



Surplus Free Cash Flow and Earnings Management: The Moderating Role of Auditor Size

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ABSTRACT

This Study seeks to scrutinize whether surplus free cash flow is correlated with earnings management, if auditor size moderates this relationship. To do so, modified Jones discretionary accrual model (1995) and audit firm size are used as audit quality indicator to measure earnings management. The research hypotheses are built upon a sample of 103 companies listed on the Tehran Stock Exchange during the years 2013 to 2017 and then tested using multiple regression model based on panel data techniques. The results reveal that earnings management is significantly associated with surplus free cash flow. Furthermore, the findings confirm that auditor size exerts no significant impact on the relationship between surplus free cash flow and corporate earnings management.

1 Introduction

Earnings management tends to occur in firms where managers seek to present a more favourable financial picture of the corporate performance via discretionary accruals [2]. Managers employ flexible accounting principles to manage earnings [14]. The extant literature on earnings management mainly point up recognizing incentives for managers of listed companies to manage earnings [5]. Incentives for earnings management include such explicit contracts as bonus plans [20] and debt covenants [16], implicit contract [10], capital markets and need for external financing [40], the political and regulatory process [26] and certain particular circumstances including earnings decreases or losses [12]. Earnings management tends to culminate in the misrepresentation of financial information as a result of conflicting interests between the agent and principal. Free cash flow is a benchmark for measuring companies' performance and represents cash that a company own after making necessary expenditures for retaining or expanding assets. Free cash flow is important because it allows company to search for opportunities going up shareholder's value. Without cash flow, it is not feasible to develop new products and make commercial acquisition and reduce debts. Companies with positive free cash flows have higher performance, so management desires to reduce earnings due to political costs. As company's high performance gains the attention of public institutions (tax administration), they attempt to reduce or hide their high performance using earnings management. However, companies with negative free cash flows are unable to support earnings and income growth. Insufficient free cash flow can induce company to increase its debt level. Thus, management desires to show better perfor-

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mance by increasing earnings management [42]. In other words, companies' free cash flows can be an incentive to earnings management. Companies with high surplus free cash flow gain more opportunities for earnings management. Past studies document that firms with high surplus free cash flow are usually beset with major agency problems [13] particularly in case of high free cash flow, yet low investment opportunities [22]. Managers of these companies pursue their personal gains, and are likely to engage in unprofitable projects, over investments and misuse the funds. They desire to carry out non-value maximizing activities, resulting in agency problems [27]. Their activities may bring benefits or rewards for themselves at the expense of the shareholders. These companies are found to have constituted expenditures that mitigate shareholders' wealth. Managers may benefit from the accounting procedures that enhance reported earnings to conceal the negative impact of projects [13]. In order to mask these activities, managers are required to manage earnings through accounting discretions. Nevertheless, the managers' opportunistic behavior may be minimized provided that the company's external corporate governance monitoring mechanism, such as auditor size, is effective [7]. According to Rusmin et al. [37], as audit quality increases, earnings management decreases; earnings management is significantly related to free cash flows. However, sometimes managers experience situations in which their decisions are not to the benefit of company shareholders, rendering financial reports distorted. As a matter of fact, earnings management is applied when managers incorporate their judgments into financial reporting and manner of financial recording and reporting, in that change in the content of financial reports mislead some shareholders about company' economic performance. In contrast, auditors can figure out earnings management performed by managers by increasing audit quality, placing managers in a dilemma to perform earnings management. However, in most studies conducted, it was disregarded and there is an empty space in accounting literature to search for this subject; this becomes a motivation for doing the present research. Thus, given the above reasons, the present research attempts to find experimental evidence in order to account for the question whether surplus free cash flow is significantly correlated with corporate earnings management; and further, does auditor size influence the association between surplus free cash flow and earnings management? This paper is organized in the following manner. The following section presents the literature review and hypotheses development. Section 3 presents the methodology and section 4 offers the analyses of the data. The final section concludes and discusses findings of this study.

