

Audit quality and independence in China: Evidence from Going-Concern Qualifications Issued During 2004-2007

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Abstract

This study examines the audit quality through the issuance of going-concern opinions by the independent auditors in the Chinese stock market. First, we find that Chinese auditors are more likely to issue going-concern opinions to firms with low liquidity, poor performance, less cash inflows and high leverage. Second, we document that audit fee from a particular client (i.e., the economic importance of a client) does not affect auditor's qualified opinions, indicating the audit independence is not compromised by economic dependence. Finally, we compare the frequency of the issuance of going-concerns opinion between the Big four and non-Big four, and we do not find significant difference between two types of auditors, suggesting that the audit quality among domestic accounting firms is as good as the quality offered by the Big four. Overall, this paper suggests that the audit quality of the Chinese domestic CPA firms has significantly improved since 2000.

Key words: going concern, audit independence, audit quality

1. Introduction

This study examines audit quality through the issuance of going-concern opinions by the independent auditors in the Chinese stock market. The emerging market and the rapid development of auditing standards in China provide us a unique setting to investigate the determinants of going concern qualifications and hence the quality and independence of external auditors. China has made significant progress in initiating and developing accounting and auditing standards. In 1990s, the government began implementing a new set of accounting rules that are comparable to International Accounting Standards. However, an impediment to further this advances is the lack of a reliably independent auditing profession (Cheung and Zhang, 1996; Xiang, 1998). In an effort to increase auditor independence the Chinese government started to adopt new auditing standards (DeFond, Wong& Li, 1999). This research focuses on one unique qualified audit opinion, "going concern" opinion, and analyzes audit quality and independence after the new standards are implemented¹.

A going-concern opinion issued by the auditors plays an important role in the investors' decision making process, because the market expects the auditor provides them with a warning of approaching financial failure with the issuance of a going-concern opinion, and usually perceives such an opinion as a prediction of bankruptcy (Chen & Church, 1996, Altman, 1982). A going concern opinion has significant negative impact on the client's market value and may even draw attention of the regulator. Consequently, the managers are particularly averse to receiving this qualification, and pressure the auditors for the clean report by all means. Some auditors may acquiesce to the client's pressure due to economic dependence on the clients.

¹ Thereafter, qualification and going concern opinion are interchangeable.

However, those with greater independence will be more resilient to the client pressure to issue a clean report when a modified report is appropriate (DeFond, Wong & Li, 1999). A going-concern opinion can be issued because of two sources of uncertainties: financial distress and (or) litigation (Ryu and Roh, 2007). Due to the constraint of data on litigation information, we only focus on the relationship between the financial distress and the going concern qualification. It is required by both standards promulgated in 2003 and 2006 that auditors are responsible for looking into a company's financial stress and evaluating existing conditions. We therefore expect that the more distressed the client's financial situation, the more likely the auditor issues a going-concern opinion. Consistent with our hypothesis, we find a significant association between going-concern opinion and a series of financial ratios, indicating the good quality of audit in the Chinese stock market.

In addition, we study whether the fee dependence on the client jeopardizes the audit independence. In particular, we examine whether the exercise of audit independence in the formulation of a going-concern opinion is affected by the audit price for per dollar of the client's asset paid by the client. It is suspected that the auditors' independence can easily be compromised in an emerging market due to the lower demand for auditor independence and the lack of regulations (DeFond et al., 1999). In contrast, our study shows that audit fee is irrelevant to the issuance of going-concern opinions in China.

This study contributes to the accounting literature in several ways. First, our study adds another piece of evidence to the extant literature that going-concern qualifications are due to financial, operational, and other difficulties (Chen & Church, 1996). Our paper, based on the Chinese data, also confirms the role of financial ratios, operation result, size, prior audit opinion, etc, in indicating a going-concern qualification. Second, auditor independence is very important for a healthy stock market, particularly in an emerging market, where investors have more concerns about the transparency and reliability of financial statements. This study employs audit fee ratio as a surrogate for the auditor's economic dependence on a client, and examines the relationship between the fee ratio and going-concern opinion. The insignificant association between two variables suggests that the audit opinion is irrelevant to the audit fees paid by the client.

