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### Tax-induced earnings management, auditor conservatism, and tax enforcement

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TAX-INDUCED EARNINGS MANAGEMENT, AUDITOR CONSERVATISM,  
AND TAX ENFORCEMENT

LI YONGBO

MPHIL

LINGNAN UNIVERSITY

2014

TAX-INDUCED EARNINGS MANAGEMENT, AUDITOR CONSERVATISM,  
AND TAX ENFORCEMENT

by  
LI Yongbo

A thesis  
submitted in partial fulfillment  
of the requirements for the Degree of  
Master of Philosophy in Business  
(Accountancy)

Lingnan University

2014

## ABSTRACT

Tax-Induced Earnings Management, Auditor Conservatism, and Tax Enforcement

by

LI Yongbo

Master of Philosophy

Prompted by the recent statutory corporate income tax-rate reduction in China, in this study I investigate whether the constraining effect that quality auditors have on tax-related discretionary current accruals (*DCA*) differs for two sub-groups of listed firms with tax incentives to manage earnings upward versus downward. I also explore whether the effectiveness of tax authority scrutiny (i.e. tax enforcement) on *DCA* differs for the same two groups.

I find that the firms' two external monitors are sensitive to the direction of managerial incentives for earnings management. Specifically, higher-quality auditors are associated with smaller amounts of reported *DCA* and this association is stronger for firms with incentives to manage earnings upward and weaker for those with incentives to manage earnings downward, although the accrual decisions for all of the firms are driven by the same tax reporting incentives. The results are consistent with the notion that due to concerns with legal liability and reputation loss, auditors have incentives to ensure that firms report earnings conservatively. I also find a significantly positive association between tax enforcement and reported *DCA* for firms with incentives to manage earnings downward. This suggests that tax authorities constrain corporate accruals management that is likely to result in tax revenue loss. Taken together, my results suggest that a spillover effect exists between auditors and tax authorities, such that the two monitoring bodies compensate for each other's lack of monitoring in one direction of accruals management. My results are robust to a set of sensitivity tests and have implications for academic researchers, policy makers, and capital market investors.

## DECLARATION

I declare that this is an original work based primarily on my own research, and I warrant that all citations of previous research, published or unpublished, have been duly acknowledged.

---

(LI YONGBO)

Date

CERTIFICATE OF APPROVAL OF THESIS

TAX-INDUCED EARNINGS MANAGEMENT, AUDITOR CONSERVATISM,  
AND TAX ENFORCEMENT

by

LI Yongbo

Master of Philosophy

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## **ACKNOWLEDGEMENTS**

I am very grateful to my supervisor, Professor Kenny, Z. Lin for his guidance, insightful comments, and encouragement throughout the completion of this project. I am appreciative of the members of the Panel of Examiners for their precious advice. My grateful thanks are also given to Dr Fang Zhang, assistant professor in Hong Kong Baptist University for her advice and encouragement on my research. The technical help from Mr. Simon Lo, senior research assistant in Hong Kong Institute of Business Studies is also appreciated. Finally, I would like to express my special thanks to my family for the infinite love, understanding and support.

## **Tax-induced Earnings Management, Auditor Conservatism, and Tax Enforcement**

“A government big enough to give you everything you want is a government big enough to take from you everything you have.”

-----Gerald Ford, the 38th President of the United States, Address to a joint session of Congress August 12, 1974.

“It’s human nature that people are going to fight harder to preserve a benefit they already have than to get some new benefit.”

-----Clint Stretch, a principal at Deloitte Tax and a former counsel to the Congressional Joint Committee on Taxation. [Abstracted from David Kocieniewski “U.S. Business Has High Tax Rates but Pays Less” *The New York Times* May 2, 2011.]

“It is an extreme case, but it’s hardly the only company that pays far less than the much-quoted federal corporate tax rate of 35 percent. Of the 500 big companies in the well-known Standard & Poor’s stock index, 115 paid a total corporate tax rate—both federal and otherwise—of less than 20 percent over the last five years, according to an analysis of company reports done for *The New York Times* by Capital IQ, a research firm. Thirty-nine of those companies paid a rate less than 10 percent.”

-----David Leonhardt, “The Paradox of Corporate Taxes” *The New York Times* February 1, 2011.

### **Chapter 1 Introduction**

Auditors and tax authorities are two important external monitors of corporate reports, but they do not share a common focus. Auditors care about the true and fair presentation of financial reports while tax authorities are concerned with potential tax misreporting. In this study, I examine whether these two monitors differentially constrain tax-related discretionary current accruals (*DCA*) in light of an anticipated

change in income tax rates in China.<sup>1</sup> Studies suggest that due to high litigation costs and concern with reputation loss, auditors tend to be more skeptical (liberal) about their clients' income-increasing (income-decreasing) accounting choices (St. Pierre and Anderson, 1984; Hirst, 1994; Lys and Watts, 1994; Francis and Krishnan, 1999; Heninger, 2001; Kim et al., 2003). I call this "auditor conservatism" in this paper. In contrast, tax authorities are more concerned with the accounting choices that decrease taxable income. To examine the differential constraining effects of auditors and tax authorities, I identify two distinct groups of listed firms with a clear incentive to manage earnings upward or downward for tax purposes. Because financial transactions have simultaneous influences on taxable income and financial reporting earnings (Desai and Dharmapala, 2006), there are likely to be some overlaps in monitoring between auditors and tax authorities. I expect these overlaps to create a spillover effect for these two parties on constraining the tax-induced accruals manipulation. Specifically, tax authorities' close scrutiny of firms' income-decreasing activities has a spillover effect that could compensate for the lack of monitoring on the part of auditors, and the intensification of auditor monitoring of clients' income-increasing accounting choices also has a positive spillover effect on the quality of corporate tax reporting.

My study is motivated by evidence from two auditing and tax research streams. Previous auditing research shows that higher-quality auditors (proxy by big *N* or industry specialization) are associated with less accruals-based earnings management for clients (Becker et al., 1998; Francis et al., 1999; Balsam et al., 2003; Krishnan, 2003), and that they are conservative about firms' income-increasing accounting

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<sup>1</sup> China's new *Enterprise Income Tax Law*, introduced on March 16, 2007 took effect on January 1, 2008 (details provided in Chapter 2).

choices due to the perceived asymmetrically high litigation cost resulting from potential audit failure (St. Pierre and Anderson, 1984; Kinney and Martin, 1994; Hirst, 1994; Lys and Watts, 1994; Francis and Krishnan, 1999; Heninger, 2001). Kim et al. (2003) extend this line of research by providing evidence that the effectiveness of high-quality auditors is differentiated by the divergence or convergence of reporting incentives between firms and their auditors. They define divergence as managers overstating reported earnings, which conflicts with auditors' conservative practices, and convergence is defined as managers understating reported earnings, which is preferred by auditors.<sup>2</sup> The sample classification for firms with incentives to manage upward or downward earnings in their study is based on the income-smoothing theory developed by Fudenberg and Tirole (1995). It states that managers have incentives to smooth income across periods to maximize expected utility.<sup>3</sup>

Recent tax research suggests that tax enforcement plays an important role within the agency framework (Desai and Dharmapala, 2006; Desai et al., 2007), having both a direct effect on curtailing corporate tax avoidance (Hoopes et al., 2012) and a spillover effect on constraining opportunistic financial reporting (Hanlon et al., 2012). As a result, increased tax authority scrutiny can mitigate the agency and information problems that are valued by the capital market (Guedhami and Pittman, 2008; Ghouli et al., 2011). Although Hoopes et al. (2012) provide evidence of tax

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<sup>2</sup> In this paper, similar to the definitions in Kim et al. (2003), I define divergence as a firm's reporting preference conflicting with that of a monitor and convergence as the reporting preferences of firm and monitor being parallel.

<sup>3</sup> Within the framework of Fudenberg and Tirole (1995), if managers' tenures are subject to current performance, then they have incentive to boost current earnings in poor times by borrowing against future earnings to mitigate the likelihood of dismissal. In contrast, due to the information decay phenomenon, current good performance does not necessarily compensate for future poor performance. Thus, managers have incentive to save current earnings in good times for use in future poor times. Based on this theory, Kim et al. (2003) construct a relative performance-based indicator to differentiate managers' incentives to boost or reduce reported earnings in the main test.

enforcement's first-order curtailing effect, they do not suggest the way through which tax avoidance is constrained. Likewise, while Hanlon et al. (2012) document the tax enforcement's second-order spillover effect on firms' reported accruals, they do not consider the effects of the divergence or convergence of preferences between tax authorities and firms regarding directional accounting choices. Although firms have incentives to improve shareholder value through tax expense reduction, tax authorities have incentives to tackle corporate activities that lead to tax revenue loss. Therefore, the extent of tax authority scrutiny is likely to differ between income-increasing and -decreasing economic activities. This results in tax enforcement's direct curtailing and indirect spillover effects being strengthened when close scrutiny is executed on transactions that lower taxable income, and weakened when less concern is given to activities that increase current tax payment. Previous research implicitly assumes that the constraining effect of tax enforcement is constant across directional accounting choices. I relax this assumption by incorporating the divergence or convergence of incentives between tax authorities and firms into the study.

The 2008 corporate income tax reform in China provides a natural setting in which to concurrently study income-increasing and -decreasing accruals management induced by a change in the tax rate. To complement Kim et al. (2003) from a tax reporting perspective, I first hypothesize that there is a significantly negative association between audit quality and reported *DCA* for a sub-group of firms with incentives to manage earnings upward, but this association is weaker for the group of firms with incentives to manage earnings downward. I then extend recent tax enforcement studies (e.g. Hoopes et al., 2012; Hanlon et al., 2012) by examining the differential effectiveness of tax authority scrutiny on corporate financial reporting

strategies. Specifically, because tax authorities are more concerned with income-decreasing accruals that may reduce tax payments, I further hypothesize that there is a significantly positive association between tax enforcement and tax-related *DCA* for the sub-group of firms with tax incentives to manage earnings downward. However, I do not expect to find this association for the sub-group of firms with the incentive to manage earnings upward, thus paying more taxes in the current period. Because auditors and tax authorities have different focus and their monitoring overlaps to some extent, I expect to find a spillover effect between these two parties on limiting the extent of reported *DCA*. Consistent with my hypotheses, the empirical results provide support for all of these arguments, and they are robust to a set of sensitivity tests.

My results contribute to the literature in three ways. First, unlike previous research that examines auditor conservatism in the income-increasing or -decreasing accruals management setting (e.g. Hirst, 1994), my study makes inferences about differential auditor conservatism based on the results obtained from a single setting provided by an exogenous event (i.e. tax reform) applicable to all sample firms. This mitigates the potential omitted variables and measurement errors resulting from confounding effects (other than tax incentives) encountered in separate studies. Second, because previous research implicitly assumes that the extent of tax authority scrutiny is constant across directional accruals (e.g. Hanlon et al., 2012), my study contributes to the tax enforcement literature by considering the divergence or convergence of preferences between firms and tax authorities regarding the directional accounting choices. My results provide a reference for future tax inspectors' training and administration, supporting that more attention be given to firms' transactions that increase the current taxable income but may lower tax payment over time. Third, my



study contributes to the literature by providing evidence that auditor monitoring and tax authority scrutiny share spillover effects on constraining directional accruals manipulation for tax purposes.

My results have implications for the accounting profession, tax authorities, and capital market investors. When monitoring clients' income-decreasing accounting choices that reduce current taxable income, auditors could benefit from the increased monitoring role of tax authorities. Similarly, tax authorities may benefit from intensified auditor monitoring on tax-induced income-increasing accruals manipulation that lower future tax payment. Finally, capital market investors benefit from the supplementary roles that auditors and tax authorities play in limiting the extent of corporate earnings management, thereby increasing the credibility of financial reporting and decreasing the potential rent diversion.

The remainder of this paper is organized as follows. Chapter 2 discusses the institutional background. Chapter 3 reviews the previous research. Chapter 4 develops the hypotheses. Chapter 5 presents the data sources and sample selection procedures. Chapter 6 outlines the research methodologies. Chapter 7 reports the descriptive and empirical results, followed by a discussion of a set of sensitivity tests conducted in Chapter 8. Chapter 9 concludes the paper, with a discussion on its contributions and implications. Finally, Chapter 10 explains the limitations and suggestions for future research.

## Chapter 2 Institutional Background—China Corporate Income Tax Reform

Before 2008, there were two different enterprise income tax laws in China, which were designed and applied separately for domestic enterprises and foreign investment enterprises (FIEs).<sup>4</sup> Under the old laws, a statutory income tax rate of 33% was applied to both domestic enterprises and FIEs. In addition, a set of tax preferences and deductions were granted to them, although the extent of these incentives and the coverage of preferential policies were different for the two types of enterprises. In general, the government provided fewer tax preferences to domestic enterprises. However, similar to FIEs, domestic enterprises also enjoyed lower tax rates (typically 15%) or tax holidays (e.g. 2-year exemption and 3-year half payment) if they operated in targeted regions and industries (e.g. 5 special economic zones, 32 economic and technology development zones, and 52 high-tech development zones), although the overall coverage of tax preferences was lower than that of FIEs. For domestic enterprises, whether tax preferences are granted is determined mainly by their business locations, the industries in which they engage, and/or by their type of investment and nature of business. For example, if domestic enterprises are located in special economic zones and inland regions, or if they operate in “encouraged” industries (such as Agricultural and Information Technology), they could enjoy a reduced income tax rate (generally 15%).<sup>5</sup> Firms can also benefit from other preferences dependent on investment type (e.g. resource comprehensive utilization and technical renovation) and nature of business (e.g.

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<sup>4</sup> Domestic enterprises were subject to *Provisional Regulations of the People’s Republic of China on Enterprises Income Tax* (Order No. 137 of the State Council, effective January 1, 1994) while foreign investment enterprises were subject to *Income Tax Law of the People’s Republic of China on Enterprises with Foreign Investment and Foreign Enterprises* (Order No. 45 of the President of the PRC, effective July 1, 1991).

<sup>5</sup> Newly established business may enjoy the “3-year exemption,” “5-year exemption,” “2-year exemption and 3-year half payment,” “3-year exemption and 2-year half payment,” or “3-year exemption and 7-year half payment” privileges from the start of production and/or operation if they are located in specifically listed less-developed regions or industries.

welfare, tour, and educational enterprises). Substantial differential tax incentive policies for FIEs and domestic enterprises not only contribute to the relatively unfair tax burdens of domestic enterprises, but also to the large disparity between nominal statutory income tax rate and real effective tax rate for the two types of firms.<sup>6</sup>

To create a level playing field and a standardized and transparent fiscal environment that favors fair competition for all enterprises country-wide, China introduced the new *Enterprise Income Tax Law of the People's Republic of China* on March 16, 2007, and it took effect on January 1, 2008. Guided by the principle of “simple tax system, broad tax base, low tax rate, and tough enforcement,” the new tax law was promulgated to unify the application scope, tax rate, tax deductions, and preferential tax policies for both domestic enterprises and FIEs. Under the new tax law system, a unified standard tax rate of 25% is applied to all businesses operating in China. Although most of the existing tax incentives enjoyed by domestic enterprises and FIEs were terminated through a limited grandfathering relief (No. 39 of the State Council, 2007),<sup>7</sup> a new set of industry-oriented tax incentives supplemented by regional ones was introduced.<sup>8</sup> In addition, the new law introduced “special tax

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<sup>6</sup> Under the old laws, FIEs enjoyed more favorable and preferential treatment than did domestic enterprises with respect to tax preference and deduction policies. According to the national survey data disclosed by the Minister of Finance, the average real enterprise income tax rate for FIEs is 15%, about 10 percentage points lower than that for domestic enterprises (Jin, 2007).

