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Book-tax conformity, earnings management, and compensation contracts

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Discussion Paper

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Book-tax conformity, earnings management, and compensation contracts

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Abstract

This study investigates how the degree of book-tax conformity affects managers' compensation contracts and earnings management activity. The arguments for and against requiring book-tax conformity have been discussed in many countries for many years. There are several empirical studies about the effects of book-tax conformity on the usefulness of accounting earnings, but the existing literature on the impact of book-tax conformity on earnings management presents ambiguous results. Further, there are few studies that have examined the relationship between the degree of book-tax conformity and managers' compensation contracts. This study focuses on this research gap. In this result, I set multi-task principal-agent model in theoretical part and OLS in empirical part to analysis the relationship between book tax conformity and earnings management. The results showed that the bonus coefficient decreases with the degree of book-tax conformity, demonstrating that book-tax conformity can indirectly affect compensation contracts. The main findings of the study are as follows: book-tax conformity prevents managers from engaging in earnings management activity as well as some production activities; and the expected utility of the principal decreases with the degree of book-tax conformity. that the results of this study can provide policy makers with information on the determine of the book tax conformity system.

Keywords: Book-tax conformity, earnings management, CEO compensation, principal-agency theory, multi-task model

Declarations

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Book-tax conformity, earnings management, and compensation contracts

1. Introduction

This paper investigates how the degree of book-tax conformity affects managers' compensation contracts and earnings management activities. According to OECD, there is the widespread perception that "the rules for the taxation of cross-border activities are regularly broken, and that taxes are paid only by the naive. Multinational enterprises (MNEs) stand accused of dodging taxes all around the world."[1] Many MNEs, including Google, Apple, Facebook, and Amazon (sometimes known as GAFA), take advantage of the different rules of taxation between countries. For example, there are two prevailing tax reporting systems. The first requires book-tax conformity, and the other allows taxable income to be different from reported accounting earnings. Book-tax conformity is required in Japan, but not in the United States. In addition, in order to calculate tax income in the EU, some member states use International Financial Reporting Standards (IFRS), some use Local Generally Accepted Accounting Principles (GAAP), and others use a separate tax GAAP. The arguments for and against requiring book-tax conformity have been discussed in many countries for many years. However, there are few studies that have examined the relationship between the degree of book-tax conformity and managers' compensation contracts and earnings management activities. This study expands upon the current research on book-tax conformity to address this gap.

Proponents of book-tax conformity insist that increases in conformity can reduce aggressive financial reporting and excessive tax planning, and, as a result, improve the earnings quality and strengthen tax compliance. It is argued that increased conformity leads to a considerably simpler tax system that would constrain managers' opportunism (Slemrod and Blumenthal 1996; Yin 2001; Desai 2005; Whitaker 2005). Desai (2005) argues that low book-tax conformity has contributed to the simultaneous degradation of profit reporting to capital markets and tax authorities because it allows managers to mischaracterize tax savings to capital markets, and mischaracterize profits to tax authorities.

On the other hand, opponents of book-tax conformity claim that it impairs earnings quality, and, accordingly, leads to less informative earnings information than otherwise (Hanlon and Shevlin 2005; Hanlon et al. 2005, 2008). They argue that it results in lower earnings quality because tax authorities, and other stakeholders, require different kinds of information. If information is aligned to one measure, the quality of information for investors and other financial statement users will be reduced. Because a tax system is designed to meet the government objectives, such as increasing governmental revenue, the government can provide economic incentives or disincentives for taxpayers to engage in particular activities, and reward particular constituencies. In contrast, a financial accounting system typically provides managers with some incentive to convey more information so as to mitigate information asymmetry between the managers and other constituents. Thus, the

[1] http://www.oecd.org/forum/what-the-beps-are-we-talking-about.htm

opponents insist that book-tax conformity impairs the usefulness of earnings information, and, therefore, believe it is detrimental to the investors' decision-making ability.

The arguments for and against requiring book-tax conformity have been discussed in many countries for many years. There are several empirical studies about the effects of book-tax conformity on the usefulness of accounting earnings, but the existing literature on the impact of book-tax conformity on earnings management presents ambiguous results. Further, there are few studies that have examined the relationship between the degree of book-tax conformity and managers' compensation contracts. This study focuses on this research gap.

This paper proceeds as follows. Section 2 discusses the literature review. Section 3 describes the theoretical model setting and analysis. Section 4 describes the empirical research design. Section 5 discusses the sample selection and test results. Section 6 presents the conclusion.

2. Literature Review

Some empirical studies address the relationship between book-tax conformity and earnings management. Atwood et al. (2010) found that higher conformity is related to lower earnings persistence and a lower association between earnings and future cash flows. The empirical measure of book-tax conformity developed by Atwood et al. (2010) has already been applied to study the impact of conformity on earnings management. For instance, Blaylock et al. (2015) concluded that greater absolute earnings management is connected with stronger book-tax conformity. Watrin et al. (2014) used an alternative specification of the measure for Europe, and showed the same conclusion. In contrast, Tang (2015) associated higher mandatory conformity with lower levels of earnings management and tax avoidance. Leuz et al. (2003) did not find any significant relationship between the degree of a country's book-tax conformity and earnings management with sample of public firms. Burgstahler et al. (2006) documented that higher conformity is associated with greater earnings management for private firms. Moreover, Coppens and Peek (2005) presented evidence of European private firms not avoiding the reporting of small losses in countries that had high book-tax conformity. If taxable income and financial statement earnings are well-aligned, it is expected that private firms would respond more to a change in the corporate tax rate than public firms would, and that this response is expected to be seen indirectly in the financial statements.

Some theoretical studies analyze the relationship between disclosure regulations and earnings management. Murakami and Shiiba (2015) found that accounting regulations directly affected relative costs of accrual-based and real earnings management in both static and dynamic settings. Murakami and Ohta (2011) compared the value relevance of earnings information under the book-tax conformity reporting and decoupling settings. They report that the market has more precise information in the conformity setting than in the decoupling setting. Also, previous studies have examined corporate tax avoidance in a Linear, Exponential, and Normal (LEN) model, but the results were ambiguous (Chen and Chu 2005; Crocker and Slemrod 2005; Ewert and Niemann

2014). However, there are few theoretical research studies that examined the relationship between the degree of book-tax conformity and managers' earnings management. This paper develops a simple model to examine this relationship directly, and, by extension, address this gap. Moreover, it also tests the impact of book-tax conformity on earnings management using cross-country data in the empirical analysis section.

3. Theoretical Model

3.1 Model description

A multi-task principal-agent model, in which the risk-neutral principal owns a firm, was developed. The firm is operated by a manager who reports the firm's earnings. The manager chooses an unobservable production effort a_p that produces actual cash flow or unmanaged earnings $x = a_p + \varepsilon_p$, where ε_p is an uncertainty regarding the cash flow that is normally distributed with mean zero and variance σ_p^2. These unmanaged earnings are not available as a performance measure.

Besides the production activity, the manager can take actions that increase or decrease unmanaged earnings. These actions include an earnings management activity, $a_e + \varepsilon_e$, where ε_e is an uncertainty regarding the reported earnings that is normally distributed with mean zero and variance σ_e^2. The earnings management activity has an upward bias in unmanaged earnings. In this paper, it is assumed that d_c is the degree of book-tax conformity, and that it has a direct impact on taxable income such that $0 \leq d_c \leq 1$ is satisfied.

The firm's reported earnings are written as $fr = x + a_e$, and taxable income is written as $tr = x + d_c\, a_e$. In the perfect conformity case, $d_c = 1$, and taxable income equals reported earnings. Managers' actions entail convex psychological costs $c(a_p; a_e) = (c_p\, a_p^2 + c_e\, a_e^2)/2$ for the manager, where c_p and c_e are coefficients of the marginal costs "*production cost*" and "*earnings management cost,*" respectively. In other words, these coefficients reflect the difficultly, or costs, of each action. The cost of taking productive action is assumed to be different from that of distorting the reported earnings, and production cost is assumed to be higher than earnings management cost $(c_p > c_e)$.

The manager is risk- and effort-averse, and the managers' utility functions consist of a compensation *w* and activity costs, that is, $U_M = -\exp[-\rho(w - c)]$, where ρ represents a constant coefficient of absolute risk aversion.

