Tax effects of book-tax conformity, financial reporting incentives and firm size

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Recommended Citation

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Abstract

This study employs a natural experiment to examine the tax effects of a change in the level of conformity between tax and financial reporting in China for firms with different financial reporting incentives. We find that in a full book-tax conformity system, firms with incentives to report higher book income pay significantly higher income tax (per dollar of sales) than do firms without the same incentives. Although we do not find similar evidence in a non-conformed system, we observe cross-sectional variation in taxes paid by firms of varying sizes: by exploiting non-conforming financial reporting rules to a greater extent, large firms pay proportionately lower taxes than do small firms. To improve financial reporting quality, many countries have adopted International Financial Reporting Standards (IFRS) that may affect book-tax reporting differences. Our results suggest that this policy alternative is less desirable from a tax perspective. Therefore, accounting standard setters and securities regulators around the world should consider not only how such a change is intended to benefit capital markets, but also what unintended consequences this policy choice might have for government revenue. Our results also strengthen the government policy position on giving more tax relief to small firms.

I. INTRODUCTION

The Enron-era wave of corporate accounting scandals and aggressive tax reporting in the U.S. has led to a policy debate on whether there should be a greater degree of conformity between financial accounting (book) income and taxable income. From the tax reporting perspective, some argue that such conformity would force firms to make a book-tax trade-off, thereby inducing those with incentives to report higher book income to pay higher taxes (Desai 2005; Mills 1996; U.S. Department of the Treasury 1999; Yin 2001).[1] However, few studies examine the tax effects of imposing book-tax conformity. Hanlon and Heitzman (2010) and Shevlin (2007) call for further evidence on the costs

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and benefits of conformity to help inform the current debate. To provide such additional evidence, this study employs a natural experiment in which firms experience a major change in financial reporting that weakens book-tax conformity in China. We find that when conformity is high, firms with high book incentives pay significantly more tax (per dollar of sales) than do firms with low book incentives. We also find that when conformity is low, large firms pay proportionately less tax than do small firms.

To bring domestic accounting norms into harmony with international practices, China substantially relaxed the traditionally stringent linkage between tax and financial reporting for the first time in 1998 (Chan et al. 2010). This change exogenously reduced the level of conformity between book and tax reporting by granting managers considerable discretion in their choice of accounting procedures. In the pre-1998 regime, as firms had to report conforming book income in most aspects, the extent to which they could opportunistically avoid tax was constrained. For example, if firms understated their taxable income, they generally had to report lower book income; likewise, if they overstated book income, they generally had to pay higher taxes. In the post-1998 regime, firms have more freedom to make separate determinations on the appropriate amount of income for book and tax purposes. In such circumstances, some firms may be able to overstate book income by exploiting non-conforming reporting rules in ways that exert little or no tax effect (or to understate taxable income without having to understate book income).

We identify a unique set of firms that experienced such a financial reporting change in China to examine how such a change in financial reporting affects the tax reporting behavior of firms with different book incentives. We discriminate between high and low book incentive firms according to whether they face regulatory pressure to meet earnings targets. As explained in more detail later in this paper, Chinese regulations generally require firms to report a minimum return on equity (ROE) in each of the previous three years before they can apply to launch a rights offering. Extant studies suggest that China's accounting-based regulation of rights offering creates strong incentives for earnings management (Chen et al. 2008; Chen and Yuan 2004; Haw et al. 2005). Therefore, we label the rights offering applicants as high book incentive firms and other firms as low book incentive firms. We compare the ratios of tax expense to sales of high book incentive firms with those of low book incentive firms in the pre- and post-1998 periods.[2] Our results suggest that after controlling for firm profitability, pre-1998 firms with incentives to report higher book income were compelled to match taxable income to book income and thus paid more tax. However, we find little evidence of high book incentive firms paying more tax than low book incentive firms in the post-1998 period. These results suggest that when the two measures of income are aligned, firms are willing to respond to earnings pressure without having regard for the tax consequences. We also find that when confronted with pressure to meet earnings targets, large firms pay proportionately less income tax than do small firms in the post-1998 period. Overall, our results suggest that cross-

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sectional variation in corporate tax reporting behavior is a direct result of a change in the required level of conformity.

Book-tax conformity can be affected by changes in financial and/or tax reporting rules. Numerous studies have used the setting provided by the Tax Reform Act of 1986 to examine the effect of tax law changes on corporate financial reporting behavior in the U.S. (e.g., Guenther 1994; Guenther et al. 1997; Lopez et al. 1998; Maydew 1997; Scholes et al. 1992).[3] However, research that directly examines the tax effects of changes in financial reporting is limited. Hanlon and Heitzman (2010) suggest that the ideal research design to examine this issue is to compare corporate reporting behavior before and after such a change (e.g., from a non-conformed system to a highly conformed system, or *vice versa*). Our study capitalizes on an opportune setting in which Chinese firms experienced changes in financial reporting rules that reduce book-tax conformity.

Our study complements that of Chan et al. (2010), but differs in a number of respects. First, to examine the tax effect of changes in financial reporting obligations, Chan et al. (2010) use discrepancies between the amount of tax assessed by the tax authorities and the amount reported in the return as their measure of tax compliance, whereas we use the income tax expense reported in the firm's financial statements.[4] Tax non-compliance is one of the more aggressive tax-planning strategies and implies that the firm has committed tax law violations; however, paying a lower amount of tax does not necessarily imply that the firm has done something improper, because the reduction may result from grey-area interpretations of tax law. Therefore, in comparison with Chan et al. (2010), who focus on tax compliance, we examine a more general case of tax reporting.[5] Another desirable attribute of our setting is the availability of public data on financial statement-based tax expenses; these data allow us to examine a broad sample of firms (rather than limiting the investigation to a subset of firms selected for tax audits). This provides us with a more representative sample and ultimately increases the external validity of this study. Furthermore, while Chan et al. (2010) focus on *between-period* differences in tax non-compliance, we make *within-period* comparisons of the firm's reported tax expenses. In sum, these design features enable us to examine a more general case of corporate tax reporting across the universe of Chinese listed companies and provide corroborating evidence on the importance of understanding the tax consequences of a change in financial reporting rules.

The relationship between firm size and taxes has implications for the formation of tax policy. Most prior studies examine this relation for a given level of book-tax conformity, or assume equal opportunity for tax planning across different conformity levels. As a result, the literature documents mixed results on this issue. In this study, we hypothesize and find that the strength and direction of the size effect are conditional on reporting incentives and the extent to which managers can exercise their discretion in financial reporting *vis-à-vis* tax reporting. Our results help explain why prior

research inconclusively demonstrates that firm size has both positive and negative effects on taxes paid.

The tax effect of a change in financial reporting is an important but relatively under-researched issue. While increasing book-tax conformity may cause a decline in financial reporting quality (Atwood et al. 2010; Hanlon et al. 2005, 2008), our results are consistent with the claim that imposing conformity to increase the book-tax trade-off can induce higher tax payments from firms with incentives to report higher book income (Desai 2005; Mills 1996; Yin 2001). Erickson et al. (2004) find that some firms are willing to pay additional taxes to bring taxable income in line with the inflated book income. In our context, these firms are the high incentive firms in the pre-1998 period. Our results are also consistent with those of Badertscher et al. (2009) and Frank et al. (2009), who find that when tax and financial reporting need not conform, some firms are able to manipulate both income measures to achieve the optimal reporting outcome: reporting high book income to the financial markets and low taxable income to the tax authority. In the setting we examine, these firms are the large, high incentive firms in the post-1998 period.

The fact that China is not alone in attempting to move away from a tax-based accounting system suggests that our results are informative to international accounting standard setters and accounting regulators from around the world, who are facing an evolution in financial reporting practices similar to that taking place in China. According to Tweedie (2011), over 100 countries require or permit the use of International Financial Reporting Standards (IFRS).[6] The adoption of IFRS will evidently cause financial reporting to diverge further from tax reporting. Our results show that this divergence allows certain firms to achieve the best of both worlds: to manage accounting earnings upward while managing tax earnings downward, which is undesirable from a tax policy perspective. This suggests that accounting standard setters and regulators should not consider the influence of a regulatory change from the financial reporting perspective alone. We recommend that public firms be required to disclose reconciliations of significant book-tax income differences as one way to counterbalance managerial reporting opportunism. This is an important regulatory requirement, particularly in emerging markets where tax enforcement and expertise in tax administration are generally weak (Lin 2006). The fact that corporate tax is generally a major source of government revenue adds weight to this disclosure recommendation.

The remainder of this paper is organized as follows. In the next section, we outline the evolution of financial and tax reporting in China to facilitate the development of our hypotheses. We describe the sample selection process and the regression models in Section III. We then present the univariate and multivariate results in Section IV. Section V summarizes our findings.

II. BACKGROUND AND RESEARCH HYPOTHESES

Changes in Financial Reporting

Under the old economic system, China's economy was dominated by state-owned enterprises (SOEs). All profits earned by the SOEs were remitted to the state, and any losses were covered by the government. All major expenditures were processed through a highly centralized fund allocation scheme. In such a command economy, the main role of accounting was simply to assist the government in planning and allocating economic resources.

