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ASIAN ACADEMIC ACCOUNTING ASSOCIATION
18th annual conference
22-23 NOVEMBER 2017. BALI, INDONESIA

Internal Control and Tax Aggressiveness: Evidence from China

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Abstract

In the context of tax system in developing countries, this study examines the effect of internal control quality on tax aggressiveness. Taking China as a unique developing country, we find that better internal control quality is associated with lower corporate tax aggressiveness and smaller tax risk. Further, we take into consideration the impact of regional tax enforcement. The negative effect of internal control quality on tax aggressiveness is less pronounced in the regions with higher tax enforcement. Our results indicate that internal control can depress corporate tax risk in developing countries with lower investor protection. Moreover, these findings show that internal control plays a vital role in corporate risk management and it also has important implications for governments in developing countries in promotion of internal control construction in future.

Keywords: Internal control, tax aggressiveness, tax enforcement, developing countries, China

1. INTRODUCTION

Internal control is an important enterprise internal risk management system. As an inherent corporate government mechanism, it permeates every level of business activities, aiming to provide reasonable assurance of entity's objectives, such as reliable external financial report, effectiveness and efficiency of operating and complying with laws and regulations (Committee of Sponsoring Organizations of the Treadway Commission, 2013). Recent years, internal control has been attracting increasing attention from academics, especially after the passage of milestone Sarbanes-Oxley Act (SOX) in 2002. For example, Ashbaugh-Skaife, Collins, Kinney, and LaFond (2009), and Kim, Yeung, and Zhou (2017) examined the effect of internal control in addressing risk from the perspective of capital market, and they documented that better internal control is associated with lower idiosyncratic risk, systematic risk as well as stock price crash risk.

Tax risk is one of the main resources of enterprise's risk. Aggressive tax activities can not only harm the interests of shareholders, but also bring huge losses to national economy. Hence, as a vital risk management mechanism, whether internal control affects corporate tax aggressiveness or not is an important research question. Based on U.S. listed firms, Bauer (2016) documented that firms with a tax-related internal control weakness have a lower degree of tax aggressiveness and lower tax risk. However, corporate tax avoidance strategies in developing countries are quite different from those in developed countries. Generally speaking, investor protection in developed countries is much stronger. Firms are less likely to adopt a tax avoidance activity due to higher reputation risk and regulatory risk. Therefore, the extent of corporate tax avoidance in developed countries is pervasively lower. By contrast, firms in developing countries with lower investor protection are inclined to take short-term opportunist behavior, resulting in serious corporate tax avoidance phenomenon and increased tax risk. Thus, whether the findings of Bauer (2016) can be applied to developing countries is still controversial. Moreover, whether internal control can meet the needs of corporate tax in developing countries by effectively restraining corporate tax aggressive risk has become the core research question of our study.

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In the context of China, we empirically investigate the effect of internal control on tax aggressiveness and the moderate effect of regional tax enforcement on the above association. We choose China as the research setting for two reasons. First, China is a typical developing country with higher tax burden. Tax avoidance phenomenon among Chinese firms is pervasive and very severe. "2014-2015 global competitiveness report" issued by World Economic Forum shows that tax issue has become one of the major problems affecting the development of China's commercial business. Second, consistent with internal control requirement in U.S., China's internal control system also requires management in public firms to report on the effectiveness of their companies' internal control over financial reporting and external auditors to assess its adequacy. This requirement not only makes us conveniently obtain the internal control information of listed firm, but also ensuring the comparability of our findings with those developed countries.

To examine the association of internal control quality and tax aggressiveness, we use internal control deficiencies disclosure to proxy for listed firms' internal control quality and we rely on multiple measures of tax aggressiveness drawn from the literature. Our empirical findings show that better internal control quality is associated with lower corporate tax aggressiveness and smaller tax risk. Further, we take into consideration the impact of regional tax enforcement. The negative effect of internal control quality on tax aggressiveness is more pronounced in the regions with lower tax enforcement.

This study makes two contributions. First, based on the developing countries with weaker investor protection, this study provides new empirical evidence of the association between internal control and tax avoidance. Using U.S.'s institutional context, Bauer (2016) has investigated this question before. However, the findings cannot be applied to those developing countries directly due to the significant difference of corporate tax avoidance activities between developed and developing countries. Based on Chinese listed firms, we document totally opposite results associated with internal control and tax aggressiveness. Namely, the better the quality of internal control, the lower extent of tax aggressiveness. Our findings contribute to related literature by providing new evidence from developing countries. Second, from the perspective of institutional economy, we examined the moderate effect of external supervisor system (e.g. tax enforcement) on the internal control effectiveness. We find that the effect of internal control on tax aggressiveness can be attenuated by stronger external supervision, which indicates that there is a substitution effect between internal control and external monitor system. Our research provides new thought and evidence of the interaction between internal and external monitoring mechanisms.

The paper is organized as below. Section 2 is the theoretical analyses and hypotheses development. Section 3 presents the research design and descriptive statistics. Section 4 reports the main empirical results of the study Section 5 performs some robust tests. Finally, we conclude the paper in section 6.

2. THEORETIC ANALYSIS AND HYPOTHESES DEVELOPMENT

Tax aggressiveness is a risky activity that can impose great uncertainties on firms (Rego & Wilson, 2012). In particular, tax aggressiveness increases corporate violation risk. For example, Kubick, Lynch, Mayberry, and Omer (2016) find that firms appearing to engage in greater tax aggressiveness are more likely to receive a tax-related comment letter from U.S. Securities and Exchange Commission (SEC). Meanwhile, tax aggressiveness also increases firms' market risk and operational risk. Kim, Li, and Zhang (2011) investigate the influence of tax avoidance on crash risk, and provide evidence that corporate tax aggressiveness is positively associated with firm-specific stock price crash risk. Hasan, Hoi, Wu, and Zhang (2014) base on the credit risk perspective and demonstrate that firms with greater tax aggressiveness incur more stringent non-price loan terms.