The compensation contract is assumed to be linear in managers' performance and is based on the after-tax earnings. Therefore, in the conformity case, the managers' compensation takes the form:

$$w_M = \gamma_M + \beta_M(fr - t \cdot tr), \tag{1}$$

where γ_M is a fixed compensation, β_M is a bonus coefficient, and *t* is a corporate tax rate that satisfies $0 < t \leq 1/2$. This tax rate range is observed in practice.

3.2 Analysis

For unobservable managerial activities, the principal can offer performance-based compensation contracts to motivate the manager into providing the desired activity levels. In this case, the optimal contract solves the following problem:

$$\max_{\gamma_M,\beta_M} E\,[x - t\,tr - w_M] \tag{2}$$

$$s.t.\;\; E[w_M] - c - \rho/2\;\beta_M^2\big[(1-t)^2\sigma_p^2 + (1-d_c\,t)^2\sigma_e^2\big] \geq 0 \tag{PC}$$

$$a_i = \text{argmax}_{a_i}\; E\,[w_M] - c - \rho/2\;\beta_M^2\big[(1-t)^2\sigma_p^2 + (1-d_c\,t)^2\sigma_e^2\big]\,, i \in \{p,e\} \tag{IC}$$

The principal's utility is equal to the cash flow that is determined by unmanaged earnings minus the tax expense that is based on the taxable income minus managers' compensation. In other words, although managers' earnings management do not affect the unmanaged earnings, the result for earnings management may affect real cash flow via tax payments. (PC) is a manager's participation constraint. The left-hand side of (PC) is a manager's certainty equivalent of compensation w_M and effort costs.

The optimal activity choices of the mangers are:

$$a_p = \frac{(1-t)\beta_M}{c_p}, a_e = \frac{(1-d_c\,t)\beta_M}{c_e} \tag{3}$$

In the optimum, again, (PC) is binding so that the expected compensation can be written as $E[w_M] = c + \rho/2\;\beta_M^2\big[(1-t)^2\sigma_p^2 + (1-d_c\,t)^2\sigma_e^2\big]$. Substituting this condition and (IC) into the principal's utility function, and differentiating it with respect to β_M, shows that the first order conditions derive the following optimal bonus coefficient and level of activities:

$$\beta_M^* = \frac{c_e(1-t)^2 - c_p\,d_c\,t(1-d_c\,t)}{c_p(1-d_c\,t)^2 + c_e(1-t)^2 + c_e\,c_p\,\rho\big[(1-t)^2\,\sigma_p^2 + (1-d_c\,t)^2\,\sigma_e^2\big]} \tag{4}$$

$$a_p^* = \frac{(1-t)[c_e(1-t)^2 - c_p d_c\,t(1-d_c\,t)]}{c_p\{c_p(1-d_c\,t)^2 + c_e(1-t)^2 + c_e\,c_p\,\rho\big[(1-t)^2\,\sigma_p^2 + (1-d_c\,t)^2\,\sigma_e^2\big]\}}, \tag{5}$$

$$a_e^* = \frac{(1-d_c\,t)[c_e(1-t)^2 - c_p d_c\,t(1-d_c\,t)]}{c_e\{c_p(1-d_c\,t)^2 + c_e(1-t)^2 + c_e\,c_p\,\rho\big[(1-t)^2\,\sigma_p^2 + (1-d_c\,t)^2\,\sigma_e^2\big]\}}. \tag{6}$$

It is assumed that $c_p < c_e(1-t)^2/[d_c\,t\,(1-d_c\,t)]$ so the bonus coefficient and activity levels are positive. Differentiating Equations (4), (5), and (6) with respect to the degree of book-tax conformity produces:

$$\frac{\partial\beta_M^*}{\partial d_c} = \langle c_p t\big[c_e(1-t)^2 - c_p(1-d_c\,t)^2 - c_e\,\rho\big\{(1-t)^2(1-2\,d_c\,t)c_p\,\sigma_p^2 + (1-d_c\,t)\big[(1-d_c\,t)\,c_p -$$

$$2(1-t)^2\,c_e\big]\sigma_e^2\big\}\big]\rangle/\big\{c_e(1-t)^2 + c_p(1-d_c\,t)^2 + c_p\,c_e\,\rho\,\big[(1-t)^2\,\sigma_p^2 + (1-d_c\,t)^2\,\sigma_e^2\big]\big\}^2 < 0. \tag{7}$$

$$\frac{\partial a_p^*}{\partial d_c} = \langle (1-t)t\big[c_e(1-t)^2 - c_p(1-d_c\,t)^2 - c_e\,\rho\big\{(1-t)^2(1-2\,d_c\,t)c_p\,\sigma_p^2 + (1-d_c\,t)\big[(1-d_c\,t)\,c_p -$$

$$2(1-t)^2\,c_e\big]\sigma_e^2\big\}\big]\rangle/\big\{c_e(1-t)^2 + c_p(1-d_c\,t)^2 + c_p\,c_e\,\rho\,\big[(1-t)^2\,\sigma_p^2 + (1-d_c\,t)^2\,\sigma_e^2\big]\big\}^2 < 0. \tag{8}$$

$$\frac{\partial a_e^*}{\partial d_c} = t\{c_e^2\,(1-t)^2 c_p\,\rho[(1-d_c\,t)^2\sigma_e^2 - (1-t)^2\sigma_p^2] - c_p^2(1-d_c\,t)^4 - c_e^2(1-t)^4 + 2\,d_c\,t\,c_p\,c_e(1-t)^2 -$$

$$(1-d_c\,t)c_p^2\,c_e\,\rho[(1-t)^2\,(1-3\,d_c t)\sigma_p^2 + (1-d_c\,t)^3\sigma_e^2]\}/c_e\{c_e(1-t)^2 + c_p(1-d_c\,t)^2 + c_p\,c_e\,\rho\,[(1-$$

$$t)^2\,\sigma_p^2 + (1-d_c\,t)^2\,\sigma_e^2]\}^2 < 0. \quad (9)$$

The result derives the following proposition.

Proposition 1. *If the production cost is relatively low* $\left(\frac{c_e(1-t)^2}{[d_c\,t\,(1-d_c\,t)]} > c_p > c_e\right)$*, the optimal production and earnings management activities* a_p^*, a_e^**, respectively, and the optimal bonus coefficient* β_M^* *always decrease with the degree of book-tax conformity.*

Proposition 1 states if the cost production cost is sufficiently low, the production and earnings management activities, and the bonus coefficient decrease with the degree of book-tax conformity. The intuition of Proposition 1 is as follows. An increase in the degree of book-tax conformity has several effects on the principal's utility. First, according to Equation (3), the increase in the degree of book-tax conformity leads to a decrease in the levels of earnings management activities, but not in the production activities. This makes the principal set have relatively low incentive because the marginal impact of increasing β_M^* decreases due to the degree of book-tax conformity. Second, the impact of the degree of book-tax conformity purely increases tax expense. This effect decreases the bonus coefficient. Third, the increase in the degree of book-tax conformity increases the compensation volatility for the manager. This effect decreases the bonus coefficient because the manager is risk averse. All things considered, the impact of the degree of book-tax conformity affects managers' earnings management activity and bonus coefficient directly. This effect decreases managers' production activity, coinciding with most of the current literature. Atwood et al. (2010) found that the higher conformity is related to lower earnings persistence. Proposition 1 shows that a higher conformity is related to lower production activity, which may lead to lower earnings persistence. Further, Desai (2005) and Tang (2015) associated higher conformity with lower levels of earnings management.

