

Effects of Earnings Management, Compensation, Insider Equity Holding on Tax Structure

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[Abstract] Maximizing profit is a key goal for most companies. Minimizing taxes paid is generally, if not universally, seen as a desirable component of that goal, and is the case for many companies in the US. However, most Chinese companies demonstrate an unusual pattern of paying more taxes than they report as tax expense. This unique tax-planning problem has resulted in Chinese firms having a cash effective cash rate 14% higher than their GAAP effective tax rates. The goal of this paper is to investigate how incentive pay schemes for various groups, and equity ownership for these groups affect tax-planning behavior by Chinese firms. Our results shed light on optimum compensation design for board of director members, executives and managers. We contribute to current literature by studying the effect of executive compensations, and equity holding on tax payment and reporting. We incorporate earnings management, Board of Supervisors and management equity holding in the analysis. We contribute to the current literature by focusing on temporary book tax differences and use real temporary book tax differences data instead of using proxies. We have not documented any link between earnings management and tax, further research is warranted in this area. Different earnings management detection methods can be applied.

[Keywords] Earnings management; effective tax rates; executive compensation; insider equity holdings; book tax differences

Introduction

Maximizing profit is a key goal for most companies, which means minimizing expenses while maximizing revenue. While working on a previous paper (Wang, et al 2017), we noted that most Chinese companies pay more taxes than what they report, this struck us as unusual. Tax expense has an unusual nature. First, there is the amount reported as tax expense, calculated according to the financial accounting rules in effect, i.e., GAAP. Then there is the amount of tax paid, calculated according to the tax laws and regulations that can vary significantly from the GAAP rules. We assumed most companies would like to minimize their tax payment, such that this amount would usually be less than GAAP tax expense reported. This is the case for many companies in the US. Reilly (2016) analyzed reported tax expense and the actual amount of tax paid for the top 100 Standards & Poor's companies in 2015 and found that 61 of the 100 paid substantially less in tax than what they reported as tax expense; an average of \$734 million less per company! Since it seems clearly beneficial for companies to try minimizing the tax they pay, we wondered what factors influence Chinese companies to act otherwise.

Prior research indicates that equity incentives link corporate performance with the personal wealth of executives, which effectively aligns executives and shareholder interest (Hall & Murphy, 2002). This finding shed light on how equity holdings of board members and executives alleviate book-tax differences (BTD) motivated by earnings management.

Book-tax difference can not only result from mechanical differences in financial reporting and tax rules, but also can depend on managerial discretion (Badertscher et al., 2009; Hanlon, 2005). The goal of this research is to investigate how incentive pay schemes for various groups and actual equity ownership for these groups affect tax planning behavior by Chinese firms. We studied the effect of executive

compensations, and equity holding on tax. We incorporated earnings management, Board of Supervisors and management equity holding in the analysis. We contribute to current literature by focusing on temporary BTD and using real temporary BTD data instead of using proxies.

Literature Review

The effect of equity-based compensation on book-tax differences (BTD) has been addressed previously in the literature. Xian, Sun & Zhang (2015) looked at whether equity-based compensation impacts the association between BTD and tax planning, and the association between BTD and earnings management. They found that discretionary BTDs related to tax planning *increase* as the equity-based compensation of executives increases, and that earnings management-related BTDs *decrease* as the equity-based pay of executives increases. These findings suggest that although equity incentives promote a higher level of both tax planning and earnings management, they motivate managers to avoid larger BTD. The research does not take into consideration managers' current equity holdings. Armstrong, Blouin, & Larcker (2012) investigate whether the incentives provided to tax directors are associated with lower effective tax rates and/or a wider BTD. They find that the incentive compensation of the tax director has a strong negative relationship with the GAAP effective tax rate (GAAP ETR), indicating that tax directors are provided with incentives to reduce the level of reported tax expense. Both the accounting and finance literature have examined the impact of compensation and governance structure on corporate behavior. Cornett et al. (2008) examine whether the impact of these factors may be in part merely cosmetic. They study whether governance structure and incentive compensation influence firm performance when they control for earnings management. They found that when they adjust for the impact of earnings management, there is a substantial increase in the importance of variables related to governance while also find a substantial reduction in the importance of incentive-based compensation.