2 Literature Review

As discussed, little attention has been paid to the empirical examination of the effects of surplus free cash flow on earnings management, as well as the moderating effect of auditor size on this relationship. Nevertheless, streams of research which have separately employed the variables of the current study are presented as follows:

In a study entitled "Free cash flow, investment inefficiency, and earnings management: Evidence from manufacturing firms listed on the Indonesia Stock Exchange" during the years 2010-2015, Zaki et al. [43] documented a positive association between free cash flow and earnings management. Fixed assets investment inefficiency mediates the relationship between free cash flow and earnings management. Ahmadi Shadmehri et al. [1] scrutinized the effect of surplus free cash flow, corporate governance and firm size on earnings predictability in the firms listed on the Tehran Stock Exchange. Their findings illustrate that there is a statistically significant relationship between earnings predictability and surplus free cash flow, and good corporate mechanisms play a positive role in their relationship. Nekhili et al. [35] investigated the moderating effect of corporate governance and ownership

features in reducing earnings management practices in a free cash flow (FCF) situation. The results accentuate the opportunistic behaviour of managers in presence of free cash flows. Particularly, managers are involved in earnings management practices that increase reported earnings. Our results also show that corporate governance mechanisms such as audit committee independence and external audit quality, in addition to institutional investors and managerial ownership reduce the extent of earnings management. Mohammadjani and Sadeghi [32] carried out a study on the impact of Surplus Free Cash Flow and Earnings Management (SFCF) on earnings management and role of audit committee on a sample of 87 great research companies using Pireson t-test. The results of this research demonstrate a direct and significant relation between earnings management and SFCF. In other words, the companies' SFCF can be counted as a trigger for earnings management. Also, the findings reveal that those companies with audit committee enjoy more favourable earnings management than their counterparts without audit committee, and no significant linkage was found between the audit committee, SFCF and earnings management. However, there is a direct significant relationship between SFCF, the company's size and all of the obligatory items. Vichitsarawong and Pornupatham [41] sought to see if the auditors' assessment is the indicative of the earnings stability. The period of the survey were the years between 2004 and 2008, when 305 companies in Thailand were studied. They tested the research hypothesis and documented that those companies which receive justified assessment have less profit stability than those which receive acceptable assessment. Likewise, the kind of justified assessment exerts different effects on the earnings stability such that companies which get provided or rejected assessment have less earnings stability than the companies that receive acceptable assessment with emphasis on a specific subject. Moradi et al. [33] undertook a project on the auditor's assessment and earnings management with special focus on ambiguity in the activity's permanence. The research hypotheses are built upon a sample of the firms listed on the Tehran stock exchange between the years 2007 and 2013. According to their results, no correlation was found between the earnings management and the auditor's provided ambiguity in the continuity, though there is a direct relation between earnings management and the auditor's provided assessment due to the ambiguity in the company's continuity. These findings confirm that the ambiguity in the manufacturer company continuity pushes up the auditor's innate risk as well as the possibility of provided report sending if there is earnings management. Rusmin et al. [37] examined the effect of free cash flow and audit quality on companies' earning management. They utilized the accruals of Modified-Jones modelling order to measure earnings management in their study. The study sample consisted of a firm-year observation of 1772 companies listed on the Malaysian and Singaporean stock exchange during 2005-2010. Having applied multivariate regression models, the results suggested that earnings management is negatively linked to audit quality as it is positively and significantly related to surplus free cash flow. In addition to this, audit quality weakens the relation between surplus free cash flow and earnings management. Soliman and Ragab [39] explored the relationship between effectiveness of auditing committee, audit quality and earnings management using a sample consisting of 254 firm-year observations of companies listed on stock market of Malaysia. The results of the study indicated that the variables independence of auditing committee, the number of auditing committee sessions and audit quality are negatively and significantly related to earnings management. Banimahd et al. [3] explored the relationship between earnings management and auditor's report. Results indicated that earnings management, firm size, profitability, debt ratio, audit fee, and state ownership are significantly related to the number of audit paragraphs before and after report. Namazi et al. [34] explored the relationship between audit quality and earnings management in companies listed on the Tehran Stock Exchange.