Substituting Equations (4)–(6) into the binding (PC), the expected utility of the principal EU_P was derived as follows:

$$EU_P^* = \frac{[c_e(1-t)^2 - c_p\,d_c\,t(1-d_c\,t)]^2}{2\,c_e c_p\{c_p(1-d_c\,t)^2 + c_e(1-t)^2 + c_e\,c_p\,\rho[(1-t)^2\,\sigma_p^2 + (1-d_c\,t)^2\,\sigma_e^2]\}}. \quad (10)$$

Differentiating Equation (11) with respect to the degree of book-tax conformity results in:

$$\frac{\partial EU_P^*}{\partial d_c} =$$

$$\frac{\langle -t\,[c_e(1-t)^2 - c_p\,d_c\,t(1-d_c\,t)]\{c_p(1-d_c\,t)^3(1+c_e\,\rho\,\sigma_e^2) - c_e\,(1-t)^2[d_c\,t + c_e\,\rho(1-d_c t)\sigma_e^2] + c_p\,c_e\,\rho(1-t)^2(1-2\,d_c\,t)\sigma_p^2\}\rangle}{\left(c_e\{c_e(1-t)^2 + c_p(1-d_c\,t)^2 + c_p\,c_e\,\rho\,[(1-t)^2\,\sigma_p^2 + (1-d_c\,t)^2\,\sigma_e^2]\}^2\right)}$$

$$< 0. \quad (11)$$

This result derives the following proposition.

Proposition 2. *If the production cost is relatively low* $\left(\frac{c_e(1-t)^2}{[d_c\ t\ (1-d_c\ t)]} > c_p > c_e\right)$*, the expected utility of the principal always decreases with the degree of book-tax conformity.*

As mentioned above, the degree of book-tax conformity has an indirect impact on managers' production activity via the bonus coefficient.

The change in managers' activities according to the degree of book-tax conformity is analyzed next. According to Proposition 1, if the production cost is sufficiently low, the managers' optimal production and earnings management activities a_p^*, a_e^*, respectively, always decrease with the degree of book-tax conformity. A comparison of optimal managers' activities shows that:

$$\frac{a_p^*}{a_e^*} = \frac{c_e(1-t)}{c_p(1-d_c\ t)} < 1 \tag{12}$$

The result derives the following proposition.

Proposition 3. *If the production cost is relatively low* $\left(\frac{c_e(1-t)^2}{[d_c\ t\ (1-d_c\ t)]} > c_p > c_e\right)$*, the degree of production activity is never higher than the degree of earnings management activity.*

Increases in the degree of book-tax conformity leads to the degree of earnings management being relatively low. The ratio of production activity to earnings management activity shows that production activity will never be higher than the earnings management activity because of the effort cost. In this paper, it is assumed that the cost of production activity is higher than that of earnings management activity. Therefore, the manager has more incentive to engage in earnings management activities. Though, when there is an increase in the degree of book-tax conformity, managers' incentive to engage in earnings management decreases. According to Equation (12), the degree of book-tax conformity will only affect the denominator of the ratio. As mentioned above, the degree of book-tax conformity impacts the managers' earnings management activity both directly and indirectly, while the book-tax conformity impacts the managers' production activity indirectly, via the bonus coefficient. Overall, when the degree of book-tax conformity increases, the degree of earnings management decreases.

4. Empirical Research Design

4.1 Hypotheses development

Prior international studies found that earnings persistence, and the association between earnings and future cash flows, are lower when book-tax conformity is higher (Atwood et al. 2010). Watrin et al. (2014) showed that higher book-tax conformity yields greater downward earnings management. Also, as the Proposition 1 in Section 3 shows, managers' earnings management activities decreases with the degree of book-tax conformity. Therefore, the following was hypothesized:

H1: The degree of book-tax conformity is negatively associated with accrual-based earnings management.

Assuming book-tax conformity has a negative impact on earnings management, this study next explores how book-tax conformity affects managers' compensation contracts. Gaertner (2014) was extended by including the degree of book-tax conformity. In traditional principal-agency models, the principal pays the manager a risk premium to encourage him or her to accept the compensation contract. In fact, CEOs who are compensated after-tax bear significant additional risks associated with the tax accounts. Thus, the possibility of exogenous changes in the tax rate introduces significant compensation risks to CEOs paid on an after-tax basis (Newman 1989). The higher the book-tax conformity, the lower the compensation risk to CEOs, so the principal can pay a lower risk premium to the manager. Also, as Proposition 1 in Section 3 shows, the bonus coefficient of managers' compensation decreases with the degree of book-tax conformity. Therefore, the following was hypothesized:

H2: The degree of book-tax conformity is negatively associated with CEO compensation.

4.2 Resign design and sample selection

4.2.1 Book-tax conformity measure

Atwood et al. (2010) defined book-tax conformity measures as the amount of variation in current tax expense that is not captured by the variation in pre-tax income, in any given country-year. Countries that allow greater flexibility in the reporting of taxable income, given a particular level of pre-tax income, have lower book-tax conformity. Thus, to keep in line with Atwood et al. (2010), book-tax conformity is calculated by estimating the conditional variance of current tax expenses from the following model, estimated by country-year:

$$\mathrm{CTE}_t = \theta_0 + \theta_1\ \mathrm{PTBI}_t + \theta_2 \mathrm{ForPTBI}_t + \theta_3 \mathrm{DIV}_t + \mathrm{e}_t, \quad (13)$$

where CTE is current tax expense[2], t is the year indicator, PTBI is the pre-tax book income, ForPTBI is the estimated foreign pre-tax book income (foreign tax expense / total tax expense x PTBI)[3], DIV is the total dividends, and e is a disturbance term with mean zero. CTE, PTBI, ForPTBI, and DIV are divided by lagged total assets to control for cross-sectional scale differences. The measure of book-tax conformity is calculated as the scaled ranking of the root mean squared errors (RMSEs) obtained from country-year estimates of Equation (13).

Like Atwood et al. (2010), when a higher RMSE corresponds to lower book-tax conformity, vice versa, the analysis uses descending ranks (i.e., the highest RMSE in a given year is ranked 0, and the lowest is ranked n - 1, where n is the number of included countries in that year), then divides them by n - 1 to scale the rankings so that they range between zero and one. The higher ranks on the book-tax conformity measure indicates higher conformity.

As a robustness test, Watrin et al. (2014) was followed to calculate book-tax conformity by calculating the

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[2] All financial variables are drawn from Standard & Poor's (S&P) Capital IQ platform.

[3] Like Atwood et al. (2010), the database does not break pre-tax book income into its domestic and foreign components, nor does it break foreign tax expenses into its current and deferred components. ForPTBI is the foreign percentage of pre-tax book income as foreign tax expense/total tax expense.

absolute value of permanent book-tax differences for each country-year:

$$\mathrm{PermBTD}_{i,t} = \mathrm{PTBI}_{i,t} - (\mathrm{Taxation}_{i,t} / \mathrm{TaxRate}_{k,t}), \quad (14)$$

where PermBTD is the permanent book-tax difference, t is the year indicator, i is the firm indicator, Taxation is the total taxation[4], and TaxRate is the corporate tax rate of the country k[5]. Like Watrin et al. (2014), the mean of all the absolute values of permanent book-tax differences in one country in a given year was taken, and a rank assigned to each country in each year based on $\mathrm{PermBTD}_{i,t}$ in Equation (14). Also, the analysis uses descending ranks (i.e., the highest RMSE in a given year is ranked 0 and the lowest is ranked n - 1, where n is the number of included countries in that year), then divides them by n - 1 to scale the rankings. The final scaled rank is calculated as the average rank over a 10-year period (2008–2018).