Third, the Big four are usually considered as the model for other auditors. In China, where the stock market and the auditing profession are both in the premature stage, it is interesting to compare the audit quality between domestic accounting firms with the Big four. Finally, our findings lend strong supports to the accomplishment of the new auditing standards to improve the audit quality in China. The development of the going-concern standard in China provides an interesting experiment, and the result suggests that an improved standard can better guide the auditors in issuing qualified opinions. Such an experiment provides a reference to other emerging markets. The remainder of this study is organized as follows. Section 2 provides background information; Section 3 motivates our main research hypotheses in the context of the related prior literature and the Chinese stock market setting; Section 4 describes the sample selection, the data and the empirical results. Section 5 summarizes our findings and points out limitations in our study.

2. Background Information

The economic reform in China began in late 1970s. China's first accounting firm was established in 1980 in Shanghai, and the CPA exam was started in 1991. Thousands of accounting firms have mushroomed since then. To conduct audit services for the listed clients, accounting firms are required to register with the Ministry of Finance (MOF) and Chinese Securities Regulatory Commission (CSRC) and accept their supervision. Auditors and accounting firms must meet strict pre-conditions, including "no penalty or violation record imposed during the last 3 years," in order to qualify as auditors of listed companies. In addition, the CICPA conduct auditor practice review and take "punitive measures" against auditors for noncompliance. Penalties for violating auditing standards in China can be harsh, including revocation of the auditor's license to practice and even imprisonment.

In the mean while, the government has strived to establish and develop the standards for the audit profession. The Chinese Institute of Certified Accountants (CICPA) is responsible for developing *Independent Auditing Standards*. In 1994, CICPA started drafting the independent auditing standards. The first and second sets of independent auditing standards were promulgated in 1995 and 1996, respectively. In 1999, CICPA issued the third batch of Independent Auditing Standards, including Specific Independent Auditing Standards, No 17: going concern. Auditors are required to adhere to the standards, which are broadly based upon International Standards. However, many criticisms arose due to the lack of guidance for the field work. Auditors may give very different opinions for similar situations. In April 2003, CICPA amended the going-concern standard.

The updated standards prescribed detailed auditing procedures, requiring auditors to explicitly evaluate whether there is substantial doubt about a company's ability to continue as a going-concern over the coming year. If the auditor has such doubt, she must state that opinion in the audit's report paragraph. Under the new standard, auditors are required to look at a company's management plans, strategies, and financial and business stress. They are responsible for understanding and assessing existing conditions, including those of other companies in the industry and the economy in general. They are not, however, expected to predict future conditions or events. In February 2006, CICPA issued and implemented CICPA auditing standard No. 1324: going concern to replace the old one. The new standard maintains the core content of the old one, emphasizing on the close attention that the auditor should give to any event that may result in the default of the client.

3. Literature Review and Hypotheses Development

Propensity to qualify and financial distress

To issuing a going-concern opinion, the auditor must be able to objectively evaluate the firm performance and withstand any client pressure to issue a clean opinion (DeFond, Raghunandan and Subramanyam, 2002; Khurana and Raman, 2002). In addition, in contrast to discretionary accruals, audit opinions can be observed with relatively little measurement error. Therefore, the auditor's propensity to issue a going-concern qualification has been extensively used as a surrogate for audit quality (Francis and Krishnan 1999, Reynolds and Francis 2000, DeFond, Wong and Li 2003). In our study, we employ the likelihood to issue going-concern qualifications to measure the audit quality and independence.

The specific independent auditing standards, No. 17, and the auditing standard No. 1324, both require auditors to issue a going-concern qualification if there is substantial doubt about the entity's ability to continue as a going-concern for the twelve months following the date of the auditor's opinion. The judgment of a going-concern should be based on financial, operational, and other aspects. This study focuses on the association between financial distress and the issuance of going-concern opinions. The bankruptcy signaling effect of the financial ratios has been extensively documented in prior research. Beaver (1966) presents empirical evidence that certain financial ratios, most notably cash flow/total debt, gave statistically significant signals well before actual business failure. Altman (1968) extends Beaver's (1966) analysis by developing a discriminant function which combines ratios in a multivariate analysis. Ohlson (1980) selects nine independent variables and argue that they are helpful in predicting bankruptcy. However, extant research typically uses data from developed markets, and to our knowledge, the evidence of the role played by financial ratios in auditor's opinion formation from the emerging market is rare.