Earnings management can potentially influence tax rates and policies. Phillips, Pincus, & Rego (2003) hypothesize that a greater level of discretion in calculating financial income when compared to taxable income will allow managers to utilize that discretion to positively manage income, but in ways that don't increase taxable income. This type of discretionary earnings management will create timing differences that result in an increase in deferred tax expense. They find that accruals were successfully utilized to avoid an earnings decline as well as a loss. Frank & Rego (2006) use capital-market-based incentives to measure earnings management. They look at three different management behaviors (smoothing earnings, meeting earnings forecasts, and an earnings bath) measured around three different earnings targets (positive profit, prior year earnings, and average analyst forecast). They find support for the idea that the Valuation Allowance Account (VAA) was used to manage earnings towards the average analyst forecast, but no evidence that the VAA was used to manage earnings to achieve positive profit, meet a prior year earnings level, or engage in a big bath.

There are various other related studies. Some show that institutional owners can improve corporate governance. Gillan & Starks (2003) investigate the role of institutional investors in corporate governance, motivations, and changes. Internationally, governance issues have differed across countries, and are common where financial and legal systems have experienced dramatic changes. In addition, the authors have noted that in countries with elevated levels of institutional investment, governance changes are common. In fact, the authors argue that institutional investors, often foreign institutional investors, play a significant role in prompting change in many corporate governance systems. Gillan & Starks (2003) observe that foreign investors can affect governance structures both directly and indirectly. They cite the example of Mexican stock markets having over 30% foreign investment, compared to the Mexican mutual fund industry holding only 1% of the outstanding equity (Cervantes, 1999). Weak corporate governance structures may result in an inability to attract foreign investment. Karmin (2000) identifies some of these problems. Gillan & Starks (2003) conclude that institutional investors will increase the liquidity, volatility, and price informativeness of the markets and this should result in better monitoring of corporations and in better corporate governance structures.

Empirical evidence on the impact of managerial entrenchment on financial reporting is mixed. Beasley

et al. (2000) investigated fraud related to three industries considered to be particularly volatile (financial services, health care, and technology) and noted significant differences between fraud and no-fraud firms, particularly as it relates to corporate governance. They noted that in each of the three industries investigated, fraud companies are extremely weak in their governance compared to the no-fraud companies. Fraud companies in all three industries have less internal audit support, and fewer audit committees.

Utilizing a sample of fraud and no-fraud firms, Beasley (1996) found that including a larger proportion of outside members on the Board of Directors results in a significant reduction in fraud. Beasley (1996) also studied whether an audit committee would reduce the likelihood of fraud, but finds no evidence in support of this hypothesis. Beasley (1996) found that as outside director ownership and outside director tenure on the board increased, the likelihood of fraud decreased. In another analysis using a sample of tax-aggressive and non-tax-aggressive firms, Lanis & Richardson (2011) examine the effect of Board of Directors composition on tax aggressiveness, and document a significant negative association between outside board membership and tax aggressiveness. They conclude that tax aggressiveness can be moderated through a more independent board composition.

In the wake of calls for regulatory reform of BTD, Hanlon, Laplante, & Shevlin (2005) investigated the loss of information content to investors. They concluded that requiring conformity (between book and tax income) would result in a 50 percent loss in the explanatory power of earnings. Atwood et al. (2010) examine book-tax conformity across countries. The authors hypothesized that firms in countries that have low levels of required book-tax conformity will have greater BTD, and greater levels of variability of tax expense. They concluded that as book-tax conformity increased, the persistence of current earnings decreased. They also found a decrease in current earnings persistence as conformity increased. Lev & Nissim (2004) investigated the ability of the book-tax income ratio to predict earnings growth, stock returns, and P/E ratio. They investigated the predictive ability of this measure both before and after the adoption and implementation of SFAS 109. They found that before the implementation of SFAS 109, the book-tax income ratio was unrelated to P/E ratios, but strongly related to market returns. Following the implantation of SFAS 109, they found opposite results – that the book-tax income ratio was strongly related to P/E ratios, but only weakly related to market returns. Ayers, et al. (2010) utilized information in the book-tax difference to analyze a firm's credit risk. They found that positive changes in book-tax differences were negatively associated with changes in credit ratings.