<sup>7</sup> Specifically, according to No. 39 of the State Council, 2007, enterprises that were enjoying a 15% income tax rate before January 1, 2008 were able to apply rates of 18% in 2008, 20% in 2009, 22% in 2010, and 24% in 2011, before being subject to the full 25% rate in 2012. Firms that had been using a 24% rate applied the 25% rate in 2008. Enterprises that enjoyed limited-duration preferential tax treatments before January 1, 2008 such as the “2-year exemption and 3-year half payment” and the “5-year exemption and five-year half payment” privileges continued to enjoy them until they expired as originally provided. However, for firms that were unable to enjoy such preferences due to a failure to make profits, the terms for applying the preferences were to be dated from January 1, 2008. The items and scope of the transitional preferential policies are given in the “Table for the Implementation of Transitional Preferential Enterprise Income Tax Policies,” together with the State Council’s notice.

<sup>8</sup> For example, under the new law, if firms are in the farming, forestry, animal husbandry, or fishery industries, they could enjoy a 50% reduction in or exemption of income tax; if firms are in high/new technology industries, they could enjoy a 15% preferential tax rate; if firms derive income from environmental protection or energy/water conservation projects, they may enjoy the “3-year exemption and 3-year half payment” tax preferences, etc.

adjustments” to strengthen measures against tax evasion.

As discussed, domestic enterprises operating in certain locations and industries enjoyed preferential tax treatment that resulted in the firms’ effective tax rates being significantly lower than the nominal tax rate under the old tax law regime. Hence, the new law unified the statutory income tax rate to a flat rate of 25% (reduced from 33%) and terminated most of the preferences under the old law. This means that some firms were confronted with a potential tax rate increase or decrease, depending on whether their current effective tax rates are lower or higher than the statutory rate (i.e. 25%). Therefore, the promulgation of the new enterprise income tax law provides domestic listed firms with tax incentives to manage earnings upward (downward) in response to the potential effective tax rates increase (decrease).<sup>9</sup> This setting provides me with an opportunity to concurrently study the roles of external monitors (i.e. auditor and tax authority) on constraining corporate directional earnings management activities. I therefore conduct this study under the China tax-rate-cut setting.

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<sup>9</sup> Instead of examining domestic enterprises and FIEs together, I exclusively study domestic listed firms, as FIEs are excluded from being an exchange-listed firm by definition under the *Income Tax Law of the People’s Republic of China on Enterprises with Foreign Investment and Foreign Enterprises*.

## **Chapter 3 Literature Review**

My study is primarily related to three streams of research, namely earnings management, auditor conservatism, and tax enforcement. Reviews of these areas follow.

### **3.1. Earnings Management**

#### **3.1.1. General Earnings Management Studies**

According to Healy and Wahlen (1999, p. 368), “Earnings management occurs when managers use judgment in financial reporting and in structuring transactions to alter financial reports to either mislead some stakeholders about the underlying economic performance of the company or to influence contractual outcomes that depend on reported accounting numbers.” Under this definition, there are two types of earnings management strategies: accruals- and real transactions-based earnings management. Accruals-based earnings management (AM) is normally regarded as managing accounting accruals within the generally accepted accounting principles (GAAP) frame, whereas real transactions-based earnings management (RM) is defined as “departures from normal operational practices, motivated by managers’ desire to mislead at least some stakeholders into believing certain financial reporting goals” (Roychowdhury, 2006, p. 337). From the traditional economics-based perspective, RM differs from AM in that the former has lower detection costs but higher direct cash flow effects (Roychowdhury, 2006; Cohen et al., 2008; Cohen and Zarowin, 2010; Gunny, 2010; Zang, 2012; Kothari et al., 2012).

Since the 1980s, academic researchers have focused on how to detect AM, documenting substantive evidence as a result. Because the detection of AM requires the estimation of discretionary components of reported accruals, studies propose and

develop a set of empirical models for the estimation.<sup>10</sup> Various estimation models are proposed by Healy (1985), DeAngelo (1986), and Jones (1991). For example, Healy (1985) argues that systematic earnings management occurs in every period, such that AM can be detected by comparing mean total accruals across the earnings management partitioning variable. Similarly, by using the last period's total accruals as the measure of nondiscretionary accruals, DeAngelo (1986) estimates AM as the change in total accruals. At this point, DeAngelo's method is a special case of Healy's model. While both Healy (1985) and DeAngelo (1986) implicitly assume that nondiscretionary accruals are constant, Jones (1991) relaxes this assumption and proposes a new model that controls for the effects of changes in firms' economic circumstances on nondiscretionary accruals. However, as Jones (1991) implicitly assumes that revenue is nondiscretionary, measurement error exists if management exercises discretion over revenue. Hence, a modified version of Jones's model is proposed by Dechow et al. (1995); specifically, it implicitly assumes that all changes in credit sales in the event period result from manipulation and thus adjusts the revenue component of estimation by excluding changes in credit sales. Dechow et al. (2003) also propose a forward-looking abnormal accrual model that adjusts for the expected growth effects of credit sales and inventory and the predictable effects of last year's accruals. In addition, because earnings management may vary with firm performance, Kothari et al. (2005) proposes a performance-matched method for detecting earnings management, but it is only effective when the correlated omitted variable is matched and their matching method reduces the test power by increasing the standard error of the test statistics, as discussed by Dechow et al. (2012). The recent study by Dechow et al. (2012) further proposes a new approach to detecting

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<sup>10</sup> In addition to the models introduced here, there are several other approaches to detecting AM, such as the industry method proposed by Dechow and Sloan (1991), the balance sheet method of Barton and Simko (2002), and the deferred tax expense method of Phillips et al. (2003).

AM by incorporating the timing reversal effect of accruals.

Through the aforementioned models, researchers provide large amounts of AM-related evidence to answer research questions in different settings (e.g. McNichols and Wilson, 1988; Jones, 1991; DeFond and Jiambalvo, 1994; Warfield et al., 1995; Teoh et al., 1998; Rangan, 1998; Erickson and Wang, 1999; Dechow and Skinner, 2000; Cheng and Warfield, 2005; Bergstresser and Philippon, 2006). For example, Jones (1991) finds that during the import relief investigations, U.S. firms manage earnings downward via accruals to obtain the benefit of tariff increases and quota reductions. In contrast, DeFond and Jiambalvo (1994) find that firms make income-increasing accruals in the year before the violation of a debt covenant. Erickson and Wang (1999) note that before signing a merger agreement, acquiring firms manage earnings upward via accruals to increase their stock prices to reduce the acquisition cost. Similarly, Cheng and Warfield (2005) provide evidence that CEOs with high-equity incentives manage accruals upward to increase the value of their stock options. Rangan (1998) and Teoh et al. (1998) suggest that discretionary accrual manipulations could help explain the poor stock price and earnings performance in the post-seasoned equity offering period.

In contrast to the AM research, RM received scant attention in the early period with a few exceptions that mainly considered some specific types of transactions.<sup>11</sup> However, alongside the increased regulation and enforcement generated by the

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<sup>11</sup> During this period, limited evidence of RM was obtained mainly through the identification of specific transactions, such as the manipulation of R&D spending (Dechow and Sloan, 1991; Perry and Grinaker, 1994), the managing of inventory and sales (Dhaliwal et al., 1994), the selling of long-term assets (Bartov, 1993), the re-structuring of operating and capital lease (Imhoff and Thomas, 1988), the repurchasing of stock options (Hribar et al., 2006), and the manipulation of financial derivatives (Barton, 2001).

worldwide corporate scandals in the early 2000s,<sup>12</sup> RM began to take center stage due to its low detection cost (Graham et al., 2005; Cohen et al., 2008; Badertscher et al., 2011). Although RM is relatively harder than AM to scrutinize and detect through internal governance mechanisms, external auditors, and regulatory authorities, it also results in significant costs to the firm (Cohen and Zarowin, 2010; Kothari et al., 2012; Ge and Kim, 2013; Kim and Sohn, 2013). For example, Ge and Kim (2013) find that RM increases the cost of U.S. corporations' new bond issues. Kim and Sohn (2013) also find that RM is positively associated with the cost of implied equity capital, after controlling for AM. Hence, the choice of AM or RM depends on the firm's strategic decisions. However, two recent studies provide some insights into the relationship between AM and RM. Specifically, Cohen and Zarowin (2010) document that firms' earnings management choices around seasoned new equity offerings vary predictably as a function of the cost and their ability to use AM. Meanwhile, Zang (2012) proposes and provides evidence of a substitutive relationship between AM and RM; that is, the trade-off decision depends on their relative costs and the level of AM is adjusted based on the level of RM.

One focus of my study is to examine the differences in the effectiveness of quality auditors' constraint of corporate earnings management activities. Because studies (e.g. Graham et al., 2005; Chi et al., 2011; Yu, 2008) do not find auditors to play a significant role in constraining firms' RM activities (which are difficult to detect), I construct the earnings management metric based on the traditional accruals measure. There are two reasons why auditors are less interested in and concerned with RM.

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<sup>12</sup> At the beginning of the twenty-first century, several large corporate frauds and scandals such as *Enron*, *WorldCom*, and *Tyco* came to light in the U.S., which led to the *Sarbanes-Oxley Act* (SOX, July 30, 2002). The passage of the SOX represents a fundamental change in the U.S. from disclosure-orientated to virtually controlled security regulations.



First, as RM is defined as “departure from normal operational practices” (Roychowdhury, 2006, p. 37), it is not established as a violation of GAAP, if it is truly and fairly presented in the financial reports. Hence, RM does not interest auditors, who are mainly concerned with potential GAAP violations (PwC, 2013). Second, as managers could easily defend that abnormal activities are the result of firms’ business and operating decisions, it is difficult for auditors to justify the existence of earnings manipulation through real operations.

### 3.1.2. Tax-induced Earnings Management Studies

The research on tax-induced earnings management examines both accruals- and real activities-based earnings manipulations for tax purposes (Gramlich, 1991; Scholes et al., 1992; Guenther, 1994; Maydew, 1997; Lopez et al., 1998; Mamuneas and Nadiri, 1996; Bloom et al., 2002). The majority of studies use a specific setting (e.g. the alternative minimum tax book income adjustment or the *Tax Reform Act of 1986*) to examine the issue in the U.S. For example, Gramlich (1991) provides evidence that firms used income-increasing accruals to boost income in 1986 (the last year preceding the tax on book income) and income-decreasing accruals to lower income in 1987 (the initial year of a book income levy) in response to the adjustment policy change. Similarly, Guenther (1994) documents that U.S. multinational firms make income-decreasing accruals in response to the reduction in the statutory corporate income tax rate. Under the same setting, Lopez et al. (1998) provide further evidence that firms’ tax aggressive positions are directly and positively related to the probability of making negative discretionary current accruals, and the magnitude of income shifting is a function of the tax-rate changes faced by the firms. Concurrent with the tax-induced AM studies, tax-induced RM studies also examine corporate reporting behavior in the same setting. For instance, Scholes et al. (1992) find that

firms defer profit via sales (not through selling, general, and administrative expenditures) in anticipation of the tax rate cut. In addition to Scholes et al. (1992), Maydew (1997) finds that firms with net operating loss carrybacks defer operating income and recognize more nonrecurring losses, to enjoy an increase in tax refunds from pre-1986 high-tax years.

### 3.1.3. Tax-induced Earnings Management Studies in China

Consistent with research findings in the U.S., Chinese studies also find that tax incentives induce firms to manage earnings for tax savings purposes. For example, Chan and Mo (2000) provide evidence that a firm's compliance behavior is associated with its tax-holiday position, and such association is different across industries. In addition, the expiration of tax-holiday positions can also trigger firms to manage earnings upward before the event year to save on tax (Lin, 2006). Studies also show that to avoid the increased tax burden, some firms move their locations of registration to lower-tax regions (Wu et al., 2007). Likewise, consolidated groups shift their income across subsidiaries operating in different regions via related party transactions (Lo et al., 2010; Shevlin et al., 2012; Lin et al. 2013). Two recent Chinese studies provide further evidence of the tax-rate-cut's effect on corporate reporting. Specifically, Lin et al. (2012) document that in response to the announcement of a tax rate change under the new income tax law in 2008, Chinese listed firms with marginal tax rates above the statutory rate (25%) deferred revenue recognition via negative accruals in 2007 to save more tax throughout the year. Lin et al. (2014) also show that such tax-triggered activities are much stronger among private than among public firms, as the former face lower financial reporting costs.

Similar to previous studies, my study also uses the tax-rate-cut as a setting to

examine corporate reporting behavior. In contrast, I examine whether auditors and tax authorities exhibit differential foci on constraining income-increasing versus -decreasing accruals motivated by a tax-rate-based incentive.

### 3.2. Auditor Conservatism

#### 3.2.1. Auditor Quality

DeAngelo (1981) argues that large auditors (proxy by number of clients) provide a higher level of perceived audit quality due to the client-specific quasi-rents earned. In other words, large auditors are supposed to be less influenced by any individual client, and thus are regarded as more economically independent (high quality). Meanwhile, if an audit failure occurs, large auditors have more to lose due to the potential negative effects on the reputation of its entire clientele (Dopuch and Simunic, 1980). Along these lines, numerous studies use the international big *N* auditors as the dichotomous classification of high- and low-quality audit firms (Simunic and Stein, 1987; Francis and Wilson, 1988; Craswell et al. 1995; Becker et al., 1998; Kim et al., 2003) because large auditors are regarded as having established brand name reputations and the incentives to protect themselves from reputation loss. By using big *N* as a proxy for auditor size, research also provides corroborative support for the argument that large audit firms are correlated with high audit quality, as they are less involved in the litigation suits and regulatory sanctions (Palmrose, 1988; Feroz et al., 1991) and as their audit reports are perceived as having greater predictive accuracy (Lennox, 1999; Weber and Willenborg, 2003).