As an important system of risk management, internal control reduces tax aggressive risk by increasing the marginal cost of risky tax activities. Specifically, on one hand, internal control greatly enhances the difficulty to undertake tax aggressive activities. Tax aggressive activities often comprise very complex transactions such as earnings management and related-party transactions (Chen, Chen, Cheng, & Shevlin, 2010). But sound internal control system makes corporate operational activities more transparent and constantly under effective supervision, which greatly reduces the probability of risky tax transactions. For example, Ye, Li, and Zhang (2012) find that internal control quality is negatively related to earnings management. Zhang, Zhang, and Zhang (2016) investigate the effect of internal control on related-party transactions and show that firms with higher internal control quality are less likely to conduct abnormal related-party transactions. These findings suggest that internal control improves the difficulty to undertake risky tax activities including earnings management and related-party transactions, which further reduces tax aggressiveness.

On the other hand, internal control raises the opportunity cost of tax aggressive activities. The sound internal control system represents a corporate culture where risk control is held in high esteem, embedded throughout the

organization, and practiced on an everyday basis (Committee of Sponsoring Organizations of the Treadway Commission, 2013). Once the top management undertake risky tax strategies, the conservative corporate culture will be destroyed, leading to a collapse of corporate norms and the confusion of internal management. The higher internal control quality is, the greater costs tax aggressiveness activities bring. Knowing that a breach of internal control will lead to a collapse of corporate norms, the top management will be reluctant to act in an opportunistic way, which further reduces the tax aggressiveness (Guiso, Sapienza, & Zingales, 2015).

In summary, we argue that internal control quality is negatively associated with tax aggressiveness. We use corporate effective tax rate and book–tax difference to proxy for tax aggressiveness, and use internal control weaknesses to proxy for internal control quality. We propose the following hypothesis:

H1. Tax aggressiveness is lower among firms with effective internal control.

External supervision mechanism may affect the negative association of internal control quality and tax aggressiveness. Existing research documented that tax enforcement could restrain corporate aggressive tax activities. Kubick et al. (2016) pointed out that enhanced tax enforcement can increase violation risk, change the costs and benefits of tax avoidance, and thereby depress the degree of tax aggressiveness. Specifically, a firm should trade-off costs and benefits of an aggressive tax activity before it takes a further step. Theoretically, an aggressive tax avoidance can only be happened only if the marginal benefits exceed marginal costs. Chen et al. (2010) argued that the marginal benefits of tax aggressiveness are mainly incremental profits arisen from tax savings, while the marginal costs are from violation risk and litigation risk due to tax avoidance activities. When a firm faces stronger tax enforcement, the violation and litigation risk will be raised significantly. Thus, the original balance of benefits and costs is broken down, leading to a decreasing degree of tax aggressiveness. Hoopes, Mescall, and Pittman (2012) showed that U.S. public firms undertake less aggressive tax positions when tax enforcement is stricter. Their findings are also supported by Kubick et al. (2016) and Jiang (2013).

Hence, tax enforcement can affect corporate tax aggressive activities. Closer tax enforcement limit corporate tax avoidance due to increased violation and litigation risk. It wouldn't be sensitivity to quality internal control. In other word, in the face of stricter tax monitoring, a firm is less likely to change its tax strategy regardless of internal control quality. Conversely, in the context of looser tax enforcement, a firm has lower external monitoring risk. Then, internal control quality may affect its tax aggressive strategy by increasing internal operating costs. Relative to firms with poorer internal control quality, firms with better internal control quality have higher marginal costs of being tax aggressive, thereby decreasing their incentives to adopt tax aggressive strategies. Hence, we participate that the effect of internal control on tax aggressiveness is more pronounced in looser tax enforcement environment. In this study, we use regional tax effort and regional fiscal pressure to proxy for the degree of tax enforcement and propose H2 and H3 as below:

H2: the negative effect of internal control on tax aggressiveness is much stronger in lower regional tax effort.
H3: the negative effect of internal control on tax aggressiveness is much stronger in lower regional fiscal pressure.

3. RESEARCH DESIGN

3.1 Regression models

3.1.1 Test of H1

H1 predicts that internal control can alleviate the extent of corporate tax aggressiveness. To test H1, we draw on Higgins, Omer, and Phillips (2015), Bauer (2016), and Kim and Zhang (2016) to develop the following OLS regression model in equation (1):

$$\begin{aligned} BETR1/BETR2/BTD/DDBTD &= \beta_0+\beta_1 ICW+\beta_2 SIZE+\beta_3 FORINC+\beta_4 SEG+\beta_5 GEO\_HHI \\ &+\beta_6 BUS\_HHI+\beta_7 ROA+\beta_8 DEBT+\beta_9 DISTRESS+\beta_{10} RND+\beta_{11} INTAN \\ &+\beta_{12} PPE+\beta_{13} INVEST+\beta_{14} GOODWILL+\beta_{15} DACC+\beta_{16} HHI\_IND \\ &+\beta_{17} SPV+\beta_{18} PID+\beta_{19} FIRST+\beta_{20} INST+\beta_{21} SOE \\ &+\sum YEAR+\sum INDUSTRY+\varepsilon \end{aligned} \quad (1)$$

Following tax literature both domestic and abroad (Chen et al., 2010; Liu & Ye, 2013 etc.), we use corporate income tax to measure the extent of tax aggressiveness. Specifically, we use four common tax aggressive measures,

which can be divided into two categories. One category includes the effective tax rate measure and its variant (i.e. *BETR1* and *BETR2*) and the other includes book-tax difference and its variant (i.e. *BTD* and *DDBTD*).