According to the Chinese auditing standards, auditors should look into a company's financial stress and evaluate existing condition. Our study follows the research conducted in developed countries and employs a series of financial ratio to measure financial stress. These ratios should facilitate auditors' assessment of the firm's ability to meet obligations and hence avoid bankruptcy. Specifically, we consider liquidity ratio: current ratio; profitability ratio: return on assets; leverage ratio: debt ratio; and cash inflows ratio: operating cash flows over total assets. The line of reasoning for selecting above ratios is as follows: current ratio indicates the firm's ability to meet obligations to suppliers of credit and various government agencies; Return on asset gives investors an idea of how effectively the company is converting its assets into net income; debt ratio gives the percentage of total funds that are provided by creditors; cash is the most liquid asset, which is accepted by any lenders, and therefore net cash inflow from operations is a valuable predictor of failure. Based on above analysis, we have the following hypothesis:

H₁: Ceteris Paribus, the auditor's propensity to issue going-concern qualifications is higher for firms with higher financial distress. In particular, the likelihood to qualify is positively associated with the client's leverage, but negatively associated with the client's current ratio, return on asset, and operating cash inflows ratio.

Propensity to qualify and auditor independence

The information asymmetry between managers and outside investors creates a demand for reliable and objective accounting information to reduce agency costs (Watts and Zimmerman, 1983). The ability of investors to assess whether a firm's financial statements reflect business reality rests to a large degree on the reputation of its independent auditor (Chaney and Philipich, 2002). Auditors are responsible for assessing the going-concern uncertainties of the clients for the upcoming year and reporting a going-concern when it is appropriate. However, qualified opinion may deteriorate the relationship between the auditor and the client. And the client is more likely to dismiss the auditor if the going-concern opinion is issued and the client remains healthy (Ryu and Rho, 2007).

Due to the economic dependence on the clients, auditors may compromise independence by issuing a favorable audit opinion, in an effort to retain the client and avoid the reputation as a hard-liner that routinely issue qualified opinions, but they take the risk of being sued if the client goes bankrupt and they fail to give such a warning in the audit report issued within a year of bankruptcy. Thus it is an empirical question whether the fee dependence on the client jeopardizes the audit independence or not. This line of research typically uses data from the developed countries. Craswell, Stokes, and Laughton (2002) examine publicly reported Australian audit fee data from 1994 to 1996 and, find that the level of the auditor fee dependence does not affect auditor propensity to qualify their opinions. The authors attribute the high audit quality to the Australian professional regulations, which clearly expect audit firms put in place controls to prevent fee dependence affecting the exercise of independent auditor judgment. DeFond, Raghun, and Subramanyam (2002) attempt to provide additional evidence on this issue by investigating the auditor's willingness to issue a going-concern audit opinion in the U.S. market, and they do not find an association between going-concern opinions and audit fees.

In an effort to increase credibility in its capital markets, China began adopting new auditing standards in 1990s. Consistent with increased auditor independence, DeFond, Wong and Li (2000) find that the frequency of modified opinions increases nine-fold subsequent to the adoption of the new standards in late 1990s. Moreover, in the past decade, there have been a number of high profile lawsuits against accounting firms, including Sichuan Deyang, Shenzhen Yuanye, Beijing Zhongcheng, Hainan Xinhua, etc. Zhongtianqin, the largest Chinese auditor in 2000, collapsed in 2001 due to its audit failure. Chinese investors are entitled to recover their investment losses from auditors owing to audit failure. Besides litigation and reputation costs, Chinese auditors also have the threat of costly governmental penalties for violating the regulations. The government has adopted various “punitive measures,” including *pecuniary* penalty, shut-down of business, revocation of license, and even civilian criminal charge, against auditors for noncompliance. Since economic dependence and litigation costs as well as reputation costs drive the relationship between audit independence and audit fees into different directions, we make the following hypothesis:

H₂: The propensity to issue going-concern qualifications is irrelevant to the audit fee ratio paid by the client.

