

Is Asymmetric Earnings Management Monitoring by Big Auditors the Same Around the World?

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Abstract: This research compares big auditors monitoring on income-increasing/income-decreasing earnings management between the U.S. and the other parts of the world, with the focus on income-decreasing earnings management. This is of interest because that the litigation arising from loss suffered by the outside investors motivates auditors, big auditors in particular, to monitor closely income-increasing (income-decreasing) earnings management in the U.S. (non-U.S.) firms. Outside shareholders of dispersedly owned U.S. firms do not suffer loss when firms decrease earnings by accounting discretions in times of good relative performance; while minority shareholders of concentrated owned non-U.S. firms suffer loss when firms engage in income-decreasing earnings management to expropriate minority shareholders in times of good relative performance. The results of this study show that big auditors are more effective (not better) than non-big auditors in monitoring income-decreasing earnings management in the non-U.S. (U.S.) sample. Further results indicate that big auditors monitoring on income-decreasing exists only in strong investor protection non-U.S. countries. The impact of big auditors on the income-decreasing earnings management is economically significant in the non-U.S. sample; the magnitude of income-decreasing abnormal accruals of big auditor clients is 16.40% smaller of the median pre-tax earnings compared with that of non-big auditor clients based on the analysis using DeFond and Park (2001) abnormal accruals.

Key words: *income-decreasing earnings management; agency problem.*

1. Introduction

Prior research (e.g. Becker et al. 1998) show that big auditors are more effective in constraining earnings management, supported by the evidence that discretionary accruals are significantly lower for big auditor clients than for non-big auditor clients. One exception is Kim et al. (2003), who provide empirical evidence that big auditors are less effective than non-big auditors in monitoring income-decreasing earnings management. They argue that concerns over litigation costs and loss of reputation motivate big auditors to monitor managers' income-increasing accrual choices more closely than income-decreasing accrual choices. Their U.S. empirical results show that when corporate managers have incentives to engage in income-increasing (income-decreasing) accrual choices, big auditors are more (less) effective than non-big auditors in monitoring opportunistic earnings management. This monitoring pattern on earnings management is referred as asymmetric monitoring. Is the asymmetric monitoring by big auditors the same between the U.S. and non-U.S. countries? To answer this question, this study draws on the recent cross-country ownership and agency problem research.

Recent studies (La Porta et al. 1999; Claessens et al. 2000; Faccio and Lang 2002) on ownership structures around the world provide a different view of ownership structure of Berle and Means (1932). La Porta et al. (1999, 511) find "The Berle and Means widely held corporation is only a common organizational form for large firms in ... the United States, Berle and Means actually had in mind. As we look outside the United States, ... largest firms tend to have controlling shareholders". Claessens et al. (2000) find that 1) two-thirds of listed firms are controlled by a single shareholder in nine countries of East

Asia; 2) corporate control is typically enhanced by pyramid structures and cross-holding among firms and results in separation of cash flow and voting rights. Furthermore, Faccio and Lang (2002) document that non-financial and small firms in Western Europe are often family-owned and owners gain control rights in excess of their cash flow rights. Separation of cash flow and voting rights gives controlling shareholders an incentive to expropriate the minority shareholders. As a result, the agency problem is different between the U.S. and other countries due to the different ownership structures.

Before proceeding on, I contrast my study with a concurrent paper by Francis and Wang (2007), which is related to my research. Francis and Wang (2007) provide international evidence of joint effects of big auditors and investor protection factors. They find that in extremely weak investor protection countries (investor protection is effectively zero), there is no significant difference regarding the earnings quality of big auditor clients and non-big auditor clients and investor protections do not work unless external big auditors effectively enforce the rules. However, Francis and Wang (2007) do not consider the different ownership structures and thereby agency conflicts between the U.S. and the other countries; consequently, they do not find that the U.S. is different from other strong investor protection countries regarding the impact of big auditors on earnings quality¹. This research is different from Francis and Wang (2007) and finds that the monitoring by big auditors on income-decreasing earnings management is different between the U.S. and other countries based on the ownership structures and agency problems. To this end, this study extends Kim et al. (2003) to an international setting to retest the asymmetric monitoring on earnings management by big auditors utilizing the

¹ Francis and Wang (2007) use three different measures of earnings quality: 1) signed abnormal accruals; 2) loss avoidance; 3) earnings conservatism.

experiment setting of the variation in agency problems caused by different ownership structures between the U.S. and non-U.S. countries. The following discussion illustrates how the ownership structures and the consequent agency conflicts affect the reporting incentives differently in both the U.S and other countries.

In the United States, the agency problem exists between outsider investors and managers. Shareholders of widely held corporation rely on earnings reported by managers to make investment and managers hiring/firing decisions. These managers, who operate and manage the firm on the daily basis, have two distinct reporting incentives. Based on Fudenberg and Tirole (1995) income smoothing and information decay theory, current performance carries more weight on management tenure decision; consequently, managers have an incentive to boost (save) earnings in poor (good) times borrowing future earnings (for use in the future poor times) to reduce the likelihood of dismissal. When managers inflate earnings in case of poor current relative performance, shareholders are very likely to suffer losses if they base their investments on the reported earnings.

In the non-U.S. countries, the agency problem comes from the conflicts between controlling and minority shareholders. Concentrated ownership and separation of cash flow and control rights means that controlling shareholders have incentives to expropriate minority shareholders. Haw et al. (2004) provide the empirical support on the view that controlling shareholders with control exceeding cash flow rights engage in earnings management by documenting the significant positive relation between absolute value of discretionary accruals and control-ownership divergences, using a sample from nine East Asian and 13 Western European countries. Controlling shareholders, sometimes the

management as well, have inside information and actually decide how the firms operate. On the other hand, minority shareholders can not access inside information and have to use publicly reported earnings to make investment decisions. When current relative performance is good, controlling shareholders have incentives to engage in income-decreasing earnings management to cover their stealing or tunneling behavior. On the contrary, when current relative performance is bad, controlling shareholders may even have incentives to boost earnings possibly by accruals choices to avoid bankruptcies or debt covenant violation so that they can steal in the future. Minority shareholders suffer losses when controlling shareholders manage reported earnings to cover wealth steal behavior in times of relatively good performance.