Methodology

Our data is from China Stock Market & Accounting Research Database (CSMAR). The data range is from 2011-2016. We started this section by defining tax rates.

Effective Income Tax Rate (GAAP EITR and Cash EITR)

We used two standard measures to define effective tax rate, which have been adopted by many other studies (Dyreg, Hanlon, & Maydew 2010; Dyreg, Hanlon, & Maydew 2008). First, the effective corporate income tax rate is as defined under GAAP, total income tax expense divided by pre-tax accounting income. Second, the effective corporate income tax rate is defined on a cash basis as cash income taxes paid divided by pre-tax accounting income. The first measure will capture tax expense for financial reporting purposes (hereafter GAAP EITR). The second measure will capture cash basis tax expense (hereafter cash EITR).

There are only two tax items reported on the cash flow statement, that is cash paid for taxes and cash refund. We cannot separate how much is paid for income tax and how much is paid for sales tax and addition. Due to this limitation, we assumed that sales tax and addition expense roughly equals cash paid for sales tax and addition.

Effective Sales Tax and Addition Rate (ESTAR)

There are very few studies about sales tax and addition. We ventured to define effective sales tax and addition the same way as effective income tax. Effective sales tax and addition rate is sales tax and addition

expense divided by pre-tax accounting income (hereafter ESTAR). As we mentioned earlier, we are unable to identify how much cash is paid for sales tax and addition, we thus assumed that cash paid for sales tax and addition equals sales tax and addition expense. ESTAR serves as both cash and GAAP ESTAR.

Overall Effective Tax Rate (GAAP ETR and Cash ETR)

We defined a company's overall GAAP ETR as sales tax and addition and income tax expense divided by pre-tax accounting income. We defined a company's overall cash ETR as total cash paid for taxes divided by pre-tax accounting income.

Book-Tax Difference (BTD)

Prior studies look at both long and short term BTD (Wilson 2009; Badertscher et al., 2009; Hanlon 2005). BTD is estimated and divided into temporary and permanent components (Ayers et al., 2010; Frank et al., 2009; Hanlon 2005). This study focuses on temporary BTD and uses the difference between reported cash and GAAP ETR as the BTD measure. Due to the unique situation in China where Cash ETR is higher than GAAP ETR, we defined BTD as Cash ETR-GAAP ETR.

Earnings Management

Earnings management has been the subject of extensive accounting research. Healy & Wahlen (1999) define earnings management as the alteration of a firm's financial reports by insiders in order either to mislead some stakeholders or to influence contractual outcomes that are dependent on numbers in the financial reports. Leuz et al. (2003) adopted this definition and we concurred.

Measuring the degree of earnings management has presented challenges, and researchers have devised various methods. In this study, we used the methods developed by Leuz et al. (2003), which were based on previous work by Dechow et al. (1995), Healy & Whalen (1999) and Dechow & Skinner (2000).

Earnings management is generally understood to mean attempts by company insiders to protect their positions and benefits by manipulating the financial information provided to outsiders. This often takes the form of income smoothing or income manipulation. We used the method defined by Leuz et al. (2003) to quantify earnings management. We first introduce accruals and cash flow.

The operational definition of accruals is:

$$Accruals = (\Delta CA - \Delta Cash) - (\Delta CL - \Delta STD - \Delta TP) - Dep \quad \text{Equation (1)}$$

Where:

ΔCA = change in total current asset;

$\Delta Cash$ = change in cash/cash equivalents;

ΔCL = change in total current liabilities;

ΔSTD = change in short-term debt included in current liabilities;

ΔTP = change in income taxes payable;

Dep = depreciation and amortization expense.

We then calculate cash flow from operations:

$$Cash\ flow\ from\ operations = Operating\ earnings - Accruals \quad \text{Equation (2)}$$

$$Earnings\ Management = |Accruals| / |Cash\ flow\ from\ operations| \quad \text{Equation (3)}$$

The larger Earnings Management is indicative of large-scale use of discretion to manipulate reported accounting earnings. Leuz et al. (2003) identify other measures of earnings management. However, these other measures are not applicable for purposes of this paper.