The research on auditor quality is also parallel with the development of the audit industry. Between 1976 and 1993, the concentration levels of audit firms in the industries and those of industry market leaders identified at the beginning of the year

increased (Hogan and Jeter, 1999). This time trend change in the audit industry indicates the existence of return for investing in industry specialization, which is confirmed by a number of studies (Craswell et al., 1995; Ferguson and Stokes, 2002; Ferguson et al., 2003). For example, taking advantage of audit fees disclosure,<sup>13</sup> Craswell et al. (1995) find that Big 8 auditors in Australia earned premiums for both brand name and national industry specialization in the mid-1980s,<sup>14</sup> but the premiums declined in the post-big *N* merger period in the early 1990s and completely disappeared in 1998 (Ferguson and Stokes, 2002).<sup>15</sup> In contrast to Ferguson and Stokes (2002), Ferguson et al. (2003) rank auditor industry specialization based on market share within each industry (instead of arbitrary market share thresholds) and find that the audit fee premium for industry specialization in Australia is primarily driven by the city-level industry leadership in city-specific audit markets.<sup>16</sup> Based on the research framework developed by Ferguson et al. (2003), Francis et al. (2005) examine the pricing of Big 5 industry specialization in the U.S. for the 2000-2001 fiscal years, during which the U.S. firms begin making fee disclosures and providing evidence generally consistent with that

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<sup>13</sup> In Australia, audit fees must be disclosed in firms' annual reports. However, this was not the case in the U.S. until 2000. Since 2001, audit fees of firms with fiscal year-ends in December 2000 must be disclosed (Francis et al., 2005).

<sup>14</sup> However, as discussed by Craswell et al. (1995), their result is sensitive to the different market-share rules of industry specialization. In other words, their result may be spurious as a consequence of the arbitrary cutoff.

<sup>15</sup> There are two potential reasons for the disappeared audit fee premiums. First, as a consequence of merges among Big *N* accounting firms, the difference in market share becomes insignificant, which in turn results in the equally regarded for industry specialization by the market. Second, the merger results in economic scales, which lead to the reduction of audit fees if clients receive cost saving benefits from auditors (Ferguson et al., 2003).

<sup>16</sup> Under the firm-wide perspective, it "considers an accounting firm's practice in aggregate, typically at the country-level of analysis. The firm is the focal point and no differentiation is presumed to exist across the individual practice offices of the firm" and under the office-level perspective, it "views each individual practice office in the Big 5 network as a unique and relevant unit of analysis in its own right because audit contracting is conducted through local offices, audit engagements are administered by an audit team typically located in an office in the same city as the client's headquarters, and audit reports are issued on office-specific letterhead of the Big 5 engagement office administering the audit" (Ferguson et al. 2003, p. 430). For more discussion, please also see Francis et al. (2005) and Reichelt and Wang (2010).

of Ferguson et al. (2003).<sup>17</sup> Fung et al. (2012) find that auditor industry specialization premiums exist even after controlling for the economic scales.<sup>18</sup> They also provide evidence that such industry specialization premiums are higher in the post- than in the pre-SOX period. The price discount from economies of scale shows an opposite pattern.

Although these studies largely focus on the ex-ante estimation of auditor quality (auditor size, brand name, and industry specialization), studies also consider ex-post outcomes (e.g. audit opinion) as a proxy for auditor quality. In this direction, previous research examines the effectiveness of using audit reports to predict bankruptcy, prompting mixed results (Carcello and Palmrose, 1994; Francis and Krishnan, 2002).<sup>19</sup> Previous research also examines the informational value of audit reports (Loudder et al., 1992; Raghunandan, 1993; Weber and Willenborg, 2003). For example, using initial public offering (IPO) cases, Weber and Willenborg (2003) find that the pre-IPO opinions of large (small) auditors are more (less) predictive of post-IPO stock returns and negative stock delisting. In addition to its predictive and informational values, audit opinion also reflects auditors' independence from one angle, but mixed results are obtained from developed and emerging markets (DeFond et al., 2000b; DeFond et al., 2002; Chen et al., 2010; Chen et al., 2011). For

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<sup>17</sup> The results of their primary test support the inference that city-specific industry leaders earn the fee premium, but they do not hold in all sensitivity tests.

<sup>18</sup> At this point, I acknowledge that studies also suggest that the existence of industry specialization may lead to lower audit fees instead of additional fee premiums due to the shift of cost saving from auditor to client resulting from the production economy. For example, DeFond et al. (2000a) show that to capture a higher level of the market share, non-Big 6 audit experts in Hong Kong (HK) charge their clients with lower fees due to the production economy. However, this is not the case for Big 6 auditors in HK, who are priced with higher fees for the perceived industry specialization. In the U.S. setting, Fung et al. (2012) further find that clients of specialists do benefit from the city-level economies of scale. In addition, client bargaining power also plays a role in the process, as both specialists and non-specialists pass on such benefits to clients with higher bargaining power, whereas only specialists do so if clients only have low bargaining power.

<sup>19</sup> Please see Section 3 of Francis' (2004) study for a detailed discussion.

instance, in the U.S. setting, DeFond et al. (2002) find insignificant association between the propensity to issue going concern audit opinions and audit fees, consistent with market incentives (i.e. litigation cost and reputation loss), which outweigh the expected benefits of compromising auditor independence. However, Chen et al. (2010) find that the propensity to issue modified opinions is associated with clients' importance, and that this association is attenuated by improvements to legal and market institutions in China.

In summary, studies tend to measure auditor quality according to one of the four dimensions: size, brand name, industry specialization, and audit opinion. Each dimension captures certain aspects of auditor quality, so to provide a comprehensive measure and minimize measurement errors, I construct a composite index by considering all four measures (details of the construction described below).

### 3.2.2. Auditor Quality and Earnings Management

Studies provide substantive evidence of the effectiveness of quality auditors in constraining clients' earnings management activities. For example, Becker et al. (1998) show that clients of Big 6 auditors are associated with less income-increasing discretionary accruals than are those of non-Big 6 auditors. Francis et al. (1999) also find that firms audited by Big 6 auditors have a lower level of discretionary accruals, although their total accruals are high due to the nature of their business.

In addition to the dichotomous measure of auditor quality, auditor industry specialization is also used. Krishnan (2003) and Balsam et al. (2003) suggest that accruals-based earnings management is mitigated by auditors that are industry specialists, as evidenced by the reported lower level of discretionary accruals'

absolute value. In addition, clients of specialist auditors are associated with higher earnings response coefficients than are those of non-specialists (Balsam et al., 2003). Gul et al. (2009) document that auditor industry specialization can mitigate the positive association between short auditor tenure and low earnings quality (proxy by discretionary accruals). Using both national- and city-level analyses for audit industry specialization, Reichelt and Wang (2010) examine the issue based on the framework developed by Ferguson et al. (2003) and Francis et al. (2005) and find that the clients of auditors who are both national and city-specific industry specialists are associated with the lowest level of abnormal accruals.

Although most studies examine the effect that high quality auditors have on accruals-based earnings management, a recent study by Chi et al. (2011) focuses on real earnings management and provides evidence that firms' contracting with city-level audit industry experts are associated with greater real earnings management, such that the association is stronger for firms with incentives to manage earnings upward than it is for those without such incentives.

### 3.2.3. Auditor Conservatism

Research provides some evidence of whether auditors exhibit differential reporting behavior in the direction of managerial incentives for earnings management. St. Pierre and Anderson (1984) examine auditor-related litigation and find that none of it is associated with income-decreasing earnings management, which implicitly suggests that auditors use more rigid conservatism doctrine to reduce the litigation risk faced in relation to clients' earnings management activities. Heninger (2001) further provides empirical evidence that auditor litigation risk increases with the extent of clients' income-increasing abnormal accruals, which is consistent with Lys

and Watts' (1994) main results noting that auditor litigation is positively associated with income-increasing total accruals. Kinney and Martin (1994) also document that the overwhelming audit-related adjustments reduce pre-audit net earnings and net assets, indicating that firms under investigation are more likely to inflate both. Similarly, DeFond and Jiambalvo (1991, 1993) find that managers are more likely to overstate than to understate earnings. Based on a questionnaire survey, Nelson et al. (2002) find that managers tend to make attempts that increase current-year income, which auditors are more likely to adjust. Hence, auditors' litigation cost concerns and clients' business practices provide the basis for the argument that auditors exhibit conservatism behavior in performing their audit work.

Previous experiments and empirical studies provide further evidence of whether auditors exhibit different degrees of skepticism in monitoring directional accrual manipulations. The results of an experiment conducted by Hirst (1994) suggest that auditors are sensitive to earnings management activities induced by the monetary incentives of management, and that they are conservative with earnings manipulation that is income-increasing orientated. Francis and Krishnan (1999) find that U.S. auditors are more conservative with high accrual firms and Big 6 auditors exhibit more conservatism in response to income-increasing than to income-decreasing accruals. Reichelt and Wang (2010) indicate that auditors who are specialists at both the national and city levels are more concerned with income-increasing than with income-decreasing accruals.

As an extension of this line of research, Kim et al. (2003) suggest that "Big 6 auditors have incentives to be more (less) conservative than non-Big 6 auditors in determining reported earnings when their clients have incentives to overstate



(understate) reported earnings through income-increasing (income-decreasing) accrual choices” (p. 347). The authors attribute their results, potentially, to high litigation costs and the reputation concerns faced by Big 6 auditors in the event of audit failure to detect earnings overstatement. In another study, the comparison of audit quality before and after the demise of Arthur and Anderson due to the Enron scandal provides further evidence of auditors’ conservatism behavior and litigation cost concerns (Cohan and Zhang, 2006).

#### 3.2.4. Auditor Quality Research in China

In the past 35 years since China opened its door to the world in 1978, the Chinese audit market has experienced significant changes. Before 1995, the audit quality in China’s market was perceived as low due to a low supply of and demand for high quality audits (DeFond et al., 2000b; Chen et al., 2007). Specifically, listed firms are majority-owned by the government and managers usually own little shares (Sucher and Bychkova, 2001), which naturally provides listed firms with little incentive to demand high quality audits (DeFond et al., 2000b; Klassen, 1997). An immature corporate governance practice also contributes to the lack of demand for high quality audits (DeFond et al., 2000b; Liu, 2006) and the problematic IPO quota system cannot generate incentive to drive such demand, unlike the cases in developed markets (Aharony et al., 2000; DeFond et al., 2000b). The lack of auditor independence that results from political and economic affiliations with government agencies also weakens the likelihood of establishing a high quality audit profession in China (Chan et al., 2006; DeFond et al., 2000b). Finally, the low litigation cost environment leads to decreased incentives to supply high quality audits (DeFond et al., 2000b; Chen et al., 2001; Pitor and Xu, 2005).

However, the capital market and auditing environment in China have changed since 1995. The Chinese Ministry of Finance (MOF) promulgated its first set of independent auditing standards in 1995, which was regarded as the turning point in the development of the Chinese audit market. The MOF and China Securities Regulatory Commission (CSRC) further required that audit firms disaffiliate from their sponsoring government agencies in 1997, which reduced audit firms' political and economic ties with the government. Potential litigation costs generated by audit failure have become a serious concern for Chinese auditors since 1996 (Chen et al., 2001; Chen et al., 2010).<sup>20</sup> The notorious instances of accounting fraud and scandal (e.g. *ZhengBaiWen*, *MonkeyKing*, *Yorkpoint*, and *YingGuangXia*) that occurred in China in 2000 and 2001 ultimately led to the issuance of a Supreme Court *Notice* on January 15, 2002 and the passage of the *Private Securities Litigation Rules* in January 2003<sup>21</sup>—both of which were regarded as milestones in the development of investor protection in the Chinese stock market. Meanwhile, the CSRC abolished its IPO price controls in July 1999 and abandoned the original IPO quota system in April 2001 (Li et al., 2008) to begin corporate governance reform such as formally mandating the practice of hiring independent directors and establishing audit committees within listed firms (Li et al., 2008). Further, the CSRC began the share-reform in state-owned listed firms in 2004 (officially completed in 2006). All of these changes have significantly improved the supply of and demand for high-quality audits in China since mid-2000.

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<sup>20</sup> On February 15, 1996, the first qualified audit report was issued, followed by the first disclaimer report by *PricewaterhouseCoopers–Dahua* in 1997 and the first adverse report by Chongqing CPA in 1997. These events signify that auditors began to be concerned with the litigation risk in China's market (Chen et al., 2001).

<sup>21</sup> On January 15, 2002, the Supreme Court issued a notice that intermediate courts could accept civil lawsuits against false statements in the securities market if the CSRC had investigated and sanctioned the alleged fraud (Chen et al., 2010).

Previous China audit research has provided some evidence supporting my research hypotheses. First, large audit firms are known to be more independent than their smaller counterparts, both in China and in developed markets. For example, DeFond et al., (2000b) find that large audit firms in China were more likely to issue modified audit opinions (MAOs) to their clients after adopting the new independent auditing standards in 1995.<sup>22</sup> Second, the independence and quality of Chinese auditors are valued by stock market investors, as evidenced by the negative market reaction in response to the issuance of MAOs (Chen et al., 2000). Third, the development and changes in the Chinese audit market's laws and regulations around 2000 were perceived as effective. For example, Chen et al. (2010) find that auditors' propensity to issue MAOs is positively associated with the client's importance from 2001 to 2004, whereas this association is negative in the 1995-2000 period. The authors attribute their results to the overall institutional improvement in the post-2001 period. Fourth, unlike the audit markets in developed economies such as those of the U.S. and Australia, where big *N* audit firms have very concentrated market shares and dominant powers, China's audit market is dispersed, with international big *N* audit firms accounting for less than one-third of the market share (Chen et al., 2000; Li et al., 2008; Wang et al., 2009). As a result, these audit firms compete with their local counterparts on audit fees in early development periods (Chen et al. 2007), and thus do not enjoy oligopolistic power in China's market. Hence, Chinese listed firms do not face significantly increased audit fees if they make the decision to employ a prestigious big *N* auditor.

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<sup>22</sup> They find that the market share of large audit firms declines following the adoption of new auditing standards, and they also find that the lost share results mainly from the IPO market. They describe this phenomenon as a flight from quality. However, a later study by Li et al. (2008) finds that the market share of large auditors increased in the period between 2001 and 2003, in addition to consistent evidence that large audit firms are more likely to issue MAOs.

Chen et al. (2007) and Wang et al. (2009) provide further evidence of auditors' brand name and industry specialization effects in China. Specifically, Chen et al. (2007) show that Big 5 auditors earn a significant fee premium only in their dominated *B-Share* market, but not in the competitive *A-Share* market during the 2000-2003 period. They attribute the significant fee premium earned in the *B-Share* market to a lack of competition, such that the dominant power effect outweighs the brand name effect. However, Wang et al. (2009) find that Big 4 auditors earn fee premiums for both brand name and industry specialization in both *A-* and *B-Share* markets during the 2005-2006 period. Collectively, the overall results from China audit studies suggest significant changes and improvements in the perceived audit quality in China's market in recent years.

Similar to Kim et al. (2003), I examine whether the effectiveness of high-quality auditors is differentiated by the divergence or convergence of reporting incentives between auditors and firms. In contrast, I use tax-rate changes as a setting to identify directional accruals management. Compared with the income-smoothing setting in Kim et al. (2003), my setting allows me to identify firms with clearer incentives to manage earnings downward or upward, thereby reducing potential measurement errors from sample classification.