The above discussion shows that insiders (i.e. managers in the U.S. and controlling shareholders in the other countries) have incentives to manage reported accounting earnings. Although it is possible that insiders can manipulate earnings by both real operating and financial reporting choices, this research focuses on the discretions that the insiders exercise in determining reported earnings within the respective accepted accounting principles (i.e. discretionary or abnormal accruals) for two reasons. First, discretionary accruals are likely to be a particularly attractive vehicle for insiders to manage reported income because it is less costly than the use of real operating (investing) decisions (Haw et al. 2004). Second, this research investigates the different monitoring on earnings management by big auditors between the U.S. and the other countries. Because external auditors are legally responsible for certifying whether the financial reports represent fairly, in all material respects, the financial situation and operation results of the firms in conformity with respective accepted accounting principles based on

their audits, they have the incentives and resources to detect misreported earnings by the insiders' aggressive accounting discretion choices. However, auditors do not participate in operating or investing decisions and thereby auditors are irrelevant regarding detection of earnings management by real operating or investing decisions.

Furthermore, detecting and unravel the implication of earnings management by outsiders (i.e. investors in the U.S and external minority shareholders in other countries) is a daunting task because they are not likely to have the resources and incentives to collect relevant information to monitor insiders' actions. To mitigate this problem, auditors, big auditors in particular, are hired as an important external monitoring mechanism against accounting discretion choices to misrepresent earnings. Auditors have both the resources and expertise to unravel the earnings management. Prior studies show that big auditors play a corporate governance role in both the U.S. (e.g. Teoh and Wong 1993; Francis and Krishnan 1999) and the other parts of the world (Fan and Wong 2005). A stream of the U.S. research shows that big auditors constrain aggressive earnings management. For example, Francis et al. (1999) and Becker et al. (1998) provide evidence that big auditor clients have smaller abnormal accruals. Francis and Krishnan (1999) reported that big auditors are more likely to issue going concern opinions than non-big auditors. The standard explanation on why big auditors in the U.S. provide high quality monitoring role is that big auditors impose high quality earnings to protect against litigation and loss of reputation which arise from misleading financial reports by clients, in particular overly optimistic earnings reports (DeAnglo 1981).

Do big auditors play a monitoring role outside U.S.? Francis et al. (2003) and Francis and Wang (2007) provide empirical support that big auditors provide high quality audits

in strong investor protection countries than in weak ones. However, there is evidence that external auditors play a governance role even in weak legal environment. Using firm level data from eight countries in East Asia with relatively weak investor protection compared with the U.S., Fan and Wong (2005) document that firms with agency problem embedded in ownership structures (i.e. voting rights excess cash flow rights) are more likely to hire big auditors and consequently big auditor clients receive smaller share price discounts caused by agency conflicts. Using 39 countries data, Choi and Wong (2007) find that the demand on big auditors by equity issuers is greater in weak legal environment than in strong legal environment. This is so because that controlling owners can gain investors' confidence and attract capital from hiring external independent auditors, big auditors in particular, as credible monitoring and bonding mechanisms to assure the minority shareholders that their interests would be protected.

Outside the U.S., almost all countries have regulatory bodies in place to oversee the activities of auditors. Besides, auditors, including big auditors, do face risk of prosecution² although the frequency of lawsuits is lower in other countries compared with the U.S.. To the extent that the government supervision and litigation works, big auditors have incentives to monitor earnings management. To provide empirical evidence on this issue, this study further tests whether big auditors monitor income-decreasing (income-increasing) earnings management in strong/weak legal environment for the non-U.S. sample.

The results show a different asymmetric monitoring role by big auditors between the U.S. and non-U.S. countries. In the U.S., big auditors are more effective than (not

² Fan and Wong (2005) cite the prosecution on Ernst and Young by the Hong Kong High Court after its client, Akai Holdings, collapsed with U.S. \$1.72 billion loss.

significantly different from) non-big auditors in monitoring income-increasing (income-decreasing) earnings management when managers have incentives to boost earnings (decrease earnings); while in other countries, big auditors are more effective in monitoring income-decreasing earnings management when controlling owners have incentives to expropriate at the expense of minority shareholders in the situation of good current relative performance³. To sum up, this study finds that big auditors are more effective (not better) than non-big auditors in monitoring income-decreasing earnings management in the non-U.S. countries (U.S.). This is because that income-decreasing incentives (do not) present reporting conflicts for the non-U.S. (U.S.) firms.

This paper contributes to the existing literature on international audit quality studies by finding that big auditors are more effective (not better) than non big auditors in monitor income-decreasing earnings management in the non-U.S. countries (U.S.). This adds on the existing knowledge on the big auditors monitoring income-increasing/income-decreasing earnings management in the global setting.

The rest of the paper is organized as follows. The section 2 presents earnings management measures and the model specification. The section 3 describes the sample and reports the empirical results, including sensitivity and additional tests. Section 4 concludes.

³ The results also show that big auditor constrain income-increasing earnings management in non-U.S. sample, suggesting that controlling shareholders prop when current relative performance is poor. However, poor relative current performance is not sufficient for controlling shareholders to prop. Controlling shareholders prop firms with relative high ownership from the other firms with low ownership or prop firms to avoid bankruptcy.

2. Measurement of Variables and Research Design

2.1 Earnings Management Proxy

I measure earnings management by two abnormal accruals proxies. If the two different measures give the similar results, this will give more confidence that the two measures indeed capture earnings management. The first one is firm-specific abnormal accruals used in Francis and Wang (2007). Hereafter, I refer to this measure as DeFond and Park abnormal accruals since it is originated from DeFond and Park (2001). Specifically, DeFond and Park abnormal accruals of a firm are the difference between total accruals and expected accruals. The expected accruals, assumed to follow the linear expectation, are proportional to sales and gross property plant and equipment (hereafter PPE), and the proportion is the same as the prior year in terms of the ratio of current accruals to sales and the ratio of depreciation expenses to PPE. Francis and Wang (2007) illustrate how to calculate the expected abnormal accruals: assuming the ratio of current accruals to sales is 0.15 for a firm in year $t-1$, based on prior year sales of \$100 and prior current accruals of \$15; if sales in year t is \$120, the predicted current accruals of year t will be $\$120 \times 0.15 = \18 ; the same procedure applies to the predicted depreciation based on the prior year's ratio of depreciation to gross PPE. The advantage of this proxy is that it implicitly controls cross-country differences in accounting standards by using the firm itself as its own control in calculating abnormal accruals.