Propensity to qualify and auditor identity

Prior research suggests that the Big four international accounting firms, KPMG, PwC, Deloitte and Ernst & Young, are perceived as providing superior quality audits and enhanced assurance on financial statements relative to other non-Big four audit firms in the U.S. markets. DeAngelo (1981), Simunic and Stein (1996), Francis and Krishnan (1999) argue that the Big four provide higher quality audits in an effort to protect the firm's reputation and avoid litigation costs. The Big four have been documented to invest heavily on auditor training to enhance auditor competence. Moreover, their size and large portfolio of clients give them the financial strength to stand up to, or walk away from a client if necessary (Khurana and Raman, 2002). Lennox (1999) presents that the Big four are more likely to be sued and suffer larger damage awards due to their perceived “deep pockets.”

In China, out of roughly 7,500 firms providing statutory audit services, only about 60 are eligible to audit listed companies. To be authorized to audit listed companies, firms need to meet a range of criteria based on size, experience and track record. Firms that audit listed companies are regularly reviewed by both the CSRC and the CICPA, while other firms are reviewed only by the CICPA. The central government's plan is to build about 10 large and 200 medium sized competitive home-grown accounting firms by 2015. Regarding the number of CPAs, statistics show that over 7 million people have participated in the exams since the establishment of National CPA Certification Examination in 1991, but only 155,000 have passed the exam by the end of 2009, of which 85,000 work in the CPA profession. The high standards to become a CPA guarantee the capability and competency of the auditors in China. In addition, the severe penalty imposed for noncompliance also helps the auditors maintain high quality. Thus when we compare the audit quality between the Big four and the Chinese domestic accounting firms, we hypothesize:

H₃: The propensity to issue going-concern qualifications is indifferent between the Big four and other non-Big four accounting firms in China.

4. Empirical Analysis

Sample selection

Our sample period is from 2004 to 2007, which is after the new “going concern” standard was implemented by the CICPA in 2003. Thus during our sample period, auditors have adequate procedure guidance in forming going-concern opinion. The sample is composed of A-share listed companies in nonfinancial industries.

We identify firm-year observations with complete financial data, auditor information, audit opinion and auditing fees. The resulting sample consists of 2,205 firm-year observations. Among them, 2,086 (94.6%) firm-year observations received unqualified audit opinion, and the rest 119 (5.4%) had going-concern qualifications. The yearly breakdown of the resulting sample of 118 observations with going-concern qualifications is as follows: 19 in 2004, 28 in 2005, 36 in 2006 and 35 in 2007. We note that the mean of going-concern qualifications is 0.055, which is lower than the ratio (0.08) reported in the U.S. market (DeFond, Raghunandan and Subramanyam, 2002). This could be due to the stringent financial requirement for companies to be listed in China. Our data are retrieved from Chinese Stock Market Research Database.

Descriptive Data and Univariate Analysis

Table 1 presents descriptive statistics for the variables used in our model. Cash from operations are scaled by total asset. To control for skewness, we use a natural logarithmic transformation in sales. *Loss* is a dummy variable, which is set equal to 1 for negative earnings, and 0 otherwise. *PGC* is equal to 1 if the firm has going concern qualification in the previous year. We use *Feeratio*, the audit fee over the client's total asset, to measure the price of the audit service. Column 1 and 2 report the variables' means and medians for the whole sample.

For comparison purpose, we also report the mean and median for the sub-sample of going-concern qualifications and clean reports, respectively. The last two columns in table 1 provide the differences in mean and median between two sub-samples by t-test and Wilcoxon test, individually. The mean (median) of current ratio for clean reports group is 1.748 (1.232), and much higher than that for the qualification group. In fact, we find significant median differences among all the variables between two sub-samples. Compared with the clean report group, the qualification group has, on average, lower operating cash flow ratio, lower return on asset, lower sales, higher leverage, and higher likelihood to incur losses. In addition, auditors tend to issue going concern opinions for the firms with the same type of opinion in previous years. Finally, the median of audit fee over the client's total asset ratio for the going-concern group is 0.0006, and significantly higher than that for the clean report group, indicating the auditors charge higher fee for every dollar of asset for going-concern sub-sample. In terms of the auditors' identity, we note that for the clean opinion group, 5.27% are audited by the Big four, and for the going-concern group, only 0.84% are audited by the Big four. The difference is significant at the conventional level, indicating that the non-Big four firms are more likely to issue going-concern qualifications. However, a caution should be given here, because it is univariate analysis, and the audit opinion should be given based on a variety of factors. Hence it is necessary to conduct multivariate analysis.