In this study, a number of 61 companies listed on the Tehran Stock Exchange during 2001-2007 were studied. The findings of the research showed that there is generally a positive and weak relationship between the measures auditor's size (auditor's good research intention) and auditor's tenure and earnings management, but the relationship was not significant statistically. Rusmin et al. [38], in their research entitled "audit quality and earnings management; evidence from Singapore", explored the relationship between variables by applying Modified-Jones mode in order to measure discretionary accruals and measure of earnings management, as well as utilizing variables of industry specialty and auditing institute measure as indicators of audit quality measurement. The results of testing hypotheses implied that size of audit institution and discretionary accruals (earnings management measure) are negatively and significantly related. Moreover, he argued that companies audited by expert auditors have lower discretionary accruals than other companies. Bukit and Iskandar [11] delved into the effect of surplus free cash flow on companies' earnings management on Malaysian stock market. The results of the study indicated that free cash flow and earnings management are positively and significantly related. Piot and Janin [36] explored the relationship between some aspects of audit quality, including size of audit institution, auditor's tenure period and presence of an auditing committee and companies' earnings management. In this research, they investigated data of a sample consisting of 102 firm-years active on French stock market during 1998-2002, arriving at the conclusion that presence of an auditing committee reduces application of earnings management in firms.

3 Theoretical Frameworks

Surplus Free Cash Flow and Earnings Management: SFCF is the result of the combination of two free cash flow variables and the growth opportunities that simultaneously show the surplus cash and growth opportunities' effect in performing the earnings management [37]. Jensen [27] propounded the view that unless free cash flow in a company is consumed or invested to enhance or to balance the best interest of shareholders, then it provokes agency problems. The management of the firm may prefer to invest in an unprofitable project owing to his or her self-interest. As a result, the company may experience low growth. Lack of effective monitoring or disciplinary actions by other independent stakeholders paves the ground for managers to withhold information on the activities by providing minimal disclosure or manipulating accounting figures. As a group of stakeholders, Investors do not have access to internal information. Managers are unlikely to provide investors with adequate disclosures on the investment cash flows or the underlying assumptions of the project. On the grounds of this minimal information, investors may lose the chance of knowing the prospect and the advantages or disadvantages of the project for their wealth [13]. Managers may not factor in the internally projected cash flows for some investments. Thanks to their personal interests, managers overlook the need for preparing projected cash flow and profit forecast. The choice to make poor investments may mitigate future earnings, thereby removing directors or senior executives. Managers tend to avoid the risk of confronting with managerial turmoil through employing accounting numbers, and hence increasing reported earnings. Investors are argued to be completely unravelled of earnings numbers. Hence, managers are motivated to manage earnings in order to satisfy their needs. The first hypothesis is designed as follows:

Hypothesis 1: Surplus free cash flow is positively related to discretionary accounting accruals.

Moderating Role of Auditor Size: Corporate governance places a major emphasis on quality information. It is generally accepted that such major audit firms as the "Big 4" make for better verification

of financial statements accuracy and consistency [15]. As such, Chung et al. [13] reported that “Big” auditors confine the use of discretionary accruals, but are especially more active when client companies have a high FCF level. This is confirmed by Rusmin et al. [37], who conducted a study in the Malaysian environment and concluded that auditors become more vigilant and curb the use of discretionary accruals designed to increase earnings. Furthermore, Piot and Janin [36] suggest that higher quality auditing results in greater reliability in comparison with greater accuracy of accounting figures. Francis et al. [18] hypothesize that companies that publish relatively high levels of discretionary accruals are those that rely more on “Big” auditors to bring some credibility to the accounting figures disclosed to the market. Becker et al. [6], Frankel et al. [19], Gul et al. [23], and Lin and Hwang [31], for example, claim that high quality auditors are predicted to be more likely to detect the practices of earnings management. To put it differently, Bartov et al. [4], Lai [29], Gul et al. [24,25], and Bliss et al. [9] stipulate that higher quality auditors have propensity to disclose errors and irregularities and are unwilling to accept questionable accounting practices. In line with previous literature, this study, in the circumstance where companies with SFCF may face agency cost of free cash flow, also argues that high quality auditors will be more likely to discover earnings management. Big auditors thus reduces the significance of positive relationship between surplus free cash flow and discretionary accounting accruals. We thus develop the following hypothesis:

Hypothesis 2: Auditor size weakens the positive relationship of surplus free cash flow and discretionary accounting accruals.