Significant changes have taken place since China began implementing its "open-door" economic policy in 1978. The privatization of SOEs, converting them into limited liability firms, has significantly diversified the ownership structure in China and fundamentally changed the role of financial reporting. In response to the developing market economy, the Chinese government published the *Accounting Regulation for Experimental Listed Companies* in 1992. This represented the government's first attempt at a conceptual level to transform China's traditionally rigid and uniform accounting system into an Anglo-Saxon form of financial reporting (Davidson et al. 1996). However, the 1992 accounting regulation still exerted a strong tax influence on financial reporting. For example, the regulation required firms to select depreciation methods, estimate fixed asset residual value and useful life, and make doubtful account provisions strictly in accordance with tax and fiscal regulations.

As a result of firms being motivated by their own objectives and external pressure to harmonize accounting standards, China issued the *Accounting Regulation for Listed Companies* in 1998. This regulation gave firms the freedom to determine the useful lives of their assets and the depreciation methods they adopted based on underlying business conditions, and allowed for several asset classes to be valued other than at historical cost for financial reporting purposes. Officially regarded by the Chinese government as aligned with international accounting norms, the regulation represented an important determination to move away from the traditional tax-based reporting regime toward the adoption of international accounting standards (PRC Ministry of Finance 1998; Chan et al. 2010). In short, the new reporting regime allowed firms more discretion in making accounting choices in comparison with the old regime, and gave them greater flexibility in how they determined appropriate figures for book and tax reporting purposes.

Corporate Tax Reporting

In response to the enterprise reform, China implemented two major revisions to its tax system in 1994 and 2008. The 1994 tax reform brought an end to the application of different tax rates among domestic enterprises of varying sizes by introducing a flat rate of 33 percent for all firms. Although the statutory rate was the same for both domestic and foreign invested enterprises, the effective tax

rate for the former was generally higher than that for the latter due to the unavailability of tax concessions. In March 2007, the government leveled the playing field for all (domestic and foreign) enterprises by unifying the tax rate at 25 percent, effective January 1, 2008.

There are two income tax accounting methods available for financial reporting purposes in China (Yang and Yang 1998). Under the tax payable method, the income tax expense for the current period is equal to income tax payable for the same period. Income tax payable is taxable income multiplied by the applicable tax rate. Because the income tax effects of timing differences are ignored, there is no deferred tax. Under the tax effect method, income tax is considered an expense incurred in earning income, and is recognized in the same period as are the revenue and expenses to which it relates. The income tax effects of timing differences are recognized through deferred taxes. Prior to 2007, firms could choose between the tax payable and tax effect accounting methods, and the vast majority of firms adopted the former. However, the new accounting standards prohibited firms from using the tax payable method, and required listed firms to follow the tax effect accounting method, effective January 1, 2007.

Corporate Earnings Management
The Chinese government established the Shanghai and Shenzhen stock exchanges in the early 1990s to move from a government-funded SOE model to a market-driven SOE financing mechanism. These markets have since experienced tremendous growth. In less than 20 years, China overtook Japan to become Asia's largest stock market by value. Given China's status as a transition economy, the government constantly controls the growth of the market by setting the annual amount of equity the two stock exchanges can raise. The central government allocates each year's quota among local governments and ministries, which in turn make allocations to better-performing firms selected from their jurisdictions.

Due to the severe shortage of capital available to fund growth, most firms in China lobby and compete for permission to launch an initial public offering. Many also seek to raise additional capital through a rights issue after going public (Chen and Yuan 2004). To curb the excess demand for equity financing and maintain the quality of rights offerings, the China Securities Regulatory Commission has issued a series of guidelines over the years. The most rigid guideline is the requirement for firms to make a minimum ROE. For example, from 1996 to 1998, firms were required to achieve a minimum ROE of 10 percent in each of the three years prior to the rights offering. From 1999 to 2000, the requirement was tightened to a three-year average ROE (before extraordinary gains) of at least 10 percent and a minimum of 6 percent in each of the previous three years. This rigid accounting-based regulation was initially intended to guide the flow of capital toward more efficient sectors of the economy; however, in practice it has motivated firms to manage earnings upward to circumvent the rights offering rules (Chen et al. 2001; Chen and Yuan 2004; Haw et al. 2005).

Research Hypotheses

Chinese firms have incentives to report high book income to meet the threshold requirements for rights offerings and to report low taxable income to enhance cash flows. When the two measures of income conform to each other, there is a limit to how much tax firms can opportunistically avoid. This is because if firms engage in aggressive tax planning (in response to tax incentives), they will have to report lower book income. Moreover, if they engage in upward earnings management (in response to book incentives), they will have to pay more tax. These two incentives are largely mutually exclusive in a book-tax conformity setting. Stein (1989) suggests that firms that face greater capital market pressure attach more importance to book incentives and sacrifice managerial efforts related to tax incentives. This is consistent with evidence in the literature demonstrating that firms with financial reporting constraints are generally willing to forgo tax savings to avoid reporting lower book income (Shackelford and Shevlin 2001). Erickson et al. (2004) find that some firms are even willing to pay a substantial amount of additional tax on their overstated earnings.

When the two income measures are detached from each other, managers no longer face the same book-tax trade-off. In other words, the dual reporting of income and, most importantly, increased managerial discretion over accounting method choice allow managers to exploit non-conforming rules to manage book income upward and taxable income downward simultaneously (Frank et al. 2009).[7] This is consistent with evidence from the U.S. that many large public firms structure their transactions to reduce the amount of tax paid without reporting corresponding decreases in pre-tax book income (Badertscher et al. 2009; Frank et al. 2009; Plesko 2003).

Based on the above discussion, our cross-sectional tests of high versus low book incentive firms before and after 1998 reflect the following hypothesis:

H1: In the pre-1998 period, firms with high book incentives pay more tax per dollar of sales than do firms with low book incentives. In contrast, in the post-1998 period, there is no significant difference in tax paid between these two groups of firms.

While many studies have examined the general effect of firm size on taxes, they have not explored this effect in settings of high versus low book-tax conformity. Our next hypothesis examines whether large and small firms operating in a regime that allows for more financial reporting discretion differ in their ability to avoid tax. The literature provides two theories to explain the firm size effect on tax payments. Political power theory holds that large firms pay less income tax than small firms because large firms have more resources available to (1) influence the political process in their favor, (2) develop expertise in tax planning, and (3) structure complex transactions to minimize tax liabilities (Scholes et al. 1992; Siegfried 1972). Conversely, political cost theory argues that larger firms bear higher political costs because they face more public and government scrutiny

(Watts and Zimmerman 1978; Zimmerman 1983). As tax avoidance is an element of political cost, larger firms tend to pay more taxes than smaller firms.

Empirical evidence on the size-to-tax effect is also inconclusive.[8] The equivocal nature of evidence on this effect may be attributable to the failure of prior studies to control for tax-planning opportunities in different book-tax conformity settings. Mills (1996) suggests that although tax law complexity creates additional compliance costs, it also provides opportunities for tax planning. Chan et al. (2010) also propose that a tax regime that requires a lower degree of conformity between book and tax reporting creates more opportunities for tax non-compliance. As discussed earlier, in the pre-1998 period, China's financial reporting rules had little "grey area" for managers to exploit. The post-1998 regime is more complicated than its predecessor, as there are more book-tax reconciliation items and non-conforming rules. Consequently, managers have a greater opportunity to report different book and tax income figures. We also expect that whether managers take advantage of this opportunity depends on firm reporting incentives and the resources available for tax planning.

Therefore, despite the unresolved empirical question over the size-tax relation and our expectation of no significant difference overall in taxes paid between high and low incentive firms in the post-1998 period (H1), among firms with high financial reporting incentives, we expect larger firms (with more resources) to be able to exploit opportunities afforded by tax law complexity and financial reporting rules flexibility to a greater extent in the post-1998 period. This leads to the following hypothesis:

H2: Where there are incentives to meet clear earnings targets, large firms pay less income tax per dollar of sales than do small firms in the post-1998 period.

III. RESEARCH DESIGN

Sample and Descriptive Statistics

As the change made to China's financial reporting regime in 1998 was significant, we use 1998 as the focal point around which we expect to see a significant change in corporate tax reporting behavior. We treat 1998 as a transition year, because elements of the 1998 regulation became mandatory in 1999. To construct equally long panels covering the two reporting regimes, we use 1995–1997 and 1999–2001 as our two sample periods.[9] There were no major changes in tax legislation in China during these periods. Our first sample period starts in 1995 because this was the year immediately following the 1994 tax reform and the income tax rate remained constant during the period (i.e., there was no tax rate-based incentive to manage earnings). For both periods, we partition our sample firms into high and low book incentive firms. As noted earlier, regulations require rights-offering firms to report a minimum level of ROE in each of the three years before the

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offering. Prior research finds that firms boost accounting earnings in anticipation of a rights offering (Chen et al. 2008; Chen and Yuan 2004; Haw et al. 2005).[10] Reporting higher earnings also helps firms set a good offering price. Therefore, we define rights offering applicants as high book incentive firms; in comparison with such firms, low book incentive firms face less pressure to maintain income levels.[11] Descriptive statistics indicate that our partitions successfully capture the differential book incentive levels among firms. For example, the average ROE for high book incentive firms is 15.4 percent in the pre-1998 period, significantly higher than the 7.2 percent for low book incentive firms. A similar difference is evident in the post-1998 period.

