

# EFFECTS OF AUDIT QUALITY, CULTURE VALUE, AND FIRM' SIZE ON EARNINGS REPORTING QUALITY

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## *Abstract*

This study investigates the association between audit quality, culture value, size of firm and earnings reporting quality, using a sample of 328 transportation firms for the period of 2004-2009 in seven Asian countries. This study fails to confirm that Big 4 auditors function as a constraint on earnings management practices. However, the empirical evidence reveals that firms in the countries scoring high on uncertainty avoidance tend to have lower levels of earnings management and thus higher quality of reported earnings. This study results also strongly support the political costs hypothesis which argues that larger firms are subject to more public scrutiny and political actions therein exhibiting less aggressive earnings management behavior.

**Keywords:** Audit quality, Culture, Size of firm, Earnings reporting quality, Transportation firms.

## **Abstrak**

*Penelitian ini menguji hubungan antara kualitas audit, nilai budaya, ukuran perusahaan dan kualitas laba yang dilaporkan, dengan menggunakan 328 perusahaan transportasi sebagai sampel untuk periode 2004-2009 pada tujuh negara di Asia. Penelitian ini gagal menunjukkan bahwa auditor dalam grup "The Big 4" berfungsi sebagai penghambat praktik manajemen laba. Akan tetapi, bukti empiris menunjukkan bahwa perusahaan-perusahaan di negara-negara yang memiliki skor budaya "penghindaran ketidakpastian" yang tinggi cenderung memiliki tingkat manajemen laba yang rendah dan oleh karena itu laba yang dilaporkan memiliki kualitas yang tinggi. Hasil penelitian ini juga sangat mendukung hipotesis biaya politik yang berpendapat bahwa perusahaan-perusahaan yang lebih besar lebih menjadi perhatian publik dan aksi politik yang ada di dalamnya menunjukkan perilaku manajemen laba yang tidak begitu agresif.*

**Kata Kunci:** *Kualitas audit, Budaya, Ukuran perusahaan, Kualitas pelaporan laba, Perusahaan transportasi.*

## **INTRODUCTION**

This study investigates the relationship between culture value, audit quality, and size of firms and earnings reporting quality in 328 listed transportation firms of seven key Asian countries (China, Hong Kong, India, Japan, Korea, Malaysia and Singapore). These countries represent well the Asian work ethic in that they offer a mixed sample of economic vibrancy, impact of the Global Financial Crisis (GFC), size, cultural and business ethos. Evidence on corporate management behavior in managing reported earnings has been reported

extensively in subsequent earnings management research. However, there are fewer insights within Asia and no known studies examining earnings management, and thus quality of earnings, in the transportation industry.

Transportation is a high profile industry in that it affects all aspects of business and government (Gong, Firth and Cullinane 2006). Transportation services are inextricably linked with the world economy and technological development. The significance of the transportation industry has been acknowledged since the 18th century, Adam Smith (1776) noted that shipping is one of the major catalysts of

economic development. Transportation is also a highly capital-intensive industry (Rodrigue 2010). The large sums of money involved in investment and infrastructure need careful investment decisions thus the financial performance of transportation companies is of major importance particularly to investors and financial analysts (Gong *et al.* 2006).

In recent times the transportation industry has faced two significant problems: the energy and global economic crises. There have been tremendous variances in global oil prices both up and down, since the fourth quarter of 2007 with prices skyrocketing by mid-2008. These events clearly had a major impact on their business performance specifically operation costs as transportation firms are large consumers of energy, especially oil<sup>1</sup>. Approximately 25% of world's energy demands and more than 55% of all the global oil consumption each year is attributed to transportation activities (Rodrigue and Comtois 2009). In addition, the global economic crisis that began in July 2007 reduced demand for transportation services resulting in a substantial decrease in revenues. The combination of these two crises has had a complex but negative effect on the transportation firms. These negative impacts on transportation firm's financial performance placed substantial pressure on managers to manage their firm's reported earnings (Gramlich 1992).

Earnings management is an issue of ongoing international importance to investors, policy makers, market analysts and public at large. In recent years, this topic has spawned many academic studies (e.g., Arya, Glover and Sunder 2003; Imhoff 2003) due to the rising number of high profile accounting scandals (e.g., Enron, Parmalat, HIH Insurance, Informatics group). These unanticipated scandals erode investors' confidence in financial reporting quality and arguably impede the efficient flow of capital in financial markets

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<sup>1</sup> The spiking of oil prices has major economic consequences for the transportation companies and the wider economy. An oil price spike, in fact, creates a snowball effect driving up both wholesale and consumer prices as a result of increased transportation costs.