### 3.3. Tax Enforcement

#### 3.3.1. Tax Enforcement Research in the U.S.

Corporate tax avoidance has been the focus of academic research for some time.<sup>23</sup>

Most of the early studies assume that tax avoidance represents the transfer of wealth

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<sup>23</sup> For a detailed discussion please see the review paper by Hanlon and Heitzman (2010). Consistent with Hanlon and Heitzman (2010), I define tax avoidance as the reduction of explicit taxes, which includes both activities that are legal and those that fall into the grey area.

from government to shareholders, with no agency conflicts; that is, that tax avoidance is costless to shareholders. For example, Graham and Tucker (2006) compare sample firms involved in tax shelter litigation with clean, matched firms and find that the former are associated with a lower debt-to-asset ratio than the latter, arguing that tax shelters are a substitute for interest tax deductions and thus merely tax-saving devices. In the early 2000s, tax avoidance research began to consider tax issues within agency frameworks (Desai and Dharmapala, 2006, 2009) and proposed that strong tax enforcement could provide additional monitoring on managerial diversion that hurts both tax authorities and external shareholders (Desai et al., 2007).<sup>24</sup> Recent empirical studies use the IRS's enforcement data in the U.S. to provide direct evidence supporting the tax enforcement argument. For example, Guedhami and Pittman (2008) find that IRS monitoring lowers the cost of debt financing for private firms through reducing the information asymmetry in the borrowing process. Similarly, Ghoul et al. (2011) show that IRS monitoring also lowers the implied cost of equity financing by reducing agency costs through restraining managers from diverting income from shareholders. While Guedhami and Pittman (2008) and Ghoul et al. (2011) provide the support for the theory provided in Desai et al. (2007) that increased tax enforcement benefits outside shareholders, Hanlon et al. (2012) complement their studies by documenting the channel through which tax enforcement affects information asymmetry and cost of capital. Specifically, they find that IRS audit probability is positively associated with accruals quality and negatively associated with discretionary accruals, indicating that

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<sup>24</sup> There are two lines of research under the theoretical framework developed by Desai and Dharmapala (2006) and Desai et al. (2007), along with three early-stage studies conducted by Slemrod (2004), Chen and Chu (2005), and Crock and Slemrod (2005). The first line examines the effect of corporate tax avoidance on firm valuation within an agency framework and examples are Desai and Dharmapala (2009), Wang (2010), and Simone and Stomberg (2013). The second line focuses on examining the role of tax enforcement in corporate financial and tax reporting and examples are Guedhami and Pittman (2008), Ghoul et al. (2011), Hanlon et al. (2012), and Hoopes et al. (2012). My study focuses on the latter line of research.

increased tax enforcement has a positive spillover effect on firms' financial reporting quality. They also find that the spillover effect of tax enforcement is magnified in firms with poor corporate governance.

Although tax enforcement has a spillover effect on management rent diversion, it also has a mitigating effect on tax avoidance. Cross-country level evidence indicates that the characteristics of a home country's tax system affect firms' tax avoidance activities (Atwood et al., 2012). Empirical support is also obtained from directly examining the relationship between IRS audit probability and corporate tax avoidance. For example, Hoopes et al. (2012) find that increased tax enforcement can effectively limit firms' tax avoidance (proxy by cash effective tax rate), and that this limiting effect is particularly strong when firms' corporate governance is weak. In addition, Gupta and Lynch (2012) show that state corporate tax enforcement expenditure is positively associated with state corporate tax collection, providing additional support for tax enforcement's direct curtailing effect on tax avoidance.

Previous research proposes and documents the direct curtailing and indirect spillover effects of tax enforcement, but whether these effects differ for firms with divergence versus convergence of reporting incentives is an empirical question. Therefore, my study aims to fill this gap by examining the question under the unique China tax-rate cut setting.

### 3.3.2. Tax Enforcement Research in China

Compared with the U.S.-based tax enforcement research, very few studies examine the role of tax authority scrutiny in China. An exception is Lin et al. (2013), who use a unique dataset to develop a direct proxy for tax enforcement, providing evidence

that tax authorities can effectively curtail consolidated groups' tax-induced intragroup transfers. Similar to the results from the U.S.-based studies, they also find that the observed curtailing effect of tax enforcement is stronger (weaker) in listed firms with poor (superior) corporate governance. In other words, there is a substitutive relationship between high tax enforcement and corporate governance, consistent with the results from the U.S.-based studies (e.g. Hanlon et al., 2012).

In summary, although quality auditors exercise different degrees of professional skepticism in response to clients' directional accruals manipulation (Hirst, 1994; Kinney and Martin, 1994; Francis and Krishnan, 1999; Kim et al., 2003), more supporting evidence is still required, particularly from non-U.S. studies. Meanwhile, as the assumption implicitly made in previous research—that tax authority scrutiny has a constant effect across economic activities that increase or decrease taxable incomes—contradicts the notion that tax authorities in different regions have different amounts of resources and levels of expertise in tax collection (Hanlon et al., 2012), it is vital that we relax this premise. At this point, the China tax-rate cut event that provides firms with observable tax incentives to manage earnings downward or upward offers an opportunity to concurrently examine the effectiveness of auditor monitoring and tax authority scrutiny on directional accruals manipulation within one setting. Conducting this test in this setting has both the institutional and theoretical foundations supported by a number of previous Chinese studies (Chen et al., 2000; DeFond et al., 2000b; Li et al., 2008; Wang et al., 2009; Chen et al., 2010; Lin et al., 2013). Therefore, I develop my hypotheses about the roles that auditors and tax authorities play in corporate reporting in the following section.

## Chapter 4 Hypotheses Development

Due to the potential for asymmetrically high litigation costs resulting from clients' income-overstatement activities, auditors are more likely to closely scrutinize clients' income-increasing earnings management than to examine income-decreasing accounting choices (St. Pierre and Anderson, 1984; DeFond and Jiambalvo, 1991; DeFond and Jiambalvo, 1993; Lys and Watts, 1994; Heninger, 2001). Because higher-quality auditors are regarded as having a higher potential for reputation loss and deep pockets to handle litigation suits when they occur, they are more likely to exhibit reporting conservatism than their lower-quality counterparts (DeAngelo, 1981; Dye, 1993; Simunic and Stein, 1996). A number of studies provide support for this argument by showing a negative association between high-quality auditors and reported discretionary accruals (Becker et al., 1998; Francis et al., 1999; Balsam et al., 2003; Krishnan, 2003; Zang, 2012). Francis and Krishnan (1999) find that high-quality auditors are more likely to issue modified audit opinions for clients with high income-increasing accruals to reduce the liability exposure that results from potential future litigation suits. Kim et al. (2003) further examine whether the effectiveness of high-quality auditors (proxy by Big 6) is differentiated by the divergence or convergence of reporting incentives between the auditors and their clients. They find that Big 6 (non-Big 6) auditors are more (less) effective in constraining accruals manipulation only when their clients have income-increasing incentives. Similar to Kim et al. (2003), I also examine auditor conservatism by considering the divergence or convergence of reporting incentives between high-quality auditors and their clients in a setting where firms have a clear tax incentive to manage earnings upward or downward.

As introduced and discussed in Chapter 2, the 2008 *Enterprise Income Tax Law of*



*the People's Republic of China*, which was introduced on March 16, 2007, provided listed firms with strong tax incentives to manage earnings upward (downward) in 2007 if their corresponding effective tax rates are lower (higher) than the new statutory corporate income tax rate (i.e. 25%).<sup>25</sup> Hence, the financial reporting incentives of firms with tax reasons to manage earnings upward in 2007 are divergent with those of auditors. High-quality auditors are thus likely to be more skeptical of firms' income-increasing accruals manipulation. In contrast, firms have convergent incentives with auditors when they are motivated to make income-decreasing accruals for tax savings. Thus, in such cases, the expected constraining effect of high-quality auditors is less likely to be observed.<sup>26</sup>

When examining the monitoring effect that auditors have on earnings management under a tax setting, it is necessary to consider the role of tax authorities as important external monitors in the tax avoidance game. As Desai et al. (2007) suggest, a potential bilateral agreement may exist between outside shareholders and the state, and these two parties have similar incentives to monitor insiders<sup>27</sup>; that is, outside shareholders have incentives to monitor insiders to avoid potential rent diversion while, as the largest minority shareholder of the listed firm, the state has significant

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<sup>25</sup> At this point, it is important to consider the cost generated by the earnings management for tax saving. U.S.-based studies note that firms' tax avoidance may trigger the potential scrutiny of the Internal Revenue Service (IRS) and the Security Exchange Commission (SEC) or the violation of debt covenant (Cloyd et al., 1996; Mills, 1998). However, this may not be the case for Chinese listed firms, because territory studies argue a lack of good regulation, protection for investors' interests, and sufficient resources for tax administration in China's capital market, along with the perceived low potential litigation cost (Lin, 2006; Lin et al., 2012).

<sup>26</sup> As noted later in this chapter, the initial downward audit effort adjustment (if any) in anticipation of the close tax scrutiny of accounting choices that reduce taxable income (thus reported earnings) also contributes to the exhibition of quality auditors' weak constraining effect on income-decreasing accruals.

<sup>27</sup> Within the framework established by Desai et al. (2007), the tax avoidance game involves three parties: insiders, outside shareholders, and the state. Hence, three potential bilateral agreements exist: insider and outside shareholders collude to avoid taxes (Chen and Chu, 2005; Crocker and Slemrod, 2005); tax authorities monitor insiders for tax avoidance while outside shareholders monitor insiders for managerial diversion (Guedhami and Pittman, 2008; Ghoul et al., 2011; Hanlon et al., 2012); and insiders please tax authorities by disguising managerial diversion (Erickson et al., 2004).

interest in monitoring (via tax authorities' scrutiny) insiders' potential tax avoidance activities. The scrutiny by tax authority of insiders' economic activities thus has both a direct curtailing effect on tax avoidance and a spillover effect on deterring potential rent diversion. Two studies provide direct support for this argument. Hoops et al. (2012) find that the probability of an IRS audit is negatively associated with firms' tax avoidance (proxy by cash effective tax rates), which reflects tax enforcement's first-order curtailing effect on firms' aggressive tax positions. In addition, Hanlon et al. (2012) provide evidence that IRS audit probability is positively associated with firms' reporting quality (proxy by either mapping of accruals into cash flows or discretionary accruals), supporting tax enforcement's second-order spillover effect argument.

As tax authorities are empowered through national legislation to collect tax revenues, they are more concerned with revenue loss. Thus, in contrast to auditors, tax authorities are likely to exhibit an opposite constraining effect, closely scrutinizing income-decreasing economic activities while permitting activities that increase income in the current period. I expect this effect to be more prevalent when tax authority scrutiny and enforcement are stricter. Intuitively, high regional tax enforcement is associated with intensified tax collection efforts. Then, *ceteris paribus*, the larger the effort, the greater the constraining effect. This is consistent with the divergence or convergence argument put forward by Kim et al. (2013); that is, when firms manage upward earnings for tax purposes (e.g. enjoying the tax holiday position), their incentives are potentially convergent with those of the tax authority. The convergent incentive, along with increased auditor monitoring, implies that tax inspectors' incentives to deter income-increasing accounting choices may diminish. However, when firms manage downward earnings for tax purposes (e.g. avoiding

high tax cost due to the high tax rate), their incentives are clearly divergent with those of the tax authority. Hence, tax authorities' close monitoring and scrutiny of firms' economic activities are expected. In this case, both the direct curtailing effect and the indirect spillover effect are manifested.

Although Hoopes et al. (2012) find that tax enforcement has a first-order curtailing effect, they do not suggest the channel through which tax avoidance is constrained. Meanwhile, although Hanlon et al. (2012) document that tax enforcement has a positive spillover effect on constraining firms' reported discretionary accruals, they do not consider whether the influence is from the divergence or convergence of reporting preferences between tax authorities and listed firms. Hence, to complement their studies, I also examine the potential effectiveness differentiation for tax authorities on constraining tax-induced earnings management.<sup>28</sup>

As the two independent external monitoring agencies, tax authorities are empowered to minimize corporate tax avoidances while auditors are primarily responsible for verifying the truth and fairness of financial reports and thus mitigating the information asymmetry based on the agency cost theory. Hence, these two parties have different monitoring interests. However, corporate tax avoidance is usually conducted in the guise of managing corporate reporting items, and many transactions have simultaneous influences on taxable income and financial reporting earnings (Desai and Dharmapala, 2006). Hence, there is a monitoring overlap of tax authorities and auditors.

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<sup>28</sup> My proxy for tax-induced earnings management (*DCA*) is constructed based on reporting items in financial statements. To the extent that tax reporting diverges from financial reporting at a basic level (Shackelford and Shevlin, 2001; Hanlon and Heitzman, 2010; Hanlon et al., 2012), the observed association between tax enforcement and *DCA* reflects the tax enforcement's direct curtail and indirect spillover effects.

The Chinese tax authorities require firms to submit audited financial statements along with their annual tax returns. Therefore, the monitoring effort of auditors can affect the monitoring strength of tax inspectors. The increased auditor monitoring and the convergence of reporting incentives for income overstatement between taxpayers and revenue collection agencies may diminish the latter's incentives to scrutinize income overstatement activities. Similarly, the increased monitoring strength of the tax inspector, coupled with the auditors' low litigation risk associated with income understatement suggests that auditors will not do more work than necessary to constrain conservative accounting choices. Therefore, I may observe that auditor quality is insensitive to income-decreasing reporting incentives, which are convergent with firm managers. I state my hypotheses as follows.

**H1a:** Ceteris paribus, there is a significantly *negative* association between high-quality auditors and reported *DCA* only for firms with incentives to manage *upward* earnings.

**H1b:** Ceteris paribus, there is a significant *positive* association between high tax enforcement and reported *DCA* only for firms with incentives to manage *downward* earnings.

## Chapter 5 Data Sources and Sample Selection

### 5.1. Data Sources

All of the financial data used to estimate the discretionary current accruals are obtained from the *China Stock Market and Accounting Research (CSMAR) Database*. The data used to construct auditor-related measures are mainly collected from the *CSMAR Database* and complemented by manually searching annual financial reports and audit firms' websites. The data used to construct tax enforcement measures are manually collected from the *China Tax Audits Yearbook*, published annually by the State Administration of Taxation (SAT). The data for institutional ownership and listed firms' applicable tax rates are obtained from the *WIND Database*. The data used to calculate the values of all of the other variables are obtained from the *CSMAR Database* and are cross-checked with the *WIND Database* where necessary.

### 5.2. Sample Selection

As Table 1 shows, I begin with all of the A-share firms listed on the Shanghai and Shenzhen stock exchanges in 2007 and then exclude firms in the financial industry because they are subject to different regulations. I also exclude firms from the Tibet Autonomous Region where only state tax is collected. I exclude firms without data for constructing accruals and auditor-related variables. When I estimate discretionary current accruals, I exclude firms whose industry groups have fewer than 20 observations in any given year. Firms with unavailable data for constructing the other control variables are also excluded. The final sample contains 650 firms in 2007.