Using data from Compustat Global Industrial and Commercial file, I calculate the predicted accruals as the following:

$$\text{Predicted accruals} = \{[\text{Sales (\#1) in year } t \times (\text{current accruals in year } t-1 / \text{sales in year } t-1)] - [\text{gross PPE (\#77) in year } t \times (\text{depreciation in year } t-1(\#11- \#13)^4 / \text{gross PPE in year } t-1(\#77))]\} / \text{total assets (\#89) in year } t-1; \quad (1)$$

$$\text{Total accruals} = \{\text{Earnings before extraordinary items} - \text{Operating cash flows}\} / \text{total assets (\#89) in year } t-1; \quad (2)$$

$$\text{Abnormal accruals} = \text{Total accruals} - \text{predicted total accruals}; \quad (3)$$

$$\text{Earnings before extraordinary items} = \text{net income (\#32)} - \text{extraordinary items (\#33)}; \quad (4)$$

$$\text{Operating cash flows}^5 = \text{earnings before extraordinary items (as above)} + \text{depreciation and amortization (\#11)} + \text{change of deferred income tax (\#105)} + \text{change of untaxed reserve (\#108)} + \text{change in other liabilities (\#109)} + \text{minority interest (\#27)} - \text{current accruals (as defined below)}; \quad (5)$$

$$\text{Current accruals} = \text{change in non-cash working capital} = \Delta[\text{total current assets (\#75)} - \text{cash and short term investment (\#60)} - \text{treasury stock shown as current asset (\#73)}] - \Delta[\text{total current liabilities(\#104)} - \text{total amount of debt in current liabilities (\#94)} - \text{proposed dividends(\#102)}] \quad (6)$$

The second one is abnormal accruals calculated from Jones model (1991)⁶ (hereafter Jones model abnormal accruals). The model is estimated by industry and assumes that parameter estimates on firms' sales and PPE are industry specific. Haw et al. (2004) defend this approach by pointing out factors that potentially influence normal accruals vary significantly across industries.

$$TAC_t / Asset_{t-1} = a_0 + a_1(I/A_{t-1}) + b_1(\Delta REV_t / A_{t-1}) + b_2(PPE_t / A_{t-1}) + e \quad (7)$$

Where variables are defined for each firm year as follows:

⁴ As in Francis and Wang (2007), depreciation (#12) is computed as depreciation and amortization (#11) minus amortization (#13) because of missing values for depreciation on Compustat Global. If Amortization has missing values, it is assumed to be zero.

⁵ This definition of operating cash flows follows Ali and Hwang (2000) and Francis and Wong (2007), and missing values on deferred income taxes, untaxed reserves and minority interest are treated as zero.

⁶ Unreported tests also use the abnormal accruals from the Dechow and Dichev (2002) model. In this approach, the abnormal accruals are calculated as the residuals from regressing total accruals on the prior, current and future year CFOs. However, the abnormal accruals do not produce the expected results. This is because that this abnormal accruals measure is orthogonal with CFOs and thus results in low level of variation between relative good performance and poor performance situations, in which relative performance is defined using either prior year or industry median CFO as performance benchmark. Consequently, this measure of the abnormal accruals biases against finding the expected results.

TAC = total accruals defined as in equation (2) without being scaled by lagged total assets;
 A_{t-1} = lagged total assets;
 ΔREV = change in sales revenues;
 PPE = property, plant and equipment
 e = error term

I estimate the above regression in each industry (based on two-digit Standard and Industrial Classification codes) in the same year and requiring at least 20 observations for each two digit SIC code industry. Abnormal accruals are estimated as the residuals from the above regression.

2.2 Current Relative Performance Measure

I measure current relative performance by the difference between operating cash flows in the current year divided by lagged total assets (hereafter CFO) and prior year CFO. If the current CFO is greater (less) than the benchmark performance of prior year CFO, I define the current relative performance to be good (bad). In the sensitivity tests, I also use industry median CFO as the performance benchmark and the results are qualitatively similar.

2.3 The Accruals Model

The following model (Francis and Wang, 2007) is used to test the relation between abnormal accruals and big auditors

$$DAC = b_0 + b_1Big4 + b_2ISALES + b_3CFO + b_4LEV + b_5GROWTH + b_6\Delta PPE + b_7LAG_LOSS + fixed\ effects + e \quad (8)$$

where for each firm year:

DAC = abnormal accruals
 Big4 = dummy variable, equal to 1 if firm is audited by a big auditor
 ISALES = log of clients sales in \$ millions
 CFO = operating cash flows scaled by lagged total assets
 LEV = total liabilities/total assets
 GROWTH = sales growth rate, defined as the sales in year t minus sales in t-1 and scaled by sales in year t-1

ΔPPE	=	growth rate of gross property plant and equipment, defined as PPE in year t minus PPE t-1 and scaled by PPE t-1
LAG_LOSS	=	dummy variable, equal to 1 if firm reports negative income before extraordinary items in year t-1
Fixed effects	=	industry and year effects
e	=	error term

The above fixed effects model uses year-specific dummy variables to control for systematic time period effects and industry dummies based on two-digit SIC codes to control for industry effects. Other control variables are added based on prior research (e.g. Becker et al. 1998): 1) firm size (ISALES), measured by nature log of total sales, because prior studies document that large firms tend to have lower level of accruals than small firms; 2) operating cash flows deflated by lagged total assets (CFO) because of the well-documented inverse relation between operating cash flows and accruals; 3) leverage (LEV), for higher leverage creates the incentive to increase reported earnings to avoid debt covenant violation; 4) sales growth (GROWTH) and PPE growth (ΔPPE) due to firm growth affecting accruals; 5) prior year losses dummy (LAG_LOSS), proxy for financial distress and bankruptcy risk and therefore an incentive to increase reported earnings in the subsequent year.

3. Sample and Empirical Results

3.1 Data and Sample

I collect my sample and financial data from Compustat Global Industrial and Commercial file for the period 1994 to 2004 from the Wharton Research Data Services. Following Francis and Wang (2007), I exclude firm year observations with non-fully consolidated financial statements, those not audited and those with missing values for the dependent and independent variables. Next I exclude observations of Financial

Institutions (SIC 6000-6999). I further delete observations from Japan, South Korea, India and Pakistan for potential mis-coding of the auditor identification variable. Francis and Wang (2007) report that big auditor market shares of these four countries close to zero because big auditors practice through the name of a local affiliate and thus no precise way of determining which firms are audited by big auditors. Finally, I exclude observations that fall in the top and bottom 1% of abnormal accruals, those with absolute value of studentized residuals greater than 3 in the abnormal accruals analysis. After these screens, there are 49,314 firm year observations for the period 1996 to 2004⁷ in the abnormal accruals analysis when DeFond and Park abnormal accruals used. This sample size is different from 57,966 of Francis and Wang (2007) because I require the prior year CFO available. Sample observations are 55,258 when Jones model abnormal accruals used.

3.2 Empirical Results

<Table 1 here>

Table 1 reports the number of firm-year observations for each of the 42 countries for two analyses using different earnings management proxies. Among these countries, 12 (10) countries have less than 100 firm year observations, 21(20) countries have from 100 to 1000 firm year observations, and nine (12) countries have more than 1000 firm year observations for the DeFond and Park (Jones model) abnormal accruals analysis. Country level big auditors market share reported in Table 1 represent a wide range from 28% in the Philippines to 100% for Kenya (5 observations). Table 1 also presents country level investor protections, which are used in the sensitivity tests.