(Jackson and Pitma 2001). The inherent discretion in accounting standards allows corporate management to exercise judgment in preparing their financial reports. This judgment permits management to select or change accounting methods exercising their judgment in order to increase, decrease or smooth earnings figures, creating opportunities for earnings management (Atik 2009).

This study generates new insights on three main fronts. Firstly, this study, using data from several different country settings provides further evidence on the incentives of company managers to manage their reported earnings. Previous studies (e.g., Burgstahler and Dichev 1997; Degeorge, Patel and Zeckhauser 1999; Burgstahler and Eames 2006; Daske, Gebhardt and McLeay 2006; Gore, Pope and Singh 2007) generally limit their sample to U.S. or European firms. Using data from the Asian region generates broader insights and builds a better international profile of the earnings management behavior in an area of vastly increasing international economic importance. Secondly, Asian countries are characterized as possessing relatively weaker corporate governance systems and facing lower litigation risks than the U.S. or European countries (Shleifer and Vishny 1997; Leuz, Nanda and Wysocki 2003; Jaggi and Leung 2007). These differences in corporate governance structures and litigation risks are expected to influence the level of earnings management in unique ways. Thirdly, this study improves the focus and limits exogenous issues by focusing solely upon the transportation industry. Recent energy and global economic crises have had a marked negative impact on both cost of operation and revenue of transportation firms, which in turn increases pressure on their financial performance (Jaggi and Lee 2002; Steven 2002; Agarwal, Chomsisengphet, Liu and Rhee 2007; Charitou, Lambertides and Trigeorgis 2007). Such circumstances encourage corporate management to 'creatively' manage the firm's reported earnings (Gramlich 1992).

The remainder of this paper is organized as follows. The next section establishes the theoretical framework underlying the beha-

viator of earnings management. Section 3 describes the research design. Primary results including descriptive statistics, correlations and regression analysis are presented in Section 4. Key results of the study and implications for future research are discussed in Section 5.

## LITERATURE REVIEW AND HYPOTHESES DEVELOPMENT

This study, in response to both the growing concern for earnings quality and calls for more empirical research in academic literature, investigates the effects of culture value, audit quality and size of firm on the quality of financial reporting. Consistent with previous research (e.g., Francis, LaFond, Olsson and Shipper 2004; Velury and Jenkins 2006; Ball and Shivakumar 2008; Tong and Miao 2011), the current study employs earnings management as proxies for quality of financial reporting. Earnings management occurs when management take deliberate steps within the constraints of GAAP (Generally Accepted Accounting Principles) to bring about a desired level of reported earnings (Tseng and Lai 2007). Numerous studies have investigated whether managers manage reported earnings opportunistically under the flexibility of accounting rules.

The first group of literature explores management incentives to manage reported earnings around corporate events. Related topics include initial public offerings (e.g., Rangan 1998; Teoh, Welch and Wong 1998a; Teoh, Wong and Rao 1998; Teoh, Welch and Wong 1998b; Shivakumar 2000; Bergstresser, Desai and Rauh 2006) and firm's acquisitions (e.g., Perry and Williams 1994; Erickson and Wang 1999; Louis 2004; Bergstresser *et al.* 2006).

A second group of literature looks at managerial motivation to manage accounting earnings in response to their performance incentive schemes. These studies included, for example, bonus schemes (Healy 1985), stock-based incentives (e.g., Coles, Hertzzel and Kalpathy 2003; Bergstresser and Philippon 2006; Burns and Kedia 2006), and dividend payments (Kasanen, Kinnunen and Niskanen 1996; Daniel, Denis and Naveen 2008).

A third classification of earnings management literature considers whether corporate management manages reported earnings to meet certain earnings benchmarks. Burgstahler and Dichev (1997) propose that firms appear to manage earnings upwards to avoid reporting losses and reporting earnings decreases. They state that an unusually low frequency of firms have small negative and small declines in earnings and an unusually high incidence of firms report small positive and small increases in earnings. Additionally, DeGeorge *et al.* (1999) argue that management face strong incentives to manage reported accounting earnings to: (1) report zero or positive earnings, (2) sustain recent financial performance, and (3) meet analysts' earnings forecasts. This position is supported by Burgstahler and Eames (2006) who found that U.S. firms' managers are more likely to report earnings that meet or beat analyst estimates.