4.2.2 Earnings management measure

Following prior literature, discretionary accruals were used as a proxy for accrual-based earnings management. In this study, the discretionary accruals, based on the Jones model in Equation (15), were modified in Equation (16) (Dechow et al. 1995). The abnormal accruals were also based on the Jones model in Equation (17), and augmented for net income (Kothari et al. 2005) as the measure of earnings management in Equation (18). The discretionary accrual is estimated cross-sectionally each country-year using all firm-year observations in the same two-digit SIC code[6]:

$$\mathrm{TA}_{it} = \iota_0 + \iota_1(1/\mathrm{ASSET}_{it-1}) + \iota_2 \Delta\mathrm{SALES}_{it} + \iota_3 \mathrm{PPE}_{it} + \nu_{it}, \quad (15)$$

$$\mathrm{TA}_{it} = \kappa_0 + \kappa_1(1/\mathrm{ASSET}_{it-1}) + \kappa_2(\Delta\mathrm{SALES}_{it} - \Delta\mathrm{AR}_{it}) + \kappa_3 \mathrm{PPE}_{it} + \xi_{it}, \quad (16)$$

$$\mathrm{TA}_{it} = \lambda_0 + \lambda_1(1/\mathrm{ASSET}_{it-1}) + \lambda_2 \Delta\mathrm{SALES}_{it} + \lambda_3 \mathrm{PPE}_{it} + \lambda_4 \mathrm{ROA}_{it} + \pi_{it}, \quad (17)$$

$$\mathrm{TA}_{it} = \mu_0 + \mu_1(1/\mathrm{ASSET}_{it-1}) + \mu_2(\Delta\mathrm{SALES}_{it} - \Delta\mathrm{AR}_{it}) + \mu_3 \mathrm{PPE}_{it} + \mu_4 \mathrm{ROA}_{it} + \tau_{it}, \quad (18)$$

where TA_{it} is the total accruals as the change in non-cash current assets minus the change in current liabilities, excluding the current portion of long-term debts, minus depreciation and amortization, scaled by lagged total assets; t is the year indicator; i is the firm indicator; ASSET is the total assets; $\Delta\mathrm{SALES}_{it}$ is the change in sales scaled by lagged total assets; PPE_{it} is net property, plant and equipment scaled by lagged total assets; $\Delta\mathrm{AR}_{it}$ is the change in accounts receivables scaled by lagged total assets; and ROA_{it} is net income scaled by lagged total assets.

[4] Total taxation is the sum of current and deferred tax expenses of firm i in year t. Like Watrin et al. (2014), all the financial variables are scaled by lagged total assets.

[5] The tax rate of country k in year t are taken from KPMG's Corporate Tax Rate Table (see https://home.kpmg/xx/en/home/services/tax/tax-tools-and-resources/tax-rates-online/corporate-tax-rates-table.html).

[6] To further strengthen the quality of measure, all industry-country-years with fewer than 10 observations were excluded.

4.3 Test for CEO compensation and the association between book-tax conformity and earnings management

CEO compensation and the association between book-tax conformity and earnings management was tested using the cross-section of firm-year observations. To mitigate the influence of error terms that are correlated across firms; across time and across country, I follow the recommendation in Petersen (2009) by estimating all regression models using ordinary least squares(OLS), using standard errors clustered by industry, and including year fixed effects . Specifically, the following models (with country and firm subscripts suppressed) were estimated:

$$EMgroup_t = \phi_0 + \phi_1\, BTC_t + \phi_2 NEG_t + \phi_3 NEG * BTC_t + \phi_4 CTR_t + \phi_5 LEV_{t-1} + \phi_6\, LOSS_t + \phi_7 SIZE_{t-1} + \phi_8 MBR_{t-1} + \phi_9\, JI_t + \phi_{10} SI_t + \phi_{11} IP_t + \phi_{12} DBIGFOUR_t + \phi_{13} DAUDITCHA_t + \phi_{14} ROA_{t-1} + \phi_{15} CYCLE_{t-1} + \sum_j \phi_{16,j}\, Year\_Dummy_{t,j} + \sum_j \phi_{17,k}\, Industry\_Dummy_{t,k} + \sum_j \phi_{17,k}\, Conuntry\_Dummy_{t,k} + \upsilon_t, \quad (19)$$

$$COMP_t = \chi_0 + \chi_1\, BTC_t + \chi_2 LOSS_t + \chi_3 LOSS * BTC_t + \chi_4 CTR_t + \chi_5 ROA_t + \chi_6 ROA_{t-1} + \chi_7 STDROA_t + \chi_8 RET_t + \chi_9\, RET_{t-1} + \chi_{10} STDRET_t + \chi_{11} LEV_t + \chi_{12} CFO_t + \chi_{13} PPE_t + \chi_{14} INTANG_t + \chi_{15} INV_t + \chi_{16} SIZE_{t-1} + \chi_{17} DBIGFOUR_t + \chi_{18} DAUDITORCHANGE_t + \sum_m \chi_{19,m}\, Year\_Dummy_{t,m} + \sum_n \chi_{20,n}\, Industry\_Dummy_{t,n} + \sum_n \chi_{20,n}\, Country\_Dummy_{t,n} + \omega_t, \quad (20)$$

where $EMgroup$ is the discretionary accruals, and BTC is the measure for book-tax conformity.

Based on H1 and the result of Proposition 1, if firm-years with higher conformity are associated with greater (downward) earnings management, $\phi_1 < 0$ is predicted. The following dummy variable was inserted: NEG equals 1 if discretionary accruals are negative, and 0 otherwise. The measure of book-tax conformity interacts with this indicator variable to empirically assess how much higher or lower the discretionary accruals are when book-tax conformity changes. Consistent with the expectation that higher book-tax conformity is associated with greater downward earnings management, compared with lower book-tax conformity, $\phi_3 > 0$ was predicted.

Several controls and fixed effects were used because accounting research has identified numerous factors that affect earnings management behaviors. The controlling for statutory tax rate (CTR) variable is to ensure that the book-tax conformity measure is not just reflecting differences in statutory tax rates that exist across different countries (Atwood et al. 2010). Controlling for leverage (LEV) is based on the assumption that managers are more likely to use discretion in accounting as they offset tightening debt-covenant constraints (Sweeny 1994). Also, control for loss ($LOSS$) was included because of the incentive to manage earnings in order to avoid reporting losses.

Regarding the firm size ($SIZE$), positive accounting theory postulates that large firms engage in greater earnings management than small firm do because of the differences in political costs (Watts and Zimmerman 1978). The

market-to-book ratio (MBR) was used to control for growth. In addition to judicial independence and shareholder interests, investor protection was used to determine country-specific effects, as prior research has shown that investor protection has a negative influence on the magnitude of earnings management (Leuz et al. 2003; La Porta et al. 1998). Also, prior research shows that the Big 8 audit firms constrain earnings management through discretionary accruals (DeFond and Jiambalvo 1991; Becker et al. 1998), but, according to the period of the sample, a Big 4 dummy variable ($DBIGFOUR$) was used to control the auditor type between the largest four audit firms. Also, Zang (2012) found that firms with longer operating cycles ($CYCLE$) have greater flexibility for accrual management because they have larger accrual accounts and a longer period for accruals to reverse. Furthermore, the industry and year fixed effects were controlled.

Equation (20) estimates how book-tax conformity affects CEO compensation ($COMP$). In this study, the natural log of CEO cash compensation and total board member cash compensation was the dependent variable[7]. Based on H2 and the result of Proposition 1, if firm-years with higher conformity are associated with less compensation through greater downward earnings management, then $\chi_1 < 0$ is predicted. The following dummy variable was inserted: $LOSS$ equals 1 if pre-tax incomes are negative, and 0 otherwise. ROA and RET were included because they are important determinants of cash compensation (Sloan 1993). Also, the standard deviation of incomes and stock returns are to control for risks in earnings dependent compensation (Gaertner 2014). Controlling for firm size ($SIZE$) is based on political costs, as larger firms face more scrutiny on CEO pay than smaller firms do (Leone et al. 2006). Several control variables that prior research have shown were also included.

4.4 Sample selection

The group structure data, financial data, and compensation data were drawn from the Standard & Poor's (S&P) Capital IQ platform. All firm-year observations from 2007 to 2018 were obtained from the necessary data to compute the earnings management and book-tax conformity measure. Following the prior literature, all observations with missing SIC code and financial institutions (SIC 6000-6999), and regulated industries (SIC 4400-5000) were excluded from the sample. All firm-year observations from countries that do not have at least 40 usable firm-year observations, which is a less stringent data availability criterion than previous research used, were deleted. To mitigate the influence of outliers, the top and bottom 0.5% of each year were winsorized. To test Equation (20), the firm-year observations with missing compensation data were removed. The sample selection procedure yields 163,195 firm-year observations from 34 countries to test Equation (19), and 38,988 firm-year observations from 34 countries to test Equation (20).

Table 1 lists the sample countries and country-specific averages from the results of estimating Model (13) and (14). Also, it presents the average RMSE, average BTD, average Corporate tax rate (CTR) for each country, as well as the number of years, N(years) and the number of firms, N(firms), that each country appears in the sample. The countries are sorted from high to low average book-tax conformity (Watrin et al. (2014) measure).