For the effective tax rate measurement, foreign researchers use effective rate of tax directly to measure corporate tax aggressiveness. However, different with foreign tax system, listed firms in China enjoy various degrees of tax preferences and the statutory tax rate also varies across firms. Therefore, we draw on Liu and Ye (2013) to modify the measurement of effective tax rate used abroad as statutory tax rate minus effective tax rate. Specifically, following Wu (2009), we employ two methodologies to calculate the effective tax rate: (1) effective tax rate1=total tax expenses/pre-tax book income; (2) effective tax rate2= (total tax expenses-deferred income tax expenses)/ pre-tax book income. Meanwhile, following Higgins et al. (2015), we set the effective tax rate to 1 if the firm's effective tax rate is larger than 1; and we set the effective tax rate to 0 if the firm's effective tax rate is less than 0. *BETR1* and *BETR2* are then constructed by using corporate statutory tax rate minus the above two effective tax rates separately. Higher values of *BETR1* and *BETR2* represent higher degree of corporate tax aggressiveness.

For the book-tax differences measurement, we follow Manzon and Plesko (2002), and Chen et al. (2010) to construct book-tax difference (*BTD*) as (pre-tax book income* statutory tax rate-current tax expenses)/lagged total income. Where: current tax expenses= total tax expenses-deferred income tax expenses. The higher value of *BTD*, the larger extent of tax aggressiveness. Besides, following Desai and Dharmapala (2006) and Chen et al. (2010), we further compute deducting accruals book-tax differences (*DDBTD*) to proxy for tax aggressiveness. Specifically, we calculate *DDBTD* based on model (2) as below:

$$BTD_{it}=\beta_1 TA_{it}+u_i+\varepsilon_{it} \quad (2)$$

Where: *BTD* equals to book-tax difference. *TA* is total accruals computed by operating income minus cash flow from operations scaled by lagged total asset. Both *BTD* and *TA* are winsorized at 1% and 99% level. u_i is the average value of the residual for firm i over the sample period; and ε_{it} is the deviation in year t from firm i's average residual u_i. $DDBTD=u_i+\varepsilon_{it}$, representing the component of *BTD* that cannot be explained by total accruals. The higher value of *DDBTD*, the larger extent of tax aggressiveness.

We use *ICW* as the main explanatory variable proxy for internal control quality of listed firms. Generally speaking, a firm with internal control weaknesses (ICWs) has a lower internal control quality. However, the ICWs disclosure among Chinese listed firms is relatively poor. Majority of firms may conceal their real ICWs information. Hence, to alleviate this potential bias, we adopt the methodology of Public Company Accounting Oversight Board (PCAOB) in identify the firms with ICWs. Except for firms disclosing ICWs, we also classify firms without disclosing ICWs but were punished by regulators and were issued an unqualified audit opinion by auditors as ICW firms. In other word, *ICW* was defined as below: if a listed firm disclose material control weaknesses or be punished by regulators or receive an unqualified audit opinion in current year, *ICW* is set to 3; if a listed firm disclose significant control deficiencies, *ICW* is set to 2; if a listed firm disclose control deficiencies, *ICW* is set to 1; if a listed firm doesn't disclose any level of internal control deficiencies, *ICW* is set 0.

The set of control variables is taken from prior research (e.g., Higgins et al., 2015; Bauer, 2016; Kim & Zhang, 2016). We use firm size (*SIZE*), foreign sales (*FORINC*), number of segments (*SEG*), the concentration of regional segments income (*GEO_HHI*), and the concentration of business segments income (*BUS_HHI*) to control for the effect of business complexity. We include return on asset (*ROA*), debt ratio (*DEBT*), and financial distress (*DISTRESS*) as prior research finds that operating performance impacts a firm's need to avoid taxes. To control for differential book and tax treatments of financial reporting, we include R&D expenses (*RND*), intangible asset ratio (*INTAN*), fixed asset ratio (*PPE*) and investment level (*INVEST*). We also include goodwill (*GOODWILL*), abnormal accruals (*DACC*) and the concentration of industry (*HHI_IND*) to control for the effects of merger acquisition activities, earnings management and the degree of industry competition. Moreover, we also include the size of supervision board (*SPV*), proportion of independent directors (*PID*), largest shareholders' ownership (*FIRST*) and intuitional investors' ownership (*INST*) to control the impacts of corporate governance. Finally, we controlled the state ownership (*SOE*), year dummy variables (*YEAR*) and industry dummy variables (*INDUSTRY*) in our regression model. All the variables are defined in Table 1.

3.1.2. Test of H2&H3

To examine the moderate effect of tax enforcement on the association between internal control quality and tax aggressiveness, we firstly construct a variable *TE* to measure the degree of regional tax effort. Drawing on prior research (Mertens, 2003; Zeng & Zhang, 2009), we use the following model to compute *TE*:

$$\frac{T_{it}}{GRP_{it}}=\beta_0+\beta_1 GRP_{it}+\beta_2 IND\_1_{it}+\beta_3 IND\_2_{it}+\varepsilon_{it} \quad (3)$$

Where: T_{it} is the total tax income for region i in year t. GRP_{it} is the gross regional domestic product for region i in year t. IND_1_{it} is the proportion of primary industry value added to *GRP* for region i in year t. IND_2_{it} is the proportion of secondary industry value added to *GRP* for region i in year t. Tax efforts (*TE*) is computed by the actual value minus the predicted value of the dependent variable in model 3. Larger value of *TE* represents higher tax efforts.