Model Development

We assume increased insider equity holding incentivize better tax management and thus lower tax rates. As shown in table 1, Cash ETR is significantly higher than GAAP ETR. Due to china's special situation, we

define BTD as cash ETR minus GAAP ETR. We assume more insider equity holding will increase the incentive for tax planning and thus reduce cash ETR. Reduced cash ETR leads to lower BTD. Earnings management related activities will inflate earnings. Lower earnings management means lower artificially inflated book income. BTD will be bigger with reduced discretionary income since GAAP ETR will be smaller while cash ETR stays the same. In our analysis, we control for firm-specific characteristics, including industry, size, asset mix, leverage, and previous year loss. We thus devise our models.

$$\text{Model 1: BTD} = \beta_0 + \beta_1 \text{Top3BODPay} + \beta_2 \text{Top3ExecutivePay} + \beta_3 \text{ManagementOwnership\%} + \beta_4 \text{BODOwnership\%} + \beta_5 \text{BOSOwnership\%} + \beta_6 \text{ExecutiveOwnership\%} + \beta_7 \text{EarningsManagement} + \beta_8 \text{Financial} + \beta_9 \text{Utilities} + \beta_{10} \text{RealEstate} + \beta_{11} \text{Manufacturing} + \beta_{12} \text{Wholesale\&Retail} + \beta_{13} \text{Size} + \beta_{14} \text{AssetMix} + \beta_{15} \text{Leverage} + \beta_{16} \text{PreviousYearLoss} + \varepsilon$$

Models 2-4: We use GAAP EITR, Cash EITR, and ESTAR as the dependent variable instead of BTD, respectively.

Where:

BTD is Cash ETR minus GAAP ETR.

Top3BODPay is the natural log of the top three BOD members' compensation.

Top3ExecutivePay is the natural log of the top three executives' compensation.

ManagementOwnership% is management's equity holding percentage.

BODOwnership% is Board of Directors' equity holding percentage.

BOSOwnership% is B of Supervisors' equity holding percentage.

ExecutiveOwnership% is executives' equity holding percentage.

EarningsManagement is the earnings management measure calculated using equation 3.

Financial, Utilities, RealEstate, Manufacturing, and Wholesale&Retail are different industries. The baseline industry is complex industry.

Size is the natural log of sales.

AssetMix is capital asset scaled by total asset.

Leverage is beginning total debt divided by beginning total asset

Previous year loss equals 1 if previous year has a loss and 0 otherwise.

Results

As illustrated in Table 1, China listed firms' median cash ETR is higher than GAAP ETR by 14%. Book-tax difference is defined as cash ETR minus GAAP ETR due to this unique situation. The median GAAP ETR is about 21%. However, cash ETR median is close to 39%. Middle level management has a median ownership percentage of 0.54%. BOD (Board of Directors) and executives' median ownership percentage are 0.29% and 0.08%, respectively. BOS (Board of Supervisors) ownership is negligible. Median top three BOD members' total compensation is RMB1, 284,000, which is over USD60,000 per person per year. Median top three executives' total compensation is RMB1, 450,000, an equivalent of about \$71,000 per person per year. Long term asset is about 40% of the total asset and about 40% of firm asset is from borrowed money.

Table 1

Descriptive statistics

	Mean	Median
Book-tax Difference	12.56%	14.19%
GAAP EITR	14.91%	15.09%
Cash EITR	27.46%	30.15%
ESTAR	8.03%	5.14%
GAAP ETR	22.93%	20.84%
Cash ETR	35.49%	38.69%
Management ownership %	15.39%	0.54%
BOD ownership %	14.47%	0.29%
BOS ownership %	0.41%	0.00%
Executive ownership %	8.18%	0.08%
Top 3 BOD compensation	1,800,997	1,284,000
Top 3 executives' compensation	2,019,181	1,450,000
Asset mix	41.52%	39.81%
Leverage	45.50%	39.46%

Table 2

*BTD, Earnings Management, and Insider Equity Holding*Overall model: $p < 0.0001$; Adjusted $R^2 = 0.0421$