[7] Cash compensation is the sum of salary, bonus, and non-equity incentive.

As corporate tax rate increases, book-tax conformity decreases. In other words, when the statutory tax rate is high, firms have higher incentives for tax planning. As the result, high statutory tax rate countries have a relatively high BTD (indicating low book-tax conformity). The relationship between statutory tax rate and RMSE is shown to be similar.

[Insert Table 1 here]

4.5 Descriptive statistics

Table 2 presents the descriptive statistics for the sample of equation (19), the means of EM group are near zero. The mean of BTC(A) and BTC(W) are 0.469 and 0.555, because the rank of two book-tax conformity measures are different. For example, the average Wartin et al. (2014) measure of Japan is 0.8672, but under the average Atwood et al. (2010) measure is 0.1746, also the number of firms of Japan is 2,642 per year. This different causes the different in the mean of BTC(A) and BTC(W). Table 3 presents the descriptive statistics for the sample of equation (20), due to the difficulty of collecting data, the number of data of dependent variable LNCOMP is only 51,251. As the result the sample size of regression of equation (20) is 38,988. This phenomenon has been seen in many previous studies related to CEO compensation. The mean of ROA and ROAt-1 are -0.039 and -0.035, but the median 0.026 and 0.027. Although the distribution of ROA and ROAt-1 are left-skewed, the impact on the analysis is not big.

[Insert Table 2 here]

[Insert Table 3 here]

Table 4 presents the correlation between the sample of equation (19). First the correlation between EM group and BTC are all negative ($p<0.01$), the correlation between BTC and CTR are all negative ($p<0.01$). The correlation between EM group and LOSS are all positive ($p<0.01$), that means when a firm have a loss after tax, manager will have more incentive to manage the earnings. The correlation between EM group and ROA also show the same result. Table 5 presents the correlation between the sample of equation (20). First the correlation between LNCOMP and BTC are all negative ($p<0.01$). Also, the correlation between CTR and ROA are negative. That means when the statutory corporate tax rate is high, firm will have less incentive to make a higher profit. About the correlation between SIZE and ROA is positive ($p<0.01$) and correlation between SIZE and STDROA, RET and STDRET are all negative ($p<0.01$), big firm can raised a good performance in such scale effect, on another hand, the performance is more stable and the stock price is relatively low.

[Insert Table 4 here]

[Insert Table 5 here]

5. Results

The results reported in Table 6 and 7. Table 6 address the effect of book tax conformity on earnings management. Regarding the signed values of discretionary accruals (Table 6, Panel A) and absolute values of discretionary accruals (Table 6, Panel B), the coefficients of book tax conformity (Φ_1) are all significant

negative[8]. Thus, as book tax conformity increases, earnings management decreases for positive discretionary accrual firms, consistent with H1. Simultaneously, as book tax conformity increases, downward earnings management increases. As the result, when book tax conformity increase, earnings management (absolute values of discretionary accruals) will decrease. The result is different from Wartin et al. (2014), but in this study, I included more control variable for the cost of earnings management. Also, the result from theoretical part had shown that when the degree of book-tax conformity increases, manager will have less incentive to manage earnings. The second regression (Table 7) examines the impact of book tax conformity on CEO compensation (H2). I find that book tax conformity is associated with significantly less CEO compensation ($\chi_1 < 0$). Even though I had already included some firm performance as the control variables, the coefficients are still negative, consistent with H2. About the relationship between firm's performance and CEO compensation, the result shows that the coefficients of ROA, ROA_{t-1} and STDRET are negative, on other hand, coefficients of STDROA, RET and RET_{t-1} are positive. Rego and Wilson (2009) also reported the similar result. They estimated US data from 1996 to 2001 and their results showed that the relationship between CEO compensation and RET is positive but the relationship between ROA and compensation is not significant. As in equation (1), Total compensation can be divided into fixed compensation and bonus. For the part of fixed compensation, no matter firm have a loss or profit, it will not be negative. In general, the fixed compensation of a big firm is higher, if more big firms have a loss, the coefficients of ROA may be negative. Compare with ROA, investor focus on RET because of the investment return. So, the coefficients of RET is positive. Simultaneously, the coefficient of STDRET show that investors do not prefer uncertainty.

6. Concluding Remarks

Regarding the increase in elaborate international tax shelter strategies during early 2000s, the internationally agreed standards of transparency and exchange of information in tax area ensured consistent and effective implementation of international transparency standards. However, BEPS is still a big issue on the political agenda because of the aggressive tax planning by multinational enterprises (MNEs). This paper investigated how the degree of book-tax conformity affects managers' compensation contracts and earnings management activity by using theoretical and empirical model simultaneously. This paper found that the bonus coefficient decreases with the degree of book-tax conformity. The main findings are as follows: book-tax conformity prevents the manager from engaging in earnings management activity as well as some production activities, as the result, the CEO compensation will be relatively decrease; and the expected utility of the principal decreases with the degree of book-tax conformity. These findings are supported by theoretical and empirical test. Some of these results are consistent with previous literature and real-world examples. For example, according to Ito Review[9], the performance and compensation bonus of Japanese companies appears to be considerably lower than global standards, especially in countries with lower book-tax conformity, such as the United States. The

[8] I got the same result with different book tax conformity measure BTC(W).

[9] See the Ito Review of Competitiveness and Incentives for Sustainable Growth-Building Favorable Relationships between Companies and Investors, Ministry of Economy, Trade and Industry Japan (2014).

results of this paper provide one reason why compensation contracts are different among countries. Also, Zicke and Kiy (2017) founded that the effect of German Accounting Law Modernization Act is a greater amount of absolute discretionary accruals. Thus, when the degree of book-tax conformity decrease, earnings management activity will become more aggressive.

In summary, this study shows that book tax conformity can prevents the earnings management activity. However, this investigation has some caveats. First, the model in this study had not separate earnings management activity and tax aggressiveness. Some theoretical models tested firm's tax avoidance behavior (Ewert and Niemann 2014; Waegenaere et al. 2015). If I add a tax planning or tax avoidance activity into the theoretical analysis part, the result may be different. However, the main purpose of this study is to investigate the relationship between book-tax conformity affects managers' compensation contracts and earnings management activity by using theoretical and empirical model simultaneously. Generally, BTD is used in many studies as the measure of tax avoidance, but it is used in the calculation of book-tax conformity measures BTC. Thus, I did not add tax planning or tax avoidance activity into the model. Second, compare with equation (19), the number of observations of equation (20) is less than 1/4, only 38,988. Compare with firm's financial or accounting data, the number of available data on CEO compensation is less. Most prior literature on CEO compensation faces the same problem. Since the result of this study is useful.

Using Global data allows me to study countries that employ different systems. Therefore, this study contributes to the ongoing debate in many countries regarding whether high book tax conformity is associated with more earnings management. Of course, earnings management is one aspect of earnings quality. The results suggest that a higher book tax conformity can prevent earnings management. Therefore, the results indicate that U.S. should move from a low book tax conformity system to a high book tax conformity system. If mandatory application of IFRS is decided by Japanese government, they should keep the high book tax conformity system.

Overall, this study provides a new aspect for the relationship between book tax conformity and earnings management. I build a theoretical model to comprehensively investigate the relationship between book-tax conformity affects managers' compensation contracts and earnings management activity. Prior literature tested the relationship between book tax conformity and earnings management or earnings management and CEO compensation, respectively. I believe that the results of this study can provide policy makers with information on the determine of the book tax conformity system.