[Table 1]

## Chapter 6 Research Methodologies

### 6.1. Model Specification

I develop the following OLS regression to test the two hypotheses:

$$DCA = a_0 + a_1 QUALITY\_HIGH + a_2 ENFORCEMENT + \beta Control + \varepsilon$$

where the dependent variable, *DCA*, is discretionary current accruals; *QUALITY\_HIGH* is high- versus low-quality auditors; and *ENFORCEMENT* is high versus low regional tax enforcement. I also include a number of control variables; each of which is defined in more details as follows.

#### 6.1.1. Discretionary Current Accruals (*DCA*)

Previous research suggests that discretionary current accruals (*DCA*) are closely related to tax-induced earnings manipulation (Hunt et al., 1996; Lopez et al., 1998; Lin et al., 2012; Lin et al., 2014). Hence, I use *DCA* to proxy for the tax-induced accruals-based earnings management. Specifically, I estimate the following regression model, which is established based on the modified Jones model (Jones, 1991; Dechow et al. 1995; Lopez et al., 1998):

$$CA_{i,t}/ASSET_{i,t-1} = \alpha_1/ASSET_{i,t-1} + \alpha_2 (\Delta SALES_{i,t} - \Delta AR_{i,t})/ASSET_{i,t-1} + \alpha_3 PPE_{i,t}/ASSET_{i,t-1} + \varepsilon_{i,t}$$

where  $CA_{i,t}$  is the current accruals for firm *i* in year *t* and is defined as the change in accounts receivable and inventory minus the change in accounts payable and accrued expense (Lin et al. 2012; Lin et al., 2014),<sup>29</sup>  $ASSET_{i,t-1}$  is the total assets for firm *i* in

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<sup>29</sup> Because discretionary current accruals may also result from the unusual, nondiscretionary events

year  $t-1$ ;  $\Delta SALES_{i,t}$  is the change in total sales for firm  $i$  from year  $t-1$  to year  $t$ ;  $\Delta AR_{i,t}$  is the change in accounts receivable for firm  $i$  in year  $t-1$  to year  $t$ ;  $PPE_{i,t}$  is the total property, plant, and equipment for firm  $i$  in year  $t$ .

I estimate the above regression cross-sectionally for each industry and each year from 2002 to 2006. To increase the estimation's accuracy, I require each industry to have at least 20 observations. I use the estimated parameters ( $\alpha_1$ ,  $\alpha_2$ , and  $\alpha_3$ ) to derive the expected firm-specific current accruals in 2007. The 2007 *DCA* then equals the prediction error, which is calculated as the difference between the reported and expected current accruals in 2007, i.e.

$$DCA_{2007} = \text{Reported } [CA/ASSET]_{2007} - \text{Expected } [CA/ASSET]_{2007}$$

#### 6.1.2. Auditor Quality Metrics

*AUDIT\_QUALITY* is a firm-level measure and equals the sum of the following five indicator variables that cover four aspects of auditor quality. I classify listed firms with *AUDIT\_QUALITY* above the median value of the sample as having high-quality auditors (*QUALITY\_HIGH*).

**Industry Specialization:** Studies suggest that the clients of auditors with industry specialization have lower levels of earnings management activity (Krishnan, 2003), higher levels of earnings quality (Balsam et al., 2003), and higher levels of disclosure quality (Dunn and Mayhew, 2004). Therefore, consistent with previous

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such as mergers, acquisitions, and discontinued operations, Hribar and Collins (2002) suggest using data from the cash flow statement for total accruals estimation. However, due to data limitations, I am unable to adopt this cash flow method. Given that listed firms in China are less involved in the abnormal but nondiscretionary activities than public firms in the U.S., the measurement error in my estimation of discretionary current accruals is potentially less severe.

studies (Hogan and Jeter, 1999; DeFond et al., 2000a; Gul et al., 2009), I include *AUDIT\_SPECIAL*, an indicator variable that equals 1 if the listed firm is audited by an auditor with industry market share (proxy by audit fees earned) ranked first and 0 otherwise,<sup>30</sup> to consider the specialization dimension of auditor quality.<sup>31</sup>

**Brand Name:** Previous research suggests that big *N* auditors have a brand name reputation for providing high-quality audit services (DeFond, 1992; Craswell et al. 1995; DeFond et al., 2000a; Ferguson and Stokes, 2002) and could effectively constrain their clients' earnings management activities (Becker et al., 1998; Kim et al., 2003). Hence, to consider the brand-name dimension of auditor quality, I include *BIG4*, an indicator variable that equals 1 if the firm is audited by one of the Big 4 audit firms and 0 otherwise.

**Auditor Size:** Large (small) audit firms provide higher (lower) quality services and greater (lesser) credibility to financial reports (Nichols and Smith, 1983; Francis and Wilson, 1988; Johnson and Lys, 1990; DeFond, 1992; Balvers et al., 1988; Lennox, 1999), as explained by the reputation hypothesis (DeAngelo, 1981) and the deep

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<sup>30</sup> Because audit firms provide audit services for both public and private firms, the calculation based on audit fees earned only from public firms may not accurately measure their real ranking status for industry specialization. Because the audit fees earned from private firms are unavailable, this problem could not be well solved. Therefore, to the extent that the fees earned from private firms significantly affect the rankings on auditor industry specialization, the results reported in this paper are contaminated.

<sup>31</sup> Recent Australian and U.S.-based research further proposes the use of both city- and national-level proxies for auditor industry specialization (Ferguson et al., 2003; Francis et al., 2005; Reichelt and Wang, 2010). However, this newly developed proxy does not apply to China for two reasons. First, China audit market studies find that due to the existence of political and economic governmental influences over the auditing and reporting processes, local auditors decline to report unfavorable opinions to their clients controlled by local government (local SOE) (Chan et al., 2006). Hence, regardless of whether the perceived audit industry specialization is high or low, local SOEs are more likely to hire local audit firms (Chan et al., 2006). Central government-owned SOEs also exhibit this tendency if they are located in less-developed regions (Wang et al., 2008). Second, unlike the audit markets in developed economies such as the U.S. and Australia, neither the traditional Big 4 nor the Big 10 audit firms dominate, and the competition is very fierce in China's audit market (Chen et al., 2000; Li et al., 2008; Wang et al., 2009). Hence, it is reasonable for me to construct the auditor industry specialization proxy based on firm/national- instead of city-level data.



pockets hypothesis (Dye, 1993). I thus include *AUDIT\_FEES*, an indicator variable that equals 1 if the natural logarithm of audit fees earned from the A-share market is above the median value of the sample and 0 otherwise. To consider the size dimension of auditor quality from two different angles,<sup>32</sup> I also include *AUDIT\_CLIENTELES*, an indicator variable that equals 1 if the number of an audit firm's clients exceeding the total number of listed firms in the A-share market is above the median value of the sample and 0 otherwise.

**Frequency of Issuing Modified Audit Opinions:** The propensity to issue modified audit opinions (MAOs) is another dimension of auditor quality (Craswell et al., 1995; Chen et al., 2010; Reichelt and Wang, 2010). Previous research shows that high-quality auditors are more likely to issue MAOs to clients with potential earnings management activities, due to their litigation cost concerns and perceived high level of independence (Francis and Krishnan, 1999; DeFond et al., 2000b; Chen et al., 2010). Therefore, I calculate the ratio of total number of MAO reports issued to the total number of audit reports issued for each audit firm in each of the previous two years and set *AUDIT\_OPINION* to equal 1 if the previous two-year average ratio is above the median value of the sample and 0 otherwise.<sup>33</sup>

### 6.1.3. Tax Enforcement Metrics

The measure of tax enforcement is developed by Lin et al. (2013), who generate a set of direct estimates for the perceived regional tax enforcement, based on a factor

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<sup>32</sup> Recent studies further suggest that the size of city-level Big 4 audit offices is associated with the audit quality proxy by accrual-based measures (Francis and Yu, 2009; Choi et al., 2010). However, according to China's audit market status as discussed in the previous note, it is suitable to apply the firm- rather than the office-level analysis for 2007.

<sup>33</sup> Consistent with previous studies set in China (Chen et al., 2000; Chen et al., 2001; Haw et al., 2003; Chen et al., 2010), the MAO is defined as all the other types of audit reports except the unqualified audit opinion report.

analysis of manually collected data from the *China Tax Audits Yearbook*.<sup>34</sup> Lin et al. (2013) develop three metrics (*PROBABILITY*, *EXPERTISE*, and *OUTCOME*) to measure tax enforcement. *PROBABILITY* is the number of tax audits conducted (by offices of the SAT or local tax bureaus in each province or city) over the number of tax returns filed in the same region; the number of cases prosecuted over the number of tax returns filed; and the number of permanent employees, tax inspectors, and audit departments, respectively, over the number of taxpayers. *EXPERTISE* is the percentage of inspectors with a bachelor's degree or higher, and/or with a professional qualification (accountants, tax agents, and lawyers). *OUTCOME* is the dollar amount of tax deficiencies settled and the dollar amount of surcharges, penalties, and fines, respectively, over the amount of regional tax revenue and the dollar amount of surcharges, penalties, and fines over the number of tax audits conducted. Lin et al. (2013) then construct a composite index: *ENFORCEMENT*, defined as the average of the sum of the ranks for *PROBABILITY*, *EXPERTISE*, and *OUTCOME* for each region (except Tibet) and year. The construct validity of these metrics is discussed in Lin et al. (2013).

Following Lin et al. (2013), I first develop three separate metrics (*PROBABILITY*, *EXPERTISE*, and *OUTCOME*) for each region (except Tibet) in each of the five years from 2003 to 2007 using a factor analysis. For each region in each of the five years, I then construct a composite index that equals the average of the sum of the ranks for *PROBABILITY*, *EXPERTISE*, and *OUTCOME*. Next, I use the ex-post

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<sup>34</sup> Page 17 of the *China Tax Audits Yearbook* (Lin et al., 2013), published annually by the State Administration of Taxation (SAT), contains detailed tax effort information and data: (1) permanent employees, (2) tax inspectors, (3) employees with a bachelor's degree or higher and/or with a professional qualification (certified accountants, tax agents, and lawyers), (4) tax inspectors' age and communist party membership, (5) corporate taxpayers, (6) corporate tax return audited, (7) audit departments, (8) suspicious cases, (9) cases registered, (10) cases prosecuted, (11) regional tax revenue, (12) tax deficiencies proposed, (13) tax deficiencies settled, (14) overdue tax surcharge, and (15) tax penalties and fines.

realized tax enforcement index for 2006 as the ex-ante perceived tax enforcement index for 2007, because the actual tax enforcement is observed with delay (Guedhami and Pittman, 2009; Ghoul et al., 2011; Hanlon et al., 2012; and Hoopes et al., 2012).<sup>35</sup> Finally, I set an indicator variable, *ENFORCEMENT*, to equal 1 if the average ranking of the sum of the ranks for *PROBABILITY*, *EXPERTISE*, and *OUTCOME* is above the country-level median and 0 otherwise, to represent the high versus low regional tax enforcement in 2007 and assign the value to each sample firm based on the location of its headquarters.<sup>36</sup>

#### 6.1.4. Other Control Variables

I include a set of variables to control for cross-sectional variation in firms' earnings management based on previous studies. Specifically, I include *LAG\_INST*, the percentage of institutional ownership at the beginning of the year, to control for the effect of corporate governance on firms' earnings management activities (Zang, 2012). I include *SOE*, an indicator variable that equals 1 if the firm is controlled by a government agency and 0 otherwise, to control for the effect of political connection on earnings management (Aharony et al., 2000). I include *SIZE*, the natural logarithm of total assets, to control for size effect (Becker et al., 1998). I include *TOBIN'S Q*, the market value of equity plus the market value of net debts scaled by total assets, to control for the effect of long-term growth (McNichols, 2000). I

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<sup>35</sup> However, if listed firms could form rational expectations for tax enforcement in 2007, then the estimation of an enforcement metric should be based on contemporaneous rather than lag values. Thus, consistent with Guedhami and Pittman (2009), Ghoul et al. (2011), Hanlon et al. (2012), and Hoopes et al. (2012), in the robustness test, I re-do the test by using the *ENFORCEMENT* estimate based on the ex-post realized tax enforcement index for 2007. The results are generally the same, except that *ENFORCEMENT* becomes marginally and negatively significant for the sub-group of listed firms with incentives to manage earnings upward.

<sup>36</sup> Because the headquarters of a listed firm is central to its business organization and often the focal point of any enquiry conducted by regulators and tax authorities, the firm is more likely to consider the regional tax enforcement in which its headquarters resides. Hence, I code the tax enforcement measure based on the location of the listed firms' headquarters.

include *LOSS*, an indicator variable that equals 1 if the firms' return on equity (*ROE*) is negative and 0 otherwise, to control for the effect of delisting regulation on earnings management (Lin et al., 2012). I include *NCF*, net operating cash flow scaled by total sales, to control for its effect on the firms' accruals manipulation (Dechow et al., 1995). I include *LAG\_DCA*, lagged discretionary current accrual, to control for firms' possible income-smoothing activities in previous years (Lin et al., 2012). Consistent with previous research, I also include the following five variables in the regression: *ROA*, net profit scaled by total assets (Healy and Wahlen, 1999; Fields et al., 2001; Dechow et al., 2010); *LEVERAGE*, total liabilities scaled by total assets (Graham, 1996; Newberry and Dhaliwal, 2001); *CAPITAL\_INT*, net property, plant, and equipment scaled by total assets (Gupta and Newberry, 1997); *INVENTORY*, total inventory scaled by total assets (Bauwhede and Willekens, 2003); and *INTANGIBLE*, intangible assets (the sum of intangible assets, goodwill, and R&D expenditures) scaled by total assets (Hanlon et al., 2007; Shevlin et al., 2012).

## 6.2. Sample Classification

To examine whether the constraining effects that auditors and tax authorities have on reported *DCA* differ regarding the divergence and convergence of incentives, I identify two groups of firms with different directional reporting incentives. As explained previously, if firms are confronted with potential tax rate increases (decreases), then they are likely to manage upward (downward) earnings before the rate changes. Because long-term effective tax rates are a better proxy for firms' tax positions, as they avoid short-term fluctuations resulting from uncertain factors (e.g. current period's loss) (Dyreng et al., 2008), I classify the sample into two sub-groups based on the comparison between the 5-year effective tax rate (5-year *ETR*) and the

new statutory tax rate of 25%.<sup>37</sup> Specifically, I classify those firms with 5-year *ETR* lower (higher) than 25% as having incentives to manage earnings upward (downward) and identify them as tax-increase (tax-decrease) firms.<sup>38</sup> The 5-year *ETR* is calculated as the sum of 5-year total tax expenses less deferred tax expenses scaled by the sum of 5-year pre-tax income (before extraordinary items and discontinued operations).