⁷ Please notice that to compute the prior CFO in both DeFond and Park and Jones model abnormal accruals analyses, a company must have observations for at least three consecutive years. Therefore, 1996 is the first test year.

<Table 2 here>

Table 2 reports the results of the univariate tests and seem to support that big auditors monitoring on income-increasing/income-decreasing earnings management is not different between the U.S. and non-U.S. samples. Panel A (B) of Table 2 presents results using DeFond and Park (Jones model) abnormal accruals. Panel A indicates when firms have income-decreasing (income-increasing) incentives, big auditor clients have significant bigger (smaller) discretionary accruals than non-big auditor clients in both the U.S. and non-U.S. sample; while Panel B shows that when firms have income-decreasing (income-increasing) incentives, big auditor clients have insignificant different level of (significant smaller) discretionary accruals compared with non-big auditor clients in both the U.S. and non-U.S. sample. Unreported correlation matrix analyses show negative and significant correlations between the abnormal accruals and big auditor dummy in either income-increasing or income-decreasing situations for both the U.S. and non-U.S. sample. Since univariate tests do not control for many factors that affect the abnormal accruals, I rely more on multivariate results.

Because univariate tests on control variables give the similar results using different earnings management proxies, I report the test results of control variables only in the panel A⁸. In general, Table 2 indicates that big auditor clients are larger in size in term of sales, higher operating cash flow, lower leveraged (with exception of U.S. income-increasing case), higher sales growth and PPE growth, less likely to incur loss in the prior year. This suggests the self-selection of big auditors. Since firms choose both earnings management accounting discretions and auditors, this self-selection may leads to finding

⁸ All the unreported results in this paper are available upon request from the author.

the relation between earnings management and big auditors. I address this self-selection issue in details in the sensitivity test.

<Table 3 here>

Table 3 presents the regression results. For brevity, I do not report the coefficients of year and industry dummies. Following Francis and Wang (2007), I use the procedure in Rogers (1993) to calculate t-statistics and p-values. Rogers (1993) procedures produce robust t-statistics and p-values, which control for country clustering effects and the common variance among observations within a particular country in addition to heteroscedasticity control⁹.

Panel A (B) of Table 3 reports the results using DeFond and Park(Jones model) abnormal accruals. Panel A shows the following. For the U.S. sample, when firms have income-increasing (income-decreasing) incentives, the coefficient on big auditor dummy is -0.020 and significant at less than 0.001 level (positive 0.006 and insignificant with p-value of 0.222); for the non-U.S. sample, when firms have income-decreasing (income-increasing) incentives, the coefficient on big auditor dummy is 0.007 and significant at less than 0.001 level (negative -0.011 and significant at less than 0.001 level). These support that big auditors are more effective (not better) than non-big auditors in constraining earnings management when clients have income-increasing (income-decreasing) earnings management in the U.S.; and that big auditors are more effective than non-big auditors in monitoring income-decreasing earnings management in the non-U.S. sample. In addition, the results show that big auditors are more effective than non-

⁹ In this analysis, the sample consists of 42 countries, and it is reasonable to believe observations might be correlated within each country (intra-cluster dependence). The Rogers (1993) approach treats each country as a cluster and estimates the variance as if there were only 42 observations and the corresponding t-values have 42 degrees of freedom.

big auditors in monitoring income-increasing earnings management for the non-U.S. sample. This may suggest that controlling shareholders could engage in income-increasing earnings management to avoid bankruptcy.

For brevity, Panel B of Table 3 reports only the regression coefficients on the big auditor dummy since the results on the control variables are qualitatively similar as those in Panel A. The results indicate that for the U.S. sample, big auditors are more (less) effective than non-big auditors in monitoring income-increasing (income-decreasing) earnings management; for the non-U.S. sample, big auditors are more effective than non-big auditors in monitoring income-decreasing (income-increasing) earnings management. Although I report the income-increasing incentive results of the non-U.S. sample for comparison, it lacks of theory to develop a testable hypothesis for this scenario.

3.3 Robust Tests

First, the unreported results using the industry median CFO¹⁰ as the performance benchmark are qualitatively similar as using prior year CFO. The results using the different abnormal accruals measures and performance benchmarks support that for the U.S. sample, big auditors are more effective than (not better than) non-big auditors in monitoring income-increasing (income-decreasing) earnings management; for the non-U.S. sample, big auditors are more effective than non-big auditors in constraining income-decreasing (income-increasing) earnings management.

<Table 4 here>

Second, based on the agency theory, this paper assumes that in concentrated owned firms, controlling shareholders with control exceeding cash flow rights have incentives to

¹⁰ In the tests using industry median CFO, I require at least 3 observations available for each industry in each year within a respective country.

expropriate minority shareholders particularly when current relative performance is good. Furthermore, Fan and Wong (2005) provides empirical evidence that firms with control and ownership wedge (i.e. control exceeding cash flow rights) are more likely to hire big auditors. To provide some support on the assumption and ease the concern that the big auditors may proxy for the control and ownership wedge, I rerun the regression controlling for control and ownership wedge using 22 non-U.S. countries (13 western European countries and nine East Asia countries)¹¹, in which the control and ownership wedge widely exists documented by prior research (Claessens et al. 2000; Faccio and Lang 2002). Table 4 only reports the results when the DeFond and Park abnormal accruals are used as the dependent variable and prior year CFO as the performance benchmark. Using Jones model abnormal accruals and industry median CFO as the performance benchmark produces qualitatively similar results. The results in Table 4 show that the coefficient on control and ownership wedge is negative and significant (positive and insignificant) in the income-decreasing (income-increasing) incentives sample. This provides support that firms with control exceeding ownership engage in earnings-decreasing earnings management when current relative performance is good. The results in Table 4 also show the big auditor coefficient is positive and significant (negative and significant) in income-decreasing (income-increasing) incentives controlling for control and ownership wedge for the non-U.S. sample. Thus, prior results are not caused by big auditor being a proxy for control and ownership wedge.

<Table 5 here>

¹¹ 13 countries in Faccio and Lang (2002) are Austria, Belgium, Finland, France, Germany, Ireland, Italy, Norway, Portugal, Spain, Sweden, Switzerland, and U.K.. Nine countries in Claessens et al. (2000) are Hong Kong, Indonesia, Japan, Korea, Malaysia, Philippines, Singapore, Taiwan and Thailand.