This study adds to the second strand of literature and explores the impact of the culture value, auditor quality, and firm size on the earnings reporting quality of the sample companies.

### Role of the Auditor?

Watts and Zimmerman (1986) and DeAngelo (1981) argue that auditor quality depends on the relevance of the auditor's report in examining contractual relationships and reporting breaches. In other words, Bartov *et al.* (2000) suggest that higher quality auditors prefer to report errors and irregularities and are unwilling to accept questionable accounting practices. Therefore, it is posited that high quality auditors are expected to be more likely to detect the practice of earnings management (Becker, DeFond, Jiambalvo and Subramanyam 1998). It is felt that Big 4 audit firms may provide higher quality than those non-Big 4 (DeAngelo 1981; Watts and Zimmerman 1986; Becker *et al.* 1998; Caneghem 2004). The Big 4 auditors have strong incentives to provide or maintain a high audit quality level due to the fact that they have: (1) a greater number of clients, (2) more opportunity to deploy significant resources to auditing (recruitment, training and technology),

and (3) more to lose, for example termination of other clients, loss of reputation, when they do not report a discovered breach (Caneghem 2004; Chung, Firth and Kim 2005).

Findings reported in numerous studies clearly support that the Big 4 auditors serve as an earnings management constraint. Using U.S. data, Becker *et al.* (1998) show that clients of Big 4 auditors report discretionary accruals relatively smaller than the discretionary accruals reported by clients of non-Big 4. Krishnan (2003) documents that Big 4 auditors are able to constrain aggressive and opportunistic reporting of discretionary accruals by their clients compared to non-Big 4 auditors. Francis *et al.* (1999) argue that even though clients of Big 4 firms report higher level of total accruals, they have lower amounts of discretionary accruals. Based on U.K. sample, Gore, Pope and Singh (2001) suggest that cases of high levels of non-audit services Big 4 firms are more able to constrain earnings management than their counterparts. Chen, Lin and Zhou (2005) note that Big 4 auditors associate with less earnings management for Taiwan IPO firms. However, using a sample of Belgian publicly listed firms, Bauwhede *et al.* (2003) report that the superior performance of Big 4 over non-Big 4 auditors is only in the case of income-increasing earnings management.

Taken together, the evidence presented from these studies strongly indicates that Big 4 auditors have more incentives to detect and constrain earnings management behavior than non-Big 4 auditors. Thus, the first hypothesis is: H<sub>1</sub>: Big 4 auditors have more incentive to constrain earnings management behavior in the transportation firms in the Asia region.

### **Role of the Culture Value?**

Accounting theorists (Gray 1988) links cultural values to accounting values and practices, while Hofstede (1983) quantifies his cultural dimensions among countries. Based on data from more than 116,000 questionnaires answered by employees of a large multinational corporation in 72 countries, Hofstede's (1983) classifies four factors underlying differences

in nations' cultural values; these are individualism, power distance, uncertainty avoidance, and masculinity. These factors provide information about cultural differences across nations. Hofstede (1991) also notes the role of a fifth dimension of culture, long-term versus short term orientation in life. However, there are difficulties to test the effect of accounting values on earnings management due to measurement of accounting values and their relationship to cultural values. Therefore, to infer indirectly that accounting values affect earnings management, this study examines whether a meaningful and significant relationship between Hofstede's cultural values and earnings management exist.

This study proposes that accounting values affect the choices of earnings management as different accounting practices result in different choices of accounting accruals. Among the most Hofstede's (1983) classification of the cultural values on earnings management, only Uncertainty Avoidance (UA) has a straightforward relationship with earnings management. By definition, when a nation avoids risk and creates security by emphasizing technology and buildings, laws and rules, and religion, it is considered high in UA. A weak UA society maintains a more relaxed atmosphere in which practice counts more than principles and deviance is more easily tolerated. In line with Guan and Pourjalali (2010), this study expects that company managers in high UA nations are less likely to manage their reported accounting earnings.

Therefore, this research examines the hypotheses in relation to the cultural values suggested by Hofstede (1983), as follow:

H<sub>2</sub>: Higher degree of Uncertainty Avoidance in a nation has less incentive to practice earnings management.