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<sup>37</sup> In the sensitivity test, I re-classify the sample based on the comparison of listed firms' applicable tax rates in 2007 and 2008. Specifically, I re-classify the sample into two sub-groups: a tax increase group if the 2007 applicable rate is lower than that of 2008 and a tax decrease group if the 2007 applicable rate is higher than that of 2008. I then re-do the test. The results are qualitatively unchanged.

<sup>38</sup> As introduced in Chapter 2, some of the tax preferences under the new tax law are generally the same as those applied under the old tax law. Hence, firms that enjoy the same tax preferences both before and after tax rate reduction may not perceive a change in their tax burden in 2008. If so, then these firms are misclassified. This is especially true for firms in agriculture and information technology industries because the tax incentives listed in the old law are very similar to those listed in the new law. Therefore, as a robustness check, I exclude firms from these two industries and re-do all the tests. I also exclude those firms from western regions and re-do all the tests. The results are qualitatively the same. Because the detailed tax preferences data for individual firms are unavailable, I was unable to fully solve this misclassification problem. To the extent that some of the sample firms are misclassified as having incentives to manage earnings, the results reported are contaminated.

## Chapter 7 Empirical Results

### 7.1. Univariate Analysis

Panel B of Table 1 describes the sample by industry.<sup>39</sup> As the largest sector of Chinese economy, the *Manufacturing Industry* contains 52.3% of firms in the full sample, followed by the *Wholesale and Retail Trade Industry* (10.15%) and the *Real Estate Industry* (7.85%), whereas the *Construction Industry* has only 1.69% of the sample firms. Within the *Manufacturing Industry* sector, *Machinery, the Equipment and Instrument Industry* has 96 sample firms, the largest number among the 7 industry groups within the sector. In contrast, the *Electronic Industry* only has 22 sample firms in this sector. Across the three sample groups (full sample and tax-increase and -decrease sub-samples) firms are equally distributed among *Petroleum, Chemical, Plastics and Rubber Products, Utilities, and Transportation and Warehousing*. While *Agriculture Industry, Metal and Non-Metal Industry* and *Information Technology Industry* firms are concentrated in the tax-increase group, *Food and Beverage Industry* and *Wholesale and Retail Trade Industry* firms are clustered in the tax-decrease group. In summary, most of the firms are evenly distributed either across industries for each sample group or across the three sample groups for each industry, suggesting that my results are unlikely to be driven by industrial differences.

Table 2 reports the mean (median) accruals in 2007. The mean value of current accruals is negative 1% of the lagged total assets for all firms, which suggests that on average, listed firms report negative current accruals in 2007—the year immediately

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<sup>39</sup> Because most of the Chinese listed firms are clustered in the Manufacturing Industry, I adopt the two-digit CSRC Industry code for this industry and classify the firms engaged in this sector into seven industry groups. For the other industries, I use the one-digit CSRC Industry code for the industry group classification.

before the tax-rate cut. Specifically, the tax-decrease firms make negative accruals to a greater extent than the tax-increase firms by 1.6% of the lagged total assets (-1.9% versus -0.3%,  $t = -1.568$ ,  $p = 0.117$ ). Except for *PPE*, the mean (median) values of the other accrual components are generally smaller for tax-decrease firms than for their tax-increase counterparts. In particular, the difference in mean (median) values of scaled  $\Delta INVENTORY$  reported by the two groups is significant ( $t = -2.269$ ,  $p = 0.024$ ;  $z = -2.346$ ,  $p = 0.019$ ), suggesting that most of the between-group differences in accruals arise from the use of inventory management, i.e. increasing (decreasing) the inventories held and thus decreasing (increasing) the cost of goods sold. Table 2 also shows the mean (median) *DCA* for 2007. As expected, while the average *DCA* is positive 0.3% of lagged assets for the tax-increase group, it is negative 0.7% for the counterpart group. Although the difference in mean (median) values of *DCA* between the two groups are insignificant, the contrasting results suggest that my sample partition is effective, which indicates that firms manage different directional accruals for tax purposes.

[Table 2]

Table 3 presents the descriptive statistics for audit metrics. As reported in panel A of Table 3, the mean (median) value of audit firms' industry market share is only 3.9% (2.7) for all firms, 4.1% (2.9) for tax-increase firms, and 3.7% (2.6) for tax-decrease firms—consistent with the notion that the industry market shares of audit firms are very diverse in China. The low industry market concentration also suggests the need to use different measures for audit quality in China. The low market share concentration is also supported by the statistics for *CLIENTS\_SHARE*, one of the two auditor size measures. For example, the variable has consistently low mean (median) values across the three sample groups. The statistic for the brand-name

measure, *BIG4*, shows that only 3.4% of the sample firms employed Big 4 auditors in 2007, which is consistent with the fact that the market share of international Big 4 audit firms in China is very low. Interestingly, the mean value of *BIG4* is 4.7% for tax-increase firms, significantly different from the 1.5% for tax-decrease firms ( $t = -2.171$ ,  $p = 0.030$ ). This indicates that the multivariate results for the two groups of firms may be contaminated by the difference in audit quality metrics across the two sub-samples if I only use big *N* for the classification of higher versus lower audit quality. In terms of raw value for *FEES*, another measure of auditor size, auditors earn RMB30 million from tax-increase firms on average, which is significantly different from the RMB21 million earned from tax-decrease firms ( $t = -2.057$ ,  $p = 0.040$ ), providing further support for the use of different dimensions to measure audit quality. The mean value of *MAO\_PERCENTAGE* suggests that on average, 11% of the sample firms received audit reports with MAOs in 2005 and 2006. However, the mean (median) value of *MAO\_PERCENTAGE* is 0.113 (0.102) for tax-increase firms, which is 0.008 (0.004) points higher than that for tax-decrease firms. Consistent with the auditor conservatism argument, this statistic shows that auditors issue more MAOs to firms in China with incentives to manage upward earnings than to those with incentives to manage downward earnings.

Panel B of Table 3 reports the mean (median) values of *AUDIT\_QUALITY* and *QUALITY\_HIGH*. Specifically, the mean (median) value of *AUDIT\_QUALITY* for the tax-increase firms is 1.594 (2.000), which is comparable to the value of 1.508 (2.000) for all firms but significantly higher—0.214 (1.000) points—than for the tax-decrease group ( $t = -2.572$ ,  $p = 0.010$ ;  $z = -2.444$ ,  $p = 0.015$ ). This indicates that on average, higher-quality auditors are more likely to be employed by firms in the tax-increase rather than –decrease group. The mean value of *QUALITY\_HIGH* for



tax-increase firms (0.220) is significantly higher (0.075 points) than that for tax-decrease firms ( $t = -2.408$ ,  $p = 0.016$ ;  $z = -2.399$ ,  $p = 0.016$ ), which may suggest that the former are more likely than the latter to employ high-quality auditors to increase the credibility of their financial reports.

[Table 3]

Panel A of Table 4 presents the descriptive statistics for the twelve variables used in factor analysis for tax enforcement. There is substantial variation among most of the variables used across different regions and years. For example, the mean value of *Ratio 2* (the number of cases prosecuted over the number of tax returns filed) is about 1.6% for the 2003-2007 period, with Shannxi having the highest rate (7.7%) and Inner Mongolia (untabulated) having the lowest (1%). During the study period, about 4.6% of inspectors are certified tax agents (*Ratio 8*), but only 1% is certified public accountants (*Ratio 7*). Across the regions, untabulated statistics show that Anhui and Jiangsu have the highest percentages of inspectors who are certified tax agents (15.3%) and those who are certified public accountants (3.1%), respectively. Within the 5-year estimation period, the dollar amount of tax deficiencies settled and that of surcharges, penalties, and fines imposed are, on average, 1.8% and 0.2% of the regional tax revenue, respectively.

I use principal component analysis to extract factors of interest that represent common variance in these twelve variables. Specifically, I retain factors with eigenvalues above one. As Panel B of Table 4 reports, applying this criteria results in the retention of three factors that together explain 65.8% of the total variance in the original data. To maximize the variance of the squared loadings of each of the three retained factors on all of the variables in the corresponding factor matrix, I rotate the

three factors orthogonally and then determine whether there is a statistical and substantive association between each factor and other variables. I associate each factor with those variables that have a loading in excess of 0.60 in absolute value, and are statistically different from zero at conventional levels. As the panel reveals, factor 1 is associated with *Ratio1* (factor loading = 0.697), *Ratio2* (factor loading = 0.810), *Ratio3* (factor loading = 0.738), *Ratio4* (factor loading = 0.879), and *Ratio5* (factor loading = 0.746)—all of which are related to the propensity to conduct and enforce tax audits. I thus define factor 1 as the probability of taxpayers being audited and prosecuted by tax authorities for the region (*PROBABILITY*). Factor 2 is associated with *Ratio 7* (factor loading = 0.872), *Ratio 8* (factor loading = 0.827), and *Ratio 9* (factor loading = 0.716). Because these three variables mainly describe the tax inspectors' expertise, I define factor 2 as the sufficiency and expertise of tax inspectors and audit agents for the region (*EXPERTISE*). Factor 3 is associated with *Ratio 10* (factor loading = 0.984) and *Ratio 11* (factor loading = 0.984). Because these two variables report tax inspection results, I define factor 3 as the audit outcomes or consequences including tax deficiency settlements, overdue payment surcharges, and penalties and fines (*OUTCOME*). Based on these three variables (*PROBABILITY*, *EXPERTISE*, and *OUTCOME*), I construct a composite enforcement index that equals the average ranking of the sum of the ranks for the three variables for each region (except Tibet) and year, and set *ENFORCEMENT* to equal 1 if the value of the enforcement index is above the country-level median and 0 otherwise. This represents the high versus low regional tax enforcement. Finally, I code each sample firm based on the location of its headquarters and assign it the corresponding *ENFORCEMENT* value.

Panel C of Table 4 reports the mean (median) values of tax enforcement variables.

Compared with their counterparts, tax decrease firms have higher mean (median) values for all the four variables, suggesting that these firms are located in areas with high level of regional tax enforcement. However, except for *OUTCOME*, the difference in mean (median) values of all the other enforcement metrics (*PROBABILITY*, *EXPERTISE*, and *ENFORCEMENT*) between the two sub-groups is statistically insignificant. Hence, my expected association between *ENFORCEMENT* and reported *DCA* is hardly to be driven by difference in tax enforcement measure.

[Table 4]

Table 5 reports the mean (median) values of *ETR5* and the control variables for all of the firms—tax-increase and -decrease. As presented, listed firms in my sample, on average, report 22.9% of 5-year long-term effective tax rates, which indicates that a large amount of tax incentives is granted by the government. Specifically, tax-increase firms report significantly lower mean and median values of *ETR5* than their counterparts (11.4% versus 39.8%,  $t=26.354$ ; 13.7% versus 33.3%,  $z=21.609$ ). This comparing result is consistent with domestic listed firms have different directional tax incentives in the year immediately prior to the tax-rate cut. For the control variables, on average, tax-increase firms have a higher percentage of government ownership (*SOE*) than tax-decrease firms (0.718 versus 0.665,  $t = -1.442$ ). Relative to their counterparts, tax-increase firms report a mean (median) *ROA* that is 0.006 (0.008) points higher—possibly the direct result of these firms having managed their earnings upward before the tax rate increase. Tax-increase firms have higher mean but lower median values of *SIZE* and lower mean but higher median values of *INVENTORY* than their tax-decrease counterparts, although each of the two sub-samples' mean (median) values of *SIZE* and of *INVENTORY* are comparable to those of the full sample. For the other control variables, tax-decrease

firms generally have higher (though insignificant) mean and median values than their counterparts. For example, the mean and median values of *LEVERAGE* are 0.525 (0.509) and 0.559 (0.519) for tax-decrease (tax-increase) firms, respectively. Likewise, the mean (median) value of *NCF* is 0.029 (0.012) points higher for tax-decrease (tax-increase) firms. Overall, the statistics on the control variables reported in Table 5 are comparable across the three groups of firms, indicating that the expected association between the two external monitors (auditors and tax authorities) and reported *DCA* is not likely to be driven by the differences in firm-level characteristics.

[Table 5]

## 7.2. Multivariate Tests

Table 6 presents the regression results for the OLS estimation. As reported, the coefficient on *QUALITY\_HIGH* is significantly negative for the full sample (-0.015 with  $t = -1.65$ ). The result shows that on average, clients of higher- (lower-) quality auditors report *DCAs* that are significantly lower (higher) by an average of 1.5% of lagged assets. These results are consistent with those of previous studies (e.g. Becker et al., 1998; Kim et al., 2003) in that higher-quality auditors constrain more income-increasing accruals manipulation than their lower-quality counterparts. The coefficient on *ENFORCEMENT* is positive but insignificant, possibly due to the offsetting effects of directional accruals management.

The second and third columns of Table 6, respectively, report the empirical results of testing for whether the effectiveness of auditor monitoring and tax authority scrutiny on reported *DCA* differs for firms with incentives to manage earnings upward (tax-increase group) and downward (tax-decrease group) for tax purposes. As

expected, the coefficient on *QUALITY\_HIGH* is negative and significant for tax-increase firms (-0.020 with  $t = -2.03$ ), consistent with my hypothesis that higher- (lower-) quality auditors are more (less) effective in constraining reported *DCA* when firms have incentives to manage upward earnings for tax purposes. However, the coefficient on *QUALITY\_HIGH* is negative but insignificant for tax-decrease firms (-0.008 with  $t = -0.42$ ), suggesting that there is no difference in the effectiveness of higher- versus lower-quality auditors on reported *DCA* for firms with incentives to manage downward earnings for tax purposes.

Regarding the effectiveness of tax authority scrutiny, the results in column 3 of Table 6 show that the coefficient on *ENFORCEMENT* is significantly positive for tax-decrease firms (0.026 with  $t = 2.08$ ).<sup>40</sup> This means that firms subject to stricter tax enforcement (on average) report 2.6% higher *DCA* than their counterparts when they have incentives to manage earnings downward for current tax savings. However, the coefficient on *ENFORCEMENT* is negative but insignificant for tax-increase firms (-0.006 with  $t = -0.75$ ), suggesting that tax enforcement plays a greater role in restraining managers from engaging in discretionary accounting methods and choices that would lead to a reduction in tax revenues.

For control variables, the coefficient of *SOE* is significantly negative for the tax-decrease firms (-0.025 with  $t = -2.01$ ), suggesting that *SOEs* are more likely to make income-decreasing accruals than their counterparts as a way of benefitting

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<sup>40</sup> After replacing the *ENFORCEMENT* by each of the three tax enforcement factors (i.e., *PROBABILITY*, *EXPERTISE*, and *OUTCOME*), I further explored which dimension of tax enforcement plays the most effective monitoring role. However, untabulated results show that none of these separate variables are statistically significant in the predicted directions across the sample groups. It is thus possible that only an overall balanced strengthen on those three tax enforcement dimensions could effectively constrain firms' potential tax avoidance activities via directional accruals management.

from the tax rate reduction. This is consistent with the argument that firms with large government ownership are likely to exploit political connections to lower their tax burden, as state ownership represents a strong form of political connection and politically connected firms tend to receive preferential treatment from the government and are also subject to less tax scrutiny (Faccio et al., 2006). The coefficient of *SIZE* is positive and significant for tax-increase firms while *LEVERAGE* is negative and significant for the full sample, indicating that large firms are associated with more reported *DCA* while highly leveraged firms are correlated with less reported *DCA*. Although *DCA* is negatively associated with *NCF* (high operating cash flow firms have low discretionary current accruals), it is positively associated with *INVENTORY* (inventory-intensive firms have more *DCA*).