We begin with 3,615 firm-year observations drawn from the Wind Information database, which contains a complete set of data enabling us to compute each variable for the two sample periods. This database covers stock and bond data for all listed Chinese firms, including historical and real-time market data, financial statements, and information on rights offerings, ownership structure, and corporate actions. We exclude 72 firm-year observations that represent financial institutions (as they use different accounting rules). We also exclude 405 firm-year observations that show zero tax expense due to the firm reporting an operating loss.[12] Therefore, our final sample comprises 3,138 firm-year observations (1,152 pre-1998 and 1,986 post-1998). These observations represent 993 firms (or 85 percent of the population by 2001), 454 (46 percent) of which applied for permission to conduct a rights offering during the sample period. Table 1 presents the sample distribution and mean differences for firms with high versus low book incentives over the two sample periods.[13]

Table 1 indicates that while post-1998 income tax expenses and sales have increased in absolute terms relative to those of the pre-1998 period, the average rate of tax per dollar of sales has remained stable over time. For our sample of pre-1998 firms, we find that firms with high book incentives on average report a much higher pre-tax profit margin (0.191 versus 0.115, t = 3.630, p < 0.01) and a significantly higher tax-to-sales ratio (0.028 versus 0.020, t = 5.245, p < 0.01) than do firms with low book incentives.[14] We interpret this evidence as indicating that high book incentive firms manage book income upward to meet earnings targets, but also report additional income for tax purposes. For our post-1998 firms, we find that while high book incentive firms on average report a significantly higher pre-tax profit margin (0.137 versus 0.123, t = 2.382, p < 0.01) than do low book incentive firms, the two groups report a virtually identical rate of tax per dollar of sales (0.026 versus 0.025, t = 0.727, p = 0.23).[15] The *differential* effects of profit margin on tax expense suggest that our results are not driven by differences in profitability across high and low book incentive firms, but are caused by differences in opportunities available for non-conforming earnings management across book-tax conformity levels.

Other statistics indicate that firms with high (relative to low) book incentives are smaller in scale, have lower levels of government and foreign ownership, and experience higher rates of growth. In

unreported results, the majority of our sample firms operate in the manufacturing industry (56 percent), followed by the wholesale and retail sectors (9 percent), conglomerates (8 percent), information technology (6 percent), real estate (5 percent), and utilities (4 percent).

TABLE 1

Descriptive Statistics: Mean Values for High versus Low Book Incentive Firms by Period

Panel A: Pre-1998 Period

	Total n = 1,152	High Incentive n = 702	Low Incentive n = 450	Test of Difference t-statistics
TAX EXPENSE	13.2	13.5	12.7	0.473
SALES	733	659	848	−2.499**
TAX EXPENSE/SALES	0.025	0.028	0.020	5.245**
SIZE	20.509	20.408	20.668	−4.818**
PROFIT	0.161	0.191	0.115	3.630**
LIQUIDITY	1.794	1.836	1.728	1.577
LEVERAGE	0.074	0.073	0.075	−0.303
OWNER	0.403	0.385	0.431	−1.570
INTENSITY	0.237	0.240	0.232	0.889
GROWTH	0.145	0.170	0.106	3.870**
BSHARE	0.161	0.085	0.280	−9.053**

Panel B: Post-1998 Period

	Total n = 1,986	High Incentive n = 765	Low Incentive n = 1,221	Test of Difference t-statistics
TAX EXPENSE	24.3	18.3	28.0	−1.253
SALES	1,270	949	1,470	−1.611
TAX EXPENSE/SALES	0.025	0.026	0.025	0.727
SIZE	21.046	20.929	21.120	−5.134**
PROFIT	0.128	0.137	0.123	2.382**
LIQUIDITY	1.832	1.814	1.842	−0.518
LEVERAGE	0.073	0.071	0.074	−0.602
OWNER	0.462	0.437	0.477	−1.779
INTENSITY	0.287	0.291	0.284	0.830
GROWTH	0.172	0.227	0.138	5.017**
BSHARE	0.083	0.031	0.115	−6.679**

*, ** The t-statistic for a test of differences in means is significant at the 5 percent and 1 percent levels, respectively (one-tailed).
Statistics for sub-industries are not reported for parsimony.

Variable Definitions:
TAX EXPENSE = annual tax expense (in million renminbi);
SALES = annual sales revenue (in million renminbi);
SIZE = natural logarithm of year-end total assets;
PROFIT = ratio of pre-tax book income to sales revenue;
LIQUIDITY = ratio of total current assets to total current liability at year end;
LEVERAGE = ratio of long-term debt to total assets at year end;
OWNER = percentage of shares owned by the government;
INTENSITY = ratio of fixed assets to total assets at year end;
GROWTH = percentage change in total assets during the year; and
BSHARE = 1 for B-share firms, 0 otherwise.

Statistical Models

To test the first hypothesis, we develop the following OLS regression model for all firm-year observations:

$$\begin{aligned}
TAXEXP = a_0 &+ a_1 INCENTIVE + a_2 POST98 + a_3 INCENTIVE * POST98 + a_4 SIZE \\
&+ a_5 PROFIT + a_6 LIQUIDITY + a_7 LEVERAGE + a_8 OWNER + a_9 INTENSITY \\
&+ a_{10} GROWTH + a_{11} BSHARE + a_{12} IMR + a_K INDUSTRY + \varepsilon,
\end{aligned} \qquad (1)$$

where the dependent variable *TAXEXP* is the firm's annual tax expense deflated by sales revenue.[16] *INCENTIVE* takes a value of 1 if the firm applies for a rights issue in the following three years, and 0 otherwise (Chan et al. 2010).[17] This variable measures the difference in *TAXEXP* between high and low book incentive firms in the pre-1998 period (the first part of H1), and its coefficient (a_1) is expected to be significantly positive. *POST98* equals 1 if the observation is in the post-1998 period. This variable measures the time trend in *TAXEXP* for low book incentive firms. The coefficient of *INCENTIVE * POST98* is the difference-in-difference estimate of changes in the relation between *TAXEXP* and *INCENTIVE* over time. If this relation is weaker after 1998 than it is before 1998, a_3 will be negative.

Nine firm-specific variables are included in the model to control for inter-firm differences in the book-tax trade-off. *SIZE* is the natural logarithm of the firm's year-end total assets. Because of the opposing arguments about the effect of firm size on taxes and the evidence supporting both views, we make no directional prediction regarding the *overall* effect of firm size. Given that rights-offering firms tend to be more profitable and profitable firms tend to pay more tax, our inferences about the tax effect are likely to be biased without a control for profitability. Therefore, we deflate pre-tax income by sales to control for the firm's profit margin.[18] We expect *PROFIT* to be positively related to the amount of tax paid. *LIQUIDITY* is measured by the current ratio and is used to control for the effect of firm liquidity on tax planning. *LEVERAGE* (long-term debt scaled by total assets) is used as a proxy for the firm's capital structure.[19]

Government ownership is an important characteristic of the Chinese economy. We use *OWNER*, the percentage of shares owned by the government, as a continuous variable to provide a general control for differences in the reporting incentives of government versus corporate-controlled firms (Wu et al. 2012). Given the opposing views on the effect of government ownership on taxes, we provide results on the differential effect of government ownership without making directional predictions regarding this variable.[20] *INTENSITY* is capital intensity (fixed assets scaled by total assets), which measures how firms with different asset mixes are affected by different depreciation treatments for tax and book purposes. As depreciation on fixed assets is generally tax deductible, a greater weighting of fixed assets leads to a lower tax expense. *GROWTH* (the annual percentage increase in total assets) controls for firm growth effects. *BSHARE* is an indicator variable used to

control for the effect of foreign ownership on tax reporting.[21] *INDUSTRY* is a set of dummy variables for the 11 sub-industry classifications that control for industry-specific effects.

The inverse Mills ratio (IMR) is constructed from the Heckman (1979) two-stage estimation procedure to correct for sample selection bias.[22] In the first stage, we estimate the probability of applying for a rights issue with a probit regression, where the binary variable is whether the firm applies for a rights issue. As reporting a profit with a clean audit opinion is an important condition for a rights offering, our choice of exclusion restriction is the type of audit opinion (clean report or modified audit report), an exogenous variable that has an effect on the binary variable in the first-stage regression, but has no direct effect on the tax expense (i.e., the dependent variable) in the second stage.[23] The control variables are *SIZE, PROFIT, LIQUIDITY, LEVERAGE, OWNER, INTENSITY, GROWTH, BSHARE,* and *INDUSTRY,* as defined earlier. In the second stage, we incorporate the IMR calculated in the first stage into the tax expense estimation model to take account of selectivity effects in testing the first hypothesis.