Third, Francis and Wang (2007) provide evidence that big auditors in strong investor protection impose high earnings quality on clients. To check whether the results documented previously is concentrated in strong investor protection countries, I rerun the regressions in the strong and poor investor protection countries separately for the non-U.S sample. I use two different ways to group countries as strong/weak investor protection: 1) a country is a strong (weak) investor protection one if the country level anti-director rights index is above (below) the median; 2) a country is a strong (weak) investor protection one if it is a common (code) law country. The common law and anti-director rights index produce qualitatively similar results. To save space, Table 5 reports the coefficient of big auditor dummy only using anti-director rights as a proxy for investor protections because the coefficients on control variables are qualitatively similar as reported previously. The results of Table 5 show that big auditors monitoring on income-decreasing earnings management exists only in strong investor protection non-U.S. sub-sample.

Fourth, to address the concern that the countries with smaller numbers of observations driving the results, I rerun the regressions with countries of at least 1000 observations. Unreported results show that previously documented relations are qualitatively unchanged using only countries with more than 1000 firm-year observations. <Table 6 here>

Fifth, I address the self-selection issue not using the two-stage Heckman treatment effect model because of the multicollinearity between the inverse Mills ratios and big auditor dummy. The variance inflation factor on the inverse Mills ratios is about 20 in U.S sample and around 97 in the non-U.S. sample. Adding the inverse Mills ratios in the

second stage changes the sign of the coefficient of big auditor dummy. However, I address this self-selection issue in the following approach. Based on the results of Francis and Wang (2007) that investor protections without big auditor enforcement do not impose high earnings quality on firms, I examine the effect of investor protections on income-decreasing/income-increasing earnings management separately for big auditor and non-big auditor clients of the non-U.S. sample. Following Francis and Wang (2007), I use five measures of country level investor protections: 1) common law dummy; 2) the anti-director rights index; 3) the disclosure index; 4) the litigation index; 5) the public enforcement index¹². Since using Jones model abnormal accruals and industry median CFO as the performance benchmark produces similar results, I only report the results using the DeFond and Park abnormal accruals and prior year CFO as the performance benchmark for brevity. Consistent with Francis and Wang (2007), the results of Table 6 show that investor protections constrain income-decreasing earnings management only for big auditor clients, but not for non-big auditor clients. This is consistent with the argument of Francis and Wang (2007) that non-big auditors do not respond to the legal incentives as big auditors because they do not have the same reputation capital at risk as big auditors and hence do not have as strong incentives to enforce higher earnings quality.

The above analysis provides assurance that the findings documented in this paper are unlikely solely driven by the self-selection for two reasons. First, the documented results of this paper are consistent with the predictions based on theory. Second, the tests of the effect of investor protections on income-decreasing/income-increasing earnings

¹² Country level common law or code law data is from La Porta et al. (2002). Anti-director rights index is from La Porta et al. (1998); the disclosure, litigation and public enforcement index are from La Porta et al. (2006).

management separately in both big auditor and non-big auditor samples avoid the issue of the self-selection, yet produce the results as predicted.

Sixth, Kim et al. (2003) use share-increasing and share-decreasing transactions as another proxy for income-increasing and income-decreasing incentives in their sensitivity tests. I do not follow Kim et al. (2003) in this test because the sample size reduces dramatically to 3,186 firm-year observations requiring two-consecutive-year outstanding shares available from Compustat Global to calculate share increases/decreases. However, based on the finding of Choi and Wong (2007)'s international study that firms with equity issuance are more likely to hire big auditors, I check whether the results are driven by firms issuing equity. I redo the previous analyses for firms with equity issuance and firms without equity issuance, where equity issuers are defined as firms issuing shares or long-term debt in the prior year. Unreported results show that the previous results exist in both the equity issuer and the non-equity issuer samples.

3.4 Economic Magnitude

To compute the economic magnitude of the impact of big auditors on constraining income-decreasing earnings management for the non-U.S. sample, I report a percentage effect on the pre-tax earnings. Base on the coefficient from Panel A of Table 3, big auditors mitigate income-decreasing abnormal accruals of a magnitude of 0.7% of lagged total assets for the non-U.S sample. Given the median lagged total assets (pre-tax earnings) of 455.065 (19.032) million dollars, this translates into the reduction of abnormal accruals as 16.40% of the median pre-tax earnings. On the other hand, based on the coefficient from Panel B, the impact of big auditor on income-decreasing abnormal accruals is 4.10% of the median pre-tax earnings given the median pre-tax earnings

(lagged total assets) is 16.805 (411.640) million dollars. These indicate that the impact of big auditors on income-decreasing earnings management in the non-U.S. countries is economically significant.

4. Conclusion and Discussion

Ownership structures differ between the U.S. and non-U.S. countries and thereby create different agency problems in nature. Specifically, agency conflicts exist between managers and external shareholders (controlling shareholders and outside minority shareholders) in widely held U.S. (concentrated owned non-U.S.) firms. The different ownership structures and agency conflicts between the U.S. and other countries affect the reporting incentives and big auditors monitoring on accounting discretion choices differently.

In the U.S. firms, managers, motivated by keeping their tenure with the firms, have incentives to manage earnings by income-increasing (income-decreasing) accounting choices when current relative performance is poor (good). Outside shareholders, who invest based on reported earnings, are likely to sue big auditors if they suffer loss due to overstated earnings. The litigation risk leads to big auditors being more effective (not better) than non-big auditors in monitoring income-increasing (income-decreasing) earnings management. On the contrary, for the non-U.S. countries, controlling shareholders with control and ownership divergence have incentives to engage in income-decreasing accounting choices to expropriate minority shareholders (i.e. steal) when current relative performance is good. Minority shareholders are more likely to sue

big auditors when they suffer losses due to stealing by controlling shareholders. This in turn motivates big auditors to monitor income-decreasing earnings management.

The results of this study show that big auditors are more effective than (insignificant different from) non-big auditors in monitoring income-decreasing earnings management in the non-U.S. countries (the U.S.). Furthermore, big auditors monitoring on income-decreasing earnings management concentrates only in strong investor protection non-U.S. countries, which is consistent with that big auditors monitoring incentives come from litigation embedded in the strong investor protection legal environment.

What is the implication of the study? The policy implication on harmonizing global auditing and financial reporting standards is that the uniform audit and financial reporting standards may not be effective as expected because the different ownership structures and thereby the agency conflicts, which vary around the world, create different reporting incentives. Specifically, for widely held firms (for concentrated owned firms with control and ownership wedge), the audit quality and financial reporting plays a more important role in protecting outside shareholders when the firms' relative performance is poor (good). The implication for cross country research, cross-country earnings management study in particular, is that researchers should treat the U.S. and other countries differently in their analysis not only because the U.S. has unusually large number of observations, but also because the different ownership structures between the U.S. and other countries can affect the reporting incentives (e.g. earnings management) in different ways.