Based on the industry-year medium value of *TE*, we partition our whole sample into higher tax effort group (HIGHTE) and lower tax effort group (LOWTE). Then, we estimate the effect of *ICW* on tax aggressiveness in the subsamples. According to the above theoretical analyses, we participate that the coefficient of *ICW* is more pronounced in lower tax effort group.

Besides, we also use the degree of fiscal pressure to proxy for tax enforcement. Tax is the main sources of regional fiscal revenue. If regional governments face higher fiscal pressure, they will strengthen tax enforcement. Following the methodology developed by Cao, Ma and Shen (2014), regional fiscal pressure (*OFFBUDGET*) is computed by regional off-budget revenues divided by regional budget revenues. Larger value of *OFFBUDGET* represents lower regional fiscal pressure.

Based on the industry-year medium value of *OFFBUDGET*, we partition our whole sample into higher fiscal pressure group (HIGHBUD) and lower fiscal pressure group (LOWBUD). Then, we estimate the effect of *ICW* on tax aggressiveness in the subsamples. According to the above theoretical analyses, we predict that the coefficient of *ICW* is more pronounced in lower fiscal pressure group.

Table 1. Variables definition

Variables	Definition
Dependent variables	
BETR1	Effective tax rate, calculated by statutory tax rate minus (total tax expenses/pre-tax book income)
BETR2	Effective tax rate, calculated by statutory tax rate minus (total tax expenses-deferred income tax expenses)/ pre-tax book income)
BTD	Book-tax differences, calculated by (pre-tax book income* statutory tax rate-current tax expenses) scaled by lag total income
DDBTD	Accruals-adjusted book-tax differences
Explanatory variable	
ICW	Disclosure of Internal control deficiencies. If a firm disclose material control weaknesses or be punished by regulators or receive an unqualified audit opinion in current year, *ICW* is set to 3; if a firm disclose significant control deficiencies, *ICW* is set to 2; if a firm disclose control deficiencies, *ICW* is set to 1; if a firm doesn't disclose any level of internal control deficiencies, *ICW* is set to 0.
Control variables	
SIZE	Natural logarithm of total assets
FORINC	Foreign income divided by total revenue
SEG	Natural logarithm of segments number
GEO_HHI	The revenue-based Hirfindahl-Hirschman index calculated as the sum of the squares of each geographic segment's sales as a percentage of the total firm sales
BUS_HHI	The revenue-based Hirfindahl-Hirschman index calculated as the sum of the squares of each industry segment's sales as a percentage of the total firm sales
ROA	Return on asset, calculated as operating profit divided by total asset at the begging of fiscal year
DEBT	Long-term debt divided by total asset at the begging of fiscal year
DISTRESS	Decile rank of Altman (1968) z-score measure of distress risk
RND	R&D expenses in current year divided by scaled by total asset at the begging of fiscal year
INTAN	Intangible assets divided by total asset at the begging of fiscal year
PPE	Net value of fixed assets divided by total asset at the begging of fiscal year
INVEST	New-added investment divided by total asset at the begging of fiscal year
GOODWILL	Change of goodwill divided by total asset at the begging of fiscal year
DACC	The absolute value of discretionary accruals, estimated from the performance-adjusted modified cross-sectional Jones model
HHI_IND	the Herfindahl-Hirschman index of industry concentration computed with firm net sales
SPV	The size of supervision board
PID	The proportion of independent directors
FIRST	The ownership of largest shareholders
INST	The ownership of institutional ownership
SOE	Dummy variable that equals 1 if a firm is state owned and 0 otherwise
TE	Tax effort, equals to actual regional tax revenue minus predicted regional tax revenue
OFFBUDGET	Regional fiscal pressure, equals to regional off-budget revenues divided by regional budget revenues
YEAR	Year dummy variables
INDUSTRY	Industry dummy variables

3.2 Sample selections and descriptive statistics

As all the listed firms in China should implement internal control system since year 2012, we select our sample period subsequently after this mandatory year, from 2013 to 2015. The data is obtained from public database: DIB internal control database, CSMAR database and WIND database. After deleting financial firms and observations with missing values, we obtain 6139 firm-year observations. We winsorize all of the non-dummy variables at the 1% and 99% levels. Table 2 presents the descriptive statistics of all the variables used in our regression analysis.