In summary, Table 6 provides evidence that the constraining effects of auditors and tax authorities on reported *DCA* differs for firms with incentives to manage downward versus upward earnings for tax purposes. Specifically, the monitoring of higher-quality auditors is more effective when their clients have strong incentives to manage earnings upward. Meanwhile, the monitoring of tax authorities is stricter when taxpayers have incentives to make income-decreasing accruals that lower tax payment. Taken together, the results in Table 6 suggest that the monitoring of one party can have a spillover effect on the monitoring of the other. Specifically, tax authorities' intensified scrutiny of transactions that decrease the current tax payment may compensate for auditors' lack of monitoring on income-decreasing accounting choices. Meanwhile, revenue agencies can also benefit from auditors' increased monitoring of income-increasing accruals that may lead to tax revenue loss in the future.

[Table 6]

### 7.3. Additional Discussion

Although I argue that the observed insignificant association between quality auditors (tax authorities) and reported *DCA* for firms with incentives to manage earnings downward (upward) is due to their lack of constraining incentives, it may also be due to their workload adjustment in response to changes in the other parties' monitoring. As financial statement (book) and taxable incomes are based on the same underlying economic transactions, there are some overlaps in corporate reporting that both monitoring parties watch, creating a necessary condition for the spillover effect to exist; that is, when the auditor increases monitoring on book income, the tax authority may decrease monitoring on taxable income. Similarly, when the tax authority strengthens monitoring on taxable income, the auditor may permit himself to decrease monitoring on book income. Therefore, it is unclear which effect (constraining or spillover) plays the dominant role in explaining the results. However, as non-overlaps in corporate reporting (i.e. reporting higher or lower book income with no corresponding effect on tax income, or vice versa) do not prompt the spillover effect, it is probable that the observed insignificant association between the variables of interest in each of the two distinct situations is due to the constraining effect.

I have not explained whether the association between quality auditors and reported *DCA* are subject to influences from auditor-provided non-audit tax services. Krishnan and Visvanathan (2011) find that auditor-provided tax services mitigate earnings management activities due to the knowledge spillover effect. Specifically, if auditors provide both audit and tax services to the same client, then the insights learned from providing tax services will benefit their work in auditing the same

client's financial statements, thereby improving the audit quality. However, evidence from McGuire et al. (2012) suggests that the clients of auditors with industry specialization are associated with greater tax avoidance. Hence, the effect of auditor-provided non-audit tax services on tax-induced corporate accruals manipulation remains inconclusive. Due to the non-disclosure of fees data for auditor-provided non-audit tax services in China, I am unable to explore this issue further to determine whether the effect of non-audit services biases for or against my results.



## Chapter 8 Sensitivity Tests

### 8.1. Using Lagged *ROA* in the Estimation of *DCA*

Previous research suggests that as future accruals are predicted by firms' past performance, the performance-related predictable component of accruals must be filtered out to avoid the spurious indication of discretionary accruals (Kothari et al., 2005). Hence, as a robustness test, I re-estimate the *DCA* by including lagged *ROA* in the regression model (Kothari et al., 2005). Table 7 reports the results of the sensitivity tests (results on control variables are not tabulated for simplicity). As panel A of Table 7 shows, the results are qualitatively the same. Specifically, the coefficient of *QUALITY\_HIGH* is negative and marginally significant for the full sample (-0.015 with  $t = -1.69$ ), becoming significantly negative for tax-increase firms (-0.020 with  $t = -2.06$ ) and insignificant for tax-decrease firms (-0.008 with  $t = -0.40$ ). In addition, the coefficient of *ENFORCEMENT* is only significantly positive for tax-decrease firms (0.027 with  $t = 2.14$ ). Therefore, my results are not subject to the influence of past firm performance on the estimation of *DCA*.

### 8.2. Relaxing the Assumption of Using Ex-Post Realized Tax Enforcement

In the main test, I use ex-post realized *ENFORCEMENT* in 2006 as ex-ante perceived *ENFORCEMENT* in 2007, because enforcement is likely to have delayed effects. However, if firm managers formed rational expectations on tax enforcement for 2007, then the perceived *ENFORCEMENT* for 2007 should be based on contemporaneous value. Thus, as a robustness check, I re-do the test by measuring *ENFORCEMENT* contemporaneously. The results presented in panel B of Table 7 are generally the same as those reported in Table 6, except that *ENFORCEMENT* becomes marginally significant for tax-increase firms (-0.016 with  $t = -1.84$ ). As the new enterprise income tax law provides firms with strong incentives to manage

earnings for tax purposes, tax authorities are more likely to strictly scrutinize firms' economic activities in anticipation of potential tax avoidance triggered by the new tax law. If firm managers can form rational expectations on the increased likelihood of tax authority scrutiny, then they are less likely to manage earnings for tax purposes, regardless of the direction of their earnings management incentives.

### 8.3. Additional Issues in Tax Enforcement Metric

First, previous studies find that listed firm may endogenously determine to register in a specific location for tax reason (e.g., Wu et al., 2007). However, in China, whether a firm could be listed in an exchange is, in some extent, politically determined and the operating of a listed firm is important for its register place's development of economy and social welfare (Aharony et al., 2000a). Hence, it is hard for a listed firm to re-register or move to a new location with low perceived regional tax enforcement for tax reason. Second, in this study, I use the province-level tax enforcement measure conduct the test. It is possible that some province-level omitted variables that are correlated with both *ENFORCEMENT* and *DCA* might account for my main test results. Hence, consistent with previous research (Wang et al, 2008; Lo et al., 2010), I include the *NERI* index developed by Fan et al. (2007) and re-do the test as a robustness check. As reported in panel C of Table 7, the results are qualitatively the same as those presented in Table 6.

### 8.4. Endogenous Issue in Auditor Selection

Previous research suggests that firms with higher total accruals are more likely to hire higher-quality auditors to signify the credibility of their financial reporting (Francis et al., 1999). In addition, previous Chinese studies find that local *SOE* firms are more likely to hire local audit firms to obtain favorable audit reports (Chan et al.,

2006; Wang et al. 2008). Hence, the decision to employ higher-quality auditors may be endogenously determined which, if true, affects the validity of my results. However, because I measure auditor quality based on five variables rather than a choice variable, and because the values for three of the five variables (*AUDIT\_CLIENTELES*, *AUDIT\_FEES*, and *AUDIT\_OPINION*) are determined based on the variables' median values of the sample, the classification of higher-versus lower-quality auditors is unobservable for each individual firm in the sample. In addition, as the tax-rate-cut event is a one-time sudden shock, firms are unlikely to employ a new auditor just for the one-time manipulation. Therefore, firms with large amounts of accruals are unlikely to self-select themselves into higher-quality auditors, which are measured based on five variables from four dimensions.

#### 8.5. Different Sample Classification

In the main test, I classify sample firms into tax-increase and -decrease groups by comparing their 5-year long-term effective tax rates to the 25% income tax rate. As an alternative check, I re-classify the sample by comparing listed firms' applicable corporate income tax rates in 2007 and 2008. Specifically, I define firms as having incentives to manage earnings upward (i.e. the tax-increase firms) if their applicable income tax rates were higher in 2008 than in 2007. Similarly, firms are defined as having incentives to manage earnings downward (i.e. the tax-decrease firms) if they anticipated a reduction in their applicable income tax rate in 2008. I exclude 6 firms that did not experience a change in their applicable tax rates. The alternative results are presented in panel D of Table 7. The coefficient on *QUALITY\_HIGH* is significantly negative for the full sample (-0.016 with  $t = -1.78$ ) and the tax rate increase sample (-0.023 with  $t = -1.67$ ), and the coefficient on *ENFORCEMENT* is significantly positive only for the tax-decrease group (0.020 with  $t = 2.17$ ). These

results are consistent with my main results. As a further check, I also re-classify firms with 5-year long-term effective tax rates below (above) their 2008-year's effective tax rates as tax-increase (tax-decrease) firms. Two firms are excluded because of no change in their effective tax rates. Based on this new partition, I re-do the test. Again, as reported in panel E of Table 7, the results are qualitatively unchanged, suggesting that the effectiveness of auditor monitoring and tax authority scrutiny on *DCA* differs for firms with incentives to manage earnings upward or downward for tax purposes.

#### 8.6. Firms Enjoying Similar Tax Preference across Years

As mentioned, some firms may enjoy similar tax preferences under both the old and the new enterprise income tax laws. This is especially the case for firms engaging in the Agricultural and Information Technology industries. As a robustness check, I exclude 42 firms that belong to these two industries from the sample and re-do the tests. Panel F of Table 7 presents the regression results. Although the reduced sample causes the coefficient on *QUALITY\_HIGH* to be insignificant for the full sample, it does not alter the overall theme that, due to a different focus, quality auditors are more concerned with income-increasing accruals while revenue authorities are more alarmed by income-decreasing accruals that can lead to tax revenue losses. I also drop 94 firms located in western regions (Qinghai, Gansu, Ningxia, Yunnan, Sichuan, Shannxi, Guizhou, Chongqing, Xinjiang, and Xizang), because these firms may have enjoyed the same tax preferences in both 2007 and 2008. The results reported in panel G of Table 7 are qualitatively similar to those reported in panel F of the same table.

[Table 7]

## **Chapter 9 Conclusion**

China's new enterprise income tax law reduced the corporate income tax rate to 25% from 33% and terminated most of the tax preferences established under the old law. The tax rate change provides firms with observable incentives to manage earnings downward or upward for tax purposes, allowing me to identify two distinct situations through which to concurrently study the effects of auditor monitoring and tax authority scrutiny on directional earnings management. Due to their different interests, auditors and taxing authorities are very cautious about accounting choices that increase and decrease reported earnings. I hypothesize and find that while higher-quality auditors constrain income-increasing accruals to a greater extent than lower-quality auditors, tougher tax enforcement mitigates income-decreasing accruals to a larger degree than does looser tax enforcement. However, due to fewer concerns and possible initial work effort adjustments, I do not find evidence that auditors (tax authorities) exhibit the same behavior when their clients (taxpayers) have tax incentives to manage earnings downward (upward). Collectively, my results suggest that there is a spillover effect of one monitor over the other in limiting corporate directional accruals management.

My study complements that of Kim et al. (2003) by providing emerging market evidence regarding the effectiveness differentiation of quality auditors' monitoring from tax perspective. After relaxing the implicit assumption that the extent of tax authority scrutiny is constant across directional accruals, my study also extends those of Desai et al. (2007), Hoopes et al. (2012), and Hanlon et al. (2012) by considering the divergence or convergence of preferences between tax authorities and listed firms for directional earnings management. Because tax authorities are concerned with accounting choices that lower taxable income, they are more likely to

strengthen (weaken) their scrutiny of the economic activities of firms with incentives to manage earnings downward (upward). Further, my study complements the literature by documenting a spillover effect between the two external monitors of the firms (auditors and tax authorities) on directional accruals management for tax purposes. My findings have implications for tax authorities, audit professionals, and capital market investors. Specifically, auditors' lack of attention on corporate income-decreasing activities could be compensated by increased tax authority scrutiny on these activities that lower tax payment. Similarly, tax inspectors can also benefit from auditors' increased monitoring of aggressive earnings management behavior that may result in net tax revenue losses over time. Finally, capital market investors could benefit from an increase in the credibility of corporate financial reporting because they can expect each of the two directions in earnings management to be mitigated by at least one external monitor.

## **Chapter 10 Limitations and Future Research**

My study has the following limitations. First, I calculate the discretionary current accruals from the regression estimates. The validity of my results is thus subject to measurement errors, as is the case in many earnings management studies. Second, my tests are based on post-audit financial data that may potentially understate the effectiveness of auditors in constraining corporate earnings management activities, because some of the accrual manipulations would have been detected and prevented by the auditors. Third, due to the unavailability of detailed firm-level tax preferences data I was unable to fully rule out the possibility of misclassification in the directions of firms' earnings management incentives. Because I construct the audit quality index by allocating equal weight to each of the five components, future studies should re-investigate the issue when a better proxy for audit quality can be developed. In addition, future researchers should investigate firms' operating performance and capital market reactions, conditional on the existence of tax-induced earnings management and high tax enforcement. Finally, although auditor-provided non-audit tax services are argued to influence audit services to the same client, I do not incorporate this issue into the test, mainly due to the lack of data disclosure in China. I leave this area for future research when the necessary data are available.

## Appendix: Variable Definitions

<i>DCA</i>	= discretionary current accruals for 2007 estimated cross-sectionally for each industry and each year from 2002 to 2006.
<i>ENFORCEMENT</i>	= tax enforcement, an indicator variable that equals 1 if the average ranking of the sum of the ranks for <i>PROBABILITY</i> , <i>EXPERTISE</i> , and <i>OUTCOME</i> is above the country level median and 0 otherwise.
<i>PROBABILITY</i>	= the probability of taxpayers being audited and prosecuted by tax authorities for the region (factor 1).
<i>EXPERTISE</i>	= the sufficiency and expertise of tax inspectors and audit agents for the region (factor 2).
<i>OUTCOME</i>	= the audit outcomes or consequences (including tax deficiencies settled and overdue payment surcharges, penalties, and fines) for the region (factor 3).
<i>AUDIT_QUALITY</i>	= <i>AUDIT_SPECIAL</i> + <i>BIG4</i> + <i>AUDIT_CLIENTELES</i> + <i>AUDIT_FEES</i> + <i>AUDIT_OPINION</i>
<i>QUALITY_HIGH</i>	= indicator variable that equals 1 if <i>AUDIT_QUALITY</i> is above the median value of sample and 0 otherwise.
<i>AUDIT_SPECIAL</i>	= indicator variable that equals 1 if auditor's industry market share ranked first and 0 otherwise.
<i>BIG4</i>	= indicator variable that equals 1 if listed firm is audited by one of the Big 4 audit firms and 0 otherwise.
<i>AUDIT_CLIENTELES</i>	= indicator variable that equals 1 if the number of the audit firm's clients over the total number of listed firms is above the median value of the sample and 0 otherwise.
<i>AUDIT_FEES</i>	= indicator variable that equals 1 if the natural log of total audit fees earned are above the median value of the sample and 0 otherwise.
<i>AUDIT_OPINION</i>	= indicator variable that equals 1 if the previous 2-year average ratio of the number of modified audit opinion (MAO) reports to total reports issued is above the median value of the sample and 0 otherwise.
<i>ETR5</i>	= 5-year long-run effective tax rates, calculated as the sum of 5-year total tax expenses less deferred tax expenses scaled by the sum of 5-year pre-tax income (before extraordinary items and discontinued operations).
<i>ETR5_D</i>	= indicator variable that equals 1 if 5-year long-run <i>ETR</i> is less than 25% and 0 otherwise.
<i>SOE</i>	= indicator variable that equals 1 if listed firm is controlled by a government agency and 0 otherwise.
<i>ROA</i>	= net profit scaled by total assets.
<i>SIZE</i>	= natural log of total assets.
<i>LEVERAGE</i>	= total liabilities scaled by total assets.
<i>TOBIN'S Q</i>	= the market value of equity plus market value of net debts



	scaled by total assets.
<i>LOSS</i>	= indicator variable that equals 1 if the return on equity ( <i>ROE</i> ) is negative and 0 otherwise.
<i>NCF</i>	= net operating cash flow scaled by total sales.
<i>CAPITAL_INT</i>	= net property, plant, and equipment scaled by total assets.
<i>INVENTORY</i>	= total inventory scaled by total assets.
<i>INTANGIBLE</i>	= intangibles assets (the sum of intangible assets, goodwill, and R&D) scaled by total assets.
<i>LAG_DCA</i>	= previous year's discretionary current accrual.