### **Does Size matter?**

Some scholars suggest that firm size may influence earnings management behavior. Specifically, they argue that large firms are subject to more public scrutiny (Moses 1987) and are more politically sensitive (Watts and Zimmerman 1986) than small firms. Thus, it is ex-

pected that larger firms tend to manage income relative to smaller firms. Previous studies (e.g., Lilien and Pastena 1982; Sutton 1988) find that large firms are more likely to engage in income-decreasing accounting practices to avoid political actions of regulators. However, Wong (1988), Moyer (1990) and Scott (1991) report inconsistent results with the firm size hypothesis. In addition, Ashari, Koh, Tan and Wong (1994) advance an opposing view arguing that larger firms are more closely scrutinized by analysts and investors, therefore, more information is made available regarding those firms. Consequently, smoothed income signals from larger firms add little value to the firms; in other words, large firms have less incentive to smooth income figures. Based on mixed results to date, this study proposes a non-directional third hypothesis is:

H<sub>3</sub>: Client firm size influences earnings management behavior of the transportation firms in the Asia region.

### RESEARCH METHODOLOGY

This study examines transportation companies in China, Hong Kong, India, Japan, Korea, Malaysia, and Singapore for fiscal years ending 2004 to 2009. All financial data is gathered from One Source database. The initial population comprised the entire population of all 395 firms or 2,370 firm year observations that are grouped into five transportation classifications (airlines, railroads, trucking, water and miscellaneous transportation). Full financial statements could not be collected for every year or every firm. This left a final useable sample of 328 companies or 1,640 firm-year observations for the statistical analysis.

The number of firm-year observations used in the tests was reduced to 1,094 because one extra year data is needed to compute discretionary accruals (a proxy for earnings management). Table 1 presents an overview of the number of firm-year observations and transportation firm classifications per each of the seven countries.

This study employs unexpected or discretionary accruals as a proxy for earnings management. Consistent with contemporary studies in earnings management, this study focuses on the absolute (unsigned or non-directional) value rather than the actual sign of discretionary accruals as a proxy for earnings management. The magnitude of unsigned discretionary accruals is the best measure to indicate the opportunistic behavior of management without any concern as to whether they manage earnings numbers upwards or downwards (Francis *et al.* 1999; Ferguson, Seow and Young 2004; Walker 2004). Prior to estimating discretionary accruals, total accruals (TAC) are calculated as:

$$TAC_{jt} = (\Delta CA_{jt} - \Delta Cash_{jt}) - (\Delta CL_{jt} - \Delta LTD_{jt} - \Delta ITP_{jt}) - DPA_{jt} \quad (1)$$

Where:

$TAC_{jt}$  = total accruals for firm  $j$  in time period  $t$ ;  $\Delta CA_{jt}$  = change current assets for firm  $j$  from time period  $t-1$  to  $t$ ;  $\Delta Cash_{jt}$  = change cash balance for firm  $j$  from time period  $t-1$  to  $t$ ;  $\Delta CL_{jt}$  = change current liabilities for firm  $j$  from time period  $t-1$  to  $t$ ;  $\Delta LTD_{jt}$  = change long-term debt included in current liabilities for firm  $j$  from time period  $t-1$  to  $t$ ;  $\Delta ITP_{jt}$  = change income tax payable for firm  $j$  from time period  $t-1$  to  $t$ ; and  $DPA_{jt}$  = depreciation and amortization expense for firm  $j$  from time period to  $t$ .

**Table 1:** Data set: Number of firm-year observations and transportation firm classifications per country

Country	Firm-year observations					Transportation firm classifications					
	2006	2007	2008	2009	Total	Airlines	Railroads	Trucking	Water	Miscellaneous	Total
China	62	65	69	1	197	18	11	0	46	122	197
Hong Kong	12	19	25	4	60	5	0	0	15	40	60
India	15	13	15	11	54	7	2	1	38	6	54
Japan	127	127	130	121	505	24	48	144	119	170	505
Korea	34	34	34	0	102	6	3	30	45	18	102
Malaysia	27	28	27	4	86	18	0	10	23	35	86
Singapore	24	25	28	13	90	10	0	13	38	29	90
Total	301	311	328	154	1,094	88	64	198	324	420	1,094

TAC is then decomposed into normal accruals (NAC) and discretionary accruals (DAC) using the cross-sectional *modified* Jones (1991) model defined formally as:

$$TAC_{jk,t} / TA_{jk,t-1} = \alpha_{jt} [1/ TA_{jk,t-1}] + \beta_{jt} [(\Delta REV_{jk,t} - \Delta REC_{jk,t}) / TA_{jk,t-1}] + \gamma_{jt} [PPE_{jk,t} / TA_{jk,t-1}] + \varepsilon_{jk,t} \quad (2)$$

Where:

TAC<sub>jk,t</sub> = total accruals for firm *j* in industry *k* in year *t*; TA<sub>jk,t-1</sub> = are total assets for firm *j* in industry *k* at the end of year *t-1*; ΔREV<sub>jk,t</sub> = change net sales for firm *j* in industry *k* between years *t-1* and *t*; ΔREC<sub>jk,t</sub> = change in receivables for firm *j* in industry *k* between years *t-1* and *t*; PPE<sub>jk,t</sub> = gross property, plant and equipment for firm *j* in industry *k* in the year *t*; α<sub>j</sub>, β<sub>j</sub>, γ<sub>j</sub> = industry specific estimated coefficients; and ε<sub>j</sub> = error term.

NAC is defined as the fitted values from Equation 2 whilst DAC is the residual (TAC minus NAC).

To control compounding influences of cross-sectional factors, this study incorporates control variables in the regression analysis. This study includes absolute value of total accruals (*ABSTAccruals*) to control for a firm's 'accrual-generating potential' (Becker *et al.* 1998). Firms with higher absolute values of total accruals are likely to have greater discretionary accruals (Krishnan 2003). Thus, the current study expects a significant positive coefficient on the *ABSTAccruals* variable. *Leverage* is included as prior studies show that firms have a propensity to smooth reported earnings to avoid violating debt covenants and to decrease the cost of debt (Carlson and Bathala 1997). In addition, some scholars (e.g., Healy and Palepu 1990; DeFond and Jiambalvo 1994; Sweeney 1994) posit that firms with a higher likelihood of violating debt agreements are more likely to have an incentive to increase earnings. This study argues that firms with a higher level of debt have more incentive to manage reported earnings. The proxy variable for level of debt is the ratio of total debt to total equity of the previous year. Pre-

vious studies (e.g., Dechow, Sloan and Sweeney 1995; Kothari, Leone and Wasley 2002) report discretionary accruals is dependent on a firm's financial performance. This is because financial performance may affect corporate management's opportunistically to manage earnings figures. Furthermore, financial performance may influence a firm's audit risk (e.g., Gul, Chen and Tsui 2003; Krishnan 2003). Thus, return on assets (*ROA*) is used to control for the possible compounding influences of a firm's financial performance. Tseng and Lai (2007) state that more profitable firms are associated with less earnings management. Thus, this study expects that the coefficient of this variable is significantly negative associated with the level of earnings management. *ROA* is defined as the ratio of earnings before extraordinary items to total assets of prior year. Furthermore, this study includes a variable of *Invest* measured by the level of investment in tangible fixed assets in current year scaled by total assets of previous year. This variable can result in smaller total accruals due to the associated increase in depreciation expense. This current study predicts a significant and negative coefficient on this variable. Becker *et al.* (1998) and Reynolds and Francis (2001), amongst others, report cash flow from operations influence corporate management actions in managing earnings. Thus, this study includes *CFO* to control for discretionary accruals dependence on cash flow from operations and predict a negative association between *CFO* and the level of earnings management. Finally, this study includes a variable of legal origin as another variable that is considered will influence the practices of earnings management. Proxy measures for the dependent, independent and control variables are defined in Table 2.

To test the hypotheses on audit quality, culture value and size of firm, this study develops the following multivariate model:

$$AbsDAC_i = a_i + \alpha_{i1} Auditquality_i + \alpha_{i2} Culture_i + \alpha_{i3} Size_i + \alpha_{i4} Leverage_i + \alpha_{i5} ROA_i + \alpha_{i6} AbsTAC_i + \alpha_{i7} Invest_i + \alpha_{i8} CFO_i + \alpha_{i9} Legal_i + \varepsilon_i$$

**Table 2:** Variables’ definition and description

Variable	Definition	Prediction
<i>Dependent variable</i> AbsDAC	Discretionary accruals of firm <i>i</i> for year <i>t</i> measured by Modified Jones (1991) model	-
<i>Independent variables</i> AuditQuality	Indicator variable with firm <i>i</i> scored 1 if their auditor in fiscal year <i>t</i> is a Big-4; zero otherwise	-
Culture	Cultural values for each country are obtained from Hofstede and Bond (1988).	?
Size	Natural logarithm of total assets of firm <i>i</i> for their fiscal year <i>t</i>	+
<i>Control variables</i> AbsTAC	Absolute value of total accruals for firm <i>i</i> divided by total assets for firm <i>i</i> for year <i>t-1</i>	+
Leverage	Ratio of book value total debt of firm <i>i</i> for year <i>t</i> to book value total equity of firm <i>i</i> for year <i>t-1</i>	-
ROA	Ratio of earnings before extraordinary items of firm <i>i</i> for year <i>t</i> to book value total assets of firm <i>i</i> for year <i>t-1</i>	-
Invest	The amount of the increase or decrease in tangible fixed assets for firm <i>i</i> from year <i>t-1</i> to year <i>t</i> , scaled by last year’s total assets	-
CFO	Cash flow from operations for firm <i>i</i> during the year <i>t</i> deflated by total assets as at end of year <i>t-1</i> .	-
Legal	Indicator variable with firm <i>i</i> scored 1 if Common Law country; zero otherwise	?