Table 2. Descriptive statistics

	N	**Mean**	**Median**	**Std**	**Min**	**p25**	**p75**	**Max**
BETR1	6025	0.008	0.007	0.146	-0.635	-0.030	0.077	0.250
BETR2	5996	-0.015	-0.006	0.174	-0.750	-0.061	0.067	0.250
BTD	6023	0.012	-0.122	2.002	-5.537	-0.536	0.203	14.015
DDBTD	6023	-0.132	-0.260	1.999	-5.703	-0.684	0.066	13.806
ICW	5938	0.550	0.000	1.064	0.000	0.000	1.000	3.000
SIZE	6139	22.000	21.840	1.241	19.399	21.122	22.695	25.841
FORINC	6139	0.135	0.019	0.217	0.000	0.000	0.185	0.941
SEG	6139	2.243	2.303	0.459	0.693	1.946	2.565	3.219
GEO_HHI	6139	0.599	0.578	0.262	0.151	0.365	0.837	1.000
BUS_HHI	6139	0.778	0.883	0.235	0.209	0.574	0.982	1.000
ROA	6139	0.046	0.038	0.076	-0.186	0.008	0.080	0.333
DEBT	6139	0.084	0.021	0.126	0.000	0.000	0.127	0.635
DISTRESS	6139	5.517	6.000	2.858	1.000	3.000	8.000	10.000
RND	6139	0.004	0.000	0.012	0.000	0.000	0.000	0.069
INTAN	6139	0.059	0.041	0.069	0.000	0.021	0.071	0.460
PPE	6139	0.261	0.223	0.189	0.002	0.117	0.369	0.876
INVEST	6139	0.060	0.041	0.062	0.000	0.017	0.081	0.330
GOODWILL	6139	0.025	0.000	0.106	-0.012	0.000	0.000	0.755
DACC	6139	0.000	0.001	0.187	-0.641	-0.094	0.095	0.623
HHI_IND	6139	0.103	0.067	0.094	0.019	0.035	0.133	0.407
SPV	6139	3.569	3.000	1.018	3.000	3.000	4.000	7.000
PID	6139	0.375	0.333	0.053	0.333	0.333	0.429	0.571
FIRST	6139	0.348	0.328	0.149	0.088	0.228	0.449	0.755
INST	6139	0.324	0.307	0.231	0.001	0.107	0.510	0.826
SOE	6139	0.257	0.000	0.437	0.000	0.000	1.000	1.000
TE	6139	0.001	-0.006	0.047	-0.084	-0.032	0.019	0.143
OFFBUDGET	6139	0.012	0.010	0.017	-0.050	0.004	0.018	0.049

Note: please refer to Table 1 for the definitions of all variables.

4. EMPRICAL RESULTS

4.1 Internal control and tax aggressiveness

Table 3 presents the results of the effects of internal control quality on corporate tax aggressiveness. All the significant tests are two-tailed tests. Consistent with H1, the coefficients of *ICW* is significantly positive across all four columns with different measurements of tax aggressiveness. The evidence suggests that firms with weaker internal control quality are associated with higher tax aggressiveness.

We need to be caution that the direction signs of *ROA* are inconsistent. In column (1) and (2), the coefficients of *ROA* are significantly negative, while they are significantly positive in column (3) and (4). It is because that we keep firms with financial losses in our sample. This phenomenon has been detected and supported by Both Chen et al. (2010) and Bauer (2016). It doesn't affect the accuracy of our empirical results.

Table 3. Internal control weaknesses and tax aggressiveness

	(1)	(2)	(3)	(4)
Dependent variables	*BETR1*	*BETR2*	*BTD*	*DDBTD*
ICW	**0.004****	**0.005****	**0.098*****	**0.097*****
	(0.037)	**(0.025)**	**(0.003)**	**(0.003)**
SIZE	-0.001	-0.004	0.063	0.067
	(0.732)	(0.125)	(0.179)	(0.154)
FORINC	-0.018**	-0.014	-0.113	-0.100
	(0.048)	(0.207)	(0.472)	(0.525)
SEG	-0.021***	-0.020***	-0.341***	-0.342***
	(0.000)	(0.001)	(0.001)	(0.001)
GEO_HHI	0.000	0.008	0.066	0.068
	(0.952)	(0.430)	(0.643)	(0.632)
BUS_HHI	0.014	0.005	-0.272*	-0.262*
	(0.119)	(0.608)	(0.088)	(0.100)
ROA	-0.249***	-0.199***	3.839***	3.367***

	(0.000)	(0.000)	(0.000)	(0.000)
DEBT	0.017	0.016	0.140	0.075
	(0.405)	(0.529)	(0.751)	(0.866)
DISTRESS	0.006***	0.007***	0.072***	0.073***
	(0.000)	(0.000)	(0.002)	(0.002)
RND	-0.116	-0.450**	-3.860	-3.824
	(0.479)	(0.022)	(0.100)	(0.103)
INTAN	0.010	-0.012	-0.562	-0.509
	(0.736)	(0.744)	(0.457)	(0.499)
PPE	0.023*	0.081***	0.501	0.597*
	(0.072)	(0.000)	(0.101)	(0.050)
INVEST	-0.004	-0.062	-0.977	-0.931
	(0.918)	(0.151)	(0.208)	(0.229)
GOODWILL	-0.006	0.004	-0.329	-0.336
	(0.739)	(0.860)	(0.410)	(0.399)
DACC	0.000	-0.005	-0.135	-0.187
	(0.976)	(0.706)	(0.519)	(0.373)
HHI_IND	0.081**	0.082*	0.327	0.368
	(0.022)	(0.053)	(0.413)	(0.356)
SPV	-0.006***	-0.000	-0.010	-0.010
	(0.002)	(0.843)	(0.748)	(0.753)
PID	-0.044	0.019	0.282	0.273
	(0.213)	(0.655)	(0.636)	(0.647)
FIRST	0.006	0.007	-0.298	-0.294
	(0.667)	(0.674)	(0.178)	(0.185)
INST	-0.004	0.010	-0.010	0.002
	(0.661)	(0.404)	(0.945)	(0.991)
SOE	0.001	0.009	0.099	0.097
	(0.799)	(0.105)	(0.182)	(0.190)
YEAR	YES	YES	YES	YES
INDUSTRY	YES	YES	YES	YES
Constant	0.051	0.068	-1.575	-1.826
	(0.411)	(0.362)	(0.158)	(0.102)
Observations	5827	5798	5827	5827
R-squared	0.051	0.046	0.070	0.067

Note: *, ** and *** indicate significance at the 10%, 5% and 1% levels of two-tails, respectively. P-values are shown in the brackets.