Insert table 1 panel A

Table 1 panel B reports Pearson coefficients of the variables used in the paper. Current ratio, operating cash flows, return on assets, log(sales) are negatively related with going-concern opinions at the conventional significant level, indicating that the more liquid, the more profitable and the bigger the company is, the less likely it will receive a going-concern qualification. In contrast, leverage, loss indicator, and prior going-concern opinion is significantly and positively associated with current going-concern opinion. This suggests that more debt in capital structure, poorer performance and prior qualification can negatively affect auditor's opinion. In addition, we find positive association between audit *Feeratio* and going-concern opinion, but not significant at the conventional level.

Insert table 1 panel B

Multivariate analysis

We follow the prior literature and assume that higher audit quality implies, *ceteris paribus*, a higher likelihood of the auditor issuing a going-concern qualification (Francis and Krishnan 1999, Reynolds and Francis 2001, DeFond, Raghunandan and Subramanyam 2002, DeFond, Wong and Li 2003). Following Reynolds and Francis (2001), we use a logistic regression model in which a categorical audit opinion is regressed on a series of financial ratios, measures for audit independence and audit identity, and other control variables. The dependant variable is coded one if a going-concern opinion is received and zero if a clean opinion is received.

We attempt to investigate whether the likelihood of a going-concern qualification varies systematically with a series of financial ratios, audit fee ratio and auditor identity (in our setting, the Big four Vs. non-Big four) in the Chinese stock market, after controlling for other relevant factors. The remaining control variables are company size, the loss/profit status of the current year, and a dummy variable indicating prior going-concern opinion.

Size plays an important role in auditor's assessment of a going-concern, because big companies usually have more negotiation power with creditors and more resources to fend off the bankruptcy (Reynolds and Francis, 2001). We use the logarithm of sales to measure the size of the company. We also include the audit opinion received in the prior year as a control variable, as extant research find that auditors are more likely to issue going-concern qualifications if the client received the same report last year. More specifically, our logistic model is:

$$GC_{i,t} = b_0 + b_1 CR_{i,t} + b_2 OCF_{i,t} + b_3 ROA_{i,t} + b_4 Leverage_{i,t} + b_5 LOSS_{i,t} + b_6 Sales_{i,t} + b_7 PGC_{i,t} + b_8 Feeratio_{i,t} + b_9 BigFour_{i,t} + \varepsilon_{i,t}$$

where:

The subscript *i* stands for the firm, and *t* is the year of the observation;

GC = 1 if the auditor issued a going-concern qualification, 0 if the clean opinion is issued;

CR = current ratio = current assets/current liabilities;

OCF = cash flow from operations/total assets;

ROA = return on assets = net income/total assets;

Leverage = total liabilities/total assets;

LOSS = 1 if the client reported a loss during the year, 0 otherwise;

Sales = log(sales);

PGC = 1 if *GC* = 1 in the prior period, 0 otherwise;

Feeratio = (audit fee from a client/ the client's total asset)*1000;

BigFour = 1 if the auditor is a Big four auditor, 0 otherwise;

The variables of our interests are *financial ratios*, *audit fee ratio* and the *BigFour* indicator. Consistent with hypothesis 1, in our complete model (column 4), the coefficients of *CR*, *OCF*, *ROA* and *Leverage* are -1.0884, -7.1755, -4.6899 and 3.0379 respectively, and they are all significant at the conventional level. This result suggests that the Chinese auditors follow the going-concern auditing standard, and assess the client's financial situation and operation performance, in their issuance of going-concern qualifications. In addition, the coefficient of sales is -0.2849 ($p=0.0886$), indicating that auditors are less likely to issue qualified opinion for bigger firms. The coefficient of loss indicator is significantly positive (coefficient=1.6153, $p<0.0001$). Auditors use ROA to evaluate the firm's ability to generate profits. Once this ratio becomes negative, they will be more suspicious about the company's going-concern assumption. Finally, the going-concern qualification received in the prior year is positively related to the current year's going-concern qualification.

