0.02	0.04	0.08

DACC: discretionary accruals based on modified Jones model

AUDIT: 1 if the auditor is member of Big 5; 0 otherwise

SPEL: 1 if the auditor is an industry specialist; 0 otherwise

EXCHG: 1 if offering is NYSE AMEX or NMS; 0 if OTC

MTB: market to book ratio

LEV: leverage defined as total liabilities over total assets

LGTA: log of total assets

ABSTA: absolute value of total accruals

CAPINT: capital intensity, defined as depreciation over sales

**TABLE 3**  
**Correlation Matrix for Dependent and Independent Variables**  
(n=1048)

	DA	AUDIT	SPEL	EXCHG	MTB	LEV	LGTA	ABSTA	CAPINT
DA		-0.05 0.10	-0.06 0.05	-0.03 0.41	-0.07 0.01	-0.05 0.04	-0.04 0.16	-0.12 0.00	-0.24 0.01
AUDIT	-0.04 0.18		0.12 0.01	0.12 0.01	0.03 0.29	0.06 0.07	0.18 0.01	-0.07 0.03	-0.02 0.46
SPEL	-0.04 0.17	0.12 0.01		0.12 0.01	-0.04 0.22	0.11 0.01	0.21 0.01	-0.11 0.01	-0.06 0.07
EXCHG	-0.01 0.83	0.12 0.01	0.12 0.01		0.08 0.02	-0.01 0.86	0.40 0.01	-0.17 0.01	-0.04 0.18
MTB	-0.04 0.19	0.04 0.16	-0.00 0.92	-0.04 0.25		-0.01 0.72	-0.03 0.33	0.12 0.01	-0.00 0.97
LEV	0.01 0.86	0.03 0.27	0.10 0.01	-0.03 0.32	0.02 0.55		0.44 0.01	-0.15 0.01	-0.11 0.01
LGTA	-0.00 0.90	0.15 0.01	0.20 0.01	0.37 0.01	-0.04 0.15	0.38 0.01		-0.32 0.01	0.01 0.74
ABSTA	-0.30 0.01	-0.07 0.02	-0.10 0.01	-0.17 0.01	0.03 0.32	-0.12 0.01	-0.30 0.01		0.04 0.17
CAPINT	-0.07 0.02	-0.05 0.09	-0.03 0.34	-0.04 0.18	0.21 0.50	-0.07 0.03	-0.06 0.06	0.02 0.62	

The Spearman correlation is shown above the diagonal while the Pearson correlation is shown below the diagonal.

DACC: discretionary accruals based on modified Jones model

AUDIT: 1 if the auditor is member of Big 5; 0 otherwise

SPEL: 1 if the auditor is an industry specialist; 0 otherwise

EXCHG: 1 if offering is NYSE AMEX or NMS; 0 if OTC

MTB: market to book ratio

LEV: leverage defined as total liabilities over total assets

LGTA: log of total assets

ABSTA: absolute value of total accruals

CAPINT: capital intensity, defined as depreciation over sales

**TABLE 4**  
**Regression of Discretionary Accruals on Auditor Size**  
(n=1048)

	Model 1	Model 2	Model 3	Model 4
INTERCEPT	0.35 4.01***	0.34 3.93***	0.37 4.34***	0.36 4.07***
AUDIT	-0.03 -1.76**	-0.02 -1.59*	-0.03 -1.76**	-0.03 -1.70**
EXCHG	-0.02 -0.87	-0.02 -0.81		-0.02 -0.88
MTB		-0.001 -1.12	-0.001 -1.06	-0.001 -1.07
LEV	-0.004 -0.13	0.002 0.06	0.003 0.09	-0.003 -0.09
LGTA	-0.01 -2.39***	-0.01 -2.40***	-0.01 -3.00***	-0.01 -2.44***
ABSTA	-0.41 -10.77***	-0.41 -10.70***	-0.41 -10.71***	-0.41 -10.75***
CAPINT	-0.03 -2.54***		-0.03 -2.49***	-0.03 -2.52***
Adj R-sq	10.14%	9.69%	10.17%	10.15%

\*\*\* (\*\*) (\*) – Significant at the .01 (.05) (.10) level based on a one-tail test.