4.2 Regional tax enforcement, internal control and tax aggressiveness

To test how the effects of internal control quality on tax aggressiveness varied with regional tax enforcement (H2), we estimate regression (1) in the subsamples (HIGHTE V.S. LOWTE), which are partitioned based on the industry-year medium value of tax effort (*TE*). H2 predicts a significantly positive coefficient of *ICW* in LOWTE group and an insignificant coefficient in HIGHTE group.

Table 4 reports the results. In LOWTE groups, the coefficients of *ICW* on tax aggressiveness (*BETR1*, *BETR2*, *BTD*, and *DDBTD*) are significantly positive. In contrast, the coefficients of *ICW* in HIGHTE groups are positive but insignificant. These results indicate that the effect of internal control on tax aggressiveness is more pronounced when tax enforcement is weaker. Then, H2 is supported. The coefficients of control variables are all consistent with prior literature.

Table 4. The impact of regional tax enforcement on the role of internal control

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
	LOWTE	HIGHTE	LOWTE	HIGHTE	LOWTE	HIGHTE	LOWTE	HIGHTE
Dependent variables	*BETR1*	*BETR1*	*BETR2*	*BETR2*	*BTD*	*BTD*	*DDBTD*	*DDBTD*
ICW	**0.004***	**0.003**	**0.006***	**0.004**	**0.120*****	**0.070**	**0.119*****	**0.070**
	(0.092)	**(0.313)**	**(0.054)**	**(0.253)**	**(0.007)**	**(0.116)**	**(0.008)**	**(0.117)**
SIZE	-0.005	0.002	-0.008*	-0.002	0.057	0.074	0.061	0.079
	(0.171)	(0.516)	(0.067)	(0.605)	(0.305)	(0.344)	(0.278)	(0.312)
FORINC	-0.035***	-0.002	-0.031**	0.003	-0.176	0.040	-0.155	0.044
	(0.008)	(0.869)	(0.045)	(0.841)	(0.303)	(0.890)	(0.364)	(0.879)
SEG	-0.020***	-0.022***	-0.025***	-0.015*	-0.386***	-0.270*	-0.382***	-0.277*
	(0.006)	(0.002)	(0.004)	(0.086)	(0.001)	(0.084)	(0.002)	(0.077)
GEO_HHI	0.001	-0.003	0.016	-0.007	0.002	0.080	0.012	0.074
	(0.908)	(0.818)	(0.267)	(0.639)	(0.988)	(0.724)	(0.941)	(0.743)
BUS_HHI	0.010	0.017	0.012	-0.003	-0.294	-0.198	-0.289	-0.183
	(0.445)	(0.190)	(0.440)	(0.833)	(0.127)	(0.433)	(0.134)	(0.468)
ROA	-0.229***	-0.260***	-0.168***	-0.227***	3.962***	3.704***	3.492***	3.226***
	(0.000)	(0.000)	(0.002)	(0.000)	(0.000)	(0.001)	(0.001)	(0.004)
DEBT	0.048	-0.015	0.029	-0.009	0.230	-0.092	0.166	-0.159
	(0.103)	(0.613)	(0.410)	(0.816)	(0.689)	(0.886)	(0.773)	(0.804)
DISTRESS	0.005***	0.006***	0.006***	0.008***	0.091***	0.043	0.092***	0.044
	(0.001)	(0.000)	(0.002)	(0.000)	(0.000)	(0.267)	(0.000)	(0.260)

RND	0.077	-0.327	-0.670**	-0.358	-6.679**	-2.349	-6.670**	-2.283
	(0.771)	(0.127)	(0.034)	(0.163)	(0.015)	(0.525)	(0.015)	(0.535)
INTAN	0.032	-0.010	0.007	-0.031	-0.470	-0.662	-0.429	-0.594
	(0.471)	(0.827)	(0.892)	(0.553)	(0.631)	(0.572)	(0.661)	(0.611)
PPE	0.034*	0.016	0.078***	0.090***	0.860**	0.103	0.949**	0.202
	(0.066)	(0.408)	(0.000)	(0.000)	(0.030)	(0.822)	(0.016)	(0.656)
INVEST	-0.035	0.037	-0.084	-0.021	-1.331*	-0.219	-1.291	-0.162
	(0.477)	(0.492)	(0.157)	(0.741)	(0.091)	(0.884)	(0.101)	(0.914)
GOODWILL	-0.009	-0.005	0.004	0.004	-0.318	-0.307	-0.324	-0.315
	(0.725)	(0.860)	(0.900)	(0.907)	(0.576)	(0.551)	(0.569)	(0.537)
DACC	-0.001	0.003	-0.019	0.014	-0.284	0.097	-0.336	0.045
	(0.955)	(0.830)	(0.264)	(0.451)	(0.321)	(0.739)	(0.241)	(0.876)
HHI_IND	0.088*	0.076	0.089	0.074	0.495	-0.001	0.525	0.053
	(0.070)	(0.147)	(0.126)	(0.239)	(0.314)	(0.999)	(0.287)	(0.934)
SPV	-0.004	-0.009***	-0.001	-0.001	-0.003	-0.018	-0.002	-0.019
	(0.140)	(0.003)	(0.716)	(0.830)	(0.945)	(0.702)	(0.963)	(0.694)
PID	-0.074	-0.029	0.008	0.011	1.251	-1.151	1.240	-1.154
	(0.142)	(0.566)	(0.891)	(0.850)	(0.136)	(0.144)	(0.139)	(0.144)
FIRST	0.021	-0.009	0.010	0.007	-0.268	-0.312	-0.262	-0.313
	(0.288)	(0.640)	(0.677)	(0.786)	(0.368)	(0.313)	(0.380)	(0.313)
INST	-0.009	0.002	0.001	0.023	-0.029	0.008	-0.019	0.022
	(0.467)	(0.876)	(0.970)	(0.188)	(0.868)	(0.970)	(0.914)	(0.917)
SOE	0.001	0.002	0.011	0.006	0.173*	0.001	0.169*	0.002
	(0.934)	(0.791)	(0.179)	(0.463)	(0.074)	(0.989)	(0.081)	(0.981)
YEAR	YES	YES	YES	YES	YES	YES	YES	YES
INDUSTRY	YES	YES	YES	YES	YES	YES	YES	YES
Constant	0.141	-0.024	0.123	0.036	-1.462	-0.990	-1.666	-1.236
	(0.114)	(0.790)	(0.241)	(0.737)	(0.225)	(0.587)	(0.168)	(0.498)
Observations	3038	2789	3023	2775	3330	2497	3330	2497
R-squared	0.054	0.057	0.055	0.045	0.106	0.052	0.104	0.048