Variable	Parameter Estimate	Standard Error	t Value	Pr > t
Intercept	-0.4489	0.0675	-6.65	<.0001
Top3BODPay	0.0192	0.0072	2.65	0.0081
Top3ExecutivePay	0.0087	0.0084	1.04	0.299
ManagementOwnership%	0.5388	0.1991	2.71	0.0068
BODOwnership%	-0.4312	0.2018	-2.14	0.0326
BOSOwnership%	-0.3202	0.2956	-1.08	0.2788
ExecutiveOwnership%	-0.158	0.0331	-4.78	<.0001
EarningsManagement	0	0	-0.45	0.6522
Financial	-0.1101	0.0276	-3.98	<.0001
Utilities	0.0542	0.0177	3.06	0.0022
RealEstate	-0.089	0.0211	-4.22	<.0001
Manufacturing	0.0813	0.0166	4.91	<.0001
Wholesale&Retail	0.0796	0.0214	3.72	0.0002
Size	0.0063	0.0023	2.66	0.0077
AssetMix	-0.026	0.0152	-1.71	0.0868
Leverage	-0.0021	0.0034	-0.6	0.5514
PreviousYearLoss	-0.1207	0.0121	-9.98	<.0001

According to Table 2, every 1% increase of BOD equity holding significantly reduces BTD by 0.43%. Every 1% increase in executive insider equity holding significantly decreases the BTD by 0.16%. However, management equity holding significantly increases BTD. The underlying reason is that executive and BOD equity holdings significantly decrease cash EITR and management equity holding significantly increases cash EITR as shown in Table 4. Top three BOD compensation significantly increases BTD as well. Executives and BOD equity holdings do incentivize better tax strategy so the company does not have as much a higher Cash ETR compared with GAAP ETR. Industries are contributing factors of BTD. Bigger firms have higher BTD. Previous year loss reduces BTD.

Table 3

GAAP EITR, Earnings Management, and Insider Equity Holding

Overall model: $p < 0.0001$; Adjusted $R^2 = 0.0871$

Variable	Parameter Estimate	Standard Error	t Value	Pr > t
Intercept	-0.2317	0.0226	-10.25	<.0001
Top3BODPay	0.0025	0.0024	1.03	0.3018
Top3ExecutivePay	0.0055	0.0028	1.97	0.0493
ManagementOwnership%	0.0255	0.0667	0.38	0.7017
BODOwnership%	-0.0062	0.0676	-0.09	0.9265
BOSOwnership%	0.0167	0.099	0.17	0.866
ExecutiveOwnership%	-0.0137	0.0111	-1.24	0.2145
EarningsManagement	0	0	-0.31	0.7559
Financial	0.0717	0.0093	7.74	<.0001
Utilities	0.043	0.0059	7.25	<.0001
RealEstate	0.0825	0.0071	11.67	<.0001
Manufacturing	0.0307	0.0055	5.54	<.0001
Wholesale&Retail	0.0744	0.0072	10.39	<.0001
Size	0.0112	0.0008	14.29	<.0001
AssetMix	-0.0152	0.0051	-2.98	0.0029
Leverage	-0.0036	0.0012	-3.09	0.002
PreviousYearLoss	-0.0356	0.0041	-8.79	<.0001

Table 3 shows that top three executive compensation significantly increases GAAP ETR. Industries are contributors of GAAP EITR. The complex industry, which is the base for comparison, has significantly lower rates compared with all other industries. Bigger firms have higher GAAP EITR. Higher capital asset concentration, higher leverage, and previous year loss all significantly reduce GAAP EITR.

As illustrated in Table 4, top three BOD compensation significantly increases cash EITR. BOD and executive ownership significantly reduce cash EITR while management ownership significantly increases cash EITR. Industries are contributing factors of cash EITR. Bigger firms have higher cash EITR. Higher capital asset concentration and previous year loss all reduce cash EITR.

Table 4

*Cash EITR, Earnings Management, and Insider Equity Holding*Overall model: $p < 0.0001$; Adjusted $R^2 = 0.0578$