To test the second hypothesis, we develop the following OLS regression model for the full period. To keep the set of earnings management motivations as homogenous as possible, we split our sample firms into two partitions—firms with high and low incentives to meet clear earnings targets.[24]

$$
\begin{aligned}
TAXEXP = {} & \beta_0 + \beta_1 POST98 + \beta_2 SIZE + \beta_3 POST98*SIZE + \beta_4 PROFIT + \beta_5 LIQUIDITY \\
& + \beta_6 LEVERAGE + \beta_7 OWNER + \beta_8 INTENSITY + \beta_9 GROWTH + \beta_{10} BSHARE \\
& + \beta_K INDUSTRY + \varepsilon,
\end{aligned}
\tag{2}
$$

where all variables are as defined previously. If large firms are more able than small firms to exploit non-conforming earnings management in the post-1998 period, then β_3 should be negative.

IV. EMPIRICAL RESULTS

Correlation Analysis

Table 2 provides Pearson correlations among the variables used in the regression model for both the pre- and post-1998 periods.[25] For the pre-1998 period (lower left), the Pearson correlation between *TAXEXP* and *INCENTIVE* is 0.153 (p < 0.01) and is highly significant, which is consistent with firms having incentives to report higher earnings also reporting higher tax expenses. In contrast, for the post-1998 period (upper right), the Pearson correlation between these two variables is 0.016 and insignificant (p = 0.23). Other correlations suggest that larger firms report lower liquidity and higher leverage, are more likely to be controlled by the government, and experience faster rates of growth compared to smaller firms.

Univariate and Multivariate Analyses

Table 3 reports the results of the multivariate analysis for regression Equation (1) taking account of sample selection bias. Column 1 displays the results of a pooled regression, while columns 2 and 3 show the parallel results of by-period regressions that mitigate the effect of any cross-sectional correlation in the regression error terms. The t-statistics are based on variance estimators adjusted for heteroscedasticity and time-series dependence (clustering within the firm) in the panel data (Petersen 2008).

TABLE 2

Pearson Correlation Coefficients
Pre-1998 (Lower Left) and Post-1998 (Upper Right) Periods

	TAX-EXP	INCEN-TIVE	SIZE	PROFIT	LIQUID-ITY	LEVER-AGE	OWNER	INTENS-ITY	GROWTH	BSHARE
TAXEXP		0.016	−0.011	0.601	0.196	0.052	0.061	0.068	0.025	−0.062
		(0.234)	(0.313)	(0.000)	(0.000)	(0.010)	(0.004)	(0.002)	(0.133)	(0.006)
INCENTIVE	0.153		−0.115	0.053	−0.012	−0.014	−0.040	0.019	0.112	−0.148
	(0.000)		(0.000)	(0.017)	(0.303)	(0.274)	(0.038)	(0.204)	(0.000)	(0.000)
SIZE	−0.060	−0.141		−0.013	−0.163	0.237	0.182	0.127	0.101	0.221
	(0.021)	(0.000)		(0.570)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
PROFIT	0.298	0.106	−0.010		0.206	0.073	0.021	0.011	0.061	−0.067
	(0.000)	(0.000)	(0.721)		(0.000)	(0.001)	(0.358)	(0.625)	(0.006)	(0.003)
LIQUIDITY	0.313	0.046	−0.159	0.105		−0.046	0.023	−0.159	−0.016	−0.063
	(0.000)	(0.058)	(0.000)	(0.000)		(0.020)	(0.155)	(0.000)	(0.243)	(0.005)
LEVERAGE	0.082	−0.009	0.191	0.051	−0.081		0.038	0.295	0.090	0.006
	(0.003)	(0.381)	(0.000)	(0.081)	(0.003)		(0.047)	(0.000)	(0.000)	(0.776)
OWNER	0.066	−0.046	0.212	−0.019	0.069	0.096		0.124	−0.072	−0.087
	(0.013)	(0.059)	(0.000)	(0.509)	(0.010)	(0.001)		(0.000)	(0.001)	(0.000)
INTENSITY	−0.005	0.026	0.015	−0.024	−0.142	0.198	0.067		−0.057	−0.026
	(0.439)	(0.187)	(0.303)	(0.410)	(0.000)	(0.000)	(0.012)		(0.006)	(0.240)
GROWTH	−0.013	0.113	0.127	0.011	−0.095	0.045	−0.075	−0.026		−0.034
	(0.330)	(0.000)	(0.000)	(0.686)	(0.001)	(0.066)	(0.006)	(0.183)		(0.125)
BSHARE	−0.074	−0.258	0.342	−0.033	−0.073	0.010	0.022	−0.034	0.008	
	(0.011)	(0.000)	(0.000)	(0.267)	(0.013)	(0.731)	(0.447)	(0.247)	(0.778)	

p-values are reported in parentheses, using a one-tailed test.
Other variables are as defined in Table 1.

Variable Definitions:
TAXEXP = ratio of the firm's annual tax expense to sales; and
INCENTIVE = 1 if the firm applies for a rights issue in the next three years, 0 otherwise.

The results based on the pooled analysis are consistent with those of the by-period analysis. The coefficient of *INCENTIVE* in column 1 indicates that after controlling for firm profitability, the pre-1998 high book incentive firms report tax expenses higher than those of the low book incentive firms by an average of 0.5 percent of sales (in column 2, the *INCENTIVE* coefficient also shows a similar value). In terms of economic significance, given the mean sales value of RMB 659 million for high book incentive firms in the pre-1998 period, a 0.5 percent increase in the ratio roughly translates into a tax overpayment of RMB 3.3 million (approximately USD 0.53 million) for an average firm. Column 1 also shows that the coefficient on *INCENTIVE* drops from 0.005 (a_1) before 1998 to 0.001

$(a_1 + a_3)$ after, or a drop of 80 percent ($= 0.004/0.005$). Untabulated F-test results show that $(a_1 + a_3)$ in the pooled regression is insignificant ($F = 0.70$, $p = 0.404$), consistent with the insignificant coefficient of *INCENTIVE* for the post-1998 regression (column 3). A Chow F-test also indicates that the two *INCENTIVE* coefficients (columns 2 and 3) are significantly different at the 1 percent level. These results suggest that upward earnings management is less costly (from a tax perspective) when the two income measures are detached from each other.

The results for *INCENTIVE* are also consistent with our univariate comparison (Table 1, Panel A), which shows that the mean tax expense of the high incentive sample exceeds that of the low incentive sample by 0.8 percent of sales. While the inclusion of control variables in the multivariate analysis affects this difference to a small degree, the results continue to support H1 that firms with high book incentives pay more tax than firms with low incentives in the pre-1998 period. The difference in reported taxes between these two groups of firms is no longer significant in the post-1998 period. These results support the proposition that a regime that strengthens book-tax conformity is likely to prompt higher tax payments for firms with incentives to maintain higher book income (Mills 1996).

For the control variables that display consistent results over time, we find that firms with higher profit margins, liquidity levels, and government ownership tend to pay more income tax. Similar to prior studies, Table 3 shows an insignificant overall relation between taxes and firm size in both periods. As predicted, a good part of this relation is conditional on whether the firm has a large profit margin that makes tax planning worthwhile, and whether it has tax-planning expertise and opportunities. To examine this issue further, we sort all the sample firms in ascending order of profit margin by period and divide them into quartiles. We then define large (small) firms as firms with a natural logarithm of total assets above (below) the median value. Untabulated results show that when their profit margins are among the lowest (the first quartile), there is no difference in reported tax expenses between large and small firms in either period. When their profit margins are in the top quartile, large firms pay significantly less tax than small firms (0.040 versus 0.047), but only in the post-1998 period ($t = 2.675$, $p < 0.01$).

We now perform a multivariate analysis to provide more convincing evidence on the size effect. To control for different book incentives across firms, we split our sample firms into two groups—firms with high and low incentives to meet clear earnings targets. For each subsample, we first run a pooled regression in which the coefficients of *SIZE* can vary across the two periods, then run by-period regressions to provide parallel results. These results are reported in Table 4.

Column 1 of Table 4 displays the results of the cross-period analysis, which are consistent with those of the within-period analysis reported in columns 2 and 3. The results show that the strength of the

size-tax relation differs between the two periods and between the two groups of firms with varying book incentives. As expected, the size effect is evident *only* in column 3 of Panel A, which shows that where there are incentives to meet earnings targets, large firms pay less income tax than small firms by an average of 0.2 percent of sales in the period when book-tax conformity is lower.[26] This is consistent with prior research demonstrating that larger firms engage in more non-conforming earnings management than smaller firms (Badertscher et al. 2009). Panel B shows that *SIZE* has no significant effect on income tax when firms have no earnings pressure. Thus, our results reveal that the relation between taxes and firm size is conditional on the combination of three important factors affecting whether to engage in tax planning: whether opportunities are available (more non-conforming reporting opportunities after 1998), whether incentives are present (firms with greater earnings pressure have greater incentives), and whether economies of scale exist (large firms have more resources with which to develop expertise and have more subsidiaries among which to shift income to minimize taxes). The relation between firm size and taxes has been the subject of longstanding debate in the literature. Our results suggest that it is difficult to fully understand the effect of size on taxes without considering managerial incentives and opportunities available for tax planning.