Note: *, ** and *** indicate significance at the 10%, 5% and 1% levels of two-tails, respectively. P-values are shown in the brackets.

4.3 Regional fiscal pressure, internal control and tax aggressiveness

To test how the effects of internal control quality on tax aggressiveness varied with regional fiscal pressure (H3), we estimate regression (1) in the subsamples (HIGHBUD V.S. LOWBUD), which are partitioned based on the industry-year medium value of regional fiscal pressure (*OFFBUDGET*). H3 predicts a significantly positive coefficient of *ICW* in LOWBUD group and an insignificant coefficient in HIGHBUD group.

Table 5 presents the results. In LOWBUD groups, the coefficients of *ICW* on tax aggressiveness (*BETR1*, *BETR2*, *BTD*, and *DDBTD*) are significantly positive. In contrast, the coefficients of *ICW* in HIGHBUD groups are positive but insignificant. Consistent with H3, these results indicate that the effect of internal control on tax aggressiveness is more pronounced when regional fiscal pressure is weaker. The coefficients of control variables are all consistent with prior literature.

Table 5. The impact of regional fiscal pressure on the role of internal control

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
	LOW BUD	HIGH BUD	LOW BUD	HIGH BUD	LOW BUD	HIGH BUD	LOW BUD	HIGH BUD
Dependent variables	*BETR1*	*BETR1*	*BETR2*	*BETR2*	*BTD*	*BTD*	*DDBTD*	*DDBTD*
ICW	**0.005****	**0.003**	**0.006****	**0.003**	**0.120*****	**0.049**	**0.120*****	**0.047**
	(0.031)	**(0.299)**	**(0.027)**	**(0.398)**	**(0.007)**	**(0.216)**	**(0.007)**	**(0.238)**
SIZE	0.004	-0.007*	0.001	-0.011**	0.056	0.091	0.061	0.094*
	(0.154)	(0.065)	(0.863)	(0.017)	(0.377)	(0.111)	(0.342)	(0.098)
FORINC	-0.037***	0.012	-0.023*	-0.001	-0.137	-0.150	-0.131	-0.128
	(0.001)	(0.439)	(0.078)	(0.940)	(0.561)	(0.423)	(0.578)	(0.494)
SEG	-0.018***	-0.023***	-0.014*	-0.026***	-0.344**	-0.308***	-0.348**	-0.306***
	(0.004)	(0.005)	(0.071)	(0.006)	(0.014)	(0.007)	(0.013)	(0.007)
GEO_HHI	0.004	-0.002	0.007	0.007	0.173	-0.023	0.174	-0.019
	(0.681)	(0.870)	(0.577)	(0.646)	(0.395)	(0.887)	(0.393)	(0.907)
BUS_HHI	0.018*	0.008	-0.004	0.014	-0.343	-0.223	-0.337	-0.208
	(0.100)	(0.557)	(0.782)	(0.403)	(0.148)	(0.194)	(0.155)	(0.226)
ROA	-0.230***	-0.283***	-0.171***	-0.248***	4.251***	3.201***	3.775***	2.735***
	(0.000)	(0.000)	(0.001)	(0.000)	(0.000)	(0.001)	(0.001)	(0.004)
DEBT	0.013	0.032	-0.002	0.043	-0.116	0.513	-0.172	0.436
	(0.642)	(0.324)	(0.949)	(0.265)	(0.844)	(0.423)	(0.770)	(0.495)
DISTRESS	0.005***	0.007***	0.007***	0.008***	0.079**	0.068***	0.080**	0.068***
	(0.001)	(0.000)	(0.000)	(0.000)	(0.016)	(0.005)	(0.015)	(0.005)
RND	-0.035	-0.286	-0.139	-0.869***	-4.386	-2.769	-4.296	-2.796
	(0.866)	(0.277)	(0.586)	(0.005)	(0.151)	(0.391)	(0.157)	(0.388)
INTAN	0.000	0.039	-0.030	0.007	-0.392	-1.182	-0.344	-1.130