The coefficients of *Feeratio* and *BigFour* are 0.4009 and -2.8728, respectively, but neither of them is significant, suggesting that the audit fee to total asset ratio and the auditor identity do not play a role in auditor's going-concern qualification. In fact, in table 1 where we compare the mean and median differences between qualification subsample and the clean report subsample, we find that going concern group, on average, pays a higher audit price than the later, probably to compensate for more time and efforts involved with a going-concern qualification. We can conclude that the economic dependence does not compromise the audit independence, and the auditor identity is not associated with auditor opinion qualifications in China, consistent with our hypothesis 2 and 3.

Insert table 2

5. Conclusion

This research investigates the effect of financial ratios, audit fees, and audit identity (Big four vs. non-Big four) on auditor's going-concern qualifications. In particular, we choose an emerging market, Chinese stock market as our setting. There has been an extensive research regarding the relationship among financial ratios, economic dependence, the Big four and qualified opinions in developed countries, such as the U.S., Australia, etc. In those markets, audit professions are well developed and the regulations on auditing are sophisticated. In our paper, we attempt to answer the following questions: 1. Are the auditors in developing countries competent to issue audit opinions? 2. Do they maintain their independence with a client who pays a higher price for the audit? 3. Are they as capable and independent as the Big four auditors? These are interesting questions, but very important, since a mature audit profession can greatly facilitate the development of the Chinese stock market. We find that the Chinese auditors are more likely to issue going-concern opinions to firms with low liquidity, poor performance, less cash inflows, and high leverage. Second, we document that audit fee from a particular client (i.e., the economic importance of a client) does not affect auditor's qualified opinions, indicating the audit independence is not compromised by economic dependence.

Finally, we compare the propensity to issue going-concern opinions between the Big four and non-Big four, and we do not see significant difference between two types of auditors, showing that the audit quality in Chinese auditor is as good as the quality from the Big four.

Many research expressed concerns over the audit quality and independence in China in early 2000. DeFond, Wong & Li (1999) argued that the lack of demand for independent audit is detrimental to the audit profession. Tang (2000) pointed out that the involvement of the government in the CPA profession compromises the independence of auditors. To solve the independence issue, the MOF and CSRC started reforming CPA firms' structure by severing their ties with the related government agencies. All the CPA firms were required to delink from their sponsoring government agencies before 2001. CICPA kept revising its auditing standards at the same time. CICPA amended the going concern standard, No 17, in 2003, and issued a new one, to replace the old one in 2006. We choose to restrict our sample to the period after 2003, to examine whether the auditing quality has made progress or not. Our paper suggests that the Chinese auditors issue going concern qualifications based on the client's financial features, they do not compromise their independence when the client pays a higher price for the audit, and the likelihood to issue qualifications between the non-big Four and the big Four is indifferent.

We acknowledge some caveats of this paper. First, audit quality can also be measured by qualifications other than going-concern opinions or accrual quality. Our evidence is only based on going-concern qualifications. Second, the high audit quality documented in this paper could be due to a biased auditor sample (audit firms that can audit listed companies) used in the test. In China, only very top audit firms are licensed to audit listed companies, and they are under close supervision of the CICPA and CSEC. We cannot generalize our conclusion of the high audit quality of our sample audit firms to other audit firms in China, but our study supports investors' confidence in the financial reports of the listed companies in the Chinese stock market.

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Table 1: Descriptive statistics

Column	Whole sample		clean report sub-sample		qualification sub-sample		mean dif	median dif
	Mean	Median	Mean	Median	Mean	Median		
	(1)	(2)	(3)	(4)	(5)	(6)		
GC	0.054	0.000	0.000	0.000	1.000	1.000	0.044	
CR	1.6851	1.2093	1.7483	1.2323	0.6002	0.4541	1.1481***	***
CF	0.0421	0.0523	0.0570	0.0546	-0.2140	0.0100	0.271	***
ROA	0.4006	0.0315	0.0373	0.0333	6.6321	-0.0219	-6.5949	***
Sales	20.51	20.54	20.62	20.63	18.58	19.04	2.0376***	***
Leverage	0.6570	0.5161	0.4906	0.5041	3.5123	1.1148	-3.0217**	***
Loss	0.1324	0.0000	0.1103	0.0000	0.5210	1.0000	-0.4107***	***
PGC	0.0404	0.0000	0.0134	0.0000	0.5126	1.0000	-0.499***	***
Feeratio	0.0234	0.0076	0.0004	0.0003	0.0031	0.0006	-0.0027	***
AuditorID	0.0503	0.0000	0.0527	0.0000	0.0084	0.0000	0.044***	**
obs.	2,205		2,086		119			