TABLE 3
Taxes and Firms' Financial Reporting Incentives

	Exp. Sign	Pooled Estimate (1)		Pre-1998 Period (2)		Post-1998 Period (3)	
		Coeff.	t-statistics	Coeff.	t-statistics	Coeff.	t-statistics
Intercept	(?)	0.030	2.51**	0.048	1.72*	0.013	0.70
INCENTIVE	(+)	0.005	3.30**	0.004	3.13**	0.001	0.31
POST98	(?)	0.003	2.34**				
INCENTIVE * POST98	(−)	−0.004	−2.33**				
SIZE	(?)	−0.000	−0.60	−0.001	−1.42	0.001	0.58
PROFIT	(+)	0.028	1.70*	0.046	2.01**	0.058	3.41**
LIQUIDITY	(+)	0.004	6.60**	0.004	3.55**	0.004	5.69**
LEVERAGE	(?)	0.009	1.31	0.016	1.61	−0.002	−0.21
OWNER	(?)	0.009	4.14**	0.010	2.37**	0.006	2.31*
INTENSITY	(?)	0.004	1.14	−0.005	−1.13	0.008	2.03*
GROWTH	(?)	−0.005	−2.63**	−0.007	−1.19	−0.005	−1.46
BSHARE	(?)	−0.000	−0.44	−0.001	−0.20	−0.000	−0.07
IMR	(?)	−0.014	−2.98**	−0.009	−1.08	−0.017	−2.02*
INDUSTRY	(?)	Included but not reported		Included but not reported		Included but not reported	
		n = 3,138		n = 1,152		n = 1,986	
		F = 36.90**		F = 30.46**		F = 32.04**	
		Adj. R^2 = 0.233		Adj. R^2 = 0.350		Adj. R^2 = 0.255	

*, **, The t-statistic for a test of differences in means is significant at the 5 percent and 1 percent levels, respectively (one-tailed).
The dependent variable is the tax expense scaled by sales.
Other variables are as defined in Tables 1 and 2.

Variable Definition:
POST98 = 1 for the post-1998 period, 0 otherwise.

Among the control variables employed in both Tables 3 and 4, it appears that *PROFIT* and *LIQUIDITY* are the two that are relatively consistently significant across the period. Specifically, the results suggest that firms with higher profit margins and higher liquidity positions are positively associated with higher tax expenses. The results for other variables such as leverage and firm ownership are less consistent over time.

TABLE 4
Taxes and Firm Size: Pre-1998 and Post-1998 Periods

Panel A: Firms with High Book Incentives

	Exp. Sign	Pooled Estimate (1)		Pre-1998 Period (2)		Post-1998 Period (3)	
		Coeff.	t-statistics	Coeff.	t-statistics	Coeff.	t-statistics
Intercept		0.020	0.98	0.026	1.15	0.051	2.83**
POST98	(?)	0.064	2.40**				
SIZE	(−)	−0.000	−0.40	−0.001	−0.32	−0.002	−2.88**
SIZE * POST98	(−)	−0.003	−2.43**				
PROFIT	(+)	0.011	6.74**	0.007	3.68**	0.092	6.47**
LIQUIDITY	(+)	0.004	5.98**	0.004	3.72**	0.003	4.87**
LEVERAGE	(?)	0.015	2.21*	0.031	2.97**	0.002	0.32
OWNER	(?)	0.004	1.77*	0.006	1.86*	0.001	0.37
INTENSITY	(?)	0.002	0.70	−0.010	−1.60	0.012	3.12**
GROWTH	(?)	−0.000	−0.27	−0.003	−0.84	−0.000	−0.09
BSHARE	(?)	−0.006	−2.62**	−0.007	−2.38**	−0.002	−0.47
INDUSTRY	(?)	Included but not reported		Included but not reported		Included but not reported	
		n = 1,467		n = 702		n = 765	
		F = 23.65**		F = 12.77**		F = 26.62**	
		Adj. R^2 = 0.26		Adj. R^2 = 0.24		Adj. R^2 = 0.38	

Panel B: Firms with Low Book Incentives

	Exp. Sign	Pooled Estimate (1)		Pre-1998 Period (2)		Post-1998 Period (3)	
		Coeff.	t-statistics	Coeff.	t-statistics	Coeff.	t-statistics
Intercept		−0.001	−0.04	−0.020	−1.11	0.006	0.26
POST98	(?)	0.006	0.19				
SIZE	(−)	0.000	0.05	0.001	1.26	−0.000	−0.13
SIZE * POST98	(−)	−0.000	−0.12				
PROFIT	(+)	0.100	3.31**	0.153	12.00**	0.091	2.63**
LIQUIDITY	(+)	0.003	4.88**	0.002	2.15**	0.003	3.97**
LEVERAGE	(?)	−0.009	−1.16	−0.000	−0.06	−0.013	−1.30
OWNER	(?)	0.007	2.50**	0.005	1.60	0.007	2.03*
INTENSITY	(?)	0.007	1.55	−0.001	−0.29	0.009	1.57
GROWTH	(?)	0.002	1.13	0.001	0.38	0.003	1.25
BSHARE	(?)	−0.002	−1.19	−0.001	−0.59	−0.003	−1.41
INDUSTRY	(?)	Included but not reported		Included but not reported		Included but not reported	
		n = 1,671		n = 450		n = 1,221	
		F = 61.87**		F = 50.85**		F = 42.54**	
		Adj. R^2 = 0.43		Adj. R^2 = 0.69		Adj. R^2 = 0.39	

*, **, The t-statistic for a test of differences in means is significant at the 5 percent and 1 percent levels, respectively (one-tailed).
The dependent variable is the tax expense scaled by sales.
Other variables are as defined in Tables 1 and 2.

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Supplementary Tests

We base our main results on sales revenue as the deflator of tax expense. Our first two supplementary tests examine the robustness of this deflator. One commonly used measure of tax avoidance is the effective tax rate (ETR), which deflates the (current or total) income tax expense by pre-tax book income in the same period. However, the ETR does not directly capture conforming tax avoidance, because this measure uses book income as the denominator (Hanlon and Heitzman 2010). Nevertheless, we test whether our main results still hold if the tax expense is scaled by book income before extraordinary items.[27]Untabulated results suggest that pre-1998 scaled tax expenses are respectively 0.157 and 0.135 for high and low book incentive firms (t = 1.875, p = 0.03). However, there is no significant difference in the average rate of tax between high and low book incentive firms in the post-1998 period (t = −0.229, p = 0.41). We also deflate the tax expense by assets. Table 5 (columns 1 and 2 in Panels A and C) reports the results of tests replicating the analysis shown in Tables 3 and 4 (for firms with high book incentives) using these two deflators.[28]

Second, we test whether our main results are sensitive to alternative definitions of the explanatory variable. Chen and Yuan (2004) and Haw et al. (2005) find that China's accounting-based securities regulations have resulted in a cluster of firms reporting an ROE just above the regulatory benchmark for rights offerings. Therefore, we assign *INCENTIVE* the value of 1 if the firm applies for a rights issue *and* its reported ROE is between 10 and 12 percent before 1998 and 6 and 8 percent thereafter, and 0 otherwise (column 3). We also assign the value of 1 to *INCENTIVE* if the firm's pre-1998 ROE is between 10 and 12 percent and its post-1998 ROE is between 6 and 8 percent, and 0 otherwise, *regardless* of whether the firm applies for a rights offering (column 4). These alternative classifications help discriminate between firms that truly manage earnings and those that simply have strong performance.[29]

Third, to explore the robustness of our results to potential serial correlation arising from repeated measures for the same firm across years, we use the firm-mean observations for each continuous variable. For example, we first identify the tax expense (scaled by sales) for each firm year before employing the mean value for each period as the sample value. We report the results in column 5. We then test whether our main results are robust to different sample compositions. Column 6 reports an analysis focusing on observations that include a span of two years before and after the year of the policy change (i.e., 1996–1997 and 1999–2000), and column 7 shows results in which the 1998–2000 period is treated as transitional by examining only the first (1995–1997) and last (2001–2003) observations.[30]

Overall, the tenor of our main results does not change. More importantly, after controlling for firm profitability and other factors expected to affect the dependent variable, the coefficients on *INCENTIVE* (Table 5, Panels A and B) in the pre-1998 period remain significantly positive in all

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seven tests, consistent with H1. A Chow F-test also indicates that the pre-1998 and post-1998 *INCENTIVE* coefficients are significantly different at the 1 percent level. Further, replication of the analysis in Table 4 (Panel A) indicates that *SIZE* is significantly negative *only* in the post-1998 period in all supplementary tests (Table 5, Panels C and D), reconfirming H2.