The two different earnings management proxies used in the study give similar results and this provides assurance that the two measures capture earnings management with relative accuracy. However, as with many other studies on earnings management, the

validity of the finding is subject to how the abnormal accruals accurately capture earnings management.

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TABLE 1
Big Auditors' Market Share and Investor Protection Measures for the 42 Countries

Country	# of observations (1)	# of observations (2)	Big auditor market share	COMMON	ANTIDIR	DISREQ	LITSTD	PUBENF
Argentina	71	82	76.83%	0	4	0.5	0.22	0.58
Australia	1730	1684	81.71%	1	4	0.92	1	0.9
Austria	278	371	48.52%	0	2	0.25	0.11	0.17
Belgium	111	445	64.49%	0	0	0.42	0.44	0.15
Brazil	428	573	90.92%	0	3	0.25	0.33	0.58
Canada	2843	2764	93.09%	1	5	0.92	1	0.8
Chile	395	316	87.97%	0	5	0.58	0.33	0.6
Colombia	40	54	50.00%	0	3	0.42	0.11	0.58
Denmark	683	814	86.12%	0	2	0.58	0.55	0.37
Egypt	9	14	50.00%	0	2	0.5	0.22	0.3
Finland	553	622	73.95%	0	3	0.5	0.66	0.32
France	379	2747	43.25%	0	3	0.75	0.22	0.77
Germany	2601	2963	47.35%	0	1	0.42	0	0.22
Greece	60	235	31.91%	0	2	0.33	0.5	0.32
Hong Kong	692	712	89.19%	1	5	0.92	0.66	0.87
Indonesia	791	843	50.42%	0	2	0.5	0.66	0.62
Ireland	303	323	88.85%	1	4	0.67	0.44	0.37
Israel	115	192	49.48%	1	3	0.67	0.66	0.63
Italy	694	693	94.08%	0	1	0.67	0.22	0.48
Jordan	3	4	75.00%	0	1	0.67	0.22	0.6
Kenya	6	5	100.00%	1	3	0.5	0.44	0.7
Malaysia	3126	3604	65.46%	1	4	0.92	0.66	0.77
Mexico	186	368	75.54%	0	1	0.58	0.11	0.35
Netherlands	962	1075	92.00%	0	2	0.5	0.89	0.47
New Zealand	318	330	91.82%	1	4	0.67	0.44	0.33
Norway	587	651	92.01%	0	4	0.58	0.39	0.32
Peru	50	77	72.73%	0	3	0.33	0.66	0.78
Philippines	374	405	28.15%	0	3	0.83	1	0.83
Portugal	51	185	34.59%	0	3	0.42	0.66	0.58
Singapore	1840	2003	87.27%	1	4	1	0.66	0.87
South Africa	383	438	86.99%	1	5	0.83	0.66	0.25
Spain	127	555	92.43%	0	3	0.5	0.66	0.33
Sri Lanka	13	14	92.86%	1	3	0.75	0.39	0.43
Sweden	1285	1308	81.88%	0	3	0.58	0.28	0.5
Switzerland	905	1120	76.34%	0	2	0.66	0.44	0.33
Taiwan	789	818	75.79%	0	3	0.75	0.66	0.52
Thailand	1100	1345	36.36%	1	2	0.92	0.22	0.72
Turkey	48	68	82.35%	0	2	0.5	0.22	0.63
United Kingdom	6605	6829	82.27%	1	5	0.83	0.66	0.68
United States	17757	17575	93.83%	1	5	1	1	0.9
Venezuela	15	28	92.86%	0	1	0.17	0.22	0.55
Zimbabwe	8	6	83.33%	1	3	0.5	0.44	0.42

Note: # of observations (1) (2) report observations in the DeFond and Park abnormal accruals (Jones model abnormal accruals) analysis for each country. COMMON equals 1 if a country has a common law origin and 0 otherwise, which is from La Porta et al. (2002). ANTIDIR is the anti-director rights index from La Porta et al. (1998). DISREQ, LITSTD, PUBENF are the disclosure index, the litigation standard index, the public enforcement index respectively from La Porta et al. (2006).

TABLE 2
Results of Univariate Tests between Big Auditor and Non-big Auditor Clients

Panel A1: U.S. sample

income-decreasing incentives (CFO > prior year CFO)								
Variables	Big auditor clients N=8339			non-Big auditor clients N=581			t value	z value
	Mean	Median	Std Dev	Mean	Median	Std Dev		
DAC	-0.052	-0.040	0.112	-0.068	-0.058	0.144	2.58	3.99
ISALES	5.929	5.966	1.782	4.080	4.080	1.760	24.2	17.81
CFO	0.118	0.123	0.159	0.100	0.116	0.182	2.39	1.59
LEV	0.497	0.453	0.361	0.576	0.441	0.667	-2.86	-0.90
GROWTH	0.173	0.102	0.366	0.116	0.064	0.381	3.64	4.25
ΔPPE	0.156	0.086	0.315	0.120	0.057	0.336	2.57	3.99
LAG_LOSS	0.339	0	0.473	0.411	0	0.493	-3.57	-3.57

income-increasing incentives (CFO < prior year CFO)								
Variables	Big auditor clients N=8277			non-Big auditor clients N=560			t value	z value
	Mean	Median	Std Dev	Mean	Median	Std Dev		
DAC	0.041	0.025	0.106	0.064	0.049	0.133	-4.01	-6.03
ISALES	5.971	5.982	1.767	4.256	4.263	1.596	24.43	17.81
CFO	0.029	0.056	0.153	-0.01	0.019	0.174	5.12	5.67
LEV	0.490	0.446	0.336	0.479	0.363	0.409	0.59	4.45
GROWTH	0.116	0.074	0.327	0.076	0.046	0.303	3.01	3.66
ΔPPE	0.158	0.089	0.313	0.123	0.060	0.344	2.36	4.80
LAG_LOSS	0.209	0	0.407	0.27	0	0.444	-3.12	-3.36