4 Research Methodology

The present research is an applied research by purpose, and a quasi-experimental-ex post facto research in terms of data collection, a positive research in accounting, which was conducted using multivariate regression method and econometric models. The study sample is comprised of all companies listed on the Tehran Stock Exchange during 2013-2017. The selected sample of the research consists of companies that met the set of following conditions:

1. Firms should be listed on the Tehran Stock Exchange since 2013 and hold their membership until 2017.
2. To increase their comparability, their fiscal year should end in March.
3. No changes in their fiscal year or activities happened during this period.
4. They should not be included in investment companies and financial intermediaries (investment companies were not included in the study sample due to difference of their activity from other companies).
5. Financial information of companies needs to be accessible.

Having applied the above constraints, a number of 103 companies (515 firm-year) were chosen as study sample. The final analysis of data collected was performed using the econometric software application Eviews and Stata.

Research Models and Variables: Discretionary accounting accruals serves as the research dependent variable. Surplus free cash flow and auditor size are employed as the independent variables. Model 1 includes auditor size as a moderating variable which moderates the relationship between surplus free cash flow and discretionary accounting accruals. The interaction between surplus free cash flow and

independent audit committee is represented in the model by SFCF*ASIZE. The research models are presented as follow:

$$DA_{i,t} = \beta_0 + \beta_1 SFCF_{i,t} + \beta_2 ASIZE_{i,t} + \beta_3 SFCF*ASIZE_{i,t} + \beta_4 FSIZE_{i,t} + \beta_5 LEV_{i,t} + \beta_6 CFO_{i,t} + \epsilon_{i,t} \quad (1)$$

Where:

$DA_{i,t}$: discretionary accruals of firm i in year t;

$SFCF_{i,t}$: surplus free cash flow of firm i in year t;

$ASIZE_{i,t}$: auditor size of firm i in year t;

$SFCF*ASIZE_{i,t}$: reciprocal effect of auditor size and surplus free cash flow of firm i in year t;

$FSIZE_{i,t}$: firm size, equal to natural logarithm of annual sale of firm i in year t;

$LEV_{i,t}$: financial leverage which is equal to ratio of liability to total assets of firm i in year t;

$CFO_{i,t}$: cash obtained from operating activities divided by total assets of firm i in year t.

Dependent variable: The dependent variable of the research is earnings management, for which in accordance with Rusmin et al. [37] and Fernando et al. [17], Modified-Jones Model [28] were used to measure the variable; the model is as follows: (equation 1)

$$\left(\frac{PPE_{i,t}}{A_{i,t-1}}\right) + \epsilon_{i,t} \alpha \left(\frac{\Delta REV_{i,t} - \Delta REC_{i,t}}{A_{i,t-1}}\right) + \gamma \alpha \left(\frac{1}{A_{i,t-1}}\right) + \alpha \frac{TA_{i,t}}{A_{i,t-1}} \quad (2)$$

Where:

$TA_{i,t}$ stands for total accruals of company i in year t, which is calculated by the following equation:

$$TA_{i,t} = \Delta CA_{i,t} - \Delta CL_{i,t} - \Delta CASH_{i,t} + \Delta STD_{i,t} - DEP_{i,t}$$

$\Delta CA_{i,t}$: current asset variation of firm i per year compared to previous year,

$\Delta CL_{i,t}$: current liability variation of firm i per year compared to previous year,

$\Delta CASH_{i,t}$: cash flow variation of firm i per year compared to previous year,

$\Delta STD_{i,t}$: current maturing portion of long term debt of firm i per year compared to previous year,

$DEP_{i,t}$: constant and intangible depreciation costs of firm i in year t,

$A_{i,t-1}$: total asset of firm i at the beginning of the year,

$\Delta REV_{i,t}$: sale income variation of firm i per year compared to previous year,

$\Delta REC_{i,t}$: receivable account variation of firm i per year compared to previous year,

$PPE_{i,t}$: properties, machinery, and equipment of company i in year t, and

$\epsilon_{i,t}$: Model error of firm i in year t.

Having estimated the above model for each firm-year, values of model error ($\epsilon_{i,t}$) was also obtained, which represents earnings management.

Independent variable: Independent variable of the research consisted of surplus free cash flow. In this research, in order to measure surplus free cash flow, free cash flows of each company was first calculated using Lehn and Poulsen's [30] model in accordance with Rusmin et al. [37] and Chung et al. [13]. Afterwards, if the value of the calculated free cash flow for a company is greater than the median of free cash flow of other companies, it has free cash flow and the company is given the value of 1, 0 otherwise.