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Table 1. *Level of Book Tax conformity measures by country*

Country	N(years)	Avg. BTD	Avg. RANK (Watrin et al.)	Avg. RMSE	Avg. RANK (Atwood et al.)	Avg. CTR	N(firms)
Taiwan	11	0.0623	0.9617(1)	0.0103	0.9363(1)	0.1873	1,354
South Korea	11	0.0712	0.8942(2)	0.0142	0.7593(8)	0.2417	1,368
Japan	11	0.0678	0.8672(3)	0.0346	0.1746(30)	0.3644	2,642
Sri Lanka	11	0.0832	0.8186(4)	0.0192	0.5749(16)	0.2873	88
Egypt	7	0.0745	0.8007(5)	0.0241	0.3848(21)	0.2364	68
Italy	11	0.0868	0.7465(6)	0.025	0.3584(25)	0.3005	107
China	11	0.0844	0.7404(7)	0.013	0.7956(6)	0.25	2,525
Spain	1	0.086	0.7273(8)	0.02	0.4545(19)	0.25	39
Thailand	11	0.0822	0.7264(9)	0.011	0.8961(2)	0.2391	296
Vietnam	11	0.0872	0.6835(10)	0.0131	0.7909(7)	0.2355	163
Pakistan	11	0.0891	0.6808(11)	0.0245	0.3591(24)	0.3364	203
Turkey	11	0.0882	0.6697(12)	0.0115	0.8788(3)	0.2018	135
Malaysia	11	0.0885	0.6459(13)	0.0131	0.7964(5)	0.2473	542
India	11	0.0939	0.5869(14)	0.0259	0.3259(26)	0.3397	2,552
South Africa	3	0.0998	0.5801(15)	0.0138	0.7404(10)	0.28	41
Bangladesh	8	0.0941	0.5693(16)	0.0359	0.0981(32)	0.2625	93
Switzerland	11	0.1407	0.5664(17)	0.0151	0.7106(11)	0.1826	79
Singapore	11	0.1023	0.5281(18)	0.0186	0.5778(15)	0.1718	219
Indonesia	11	0.1178	0.518(19)	0.0247	0.3663(22)	0.2573	178
Finland	7	0.1174	0.4654(20)	0.0182	0.5914(13)	0.2129	43
Russia	3	0.1168	0.4378(21)	0.0139	0.7566(9)	0.2	41
Philippines	11	0.1305	0.4373(22)	0.0122	0.8363(4)	0.3045	52
Germany	11	0.1309	0.3924(23)	0.0195	0.5617(17)	0.296	261
France	11	0.188	0.2796(24)	0.0531	0(34)	0.333	292
Netherlands	5	0.198	0.2714(25)	0.0169	0.6475(12)	0.25	42
Poland	11	0.191	0.2589(26)	0.0357	0.0778(33)	0.19	245
Norway	8	0.2362	0.2574(27)	0.0204	0.5027(18)	0.2625	45
Denmark	2	0.217	0.2467(28)	0.0218	0.429(20)	0.22	41
Sweden	11	0.2786	0.182(29)	0.0275	0.273(27)	0.2411	288
UK	11	0.3005	0.1555(30)	0.0303	0.1932(29)	0.2345	525
Israel	11	0.359	0.1326(31)	0.0192	0.5891(14)	0.2505	139
Australia	11	0.6681	0.0723(32)	0.0318	0.1694(31)	0.3	691
US	11	1.0826	0.023(33)	0.0275	0.2579(28)	0.3882	1,767
Canada	11	1.1213	0.0131(34)	0.025	0.3605(23)	0.2818	1,123

Table 2. *Descriptive Statistics of Select Variables: Discretionary Accruals*

	count	mean	sd	min	p25	p50	p75	max
EM1	205,771	0.020	0.128	-0.357	-0.043	0.008	0.070	0.444
EM2	205,771	0.020	0.129	-0.364	-0.043	0.007	0.070	0.447
EM3	205,771	0.000	0.109	-0.391	-0.050	-0.001	0.048	0.365
EM4	205,771	0.001	0.109	-0.383	-0.050	-0.002	0.048	0.365
ABSEM1	205,771	0.089	0.094	0.000	0.023	0.055	0.119	0.444
ABSEM2	205,771	0.090	0.095	0.000	0.023	0.056	0.120	0.447
ABSEM3	205,771	0.076	0.079	0.000	0.021	0.049	0.101	0.391
ABSEM4	205,771	0.076	0.079	0.000	0.021	0.049	0.101	0.383
BTC(A)	205,771	0.469	0.315	0.000	0.188	0.414	0.786	1.000
BTC(W)	205,771	0.555	0.353	0.000	0.172	0.643	0.897	1.000
CTR	205,771	0.291	0.069	0.150	0.250	0.280	0.340	0.407
LEV	205,771	0.465	0.295	0.011	0.257	0.447	0.627	2.212
LOSS	205,771	0.296	0.456	0.000	0.000	0.000	1.000	1.000
LNTA	205,771	18.296	2.253	12.581	16.856	18.343	19.754	23.870
MBR	178,965	2.558	4.151	-6.232	0.672	1.351	2.826	36.628
JI	205,771	4.929	0.922	2.230	4.099	4.899	5.829	6.818
SI	205,771	4.770	0.589	3.035	4.366	4.906	5.244	6.371
IP	205,771	6.485	1.263	2.000	5.300	6.300	7.300	9.300
DBIGFOUR	205,771	0.391	0.491	0.000	0.000	0.000	1.000	2.000
DAUDITCHA	205,771	0.162	0.368	0.000	0.000	0.000	0.000	1.000
ROA	205,771	-0.035	0.283	-2.125	-0.020	0.027	0.069	0.343
CYCLE	186,908	0.251	0.617	-3.472	0.078	0.210	0.383	4.137

Variable Definitions:

$EM1$ = earnings management in consolidated financial statements of firm measured as signed values of discretionary accruals based on the Jones model in Equation (15); $EM2$ = earnings management in consolidated financial statements of firm measured as signed values of discretionary accruals based on the Modified Jones model in Equation (16); $EM3$ = earnings management in consolidated financial statements of firm measured as signed values of discretionary accruals based on the Performance Jones model in Equation (17); $EM4$ = earnings management in consolidated financial statements of firm measured as signed values of discretionary accruals based on the Performance modified Jones model in Equation (18); $ABSEM1$ = earnings management in consolidated financial statements of firm measured as absolute values of discretionary accruals based on the Jones model in Equation (15); $ABSEM2$ = earnings management in consolidated financial statements of firm measured as absolute values of discretionary accruals based on the Modified Jones model in Equation (16); $ABSEM3$ = earnings management in consolidated financial statements of firm measured as absolute values of discretionary accruals based on the Performance Jones model in Equation (17); $ABSEM4$ = earnings management in consolidated financial statements of firm measured as absolute values of discretionary accruals based on the Performance modified Jones model in Equation (18); $BTC(A)$ = book-tax conformity of firm as measured by Atwood et al. (2010); $BTC(W)$= book-tax conformity of firm as measured by Watrin et al. (2014); CTR= corporate tax rate of firm as measured by Watrin et al. (2014); LEV= leverage of firm calculated as the sum of liabilities divided by lagged total assets; $LOSS$= dummy variable of firm equal to 1 if a firm reports a loss after tax,0 otherwise; $SIZE$= size of firm calculated as the natural logarithm of firm's lagged total assets; MBR= market-to-book ratio of firm; JI= judicial independence of firm; SI= protection of minority shareholder's interest of firm; IP= strength of investor protection of firm; $DBIGFOUR$= dummy variable of firm equal to 1 if the firm's auditor is one of Big 4,0 otherwise; $DAUDITCHA$= dummy variable of firm equal to 1 if the firm's auditor changed in previous year, 0 otherwise; ROA= return on asset of firm calculated as the after tax net income divided by lagged total assets; $CYCLE$= business cycle of firm calculated as the days receivable plus the days inventory less the days payable and then divided by 365.