Panel A2: non-U.S. sample

income-decreasing incentives (CFO > prior year CFO)								
Variables	Big auditor clients N=12030			non-Big auditor clients N=3762			t value	z value
	Mean	Median	Std Dev	Mean	Median	Std Dev		
DAC	-0.066	-0.050	0.112	-0.074	-0.061	0.125	3.68	5.49
ISALES	6.177	6.099	2.125	5.769	5.667	2.305	9.65	8.07
CFO	0.128	0.120	0.131	0.116	0.108	0.127	5.00	5.90
LEV	0.555	0.504	0.395	0.597	0.521	0.499	-4.76	-2.91
GROWTH	0.106	0.069	0.327	0.084	0.056	0.342	3.50	3.03
ΔPPE	0.089	0.052	0.301	0.070	0.041	0.305	3.30	4.93
LAG_LOSS	0.278	0	0.448	0.32	0	0.467	-4.94	-5.05

income-increasing incentives (CFO < prior year CFO)								
Variable	Big auditor clients N=11955			non-Big auditor clients N=3810			t value	z value
	Mean	Median	Std Dev	Mean	Median	Std Dev		
DAC	0.049	0.033	0.109	0.062	0.042	0.123	-5.71	-4.95
ISALES	6.163	6.075	2.132	5.866	5.735	2.298	7.06	6.25
CFO	0.031	0.049	0.133	0.012	0.030	0.131	7.57	9.56
LEV	0.559	0.499	0.418	0.597	0.508	0.516	-4.23	-1.94
GROWTH	0.076	0.053	0.326	0.045	0.037	0.315	5.26	3.98
ΔPPE	0.088	0.057	0.300	0.061	0.040	0.288	4.93	6.92
LAG_LOSS	0.183	0	0.386	0.227	0	0.419	-5.75	-5.99

Panel B1: U.S. sample

income-decreasing incentives (CFO > prior year CFO)								
	Big=1 N=8500			Big=0 N=554				
	Mean	Median	Std Dev	Mean	Median	Std Dev	t value	z value
DAC	-0.026	-0.017	0.088	-0.021	-0.014	0.109	0.89	0.96
income-increasing incentives (CFO < prior year CFO)								
	Big=1 N=7990			Big=0 N=531				
	Mean	Median	Std Dev	Mean	Median	Std Dev	t value	z value
DAC	0.024	0.020	0.083	0.046	0.034	0.106	-4.61	-5.65

Panel B2: non-U.S. sample

income-decreasing incentives (CFO > prior year CFO)								
	Big=1 N=13747			Big=0 N=5140				
	Mean	Median	Std Dev	Mean	Median	Std Dev	t value	z value
DAC	-0.028	-0.018	0.084	-0.029	-0.018	0.090	0.85	0.30
income-increasing incentives (CFO < prior year CFO)								
	Big=1 N=13651			Big=0 N=5145				
	Mean	Median	Std Dev	Mean	Median	Std Dev	t value	z value
DAC	0.034	0.027	0.088	0.038	0.032	0.081	-2.70	-3.97

Note: t value is the parametric t-test results on the difference of mean values and z value is the nonparametric Wilcoxon z-test on the difference of median values.

Panel A1 and A2 use DeFond and Park abnormal accruals and prior year CFO performance benchmark; Panel B1 and B2 use Jones model abnormal discretionary accruals and prior year CFO the performance benchmark.

Variable definitions:

- DAC = abnormal accruals
- Big4 = dummy variable, equal to 1 if firm is audited by a big auditor
- ISALES = log of clients sales in \$ millions
- CFO = operating cash flow for firm I in year t scaled by lagged total assets
- LEV = total liabilities/total assets
- GROWTH = sales growth rate, defined as the sales in year t minus sales in t-1 and scaled by sales in year t-1
- ΔPPE = growth rate of gross property plant and equipment, defined as PPE in year t minus PPE t-1 and scaled by PPE t-1
- LAG_LOSS = dummy variable, equal to 1 if firm reports negative income before extraordinary items in year t-1

TABLE 3
Results of Regressing Earnings Management on Big Auditor Dummy and Control Variables

Model: $DAC = b_0 + b_1Big4 + b_2ISALES + b_3CFO + b_4LEV + b_5GROWTH + b_6\Delta PPE + b_7LAG_LOSS + fixed\ effects + error$

Panel A1: U.S. sample

Variables	Full U.S. sample		Income-decreasing incentives (CFO > prior year CFO)		Income-increasing incentives (CFO < prior year CFO)	
	Estimate	p value	Estimate	p value	Estimate	p value
Intercept	-0.008	0.140	-0.072	0.000	0.039	0.000
Big4	-0.008	0.027	0.006	0.222	-0.020	0.000
ISALES	0.005	0.000	0.005	0.000	0.001	0.220
CFO	-0.241	0.000	-0.154	0.000	-0.098	0.000
LEV	-0.013	0.000	-0.011	0.001	-0.004	0.315
GROWTH	0.032	0.000	0.024	0.000	0.068	0.000
ΔPPE	0.026	0.000	0.009	0.04	0.029	0.000
LAG_LOSS	-0.011	0.000	0.025	0.000	0.007	0.039
N	17757		8920		8837	
R2	0.11		0.093		0.114	
adjR2	0.107		0.088		0.110	

Panel A2: non-U.S. sample

Variables	Full non-U.S. sample		Income-decreasing incentives (CFO > prior year CFO)		Income-increasing incentives (CFO < prior year CFO)	
	Estimate	p value	Estimate	p value	Estimate	p value
Intercept	0.010	0.004	-0.057	0.000	0.046	0.000
Big4	-0.002	0.332	0.007	0.001	-0.011	0.000
ISALES	0.004	0.000	0.004	0.000	0.001	0.001
CFO	-0.373	0.000	-0.230	0.000	-0.196	0.000
LEV	-0.011	0.000	-0.019	0.000	0.000	0.963
GROWTH	0.025	0.000	0.007	0.017	0.055	0.000
ΔPPE	0.033	0.000	0.018	0.000	0.040	0.000
LAG_LOSS	-0.022	0.000	0.013	0.000	0.000	0.916
N	31557		15792		15765	
R2	0.159		0.095		0.112	
adjR2	0.158		0.092		0.109	

Panel B: Jones model abnormal accruals and prior year CFO as the benchmark

Variables	U.S.				non-U.S.			
	Income-decreasing incentives (CFO > prior year CFO)		Income-increasing incentives (CFO < prior year CFO)		Income-decreasing incentives (CFO > prior year CFO)		Income-increasing incentives (CFO < prior year CFO)	
	Estimate	p value	Estimate	p value	Estimate	p value	Estimate	p value
Big4	-0.008	0.041	-0.019	0.000	0.002	0.097	-0.004	0.001
N	9054		8521		18887		18796	
R ²	0.134		0.104		0.278		0.188	

Note: p values are two tail and robust to heteroscedasticity and country clustering effects using the method in Rogers (1993).

Panel A use DeFond and Park abnormal accruals and prior year CFO as performance benchmark.