Moderating variable: In an attempt to measure auditor size as moderating variable, audit institutions were classified into large institutions and small institutions. The large institutions were Audit

Organization and the small institutions were private audit institutions members of Official Auditors Association; in the sense that, if auditor is a company of Audit Organization, it is considered a large audit institution with high quality and number 1 is given to it; otherwise, number 0 is given. The method of measurement has been used in many domestic studies as in Bhundia [8] and Namazi et al. [34].

Control variables:

Firm size: it was measured by natural logarithm of company's net sale.

Financial leverage: financial leverage was taken as another control variable, which is calculated by dividing total liabilities by book value of company's assets.

Cash flow of Operating (CFO): in this study, CFO ratio was taken as control variable. The values of the variable are calculated by dividing cash flow coming from operating activities by total assets of company. Table 1 summarizes the definition of variables used in this paper.

Table 1: Variable definitions

Variables	Definition
Dependent Variable	
DA	Discretionary Accounting Accruals, calculated by Modified-Jones Model (1995).
Independent variable	
SFCF	Surplus Free Cash Flow, if the value of the calculated free cash flow for a company is greater the median of free cash flow of other companies, it has free cash flow and the company is given number 1, and 0 otherwise.
Moderating variable	
ASIZE	Dummy variable, equal to 1 if the firm is audited by BIG auditing firms, and 0 otherwise.
Control Variables	
FSIZE	Firm size measured as the logarithm of firm's total sales.
LEV	Leverage measured as the total debts divided by total assets.
CFO	Cash flow of Operating, measured as cash flow coming from operating activities divided by total assets.

Since the panel data are superior to time-series and cross-sectional models with respect to the number of observations, low probability of multicollinearity among variables, bias reduction in estimation and heterogeneity of variance [21], the multivariate regression model based on panel data was employed to test the research hypothesis.

5 Empirical Results

5.1 Descriptive statistics

Table 2 presents the descriptive statistics of the research variables for the sampled firms during the years 2013-2017. The results of descriptive analysis of data can be summarized in the following items; as can be seen in the tables, discretionary accruals stood at a domain ranging from 0.004 to 0.638, the mean of which is equal to 0.019. Furthermore, Audit Organization undertake about 45 percent of sample companies on average. Firm size had the mean value 10.912 and the median 10.758, which were calculated by company's annual sale logarithm, in that the minimum and maximum value of the variable is 9.704 and 12.946, respectively. Furthermore, the value of the mean of financial lev-

erage variable suggests that on average about 65 percent of sample companies' assets was financed by liabilities.

Table 2: Descriptive statistics of research variables

Variables	Obs.	Mean	Median	Minimum	Maximum	Std. Deviation
DA	515	0.019	0.014	0.004	0.638	0.201
SFCF	515	0.326	0.000	0.000	1.000	0.458
ASIZE	515	0.454	0.000	0.000	1.000	0.211
FSIZE	515	10.912	10.758	9.704	12.946	0.329
LEV	515	0.658	0.652	0.104	0.898	0.571
CFO	515	0.377	0.363	0.207	0.843	0.584

5.2 Regression results

Given the results obtained from Stata presented in Table 3, the significance level of F-limer is 0.000, which suggests the rejection of null hypothesis and suggests that panel data should be used to estimate the research model. Afterward, considering the panel data state of the model, we needed to use Hausman test to determine the type of data panel (fixed or random effect). As can be seen in Table 2, the significance level of the test is 0.014, which suggests precedence of using fixed effect method over random effect. Given the table, the results of Likelihood Ratio Test also indicated that its significance level is less than 5 percent, suggesting that the residuals of regression have variance inconsistency. In addition to this, the significance level of Wooldridge Test (0.211) was greater than 5 percent, and the value suggests that lack of autocorrelation exists between error terms.

Table 3: The results of tests used for the research model

Test	Statistics	Significance level	Result
F-limer test	8.041	0.000	panel data method
Hausman Test	16.519	0.014	fixed effects method
LR test	183.712	0.000	Heteroscedasticity
Wooldridge test	1.414	0.211	Lack of autocorrelation

Another regression presupposition is the lack of colinearity between the model's explanatory variables. For this reason, the results of VIF test were presented in Table 4. As can be seen in this table, the values of the statistic are less than 10 for all explanatory variables, suggesting the lack of co-linearity between the model's explanatory variables.