Table 3. *Descriptive Statistics of Select Variables: Compensation*

	count	mean	sd	min	p25	p50	p75	max
LNCOMP	51,251	25.976	1.718	20.016	24.927	26.154	27.188	29.343
BTC(A)	205,771	0.469	0.315	0.000	0.188	0.414	0.786	1.000
BTC(W)	205,771	0.555	0.353	0.000	0.172	0.643	0.897	1.000
CTR	205,771	0.291	0.069	0.150	0.250	0.280	0.340	0.407
LOSS	205,771	0.304	0.460	0.000	0.000	0.000	1.000	1.000
ROA	205,771	-0.039	0.271	-2.103	-0.024	0.026	0.066	0.295
ROAt-1	205,771	-0.035	0.283	-2.125	-0.020	0.027	0.069	0.343
STDROA	177,611	0.121	0.316	0.002	0.017	0.036	0.083	2.990
RET	178,988	0.198	0.928	-0.938	-0.276	-0.003	0.359	10.983
RETt-1	170,586	0.263	0.989	-0.940	-0.236	0.037	0.425	11.000
STDRET	143,695	0.821	1.070	0.067	0.308	0.516	0.902	10.011
LEV	205,770	0.543	0.607	0.006	0.269	0.472	0.680	12.983
CFO	205,771	0.019	0.210	-1.387	-0.015	0.050	0.111	0.478
MBR	178,965	2.558	4.151	-6.232	0.672	1.351	2.826	36.628
PPE	205,771	0.322	0.278	0.000	0.104	0.264	0.464	1.781
INTANG	205,771	0.040	0.101	0.000	0.000	0.000	0.029	0.740
INV	205,771	0.133	0.140	0.000	0.015	0.100	0.195	0.754
SIZE	205,771	18.296	2.253	12.581	16.856	18.343	19.754	23.870
DBIGFOUR	205,771	0.391	0.491	0.000	0.000	0.000	1.000	2.000
DAUDITCHA	205,771	0.162	0.368	0.000	0.000	0.000	0.000	1.000

Variable Definitions:

$LNCOMP$ = Firm's CEO compensation calculated as the natural logarithm of CEO compensation; $BTC(A)$ = book-tax conformity of firm as measured by Atwood et al. (2010); $BTC(W)$= book-tax conformity of firm as measured by Watrin et al. (2014); CTR= corporate tax rate of firm as measured by Watrin et al. (2014); $LOSS$= dummy variable of firm equal to 1 if a firm reports a loss after tax,0 otherwise; ROA= return on asset of firm calculated as the after tax net income divided by lagged total assets; $STDROA$= standard deviation of return on asset for the prior four years; RET= firm's return; $STDRET$= standard deviation of firm's return for the prior four years; LEV= leverage of firm calculated as the sum of liabilities divided by lagged total assets; CFO= cash flow operations of firm calculated as cash flow operations divided by lagged total assets; MBR= market-to-book ratio of firm; PPE= net property, plant and equipment of firm calculated as the net property, plant and equipment divided by lagged total assets; $INTANG$= intangible asset of firm calculated as the sum of intangible asset divided by lagged total assets; INV= inventory of firm calculated as the sum of inventory divided by lagged total assets; $SIZE$= size of firm calculated as the natural logarithm of firm's lagged total assets; $DBIGFOUR$= dummy variable of firm equal to 1 if the firm's auditor is one of Big 4,0 otherwise; $DAUDITCHA$= dummy variable of firm equal to 1 if the firm's auditor changed in previous year, 0 otherwise.

Table 4: *Correlations: Discretionary Accruals*

	EM1	EM2	EM3	EM4	BTC(A)	BTC(W)	CTR	LEV	LOSS	LNTA	MBR
EM1	1.000										
EM2	0.982***	1.000									
EM3	0.713***	0.697***	1.000								
EM4	0.698***	0.716***	0.979***	1.000							
BTC(A)	-0.095***	-0.096***	-0.008***	-0.011***	1.000						
BTC(W)	-0.238***	-0.238***	-0.025***	-0.031***	0.496***	1.000					
CTR	0.119***	0.120***	0.004	0.007**	-0.593***	-0.258***	1.000				
LEV	-0.064***	-0.062***	-0.014***	-0.011***	-0.080***	0.001	0.131***	1.000			
LOSS	0.031***	0.029***	0.052***	0.056***	-0.156***	-0.342***	0.044***	0.041***	1.000		
LNTA	-0.027***	-0.028***	-0.057***	-0.057***	0.114***	0.233***	0.037***	0.075***	-0.349***	1.000	
MBR	0.033***	0.037***	0.011***	0.014***	0.027***	-0.087***	-0.034***	-0.032***	0.026***	-0.082***	1.000

Table 4 (*continued*)

	EM1	EM2	EM3	EM4	BTC(A)	BTC(W)	CTR	LEV	LOSS	LNTA
JI	0.109***	0.110***	0.023***	0.025***	-0.574***	-0.454***	0.278***	-0.067***	0.253***	-0.074***
SI	0.106***	0.106***	0.016***	0.018***	-0.386***	-0.413***	0.170***	-0.071***	0.215***	-0.079***
IP	0.147***	0.147***	0.024***	0.026***	-0.373***	-0.466***	0.325***	0.004	0.220***	-0.104***
DBIGFOUR	0.026***	0.026***	-0.032***	-0.031***	-0.053***	0.005*	-0.009***	-0.018***	-0.056***	0.365***
DAUDITCHA	-0.034***	-0.032***	0.002	0.004	0.017***	0.050***	0.006**	0.023***	0.021***	-0.041***
ROA	-0.015***	-0.015***	-0.062***	-0.065***	0.157***	0.328***	-0.064***	-0.174***	-0.556***	0.372***
CYCLE	-0.031***	-0.031***	-0.008***	-0.008***	0.126***	0.148***	-0.071***	-0.099***	-0.072***	0.044***

Table 4 (*continued*)

	MBR	JI	SI	IP	DBIGFOUR	DAUDITCHA	ROA1	Cycle1
JI	-0.022***	1.000						
SI	-0.025***	0.839***	1.000					
IP	-0.067***	0.421***	0.471***	1.000				
DBIGFOUR	-0.059***	0.245***	0.274***	0.177***	1.000			
DAUDITCHA	0.008***	-0.064***	-0.082***	-0.046***	-0.122***	1.000		
ROA	-0.085***	-0.253***	-0.205***	-0.191***	0.070***	-0.016***	1.000	
CYCLE	-0.046***	-0.145***	-0.102***	-0.094***	-0.053***	-0.002	0.135***	1.000

Table 5: *Correlations: Compensation*

	LNCOMP	BTC(A)	BTC(W)	CTR	LOSS	ROA	ROAt-1	STDROA	RET	RETt-1	STDRET
LNCOMP	1.000										
BTC(A)	-0.198***	1.000									
BTC(W)	-0.361***	0.496***	1.000								
CTR	0.123***	-0.593***	-0.258***	1.000							
LOSS	-0.141***	-0.147***	-0.345***	0.043***	1.000						
ROA	0.108***	0.162***	0.348***	-0.066***	-0.569***	1.000					
ROAt-1	0.096***	0.157***	0.328***	-0.064***	-0.455***	0.683***	1.000				
STDROA	-0.098***	-0.114***	-0.314***	0.026***	0.336***	-0.578***	-0.577***	1.000			
RET	-0.038***	-0.034***	-0.068***	0.017***	0.016***	-0.032***	-0.087***	0.065***	1.000		
RETt-1	-0.024***	-0.010***	-0.054***	-0.021***	-0.022***	0.016***	-0.023***	0.070***	-0.084***	1.000	
STDRET	-0.155***	-0.009***	-0.204***	-0.013***	0.195***	-0.213***	-0.213***	0.289***	0.249***	0.269***	1.000

Table 5 (*continued*)

	LNCOMP	BTC(A)	BTC(W)	CTR	LOSS	ROA	ROAt-1	STDROA	RET	RETt-1	STDRET
LEV	0.004	-0.050***	-0.047***	0.046***	0.023***	-0.095***	-0.164***	0.133***	0.015***	0.052***	0.049***
CFO	0.129***	0.120***	0.269***	-0.026***	-0.472***	0.683***	0.664***	-0.482***	-0.024***	-0.056***	-0.216***
MBR	0.080***	0.027***	-0.087***	-0.034***	0.006*	-0.051***	-0.085***	0.111***	-0.085***	0.246***	0.124***
PPE	-0.093***	0.029***	-0.036***	-0.021***	0.055***	0.072***	-0.002	-0.018***	0.033***	0.090***	0.105***
INTANG	0.210***	-0.011***	-0.200***	-0.027***	0.048***	-0.056***	-0.072***	0.040***	0.008**	0.018***	0.002
INV	-0.053***	0.150***	0.178***	-0.046***	-0.239***	0.206***	0.175***	-0.175***	-0.006*	0.027***	-0.062***
SIZE	0.610***	0.114***	0.233***	0.037***	-0.338***	0.355***	0.372***	-0.368***	-0.093***	-0.076***	-0.257***
DBIGFOUR	0.454***	-0.053***	0.005*	-0.009***	-0.061***	0.075***	0.070***	-0.099***	-0.030***	-0.052***	-0.140***
DAUDITCHA	-0.087***	0.017***	0.050***	0.006**	0.017***	-0.013***	-0.016***	0.014***	-0.009***	0.011***	0.024***