Variable	Parameter Estimate	Standard Error	t Value	Pr > t
Intercept	-0.6806	0.0703	-9.68	<.0001
Top3BODPay	0.0217	0.0075	2.88	0.004
Top3ExecutivePay	0.0142	0.0087	1.63	0.1033
ManagementOwnership%	0.5643	0.2074	2.72	0.0065
BODOwnership%	-0.4375	0.2102	-2.08	0.0375
BOSOwnership%	-0.3035	0.308	-0.99	0.3245
ExecutiveOwnership%	-0.1717	0.0344	-4.99	<.0001
EarningsManagement	0	0	-0.53	0.5943
Financial	-0.0384	0.0288	-1.33	0.182
Utilities	0.0972	0.0184	5.27	<.0001
RealEstate	-0.0065	0.022	-0.3	0.7677
Manufacturing	0.112	0.0172	6.5	<.0001
Wholesale&Retail	0.154	0.0223	6.91	<.0001
Size	0.0175	0.0024	7.15	<.0001
AssetMix	-0.0412	0.0158	-2.6	0.0093
Leverage	-0.0056	0.0036	-1.57	0.1174
PreviousYearLoss	-0.1563	0.0126	-12.41	<.0001

Table 5

*ESTAR, Earnings Management, and Insider Equity Holding*Overall model: $p < 0.0001$; Adjusted $R^2 = 0.2327$

Variable	Parameter Estimate	Standard Error	t Value	Pr > t
Intercept	-0.1636	0.0234	-7	<.0001
Top3BODPay	0.0061	0.0025	2.41	0.0158
Top3ExecutivePay	-0.0003	0.0029	-0.12	0.9067
ManagementOwnership%	-0.0296	0.069	-0.43	0.6682
BODOwnership%	0.0096	0.0699	0.14	0.8903
BOSOwnership%	-0.0445	0.1025	-0.43	0.6639
ExecutiveOwnership%	-0.0134	0.0115	-1.17	0.2413
EarningsManagement	0	0	-1.25	0.213
Financial	-0.018	0.0096	-1.87	0.0609
Utilities	-0.0076	0.0061	-1.24	0.2169
RealEstate	0.1798	0.0073	24.56	<.0001
Manufacturing	-0.0426	0.0057	-7.42	<.0001
Wholesale&Retail	0.0131	0.0074	1.77	0.0776

Size	0.01	0.0008	12.33	<.0001
AssetMix	-0.0543	0.0053	-10.3	<.0001
Leverage	0.0004	0.0012	0.35	0.7297
PreviousYearLoss	-0.0172	0.0042	-4.1	<.0001

Table 5 shows that top three BOD compensation significantly increases ESTAR. Industries are contributing factors of ESTAR. Bigger firms have higher ESTAR. Higher capital asset concentration and previous year loss all decrease ESTAR.

Definition of Variables

Variable	Meaning
GAAP EITR	Tax expense/Pretax accounting income
Cash EITR	Tax paid-tax refund-sales tax & addition)/Pretax accounting income
Effective Sales Tax and Addition Rate (ESTAR)	Sales tax & addition/Pretax accounting income
Overall GAAP ETR	Tax expense+sales tax & addition)/Pretax accounting income
Overall Cash ETR	(Tax paid-tax refund)/Pretax accounting income
BTD	Overall Cash ETR-Overall GAAP ETR
Top3BODPay	ln(top three BOD members' compensation)
Top3ExecutivePay	ln(top three executives' compensation)
ManagementOwnership%	Management equity holding percentage
BODOwnership%	Board of Directors equity holding percentage
BOSOwnership%	Board of Supervisors equity holding percentage
ExecutiveOwnership%	executive equity holding percentage
EarningsManagement	Accruals/ Cash flow from operations
Financial	Financial industry dummy=1
Utilities	Utilities industry dummy=1
RealEstate	Real estate industry dummy=1
Manufacturing	Manufacturing industry dummy=1
Wholesale&Retail	Wholesale and retail industry dummy=1
Size	ln(sales)
AssetMix	Capital asset/total asset
Leverage	Beginning total debt/beginning total asset
PreviousYearLoss	1 if previous year has a loss

Conclusion

Overall, listed Chinese firms have a unique tax planning problem with cash ETR being 14% higher than GAAP ETR. Top three BOD compensation significantly increases BTD, cash EITR and ESTAR while top three executive pay significantly increases GAAP EITR. BOD and executive equity holdings significantly decrease BTD and cash EITR while management equity holding significantly increases BTD and cash EITR. Earnings management does not contribute to tax planning process. Our results shed light on optimum compensation design for BOD members, executives and managers. Companies can consider shift BOD and executives' compensation from cash to equity based and restrict equity compensation for middle level management. While we do not document any link between earnings management and tax, further research

is warranted in this area. Different earnings management detection methods can be applied.

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