GC= 1 if the auditor issued a going-concern qualification, 0 if a clean opinion is issued;

CR = current ratio= current assets/current liabilities;

OCF= cash flow from operations/total assets;

ROA = return on assets= net income/total assets;

Sales =log(sales);

Leverage = total liabilities/total assets;

LOSS = 1 if the client reported negative earnings during the year, 0 otherwise;

PGC = 1 if GC =1 in the prior period, 0 otherwise;

Feeratio = client audit fees/ client's total assets;

AuditorID = 1 if the auditor is a Big four auditor, 0 otherwise.

*** significant at the 0.01 level for two-tailed test;

**significant at the 0.05 level for two-tailed test;

*significant at the 0.10 level for two-tailed test.

Table 2: Pearson coefficients

	GC	CR	OCF	ROA	Sales	Leverage	Loss	PGC	Feeratio
CR	-0.1140 <.0001								
OCF	-0.1125 <.0001	-0.0034 0.8765							
ROA	-0.0921 <.0001	-0.0157 0.4681	-0.1000 <.0001						
Sales	-0.3091 <.0001	-0.1222 <.0001	0.0977 <.0001	-0.0573 0.0081					
Leverage	0.2131 <.0001	-0.0635 0.0033	-0.0849 <.0001	0.8451 <.0001	-0.0964 <.0001				
Loss	0.2738 <.0001	-0.1000 <.0001	-0.0240 0.2656	-0.0122 0.5723	-0.2075 <.0001	0.0211 0.3277			
PGC	0.5731 <.0001	-0.0987 <.0001	-0.0042 0.8460	0.1086 <.0001	-0.2731 <.0001	0.2282 <.0001	0.0694 0.0011		
Feeratio	0.1410 <.0001	0.0108 0.6836	-0.9881 <.0001	-0.0139 0.5989	-0.1482 <.0001	0.0331 0.2118	0.0064 0.8086	0.0240 0.3655	
AuditorID	-0.0458 0.0315	0.0046 0.8310	0.0093 0.6651	-0.0049 0.8205	0.2596 <.0001	-0.0118 0.5841	-0.0349 0.1016	-0.0472 0.0266	-0.0071 0.7880

Table 3: Multivariate analysis

	Exep. Sign	coef. Column 1	coef. Column 2	coef. Column 3	coef. Column 4
Intercept	?	2.434	1.6011	2.0356	0.6076
<i>p-value</i>		0.2951	0.6374	0.3932	0.8674
CR	-	-0.5031	-1.0861	-0.5088	-1.0884
<i>p-value</i>		0.184	0.0452	0.1805	0.0453
CF	-	-6.4953	-6.8379	-6.7041	-7.1755
<i>p-value</i>		<.0001	0.0011	<.0001	0.0006
ROA	-	0.4603	-4.5508	0.4846	-4.6899
<i>p-value</i>		0.5155	0.0408	0.4988	0.0355
Leverage	+	4.0318	3.0527	4.085	3.0379
<i>p-value</i>		<.0001	0.0003	<.0001	0.0004
Sales	-	-0.4501	-0.3349	-0.4304	-0.2849
<i>p-value</i>		<.0001	0.0313	<.0001	0.0886
Loss	+	2.5516	1.6142	2.5589	1.6153
<i>p-value</i>		<.0001	0.003	<.0001	0.003
PGC	+	2.9128	2.5114	2.8987	2.5105
<i>p-value</i>		<.0001	<.0001	<.0001	<.0001
Feeratio	?		322.6		0.4009
<i>p-value</i>			0.5459		0.4641
AuditorID	?			-1.6212	-2.8728
<i>p-value</i>				0.3641	0.3887