V. CONCLUSION

Recent corporate accounting scandals and aggressive tax reporting have led to a call for more explicitly conforming book and tax income measures to mitigate corporate incentives for opportunistic tax reporting. However, little hard evidence has been produced to support the proposition that conformity in book and tax reporting will indeed encourage honest tax reporting. This study draws from the unique and opportune setting of China to provide such evidence. Specifically, we hypothesize and find that a book-tax conformity system is likely to induce higher tax payments from firms with regulatory pressure to report higher book income. While we do not find similar results in a non-conformed system, we find that where incentives to meet earnings targets exist, large firms are more able than small firms to exploit non-conforming book income to a greater extent and thus save more tax. The results of this study should be of interest to academics and policymakers considering the benefits and costs of conforming the two income measures. For example, our results suggest that from the tax reporting viewpoint, upward earnings management is more costly where the two measures of income are more aligned. Furthermore, as small firms create opportunities for social and economic advancement in most countries and make important contributions to economic growth and employment over time, there has been a call for government to give the small business sector more tax relief. Our results showing that small firms pay proportionately more taxes than large firms strengthen the policy position on giving greater tax relief to small and medium-sized firms. On the other hand, our findings suggest that government should strengthen its scrutiny of large-firm financial statements in periods of lower book-tax conformity.

This study is subject to several limitations, each of which provides a possible avenue for future inquiries. First, we use the reported tax expense to examine tax effects; to the extent abnormal tax expenses can be accurately estimated, future research could examine whether some firms pay abnormally higher or abnormally lower taxes than others. Second, consistent with prior research findings, we assume *ex post* that rights offering firms are earnings managers. Future research could explore the use of alternative measures to identify firms that "truly" manage earnings. Third, although we control for many factors expected to affect tax expenses, there may still be other variables that need to be controlled. Fourth, the generalizability of our results requires careful consideration of similarities and differences among countries. Fifth, while book-tax conformity reduces opportunistic tax management, future research may examine whether such conformity also

reduces opportunistic earnings management, and if so, the extent to which it does and how it affects earnings quality.

TABLE 5
Summary of Supplementary Tests

Panel A: Replication of the Analysis in Table 3, Columns (1) to (4)

	(1) Pre-1998 Coeff. (t-stat.)	(1) Post-1998 Coeff. (t-stat.)	(2) Pre-1998 Coeff. (t-stat.)	(2) Post-1998 Coeff. (t-stat.)	(3) Pre-1998 Coeff. (t-stat.)	(3) Post-1998 Coeff. (t-stat.)	(4) Pre-1998 Coeff. (t-stat.)	(4) Post-1998 Coeff. (t-stat.)
Intercept	0.205 (0.31)	2.535 (1.68*)	0.020 (1.54)	0.061 (2.14*)	0.067 (2.56**)	0.012 (0.75)	0.071 (2.44**)	0.013 (0.78)
INCENTIVE	0.114 (2.34**)	-0.121 (-1.08)	0.006 (9.18**)	0.002 (1.31)	0.002 (1.93*)	0.000 (0.40)	0.002 (2.04*)	-0.000 (-0.26)
SIZE	-0.004 (-0.12)	-0.095 (-1.29)	-0.000 (-1.21)	-0.004 (-2.36**)	-0.001 (-1.52)	0.000 (0.39)	-0.001 (-1.58)	0.000 (0.37)
PROFIT	-0.047 (-0.87)	-0.062 (-0.41)	0.009 (4.25**)	0.205 (5.39**)	0.039 (2.07*)	0.091 (2.94**)	0.040 (2.07*)	0.091 (2.93**)
LIQUIDITY	0.001 (0.04)	-0.037 (-0.64)	0.001 (5.59**)	0.000 (0.22)	0.004 (4.16**)	0.004 (3.71**)	0.004 (4.15**)	0.004 (3.72**)
LEVERAGE	-0.221 (-0.83)	0.093 (0.18)	-0.013 (-2.82**)	-0.019 (-1.56)	0.016 (1.58)	-0.002 (-0.35)	0.017 (1.60)	-0.002 (-0.34)
OWNER	-0.134 (-1.08)	-0.247 (-0.99)	0.007 (3.39**)	-0.001 (-0.15)	0.013 (3.34**)	0.005 (2.39**)	0.013 (3.30**)	0.005 (2.38**)
INTENSITY	-0.043 (-0.26)	-0.329 (-0.55)	0.007 (3.62**)	0.037 (5.68**)	0.000 (0.03)	0.011 (2.63**)	0.000 (0.05)	0.011 (2.64**)
GROWTH	0.093 (1.25)	-0.061 (-0.46)	-0.003 (-0.95)	-0.000 (-0.02)	-0.012 (-2.12*)	-0.004 (-2.98**)	-0.011 (-2.09*)	-0.004 (-2.95**)
BSHARE	-0.097 (-0.73)	-0.090 (-0.44)	0.001 (0.41)	-0.002 (-0.30)	0.003 (0.99)	0.001 (0.30)	0.003 (0.96)	0.001 (0.29)
IMR	-0.024 (-0.21)	0.279 (0.86)	-0.005 (-1.21)	0.015 (1.00)	-0.019 (-2.42**)	-0.014 (-2.43**)	-0.019 (-2.38**)	-0.014 (-2.44**)
INDUSTRY	Included	Included	Included	Included	Included	Included	Included	Included
	n = 1,152	n = 1,986	n = 1,152	n = 1,986	n = 1,152	n = 1,986	n = 1,152	n = 1,986
	F = 2.1**	F = 0.8	F = 13.2**	F = 5.2**	F = 21.6**	F = 28.3**	F = 22.0**	F = 27.4**
	R² = 0.02	R² = 0.01	R² = 0.20	R² = 0.05	R² = 0.36	R² = 0.40	R² = 0.36	R² = 0.40

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TABLE 5 (continued)

Panel B: Replication of the Analysis in Table 3, Columns (5) to (7)

	(5)		(6)		(7)	
	Pre-1998 Coeff. (t-stat.)	Post-1998 Coeff. (t-stat.)	Pre-1998 Coeff. (t-stat.)	Post-1998 Coeff. (t-stat.)	Pre-1998 Coeff. (t-stat.)	Post-1998 Coeff. (t-stat.)
Intercept	0.066 (2.05*)	0.007 (0.36)	0.076 (1.43)	0.021 (1.14)	0.048 (1.72*)	−0.001 (−0.07)
INCENTIVE	0.008 (4.16**)	−0.001 (−0.45)	0.006 (3.81**)	−0.001 (0.40)	0.004 (3.13**)	−0.000 (−0.08)
SIZE	−0.002 (−1.96*)	0.000 (0.34)	−0.003 (−1.72*)	−0.000 (−0.25)	−0.001 (−1.42)	0.001 (1.90*)
PROFIT	0.008 (4.09**)	0.061 (2.88**)	0.011 (5.69**)	0.079 (4.45**)	0.046 (2.01**)	0.001 (4.86***)
LIQUIDITY	0.005 (5.75**)	0.006 (4.49**)	0.005 (7.23**)	0.003 (5.62**)	0.004 (3.55**)	0.003 (4.35***)
LEVERAGE	0.013 (1.23)	−0.003 (−0.30)	0.024 (2.11*)	−0.006 (−0.79)	0.016 (1.61)	−0.017 (−2.70***)
OWNER	0.009 (1.65*)	0.006 (1.87*)	0.007 (1.16)	0.007 (2.42**)	0.010 (2.37**)	0.002 (0.96)
INTENSITY	0.001 (0.17)	0.018 (2.60**)	−0.007 (−1.22)	0.011 (2.51**)	−0.005 (−1.13)	0.022 (4.70***)
GROWTH	−0.015 (−1.08)	−0.010 (−2.29*)	−0.004 (−0.39)	−0.005 (−1.59)	−0.007 (−1.19)	0.001 (0.92)
BSHARE	0.003 (0.82)	0.000 (0.11)	0.000 (0.09)	−0.002 (−0.71)	−0.001 (−0.20)	0.001 (0.49)
IMR	−0.009 (−0.89)	−0.016 (−2.40**)	−0.007 (−0.49)	−0.011 (−1.58)	−0.009 (−1.08)	−0.011 (−3.05***)
INDUSTRY	Included	Included	Included	Included	Included	Included
	n = 594	n = 899	n = 911	n = 1,307	n = 1,152	n = 2,500
	F = 10.9**	F = 15.0**	F = 15.7**	F = 24.3**	F = 30.5**	F = 35.5**
	$R^2 = 0.29$	$R^2 = 0.40$	$R^2 = 0.25$	$R^2 = 0.38$	$R^2 = 0.35$	$R^2 = 0.23$

TABLE 5 (continued)

Panel C: Replication of the Analysis in Table 4 (for Firms with High Book Incentives), Columns (1) to (4)