**RESULTS AND DISCUSSION**

Table 3 provides the descriptive statistics for the dependent, independent and control variables. Panel A shows the descriptive statis-

tics for the continuous variables in the regression model. Panel B exhibits details for the categorical variables.

**Table 3:** Descriptive statistics dependent, independent and control variables

<i>Panel A – Continuous variables</i>					
	Mean	Median	Std. Dev.	Minimum	Maximum
<i>AbsDAC</i>	0.0846	0.0488	0.1131	0.0001	0.7475
<i>Culture</i>	64.65	85.00	30.37	8.00	92.00
<i>ROA</i>	0.0076	0.0024	0.1000	-0.5932	0.7784
<i>Leverage</i>	1.2020	0.6700	2.2418	-34.8400	28.7300
<i>AbsTAC</i>	0.0841	0.0464	0.1163	0.0000	0.7728
<i>Invest</i>	0.0889	0.0476	0.1959	-1.1413	0.9070
<i>CFO</i>	-0.0613	-0.0499	0.2510	-3.9701	3.3908
<i>FSize (in th USD)</i>	2,982,587	500,721	7,979,247	2,733	102,499,038
<i>Panel B – Categorical variables</i>					
	Frequency		Percentage (%)		
<i>Audit quality:</i>					
<i>Non Big 4</i>	521		47.62		
<i>Big 4</i>	573		52.38		
<i>Legal:</i>					
<i>Non Common law</i>	804		73.49		
<i>Common law</i>	290		26.51		

**Legend:** See Table 2 for full definitions and descriptions for the study’s dependent, independent and control variables.

Table 3 shows that the mean and median absolute values of total accruals (*AbsDAC*) are 8.46% and 4.88% of total assets at the beginning of the year. The data reveals that number of firms that have positive and negative discretionary accruals is 537 and 557 firms respectively. This implies that more companies engage in income-decreasing compared to income-increasing earnings management. In regard to the uncertainty avoidance cultural dimension, on average, the index score is 64.65 ranging from the lowest 8 (Singapore) and the highest 92 (Japan). Return on assets (ROA) averages 0.76% ranging from -59.32% to 77.84%. Consistent with the low ROA, those firms generate, on average, negative amounts (-6.13% of the beginning total assets) of cash flow from operations. Ratio total debt to total equity (Leverage) has a mean of 120%. The average absolute value of total accruals (*AbsTAC*) is 8.41% of total assets at the beginning of the year. On average, amount of the increase in tangible fixed assets for scaled by last year's total assets is 8.89%. The sample firms have a mean total assets of USD2,982,587 thousand. Finally, around 52% of the sample firms use the services of Big 4 audit firms and 27% of the sample firms are from common law countries.

Table 4 depicts a correlation matrix between the dependent, experimental and control variables. The upper half of each panel reports Pearson pairwise correlation coefficients ( $cr_p$ ), the lower half shows Spearman correlation coefficients ( $cr_s$ ). The correlation results do not provide comprehensive support for the study's hypotheses. *AbsDAC* is negatively and significantly (at  $p < 0.01$ ) correlated with *Culture* and *Size* both for Pearson and Spearman correlations. This infers that countries with higher uncertainty avoidance scores and large size firms are less likely involved in earnings management practices. In addition, Table 4 shows a positive but insignificant correlation between *Audit Quality* and *AbsDAC*. This evidence is not consistent with the hypothesis and previous studies that Big 4 auditors appear to constrain manager's discretions in adopting earnings management practices.