Table 5 (*continued*)

	LEV	CFO	MBR	PPE	INTANG	INV	SIZE	DBIGFOUR	DAUDITCHA
LEV	1.000								
CFO	-0.121***	1.000							
MBR	0.046***	-0.124***	1.000						
PPE	0.069***	0.052***	-0.034***	1.000					
INTANG	0.085***	-0.041***	0.122***	-0.155***	1.000				
INV	0.142***	0.088***	-0.009***	-0.070***	-0.061***	1.000			
SIZE	-0.051***	0.373***	-0.082***	0.003	0.070***	0.081***	1.000		
DBIGFOUR	-0.043***	0.097***	-0.059***	-0.047***	0.051***	-0.070***	0.365***	1.000	
DAUDITCHA	0.027***	-0.019***	0.008***	0.003	-0.010***	0.013***	-0.041***	-0.122***	1.000

Table 6, Panel A *Results of Regressions: Discretionary Accruals*

	Predicted Sign	EM1	EM2	EM3	EM4
Constant		-0.0172	-0.0157	0.0716***	0.0707***
		(-1.31)	(-1.21)	(12.68)	(12.41)
BTC(A)	−	-0.0390***	-0.0391***	-0.00969***	-0.0102***
		(-7.39)	(-7.23)	(-4.30)	(-4.44)
DNEG		-0.179***	-0.180***	-0.146***	-0.146***
		(-37.70)	(-37.54)	(-45.51)	(-45.63)
DNEG*BTC	+	0.0500***	0.0490***	0.0270***	0.0262***
		(8.56)	(8.30)	(6.53)	(6.33)
LEV		0.00262*	0.00208	-0.00136	-0.00134
		(1.68)	(1.30)	(-1.28)	(-1.23)
LOSS		-0.000752	-0.00134	-0.00292***	-0.00280***
		(-0.64)	(-1.12)	(-4.41)	(-4.27)
JI		-0.00793***	-0.00810***	0.000530	0.0000596
		(-4.16)	(-4.15)	(0.72)	(0.08)
SI		0.0126***	0.0126***	-0.00161	-0.00104
		(4.84)	(4.64)	(-1.55)	(-1.08)
IP		0.00727***	0.00714***	0.000989***	0.000926***
		(6.50)	(6.33)	(3.47)	(3.22)
DBIGFOUR		-0.00131*	-0.00138*	-0.00118***	-0.00131***
		(-1.78)	(-1.84)	(-2.70)	(-3.05)
DAUDITCHA		-0.00437***	-0.00407***	-0.000909*	-0.000488
		(-6.08)	(-5.59)	(-1.91)	(-1.02)
CYCLE		-0.00267***	-0.00282***	-0.00138***	-0.00125***
		(-5.22)	(-5.40)	(-3.01)	(-2.66)
ROA		0.0124***	0.0117***	-0.0179***	-0.0186***
		(4.14)	(3.91)	(-8.12)	(-8.52)
LNTA		0.00150***	0.00154***	-0.000152	-0.0000866
		(3.85)	(3.93)	(-1.01)	(-0.58)
MBR		0.000875***	0.000956***	0.000330***	0.000421***
		(8.27)	(9.04)	(4.45)	(5.63)
YEAR fixed effect		Yes	Yes	Yes	Yes
Industry fixed effect		Yes	Yes	Yes	Yes
Country fixed effect		Yes	Yes	Yes	Yes
N		163,195	163,195	163,195	163,195
R^2a		0.474	0.475	0.479	0.480

t statistics in parentheses * p<0.10, ** p<0.05, *** p<0.01

Table 6, Panel B *Results of Regressions: Absolute Discretionary Accruals*

	Predicted Sign	ABSEM1	ABSEM2	ABSEM3	ABSEM4
Constant		0.0740***	0.0778***	0.141***	0.144***
		(4.26)	(4.43)	(16.50)	(16.84)
BTC(A)	−	-0.0221***	-0.0225***	-0.00938***	-0.00938***
		(-5.72)	(-5.68)	(-4.38)	(-4.41)
LEV		0.0232***	0.0231***	0.0175***	0.0174***
		(15.55)	(15.19)	(15.82)	(15.52)
LOSS		0.0122***	0.0126***	0.00270***	0.00229***
		(11.40)	(11.59)	(3.90)	(3.41)
JI		-0.0150***	-0.0156***	-0.00705***	-0.00721***
		(-6.64)	(-6.75)	(-5.68)	(-5.80)
SI		0.0161***	0.0168***	0.00782***	0.00783***
		(5.03)	(5.06)	(4.58)	(4.66)
IP		0.00949***	0.00926***	0.00284***	0.00271***
		(7.44)	(7.21)	(5.30)	(5.07)
DBIGFOUR		-0.00446***	-0.00446***	-0.00276***	-0.00273***
		(-5.23)	(-5.17)	(-4.87)	(-4.86)
DAUDITCHA		-0.00278***	-0.00266***	-0.00101	-0.000998
		(-3.46)	(-3.31)	(-1.43)	(-1.41)
CYCLE		-0.00195***	-0.00189***	-0.00147***	-0.00154***
		(-3.91)	(-3.74)	(-3.51)	(-3.64)
ROA		-0.0317***	-0.0310***	-0.0298***	-0.0303***
		(-12.84)	(-12.66)	(-13.17)	(-13.32)
LNTA		-0.00372***	-0.00378***	-0.00566***	-0.00573***
		(-8.22)	(-8.28)	(-28.74)	(-29.17)
MBR		0.00197***	0.00200***	0.00168***	0.00173***
		(17.99)	(18.01)	(21.53)	(21.75)
YEAR fixed effect		Yes	Yes	Yes	Yes
Industry fixed effect		Yes	Yes	Yes	Yes
country fixed effect		Yes	Yes	Yes	Yes
N		163,195	163,195	163,195	163,195
R^2a		0.127	0.126	0.115	0.114

t statistics in parentheses * p<0.10, ** p<0.05, *** p<0.01

Table 7, *Results of Regressions: Compensation*

	Predicted Sign	LNCOMP	LNCOMP
Constant		18.16***	18.33***
		(62.74)	(62.82)
BTC(A)	−	-1.790***	
		(-18.33)	
BTC(W)	−		-1.860***
			(-29.94)
LOSS		-0.307***	-0.108***
		(-7.58)	(-4.17)
LOSS*BTC		0.419***	-0.615***
		(3.75)	(-8.07)
CTR		0.740***	0.365*
		(2.83)	(1.74)
ROA		-0.128***	-0.0252
		(-3.37)	(-0.81)
ROAt-1		-0.305***	-0.244***
		(-8.74)	(-8.49)
STDROA		0.150***	0.0520**
		(5.80)	(2.50)
RET		0.0601***	0.0362***
		(5.82)	(3.96)
RETt-1		0.0338***	0.0395***
		(3.72)	(4.31)
STDRET		-0.0344***	-0.0327***
		(-4.18)	(-4.57)
LEV		-0.0334**	-0.0115
		(-1.99)	(-1.13)
CFO		-0.191***	-0.149***
		(-3.15)	(-2.77)
MBR		0.0273***	0.0223***
		(13.69)	(11.89)
PPE		-0.0611	-0.0142
		(-1.64)	(-0.42)
INTANG		0.973***	0.351***
		(14.72)	(6.06)
INV		0.0512	0.0945
		(0.67)	(1.37)

SIZE	0.415***	0.416***
	(67.79)	(72.39)
DBIGFOUR	0.260***	0.0856***
	(12.95)	(4.41)
DAUDITCHA	-0.113***	-0.0300
	(-4.74)	(-1.42)
YEAR fixed effect	Yes	Yes
Industry fixed effect	Yes	Yes
country fixed effect	Yes	Yes
N	38,988	38,988
R^2a	0.508	0.544

t statistics in parentheses * p<0.10, ** p<0.05, *** p<0.01