	(1)		(2)		(3)		(4)	
	Pre-1998 Coeff. (t-stat.)	Post-1998 Coeff. (t-stat.)	Pre-1998 Coeff. (t-stat.)	Post-1998 Coeff. (t-stat.)	Pre-1998 Coeff. (t-stat.)	Post-1998 Coeff. (t-stat.)	Pre-1998 Coeff. (t-stat.)	Post-1998 Coeff. (t-stat.)
Intercept	0.455 (1.46)	4.153 (2.49**)	0.019 (1.61)	0.136 (1.77*)	0.006 (0.29)	0.057 (1.92*)	−0.006 (−0.26)	0.055 (1.96*)
SIZE	−0.011 (−0.71)	−0.188 (−2.40**)	−0.000 (−0.83)	−0.008 (−2.15*)	0.000 (0.00)	−0.002 (−1.75*)	0.001 (0.62)	−0.003 (−2.05*)
PROFIT	−0.031 (−1.26)	−0.381 (−0.65)	0.007 (2.87**)	0.396 (4.44**)	0.115 (7.07**)	0.116 (6.46**)	0.121 (8.63**)	0.164 (5.84**)
LIQUIDITY	−0.004 (−0.41)	−0.068 (−1.30)	0.001 (3.88**)	0.001 (0.22)	0.000 (0.29)	0.001 (1.25)	0.001 (0.71)	−0.001 (−0.68)
LEVERAGE	−0.398 (−2.86**)	1.028 (1.42)	−0.025 (−4.61**)	−0.016 (−0.49)	0.003 (0.29)	−0.003 (−0.24)	0.004 (0.34)	0.002 (0.22)
OWNER	0.010 (0.22)	−0.129 (−0.54)	0.005 (2.95**)	−0.006 (−0.52)	0.004 (1.18)	−0.006 (−1.37)	0.005 (1.67*)	0.000 (0.09)
INTENSITY	−0.009 (−0.11)	−0.058 (−0.16)	0.013 (4.14**)	0.081 (4.83**)	0.011 (2.30*)	0.013 (2.18*)	0.009 (1.82*)	0.008 (1.36)
GROWTH	0.013 (0.32)	−0.069 (−0.61)	−0.000 (−0.32)	−0.008 (−1.44)	0.000 (0.08)	−0.000 (−0.09)	0.001 (0.60)	0.001 (0.39)
BSHARE	−0.020 (−0.48)	0.118 (0.37)	−0.003 (−1.95*)	0.010 (0.72)	−0.009 (−3.63**)	−0.004 (−0.75)	−0.008 (−3.05**)	−0.005 (−1.41)
INDUSTRY	Included	Included	Included	Included	Included	Included	Included	Included
	n = 702	n = 765	n = 702	n = 765	n = 403	n = 319	n = 451	n = 446
	F = 1.8*	F = 0.6	F = 5.6**	F = 3.8**	F = 53.7**	F = 11.0**	F = 43.1**	F = 20.8**
	$R^2 = 0.05$	$R^2 = 0.02$	$R^2 = 0.13$	$R^2 = 0.09$	$R^2 = 0.65$	$R^2 = 0.41$	$R^2 = 0.63$	$R^2 = 0.48$

(continued on next page)

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TABLE 5 (continued)

Panel D: Replication of the Analysis in Table 4 (for Firms with High Book Incentives), Columns (5) to (7)

	(5)		(6)		(7)	
	Pre-1998 Coeff. (t-stat.)	Post-1998 Coeff. (t-stat.)	Pre-1998 Coeff. (t-stat.)	Post-1998 Coeff. (t-stat.)	Pre-1998 Coeff. (t-stat.)	Post-1998 Coeff. (t-stat.)
Intercept	0.031 (1.03)	0.070 (2.96**)	0.056 (2.28*)	0.052 (2.34**)	0.026 (1.15)	0.043 (1.88*)
SIZE	−0.001 (−0.46)	−0.003 (−2.77**)	−0.001 (−1.55)	−0.003 (−2.43**)	−0.001 (−0.32)	−0.002 (−1.94*)
PROFIT	0.004 (2.26*)	0.081 (3.72**)	0.005 (2.79***)	0.101 (6.65***)	0.007 (3.68**)	0.006 (2.33**)
LIQUIDITY	0.005 (5.09***)	0.002 (2.21*)	0.004 (5.75***)	0.003 (3.40***)	0.004 (3.72**)	0.004 (4.08**)
LEVERAGE	0.030 (2.07*)	0.006 (0.55)	0.033 (2.96**)	−0.000 (−0.03)	0.031 (2.97**)	−0.007 (−0.76)
OWNER	0.005 (1.07)	0.001 (0.41)	0.004 (1.23)	0.004 (1.26)	0.006 (1.86*)	−0.009 (−2.69**)
INTENSITY	−0.001 (−0.08)	0.008 (1.30)	−0.002 (−0.44)	0.010 (1.91*)	−0.010 (−1.60)	0.032 (4.42**)
GROWTH	−0.005 (−0.88)	0.002 (0.69)	−0.001 (−0.29)	−0.001 (−0.85)	−0.003 (−0.84)	0.002 (1.02)
BSHARE	−0.003 (−0.58)	−0.002 (−0.53)	−0.006 (−1.88*)	−0.001 (−0.25)	−0.007 (−2.38**)	−0.008 (−2.30*)
INDUSTRY	Included	Included	Included	Included	Included	Included
	n = 384	n = 373	n = 581	n = 594	n = 702	n = 491
	F = 7.5**	F = 12.6**	F = 9.9**	F = 22.4**	F = 12.8**	F = 11.7**
	$R^2 = 0.28$	$R^2 = 0.36$	$R^2 = 0.23$	$R^2 = 0.40$	$R^2 = 0.24$	$R^2 = 0.29$

*, ** The t-statistic for a test of differences in means is significant at the 5 percent and 1 percent levels, respectively (one-tailed).
Col. 1: The dependent variable is the tax expense scaled by pre-tax book income before extraordinary items.
Col. 2: The dependent variable is the tax expense scaled by assets. (Similarly, PROFIT is replaced by ROA that scales pre-tax income by assets.)
Col. 3: INCENTIVE = 1 if firm applies for rights issue and its pre-1998 ROE is between 10 percent and 12 percent and post-1998 ROE is between 6 percent—8 percent, 0 otherwise.
Col. 4: INCENTIVE = 1 if the firm's pre-1998 ROE is between 10 percent and 12 percent and post-1998 ROE is between 6 percent and 8 percent, 0 otherwise.
Col. 5: Continuous variables are firm-means for each period.
Col. 6: The pre-1998 period is from 1996 to 1997 and post-1998 from 1999 to 2000.
Col. 7: The pre-1998 period is from 1995 to 1997 and post-1998 from 2001 to 2003.

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Notes

[1] From the financial reporting perspective, some researchers provide evidence supporting their argument that reporting conformity reduces the quality of accounting information provided to the capital markets (e.g., Atwood et al. 2010; Hanlon et al. 2005, 2008). However, assessing the effect of an increase or decrease in conformity on earnings quality is beyond the scope of this study.

[2] As explained later in the paper, we also find qualitatively similar results after scaling the tax expense by assets and pre-tax book income.

[3] Overall, these studies find that changes in tax legislation cause firms to alter their financial reporting practices. Badertscher et al. (2009) examine the tax implications of conforming and non-

conforming earnings management by firms that restate their financial statements. Unlike prior studies, we study the tax effects of a change in financial reporting rules. One desirable attribute of our setting is that because it includes a change in financial (not tax) reporting, we can isolate the tax reporting effect of changes in the tax code.

[4] Arguably, data on such discrepancies reflect not only the reporting behavior of managers, but also the enforcement behavior of the tax authorities, whereas tax expense data mainly reflect corporate reporting behavior.

[5] Income tax expense is a broad measure of tax burdens and reflects corporate tax-planning strategies. Prior studies have used tax expense as the focal point to examine earnings management and tax avoidance (Dhaliwal et al. 2004; Dyreng et al. 2008; Rego 2003; Tang and Firth 2011). For example, to examine corporate reporting behavior in China, Tang and Firth (2011) measure book-tax differences as the difference in income multiplied by the statutory tax rate. In essence, this difference refers to book-tax differences in *tax expense*.

[6] These countries include Australia, Brazil, Canada, the 27 member states of the European Union, South Korea, and Mexico. Japan and the U.S. are the only G7 countries that continue to hold out on IFRS adoption. However, Japan has given domestic companies the option of preparing financial statements in accordance with IFRS.

[7] For example, managers could choose different sales cutoff points for book and tax purposes, use different useful lives of assets for tax and financial reporting, shift from recognizing an asset as non-depreciable to depreciable, expense an item for tax purposes but amortize it for book purposes, create tax losses without recording an equivalent charge against book income, use capital leases for book purposes but operating leases for tax purposes, omit taxable revenues already reported in their book accounts, and recognize prepaid expenses for tax purposes but adjust them for book purposes. While the list of possible examples is endless, these non-conforming actions could reduce taxable income without having a corresponding effect on book income. Hanlon and Heitzman (2010) argue that if taxes remain constant as the firm manages earnings upward over the long run, then the firm is still avoiding taxes on its overstated book earnings.