Table 4: Pearson correlation matrix

	<i>AbsDAC</i>	Audit quality	<i>Culture</i>	<i>Size</i>	<i>AbsTAC</i>	Leverage	ROA	Invest	CFO	Legal
<i>AbsDAC</i>										
Audit quality	0.001									
<i>Culture</i>	-0.300*	0.180*								
<i>Size</i>	-0.152*	0.225*	0.092*							
<i>AbsTAC</i>	0.669*	-0.007	-0.407*	-0.094*						
Leverage	-0.028	0.052	0.265*	0.270*	-0.001					
ROA	0.130*	-0.036	-0.189*	-0.011	0.112*	-0.124*				
Invest	0.192*	0.071*	-0.253*	0.039	0.227*	0.027	0.130*			
CFO	-0.070*	-0.033	0.338*	-0.044	-0.241*	0.158*	-0.235*	-0.212*		
Legal	0.208*	0.249*	-0.774*	-0.139*	0.261**	-0.175*	0.089*	0.134*	-0.175*	

Legend: \* and \*\* indicate significance at  $p < 0.01$  and  $p < 0.05$  (based on two-tailed tests). See Table 2 for full definitions and descriptions for the dependent, independent and control variables.

Findings also show a significant correlation (both  $cr_p$  and  $cr_s$ ) amongst independent variables. The highest correlation is between *Audit Quality* and *Size*, with a coefficient of 0.235 and 0.225 ( $p < 0.01$  both  $cr_p$  and  $c_{rs}$ ). In respect to correlations between independent and control variables, and amongst control variables themselves, the highest correlations are between *Culture* and *Legal*, with a coefficient of 0.774 at  $p < 0.01$ . This value is below the crit-



ical limit of 0.80. Variance inflation factors calculated for all regressions reported in Table 5 for all independent and control variables provide further indications that multicollinearity is not a problem in the model estimations (Hair, Anderson, Tatham and Black, 1995; Greene 1999; Cooper and Schindler, 2003).

The main results for testing the hypotheses are reported in Table 5. Regression model estimates reported in Table 5 is statistically significant (F-statistic  $p < 0.01$ ). The coefficient on *Audit quality* is positive but insignificantly associated with *AbsDAC*. Therefore,  $H_1$  is not supported. Findings reported in numerous studies clearly support that the view Big 4 auditors serve as a barometer of higher levels of audit quality. Several studies have supported this surrogate measure (e.g., Dopuch and Simunic 1982; Becker *et al.* 1998;

Francis *et al.* 1999; Gore *et al.* 2001; Bauwhede *et al.* 2003; Krishnan 2003; Chen *et al.* 2005; Kanagaretnem, Lim and Lobo 2010). This study fails to confirm that in Asia, Big 4 auditors function as a constraint on earnings management practices.

A consistent finding is that *Culture* is negatively and significantly at p-value of 0.001 associated with *AbsDAC* thus  $H_2$  is supported. This result infers that firms in the countries scoring high on uncertainty avoidance (AU) tend to have lower levels of earnings management and therefore higher quality of reported earnings. Further analysis (see Table 6) reveals that countries with higher score of UA have significantly lower levels of earnings management compared with their counterpart. This finding is consistent with Guan and Pourjalali (2010).

**Table 5:** Multiple regression results

	Prediction	Beta	t-statistic	p-value
(Constant)			7.207	0.000
<i>Independent Variables:</i>				
Audit quality	-	0.005	0.923	0.356
Culture	-	0.001	-3.483	0.001
Size	?	-0.008	-4.808	0.000
<i>Control Variables:</i>				
AbsTAC	+	0.382	20.962	0.000
Leverage	+	0.001	1.148	0.251
ROA	-	-0.030	-1.622	0.105
Invest	-	-0.015	-2.424	0.016
CFO	-	-0.086	-7.745	0.000
Legal	?	0.007	0.673	0.501
Model Summary				
R-Squared			0.420	
Adj. R-Squared			0.415	
F-Statistic			87.205*	
Sample Size			1,094	

**Legend:** \*, \*\*, and \*\*\* indicate significance at  $p < 0.01$ ,  $p < 0.05$  and  $p < 0.10$  respectively (based on two-tailed tests). See Table 2 for full definitions and descriptions for the dependent, independent and control variables.

**Table 6:** Uncertainty avoidance sub-samples<sup>2</sup>

	N	Earnings Management			
		Mean	SD	t-value	Sig
<i>Low</i>	487	0.1245	0.1489	10.130	0.000
<i>High</i>	607	0.0525	0.0546		
	<b>1,094</b>				

<sup>2</sup> Firm *i* is defined as *High* score if it has above the mean value of uncertainty avoidance; otherwise defined as *Low* score.