DACC: discretionary accruals based on modified Jones model

AUDIT: 1 if the auditor is member of Big 5; 0 otherwise

SPEL: 1 if the auditor is an industry specialist; 0 otherwise

EXCHG: 1 if offering is NYSE AMEX or NMS; 0 if OTC

MTB: market to book ratio

LEV: leverage defined as total liabilities over total assets

LGTA: log of total assets

ABSTA: absolute value of total accruals

CAPINT: capital intensity, defined as depreciation over sales

**TABLE 5**  
**Regression of Discretionary Accruals on Auditor Size and Industry Specialization**  
(n=1004)

	Model 1	Model 2	Model 3	Model 4
INTERCEPT	0.33 3.68***	0.32 3.54***	0.35 3.89***	0.33 3.68***
AUDIT	-0.02 -1.18	-0.02 -1.03	-0.02 -1.20	-0.02 -1.16
SPEL	-0.03 -1.86**	-0.03 -1.83**	-0.03 -1.89**	-0.03 -1.86**
EXCHG	-0.01 -0.70	-0.01 -0.62		-0.01 -0.69
MTB		-0.001 -0.65	-0.001 -0.62	-0.001 -0.61
LEV	0.01 0.25	0.01 0.34	0.01 0.34	0.01 0.20
LGTA	-0.01 -2.12***	-0.01 -2.06***	-0.01 -2.52***	-0.01 -2.10***
ABSTA	-0.42 -10.97***	-0.42 -10.84***	-0.42 -10.87***	-0.42 -10.86***
CAPINT	-0.03 -2.52***		-0.03 -2.49***	-0.03 -2.50***
Adj R-sq	10.91%	10.38%	10.90%	10.85%

\*\*\* (\*\*) (\*) – Significant at the .01 (.05) (.10) level based on a one-tail test.

DACC: discretionary accruals based on modified Jones model

AUDIT: 1 if the auditor is member of Big 5; 0 otherwise

SPEL: 1 if the auditor is an industry specialist; 0 otherwise

EXCHG: 1 if offering is NYSE AMEX or NMS; 0 if OTC

MTB: market to book ratio

LEV: leverage defined as total liabilities over total assets

LGTA: log of total assets

ABSTA: absolute value of total accruals

CAPINT: capital intensity, defined as depreciation over sales

**TABLE 6**  
**Regression of Discretionary Accruals on Auditor Size and Industry Specialization:**  
**Considering Interaction Variable**  
(n=1004)

	Model 1	Model 2	Model 3	Model 4
INTERCEPT	0.34 3.73***	0.33 3.60***	0.35 3.95***	0.34 3.73***
AUDIT	-0.04 -1.76**	-0.03 -1.66**	-0.04 -1.79**	-0.04 -1.76**
SPEL	-0.06 -2.18**	-0.06 -2.18**	-0.06 -2.21**	-0.06 -2.20**
AUDITSP	0.04 1.34*	0.04 1.37*	0.04 1.36*	0.04 1.37*
EXCHG	-0.01 -0.73	-0.01 -0.65		-0.01 -0.71
MTB		-0.001 -0.72	-0.001 -0.68	-0.001 -0.67
LEV	0.01 0.24	0.01 0.33	0.01 0.34	0.01 0.19
LGTA	-0.01 -2.06**	-0.01 -1.99**	-0.01 -2.46**	-0.01 -2.03**
ABSTA	-0.42 -11.03***	-0.42 -10.89***	-0.42 -10.92***	-0.42 -10.94***
CAPINT	-0.03 -2.52***		-0.03 -2.49***	-0.03 -2.50***
Adj R-sq	10.98%	10.46%	10.98%	10.93%

\*\*\* (\*\*) (\*) – Significant at the .01 (.05) (.10) level based on a one-tail test.

DACC: discretionary accruals based on modified Jones model

AUDIT: 1 if the auditor is member of Big 5; 0 otherwise

SPEL: 1 if the auditor is an industry specialist; 0 otherwise

AUDITSP: the interaction variable AUDIT\*SPEL

EXCHG: 1 if offering is NYSE AMEX or NMS; 0 if OTC

MTB: market to book ratio

LEV: leverage defined as total liabilities over total assets

LGTA: log of total assets

ABSTA: absolute value of total accruals

CAPINT: capital intensity, defined as depreciation over sales