[8] For example, some studies find a negative relation (Chan et al. 2010; Dyreng et al. 2008; Porcano 1986), some find a positive relation (Hanlon et al. 2007; Omer et al. 1993;Rego 2003; Zimmerman 1983), and others find no relation (Gupta and Newberry 1997;Mills 1998; Phillips 2003). Wu et al. (2012) find that the relation depends on the firm's tax status and ownership in China.

[9] As China gained accession to the World Trade Organization in 2001, it took a further step to delink book and tax income measures and moved even closer to IFRS (Chan et al. 2010). As explained later in the paper, deleting the 2001 observations or extending the sample period to 2003 does not affect our main conclusions. China also revised its rights offering requirements in 1999, which might have encouraged firms to make greater efforts to manage earnings upward and thus to pay more tax. Therefore, this change in requirements will work against our hypothesis of no difference in tax

reporting between high and low book incentive firms in the post-1998 period (H1), and should have no impact on H2.

[10]   As the regulation places an equal emphasis on each year's ROE, we expect firm earnings management incentives to be uniform over the three years.

[11]   Although it is possible that some applicants are financially healthy and hence may not need to manage their earnings, healthy firms may still wish to boost their earnings to maximize the pricing of their rights issue. We deal with alternative definitions of financial reporting incentives later in the paper. It is also possible that some firms that do not apply for a rights offering may manage their earnings upward for other purposes (e.g., stock options and debt covenants); hence, including these firms in the low book incentive category may add noise to the results. However, as stock options are rare and leverage ratios are low in China during our sample periods, it is unlikely that earnings management for other purposes will affect our results. Nonetheless, as explained later in the paper, we use either the profit margin or the return on assets as an overall control for the firm's various financial reporting incentives.

[12]   Chinese listed firms with two consecutive years of losses may have an incentive to manage earnings upward to avoid delisting. Further, firms can carry forward net operating losses for up to five years. However, the tax benefits of carrying a loss forward to a future year are less certain (in comparison with those of carrying back losses, which is not allowed in China). Mills and Newberry (2001) suggest that loss-making firms have fewer tax-related incentives to manage earnings. In line with effective tax rate studies, we delete all loss-making firms to avoid loss-related confounding effects on our results.

[13]   Median values are not reported in Table 1 due to space limitations. The results of our tests of differences in means and medians are qualitatively similar.

[14]   Changes in financial reporting rules may affect comparability of the ratio between periods. However, our focus in Table 1 is on a *within*-period comparison of the ratio across firms with varying book incentives. In an untabulated analysis, we find that the average rate of tax per dollar of income is also higher (0.157 versus 0.135, t = 1.875, p = 0.03). We also note that the two groups of firms exhibit no significant difference in their applicable tax rates, and are evenly spread over protected and unprotected industries and among coastal and inland regions subject to different tax rates.

[15]   There is also no statistically significant difference between the two groups of firms in the average rate of tax per dollar of income (0.187 versus 0.191, t = −0.229, p = 0.41). Further, the two groups of firms do not differ in their applicable tax rates, nor are they concentrated in a particular industry (e.g., protected versus unprotected) or region (coastal versus inland) to which different tax rates apply.

[16]   Adjusting for deferred tax does not affect our main results, as deferred tax is rare in our sample. Because Chinese firms were not required to disclose cash flow statements prior to 1998, we cannot use cash taxes paid. Nor do we base our main results on the effective tax rate (ETR), which deflates the tax expense by pre-tax book income, because the ETR is less effective in capturing conforming

tax avoidance for firms that place varying levels of importance on book income (Hanlon and Heitzman 2010). As sales are generally the basis of common-size income statement analysis, it is not uncommon to use sales as the deflator (Gauthier and Gersovitz 1997; La Porta and Lopez-de-Silanes 1999; Mehran and Peristiani 2010). We deal with other deflator choices later in the paper.

[17] Although our sample does not cover 1998, 2002, or 2003, we also code this variable as 1 if the sample firm applies for a rights offering in any of these three years. We consider other definitions of *INCENTIVE* below.

[18] As a secondary test, we also scale pre-tax income by year-end total assets (i.e., the return on assets) and obtain qualitatively similar results.

[19] On the one hand, as interest on debt is tax deductible, one may expect firms with higher leverage to have a lower tax expense. On the other hand, leverage is a measure of the tightness of accounting-based debt covenant restrictions. If highly levered firms have incentives to choose upward earnings management to satisfy their lenders, the association between leverage and tax expense will be positive.

[20] There are two views on whether firms benefit from the presence of government shareholders. The helping-hand view argues that firms with higher government ownership pay lower taxes because of their ability to receive government support and influence government policies in their favor. In contrast, the grabbing-hand view posits that government may expropriate firm wealth in the form of higher taxes to improve local welfare. Prior studies find mixed results regarding the relation between government and taxes (e.g.,Adhikari et al. 2006; Chan et al. 2010; Lin et al. 2012; Shevlin et al. 2012; Wu et al. 2012; Zeng 2010).

[21] Both the Shanghai and Shenzhen stock exchanges have A- and B-share markets. A-shares are denominated in renminbi and are open to investment by Chinese individuals. B-shares are denominated in foreign currency (U.S. dollars in Shanghai and Hong Kong dollars in Shenzhen) and were limited to foreign investment until February 2001.

[22] Our rationale for this control is as follows. Firms are not selected for rights offerings on a random basis, but on the basis of firm characteristics. As noted earlier, rights offering firms are generally more profitable than other firms. Although observable firm factors such as profitability can be used to control for the effect of financial conditions on the tax expense, unobservable characteristics such as the management philosophy on tax obligations may also affect tax paid and thereby cause bias. If financially healthier firms generally pay more tax than randomly selected firms and this selectivity effect is ignored, then a comparison of the taxes paid by rights offering (i.e., high book incentive) firms versus non-rights offering (i.e., low book incentive) firms may bias the tax payment estimates for rights offering firms. Nevertheless, our main results are robust to the inclusion or exclusion of this control variable.

[23] To implement the selection model successfully, Lennox et al. (2012) and Little (1985) suggest that the researcher must identify exogenous independent variables from the first-stage choice model that can be validly excluded from the set of independent variables in the second-stage regression. Hence,

audit opinion is a good choice as an exclusion restriction. During our sample period, an average of 9.7 percent of firms receive non-clean (modified) opinions. The severity of modified opinions also varies from unqualified with explanatory notes (5.7 percent) and qualified (3.2 percent) opinions to disclaimer and adverse opinions (0.8 percent). Therefore, there appears to be sufficient variation in the frequency and type of opinion to make this instrument work. We find qualitatively similar results without imposing exclusion restrictions in the second-stage model. The first-stage regression model is significant (Pseudo R^2 is 4.64 percent, $p < 0.01$). Untabulated results suggest that audit opinion has a significantly negative effect, indicating that firms with a qualified opinion are significantly less likely to apply for a rights issue than are unqualified firms. Further, while growing firms are more likely to apply for rights offerings, large firms, high-leverage firms, and government-controlled firms are less likely to do so.

[24] Because each group of firms has homogenous book incentives across years and exhibits similar firm characteristics, there should be little selectivity effect. Hence, the model used for testing the second hypothesis does not include the IMR.

[25] None of the correlations or variance-inflation-factors (VIFs) exceeds 0.80 or 10, respectively, the points beyond which the threat of multicollinearity becomes a concern (Judge et al. 1988; Greene 2008).

[26] We obtain qualitatively similar results if we pool all firm-year observations in Panels A and B by introducing a two-way interaction term (i.e., *SIZE ∗ INCENTIVE*) to the by-period regression models and a three-way interaction term (i.e., *SIZE ∗ INCENTIVE ∗ POST98*) to the full-period regression model.

[27] This is consistent with the definition employed by the U.S. Congress Joint Committee on Taxation (1984). Income adjusted for extraordinary items is a better measure of firm profitability, as many firms in China gain rights offering approval by recording excess non-operating income (Chen and Yuan 2004).

[28] Although not tabulated due to space limitations, we also rerun pooled regressions, in addition to the regression for firms with low book incentives reported in Table 4, and find qualitatively similar results.

[29] Prior studies find that Chinese rights-offering firms with earnings pressure tend to report a significant decline in post-offering earnings (Chen and Yuan 2004; Haw et al. 2005). To identify genuine earnings managers, we also analyze the ROE pattern in the two years preceding and the two years following the rights offering. We find that 109 firms' ROEs peak in the offering year and decline significantly thereafter, and that 14 firms exhibit high and stable ROEs over the entire period. We remove these 14 firms from the sample and find that *INCENTIVE* remains significantly positive in the pre-1998 period only, suggesting that our results are mainly driven by firms with strong incentives to inflate book income.

[30] We also winsorize the top and bottom 1 percent of the distribution to eliminate extremely high and low scaled tax expenses. These results (which are qualitatively similar to the main results) are not tabulated due to space limitations.