**Table 7:** Size of firm sub-samples<sup>3</sup>

	N	Earnings Management			
		Mean	SD	t-value	Sig
<i>Small</i>	877	0.0899	0.1175	3.713	0.000
<i>Large</i>	217	0.0628	0.0902		
	<b>1,094</b>				

Finally, the finding of this study confirms that large size firms exhibit less aggressive earnings management behavior. Specifically, the coefficient on *Size* is negative and significant (at p-value of 0.000) associated with earnings management measure. Additional analysis (see Table 7) shows that large sample firms have significantly lower (0.0628 versus 0.0899) levels of earnings management than those small firms.

Apart from the independent variables, the coefficient of absolute value of total accruals (*ABSTAccruals*) is positively and significantly (p-value of 0.000) associated with the absolute value of discretionary accruals. This finding is consistent with prior works (e.g., Frankel, Johnson and Nelson 2002; Ashbaugh, LaFond and Mayhew 2003; Balsam, Krishnan and Yang 2003). Coefficient on *ROA* is negative but only significant at the bottom line level. This result confirms the argument that behavior in earnings management is adversely associated with company performance: the better the company's financial performance the lesser the tendency to manage reported earnings (Firth 1997; Frankel *et al* 2002; Ashbaugh *et al* 2003; Ferguson *et al* 2004). In addition coefficients on *Invest* and *CFO* are all negative and significant (at p-values of 0.016 and 0.000 respectively) meaning that firms with a greater level of investment in fixed assets and larger cash flows from operations are less likely to manage income figures. These results directly conflict with several previous non-Asian studies (Dechow *et al.* 1995; Kaszni 1999; Bauwhede *et al.* 2003; Butler, Leone and Willenborg 2004) that document that firms with high perfor-

mance and growth are more likely to relate to the amount of managed earnings.

## CONCLUSION

The purpose of this study is to identify factors that may impact earnings management, thus quality of reported earnings. Based on the literature review, this study infers three factors: audit quality, culture and the size of firms. This study does not find evidence that Big 4 auditors work as a constraint for earnings management practices by corporate managers. Hunt and Lulseged (2007) suggest that one possible explanation is that the Big 4 audit market has dramatically decreased, especially after the global influence of the *Sarbanes-Oxley Act of 2002*, as substantial numbers of audit clients of Big 4 auditors are switching to non-Big 4 audit firms. This phenomenon results in a smaller Big 4 audit market and thus larger economic dependence of the Big 4 auditors on their remaining audit clients. Another possibility that might explain the decline of Big 4 auditors' quality is that this study utilizes a dataset from the countries in which external auditors face lower litigation risks compared to countries like U.S. or U.K. The Big 4 auditors may have very little incentive to report conservatively due to the lack of auditor litigation in many Asian countries.

The multivariate regression analyses reveal that culture and firm's size influence earnings reporting quality corporate management. Countries with high score of uncertainty avoidance are more likely to have lower levels of earnings management and therefore higher quality of reported earnings. In addition, the result of this study strongly supports the political costs hypothesis which argues that in comparison to smaller firms, larger firms are subject to more public scrutiny and political actions (Watts and Zimmerman 1986; Moses

<sup>3</sup> This study partitions the full sample into small and large firm sub-samples using the mean of total assets (USD\$2,982,587 thousands) as a basis for partitioning cut-off.

1987). In particular, larger firms have incentives to choose the accounting procedures that result in reducing reported earnings. Several previous studies provide confirmatory evidence. For example, Lilien and Pastena (1982) and Sutton (1988) report that large firms are more likely to engage in income-decreasing accounting practices to avoid political actions of regulators. Key (1997) notes downward earnings management in the U.S. cable television industry, while Han and Wang (1998) show similar behavior by U.S. oil companies due to high political costs. In addition, Boynton, Dobbins and Plesko (1992) find empirical evidence that U.S. firms directly affected by the enforcement of a tax change try to avoid its effects by implementing conservative accounting procedures. Another possible explanation why larger firms are not involved in earnings management is they may have more sophisticated internal control systems and more competent internal auditors than smaller firms. The result is a reduction in the likelihood of manipulating earnings by corporate management.

Like any other empirical investigation, this study is not without certain caveats. Complete earnings management is unobservable thus this study relies on proxy measures that, whilst previously used in the research literature, are not free from criticism. For instance, discretionary accrual models measure discretionary accruals with error (see Bernard and Skinner 1996, for a deeper discussion). These problems, however, are endemic to the earnings management literature and this study is using the best currently available models and proxies.

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