	(0.994)	(0.433)	(0.529)	(0.909)	(0.668)	(0.338)	(0.706)	(0.358)
PPE	0.042**	-0.006	0.076***	0.083***	0.157	1.033***	0.255	1.125***
	(0.013)	(0.772)	(0.000)	(0.001)	(0.678)	(0.009)	(0.498)	(0.005)
INVEST	0.001	-0.006	-0.082	-0.019	-1.226	-0.920	-1.159	-0.905
	(0.979)	(0.925)	(0.135)	(0.782)	(0.230)	(0.326)	(0.255)	(0.332)
GOODWILL	0.003	-0.024	0.022	-0.018	-0.208	-0.335	-0.200	-0.349
	(0.885)	(0.429)	(0.458)	(0.611)	(0.763)	(0.458)	(0.772)	(0.438)
DACC	-0.003	0.002	-0.006	-0.006	-0.211	-0.035	-0.263	-0.088
	(0.809)	(0.919)	(0.707)	(0.739)	(0.526)	(0.881)	(0.429)	(0.709)
HHI_IND	0.069	0.092	0.074	0.092	-0.143	1.060**	-0.082	1.079**
	(0.114)	(0.110)	(0.165)	(0.178)	(0.798)	(0.043)	(0.883)	(0.040)
SPV	-0.007***	-0.005	-0.002	0.002	-0.035	0.015	-0.036	0.016
	(0.009)	(0.109)	(0.505)	(0.639)	(0.403)	(0.687)	(0.398)	(0.662)
PID	-0.015	-0.092	0.031	0.001	-0.295	0.934	-0.302	0.919
	(0.741)	(0.109)	(0.571)	(0.993)	(0.713)	(0.233)	(0.708)	(0.240)
FIRST	-0.022	0.045**	-0.030	0.060**	-0.496*	0.008	-0.490*	0.008
	(0.203)	(0.047)	(0.168)	(0.026)	(0.091)	(0.975)	(0.095)	(0.978)
INST	0.001	-0.013	0.025*	-0.013	0.104	-0.201	0.114	-0.186
	(0.901)	(0.411)	(0.092)	(0.477)	(0.611)	(0.241)	(0.581)	(0.280)
SOE	0.000	0.004	0.006	0.014*	0.079	0.107	0.079	0.103
	(0.981)	(0.637)	(0.419)	(0.099)	(0.412)	(0.234)	(0.412)	(0.253)
YEAR	YES	YES	YES	YES	YES	YES	YES	YES
INDUSTRY	YES	YES	YES	YES	YES	YES	YES	YES
Constant	-0.095	0.175*	0.011	0.166	-1.109	-2.789**	-1.380	-3.014**
	(0.232)	(0.079)	(0.909)	(0.145)	(0.461)	(0.041)	(0.359)	(0.027)
Observations	3208	2619	3189	2609	3078	2749	3078	2749
R-squared	0.051	0.070	0.039	0.065	0.086	0.078	0.083	0.076

Note: *, ** and *** indicate significance at the 10%, 5% and 1% levels of two-tails, respectively. P-values are shown in the brackets.

5. ROBUST TESTS

5.1 Alternative measurement of tax aggressiveness

As an alternative to above four tax aggressiveness measures, we further use cash effective tax rate (*CETR*) to investigate the effect of internal control on tax aggressiveness. Dyreng, Hanlon, and Maydew (2008) suggest that lower values of *CETR* represent higher levels of tax aggressiveness. Following Dyreng et al. (2008), we define *CETR* as cash taxes paid divided by pre-tax book income less special items. The un-tabulated results show that the coefficient of *ICW* is significantly negative in the full sample, which suggests that firms with weak internal control have higher tax aggressiveness. We further find that the negative relation between *ICW* and *CETR* is more significant in weak tax enforcement or lower financial burden regions, which is also consistent with our H2 and H3.

5.2 Alternative measurement of internal control quality

We also assess the robustness of H1 to H3 using two alternative internal control proxies: result-oriented and process-oriented Chinese internal control indexes. These two indexes are published annually in the three most influential Chinese newspapers and are widely used or cited by media, auditors, listed companies, and scholars in China. The un-tabulated results show that internal control quality is negatively related to tax avoidance, and the relation is more significant in weak enforcement regions, which provide further support to our previous findings.

5.3 Endogeneity issue

Tax avoidance activities may increase corporate operational complexity, which, in turn, influences internal control quality. This reverse causality could induce an endogenous problem in our research. Therefore, we employ a 2SLS model to alleviate the effect of endogeneity. Specifically, we use the lagged internal control weaknesses (*ICW_PRE*) as the instrumental variable for *ICW*. The un-tabulated results are similar to the findings reported in Table 3-Table 5, which suggest that our findings are robust to an endogeneity bias.

6. CONCLUSIONS

Taking China as a typical developing country, we examine the effect of internal control on the tax aggressiveness in areas with severe tax avoidance activities. Using the sample of Chinese listed non-financial firms, we empirically find that better internal control quality is associated with lower tax aggressiveness and lower tax risk. Moreover, with the stricter of regional tax enforcement (proxy by regional tax effort and regional fiscal pressure), the effect of internal control on tax aggressiveness is significantly weakened.

This study has important practical implications. The positive effect of internal control on tax aggressiveness highlights the importance of internal control, further suggesting firms to pay more attention on their internal control construction. Besides, our findings have emphasized the interaction effect of internal control and external tax enforcement, which has important implications for tax regulators to take the consideration of internal control in the process of tax inspection. It not only helps tax regulators allocate resources reasonably but also improve the efficiency of tax enforcement.

ACKNOWLEDGEMENTS

We gratefully acknowledge the financial support from the National Social Science Fund of China (Grant No. 71332004), the Ministry of Finance of Famous Accounting Training Project ([2016] No.15).

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