Table 4: The results of co-linearity test for research model

Variables	VIF	I/VIF
FSIZE	1.208	0.827
LEV	1.219	0.820
CFO	1.247	0.801
SFCF	1.205	0.829
ASIZE	1.192	0.838
SFCF*ASIZE	1.273	0.785

As the results of Likelihood Ratio Test indicated, the model has variance inconsistency. Given that one of the methods of fixing variance inconsistency is model estimation in generalized least square method, GLS method was used to estimate the model. That is, the research model was fitted using

panel data techniques based on fixed effects and generalized least square method, the results of which are presented in Table 5.

Table 5: Results of testing research hypotheses

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	1.551	0.459	3.375	0.000
SFCF	0.083	0.026	3.197	0.001
ASIZE	-0.031	0.011	-2.880	0.004
SFCF*ASIZE	-0.037	0.038	-0.983	0.326
FSIZE	-0.084	0.039	-2.135	0.033
LEV	0.109	0.052	2.082	0.038
CFO	-0.002	0.003	-0.838	0.403
F-statistic(prob.)	11.813 (0.000)	Durbin-Watson stat		1.927
R-squared	0.539	Adjusted R-squared		0.515

Looking at the value of F statistic (11.813) in this table, it can be found that the fitted regression model is generally significant at 1 percent level. The value of the adjusted R-squared of the model suggests that independent variables explain about 51 percent of company's earnings management variation. Moreover, study of Durbin-Watson statistic (1.927) also confirmed lack of autocorrelation between error terms of the regression model. The reason for this is the inclination of Durbin-Watson statistic to number 2. Given the significance and appropriateness of the fitted regression model, we can analyze the research hypotheses as follows: As can be seen in the above table, estimation coefficient and t statistic of surplus free cash flow (SFCF) are positive and significant at 5 percent level, suggesting a positive significant relationship between SFCF and company's earnings management. According to this, the first research hypothesis is confirmed at 5 percent level. The second hypothesis states that auditor size weakens the relationship between surplus free cash flow and companies' earnings management. As the results of the table suggest, the estimation coefficient and t statistic of moderator variable SFCF*ASIZE were negative but not significant statistically and therefore, hypothesis is not supported. Several control variables are significantly associated with earnings management. Firm size is found to be negatively related to earnings management, which suggests that larger firms are more likely to have less earnings management. Leverage is found to be positively related to earnings management. However, we fail to find evidence that CFO is associated with the Firm's earnings management.

6 Conclusions

The aim of the present study was to explore the relationship between surplus free cash flow and earnings management, as well as studying the effect of auditor size on their relationship. To do so, a sample consisting of 103 companies listed on the Tehran Stock Exchange during 2013-2017 was taken. The results of the first hypothesis indicated that a positive and significant relationship existed between surplus free cash flow and earnings management; this is in line with Jensen [27] concerning prediction of free cash flow theory, which states that managers in companies with free cash flows and low growth would more likely to perform earnings management so as to reap some of their personal benefits. Rusmin et al. [37] also came up with the similar results. The second hypothesis of the research explored the effect of auditor size on relationship between surplus free cash flow and companies'

earnings management. The result of testing the hypothesis indicated that auditor size has no significant effect on this relationship. However, it was expected, based on the available theoretical foundations, that the effect of surplus free cash flow on companies' earnings management declines due to effective supervision of audit institutions by applying more quality-based audit institutions, but the results of the present research rejected such a relationship. The different result may be because of internal and external variables such as type of industries, companies' variant lifecycle and their involvement in different countries. In addition to this, the governmental state of Audit Organization also can serve as an interfering factor in investigating the size of audit institution, and hence audit quality. The findings have important implications for policy makers and practitioners. Results suggest that the practice of earnings management may exist when a company is in a condition of having high free cash flow but low growth prospects. According to the findings of the present research, stock market investors and activists are recommended to pay attention the above variables and regard them as factors influencing companies' earnings management in their decision-making models when taking decisions on investment. In addition, General Shareholders Assembly and board of directors of companies are recommended to pay further attention to larger audit institutions when choosing independent auditors in order to promote their audit quality and, in consequence, to reduce their earnings management.

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