Variable definitions:

- DAC = abnormal accruals
- Big4 = dummy variable, equal to 1 if firm is audited by a big auditor
- ISALES = log of clients sales in \$ millions
- CFO = operating cash flow for firm I in year t scaled by lagged total assets
- LEV = total liabilities/total assets
- GROWTH = sales growth rate, defined as the sales in year t minus sales in t-1 and scaled by sales in year t-1
- ΔPPE = growth rate of gross property plant and equipment, defined as PPE in year t minus PPE t-1 and scaled by PPE t-1
- LAG_LOSS = dummy variable, equal to 1 if firm reports negative income before extraordinary items in year t-1
- Fixed effects = industry and year effects

TABLE 4
Regression Results Controlling for Control and Ownership Wedge

$$\text{Model: } DAC = b_0 + b_1\text{Big4} + b_2\text{WEDGE} + b_3\text{ISALES} + b_4\text{CFO} + b_5\text{LEV} + b_6\text{GROWTH} + b_7\Delta\text{PPE} + b_8\text{LAG_LOSS} + \text{fixed effects} + \text{error}$$

Variable	Income-decreasing incentives (CFO > prior year CFO)		Income-increasing incentives (CFO < prior year CFO)	
	Estimate	p value	Estimate	p value
Intercept	-0.053	0.000	0.041	0.000
Big4	0.007	0.002	-0.012	0.000
WEDGE	-0.054	0.010	0.009	0.635
ISALES	0.003	0.000	0.002	0.000
CFO	-0.228	0.000	-0.213	0.000
LEV	-0.017	0.000	-0.003	0.170
GROWTH	0.012	0.002	0.056	0.000
Δ PPE	0.013	0.003	0.038	0.000
LAG_LOSS	0.012	0.000	0.002	0.546
N	11533		11658	
R ²	0.087		0.114	

Note: p values are two tail and robust to heteroscedasticity and country clustering effects using the method in Rogers (1993).

Variable definitions:

- DAC = abnormal accruals
- Big4 = dummy variable, equal to 1 if firm is audited by a big auditor
- WEDGE = the difference between voting rights and cash flow rights
- ISALES = log of clients sales in \$ millions
- CFO = operating cash flow for firm I in year t scaled by lagged total assets
- LEV = total liabilities/total assets
- GROWTH = sales growth rate, defined as the sales in year t minus sales in t-1 and scaled by sales in year t-1
- Δ PPE = growth rate of gross property plant and equipment, defined as PPE in year t minus PPE t-1 and scaled by PPE t-1
- LAG_LOSS = dummy variable, equal to 1 if firm reports negative income before extraordinary items in year t-1
- Fixed effects = industry and year effects

TABLE 5
Strong and Weak Investor Protections

Panel A: DeFond and Park abnormal accruals and prior year CFO as performance benchmark

Variable	ANTIDIR \geq 3				ANTIDIR $<$ 3			
	Income-decreasing incentives (CFO $>$ prior year CFO)		Income-increasing incentives (CFO $<$ prior year CFO)		Income-decreasing incentives (CFO $>$ prior year CFO)		Income-increasing incentives (CFO $<$ prior year CFO)	
	Estimate	p value	Estimate	p value	Estimate	p value	Estimate	p value
Big4	0.006	0.017	-0.010	0.000	0.005	0.232	-0.003	0.449
N	11512		11599		4280		4166	
R ²	0.104		0.106		0.097		0.152	

Panel B: Jones model abnormal accruals and prior year CFO as performance benchmark

Variable	ANTIDIR \geq 3				ANTIDIR $<$ 3			
	Income-decreasing incentives (CFO $>$ prior year CFO)		Income-increasing incentives (CFO $<$ prior year CFO)		Income-decreasing incentives (CFO $>$ prior year CFO)		Income-increasing incentives (CFO $<$ prior year CFO)	
	Estimate	p value	Estimate	p value	Estimate	p value	Estimate	p value
Big4	0.002	0.200	-0.006	0.000	0.000	0.830	0.002	0.341
N	13639		13658		5248		5138	
Rsquare	0.262		0.182		0.319		0.234	

Note: p values are two tail and robust to heteroscedasticity and country clustering effects using the method in Rogers (1993). ANTIDIR is the anti-director rights index from La Porta et al. (1998). Median ANTIDIR score is 3.

TABLE 6
Joint Effect of Investor Protections and Big Auditors

Model: $DAC = b_0 + b_1INVPRO + b_2ISALES + b_3CFO + b_4LEV + b_5GROWTH + b_6\Delta PPE + b_7LAG_LOSS +$
fixed effects + error

Panel A: big auditor clients

	b_1	COMMON	ANTIDIR	DISREQ	LITSTD	PUBENF
Income-decreasing incentives (CFO > prior year CFO)	coefficient	0.012	0.004	0.017	0.013	0.008
	p value	0.000	0.000	0.002	0.001	0.123
Income-increasing incentives (CFO < prior year CFO)	coefficient	-0.007	-0.006	-0.007	-0.007	-0.002
	p value	0.001	0.000	0.191	0.072	0.751

Panel B: non-big auditor clients

	b_1	COMMON	ANTIDIR	DISREQ	LITSTD	PUBENF
Income-decreasing incentives (CFO > prior year CFO)	coefficient	0.002	0.002	0.001	-0.001	-0.014
	p value	0.668	0.317	0.922	0.902	0.128
Income-increasing (CFO < prior year CFO)	coefficient	0.007	-0.002	-0.002	-0.009	-0.004
	p value	0.080	0.234	0.865	0.144	0.604

Note: to save space, I report only the coefficient on investor protection variables; p values are two tail and robust to heteroscedasticity and country clustering effects using the method in Rogers (1993).

Both Panel A and B use DeFond and Park abnormal accruals and prior year CFO as performance benchmark.

Variable definitions:

- DAC = abnormal accruals
- Big4 = dummy variable, equal to 1 if firm is audited by a big auditor
- INVPRO = proxies of investor protection, measured in five ways:
 1. COMMON equals 1 if a country has a common law origin and 0 otherwise, which is from La Porta et al. (2002).
 2. ANTIDIR is the anti-director rights index from La Porta et al. (1998).
 3. DISREQ is the disclosure index from La Porta et al. (2006).
 4. LITSTD is the litigation standard index from La Porta et al. (2006).
 5. PUBENF is the public enforcement index from La Porta et al. (2006).
- ISALES = log of clients sales in \$ millions
- CFO = operating cash flow for firm I in year t scaled by lagged total assets
- LEV = total liabilities/total assets
- GROWTH = sales growth rate, defined as the sales in year t minus sales in t-1 and scaled by sales in year t-1
- ΔPPE = growth rate of gross property plant and equipment, defined as PPE in year t minus PPE t-1 and scaled by PPE t-1
- LAG_LOSS = dummy variable, equal to 1 if firm reports negative income before extraordinary items in year t-1