**Table 1 Firms in the Sample (2007)**

**Panel A: Sample selection**

Initial non-financial firms from CSMAR database	1,453
Less: Firms being delisted	71
Less: Firms from Tibet	8
Less: Firms without required financial information	522
Less: Firms without audit information	202
Final sample	650

**Panel B: Sample distribution by industry**

	All		Tax-Increase firms		Tax-Decrease firms	
	N	%	N	%	N	%
<i>Agriculture</i>	13	2.00	11	2.84	2	0.76
<i>Mining</i>	10	1.54	4	1.03	6	2.28
<i>Food and Beverage</i>	27	4.15	10	2.58	17	6.46
<i>Textile, Apparel, Fur and Leather</i>	25	3.85	19	4.91	6	2.28
<i>Petroleum, Chemical, Plastics, and Rubber Products</i>	63	9.69	37	9.56	26	9.89
<i>Electronics</i>	22	3.38	16	4.13	6	2.28
<i>Metal, Non-Metal</i>	64	9.85	43	11.11	21	7.98
<i>Machinery, Equipment and Instrument</i>	96	14.7	70	18.09	26	9.89
<i>Medicine and Biological Products</i>	43	6.62	23	5.94	20	7.60
<i>Utilities</i>	36	5.54	22	5.68	14	5.32
<i>Construction</i>	11	1.69	8	2.07	3	1.14
<i>Transportation and Warehousing</i>	33	5.08	19	4.91	14	5.32
<i>Information Technology</i>	29	4.46	26	6.72	3	1.14
<i>Wholesale and Retail Trade</i>	66	10.1	22	5.68	44	16.73
		5				
<i>Real Estate</i>	51	7.85	26	6.72	25	9.51
<i>Social Services</i>	28	4.31	15	3.88	13	4.94
<i>Conglomerates</i>	33	5.08	16	4.13	17	6.46
Total	650	100	387	100	263	100

**Table 2 Mean (Median) Discretionary Current Accruals for Tax-Increase versus Tax-Decrease firms**

	All		Tax-Increase firms		Tax-Decrease firms		Difference		t-value	z-stat.
<i>Current Accrual/Assets</i>	-0.010	(-0.007)	-0.003	(-0.004)	-0.019	(-0.011)	-0.016	(-0.006)	-1.568	(-1.350)
<i>Natural Log of Assets</i>	21.531	(21.485)	21.536	(21.450)	21.525	(21.543)	-0.011	(0.093)	-0.154	(0.439)
<i>ΔAccounts</i>	-0.001	(-0.003)	0.000	(0.000)	-0.003	(-0.009)	-0.003	-0.009	-0.337	(-1.188)
<i>ΔInventory/Assets</i>	0.037	(0.011)	0.046	(0.013)	0.024	(0.008)	-0.022**	(-0.005)**	-2.269	(-2.346)
<i>ΔAccounts Payable/Assets</i>	0.018	(0.007)	0.019	(0.009)	0.017	(0.004)	-0.003	(-0.004)	-0.406	(-1.059)
<i>ΔAccrued Expense/Assets</i>	0.026	(0.013)	0.027	(0.013)	0.023	(0.012)	-0.004	(-0.001)	-0.675	(-0.968)
<i>PPE</i>	0.328	(0.281)	0.326	(0.277)	0.332	(0.287)	0.006	(0.010)	0.340	(0.280)
<i>DCA/Assets</i>	-0.001	(-0.002)	0.003	(0.000)	-0.007	(-0.006)	-0.010	(-0.006)	-1.284	(-1.039)
<i>LAG_DCA/Assets</i>	0.005	(0.002)	0.004	(0.001)	0.007	(0.002)	0.003	(0.001)	0.483	(0.266)
<i>Sample Size</i>	650		387		263					
Model Specification	$CA_{i,t}/ASSET_{i,t-1} = \alpha_1/ASSET_{i,t-1} + \alpha_2(\Delta SALES_{i,t} - \Delta AR_{i,t})/ASSET_{i,t-1} + \alpha_3 PPE_{i,t}/ASSET_{i,t-1} + \varepsilon_{i,t}$									
	where									
	$CA_{i,t}$ = current accruals for firm $i$ in year $t$ , defined as the change in accounts receivable plus inventory minus the change in accounts payable plus accrued expense									
	$ASSET_{i,t-1}$ = the total asset for firm $i$ in year $t-1$ ;									
	$\Delta SALES_{i,t}$ = the change in total sales for firm $i$ from year $t-1$ to year $t$ ;									
	$\Delta AR_{i,t}$ = the change in accounts receivable for firm $i$ in year $t$ ;									
	$PPE_{i,t}$ = the property, plant and equipment for firm $i$ in year $t$ ;									

\*\* represents significance at the 5% level

**Table 3 Descriptive Statistics on Auditor Quality Metrics**

**Panel A: Mean (median) values of auditor quality metrics for tax-increase and tax-decrease firms**

	All	Tax-Increase firms	Tax-Decrease firms	Difference	t-value	z-stat.
<i>INDUSTRY_SHARE</i>	0.039 (0.027)	0.041 (0.029)	0.037 (0.026)	-0.004 (-0.003)	-1.178	(-0.635)
<i>BIG4</i>	0.034 (0.000)	0.047 (0.000)	0.015 (0.000)	-0.031** (0.000)**	-2.171	(-2.164)
<i>CLIENTS_SHARE</i>	0.024 (0.022)	0.025 (0.023)	0.024 (0.022)	-0.001 (-0.002)	-0.566	(-0.833)
<i>FEES</i>	16.418 (16.372)	16.481 (16.372)	16.326 (16.196)	-0.155** (-0.176)	-2.057	(-1.452)
<i>MAO_PERCENTAGE</i>	0.110 (0.102)	0.113 (0.102)	0.105 (0.098)	-0.008 (-0.004)	-1.497	(-1.267)
<i>Sample Size</i>	650	387	263			

Variables Definitions

*INDUSTRY\_SHARE* = the ratio of audit fees earned in an industry to the total audit fees earned by all auditors in the same industry;

*BIG4* = indicator variable that equals 1 if the listed firm is audited by one of the Big 4 audit firms and 0 otherwise;

*CLIENTS\_SHARE* = the number of the audit firm's clients over the total number of listed firms in the market;

*FEES* = the natural log of the auditor's total audit fees earned in the market;

*MAO\_PERCENTAGE* = the previous two-year average ratio of the number of modified audit opinion (MAO) reports to total reports issued.

\*\* represents significance at the 5% level

Table 3 (Continued)

Panel B: Construction of *AUDIT\_QUALITY*

	All	Tax-Increase firms	Tax-Decrease firms	Difference	t-value	z-stat.
<i>AUDIT_QUALITY</i>	1.508 (2.000)	1.594 (2.000)	1.380 (1.000)	-0.214** (-1.000)**	-2.572	(-2.444)
<i>QUALITY_HIGH</i>	0.189 (0.000)	0.220 (0.000)	0.144 (0.000)	-0.075** (0.000)**	-2.408	(-2.399)
<i>Sample Size</i>	650	387	263			

Construction of *AUDIT\_QUALITY*

$$AUDIT\_QUALITY = AUDIT\_SPECIAL + BIG4 + AUDIT\_CLIENTELES + AUDIT\_FEES + AUDIT\_OPINION$$

where

$$AUDIT\_SPECIAL = 1 \text{ if } INDUSTRY\_SHARE \text{ is ranked first in the industry and 0 otherwise;}$$

$$BIG4 = 1 \text{ if listed firm is audited by one of the Big 4 audit firms and 0 otherwise (the same as above);}$$

$$AUDIT\_CLIENTELES = 1 \text{ if } CLIENTS\_SHARE \text{ is above the median value of the sample and 0 otherwise;}$$

$$AUDIT\_FEES = 1 \text{ if } FEES \text{ is above the median value of the sample and 0 otherwise;}$$

$$AUDIT\_OPINION = 1 \text{ if } MAO\_PERCENTAGE \text{ is above the median value of the sample and 0 otherwise;}$$

therefore

$$QUALITY\_HIGH = 1 \text{ if } AUDIT\_QUALITY \text{ is above the median value of the sample and 0 otherwise.}$$

\*\* represents significance at the 5% level

**Table 4 Factor Analysis for Tax Enforcement**

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**Panel A: Descriptive statistics for variables used in factor analysis**

Variable	Mean	Min	Q1	Median	Q3	Max	SD	N
<i>Ratio1</i>	0.038	0.002	0.013	0.025	0.048	0.228	0.039	300
<i>Ratio2</i>	0.016	0.001	0.006	0.012	0.021	0.077	0.015	300
<i>Ratio3</i>	0.029	0.009	0.018	0.027	0.035	0.072	0.014	300
<i>Ratio4</i>	0.004	0.001	0.002	0.003	0.005	0.014	0.002	300
<i>Ratio5</i>	0.000	0.000	0.000	0.000	0.000	0.001	0.000	300
<i>Ratio6</i>	0.894	0.742	0.860	0.905	0.937	0.984	0.058	300
<i>Ratio7</i>	0.010	0.000	0.003	0.008	0.014	0.031	0.008	300
<i>Ratio8</i>	0.046	0.007	0.026	0.038	0.060	0.153	0.030	300
<i>Ratio9</i>	0.004	0.000	0.001	0.003	0.005	0.034	0.006	300
<i>Ratio10</i>	0.018	0.002	0.009	0.015	0.024	0.057	0.012	300
<i>Ratio11</i>	0.002	0.000	0.001	0.002	0.003	0.011	0.002	300
<i>Ratio12</i>	0.943	0.047	0.322	0.649	1.214	4.370	0.930	300

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**Variable definitions**

- Ratio 1* = the number of tax audits conducted over the number of tax returns filed.
- Ratio 2* = the number of cases prosecuted over the number of tax returns filed.
- Ratio 3* = the number of permanent employees over the number of taxpayers.
- Ratio 4* = the number of tax inspectors over the number of taxpayers.
- Ratio 5* = the number of audit departments over the number of taxpayers.
- Ratio 6* = the percentage of inspectors with a bachelor's degree or higher.
- Ratio 7* = the percentage of inspectors with qualification as certified public accountants.
- Ratio 8* = the percentage of inspectors with qualifications as certified tax agents.
- Ratio 9* = the percentage of inspectors with qualifications as lawyers.
- Ratio 10* = the dollar amount of tax deficiencies settled over the amount of regional tax revenue.
- Ratio 11* = the dollar amount of surcharges, penalties, and fines over the amount of regional tax revenue.
- Ratio 12* = the dollar amount of surcharges, penalties, and fines over the number tax audits conducted.
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Table 4 (Continued)

<b>Panel B: Factor loading matrix for tax enforcement</b>										
<b>Variable</b>	<b>Factor Loading Matrix</b>			<b>Rotated Factor Loadings</b>			<b>Uniqueness</b>	<b>Factor Scoring Coefficients</b>		
	<b>Factor 1</b>	<b>Factor 2</b>	<b>Factor 3</b>	<b>Factor 1</b>	<b>Factor 2</b>	<b>Factor 3</b>		<b>Factor 1</b>	<b>Factor 2</b>	<b>Factor 3</b>
<i>Ratio 1</i>	0.665	-0.111	0.197	0.697	0.048	-0.068	0.507	0.201	0.063	-0.001
<i>Ratio 2</i>	0.749	-0.154	0.304	0.810	0.132	-0.047	0.324	0.240	0.111	0.017
<i>Ratio 3</i>	0.744	0.191	0.119	0.738	-0.224	0.100	0.396	0.204	-0.060	0.072
<i>Ratio 4</i>	0.901	0.056	0.071	0.879	-0.210	-0.059	0.179	0.239	-0.049	0.004
<i>Ratio 5</i>	0.777	0.058	0.020	0.746	-0.217	-0.069	0.392	0.199	-0.061	-0.007
<i>Ratio 6</i>	-0.505	0.043	-0.267	-0.563	-0.094	-0.054	0.672	-0.171	-0.081	-0.053
<i>Ratio 7</i>	-0.279	-0.466	0.695	-0.043	0.872	0.127	0.221	0.046	0.418	0.085
<i>Ratio 8</i>	-0.348	-0.610	0.480	-0.166	0.827	-0.106	0.277	-0.003	0.382	-0.032
<i>Ratio 9</i>	-0.192	-0.527	0.454	-0.029	0.716	-0.085	0.480	0.031	0.338	-0.020
<i>Ratio 10</i>	-0.182	0.749	0.612	-0.025	0.000	0.984	0.031	0.035	0.028	0.466
<i>Ratio 11</i>	-0.182	0.749	0.612	-0.024	0.000	0.984	0.031	0.035	0.028	0.466
<i>Ratio 12</i>	-0.480	0.412	-0.022	-0.482	-0.163	0.377	0.599	-0.133	-0.096	0.153
Eigenvalue	3.761	2.241	1.890							
Proportion	0.313	0.187	0.158							
Cumulative	0.313	0.500	0.658							

**Table 4 (Continued)**

**Panel C: Mean (median) values of tax enforcement metrics for tax-increase and tax-decrease firms**

	<b>All</b>	<b>Tax-Increase firms</b>	<b>Tax-Decrease firms</b>	<b>Difference</b>	<b>t-value</b>	<b>z-stat.</b>
<i>PROBABILITY</i>	0.434 (0.000)	0.426 (0.000)	0.445 (0.000)	0.019 (0.000 )	0.467 (0.467)	
<i>EXPERTISE</i>	0.605 (1.000)	0.579 (1.000)	0.643 (1.000)	0.064 (0.000 )	1.633 (1.631)	
<i>OUTCOME</i>	0.492 (0.000)	0.465 (0.000)	0.532 (1.000)	0.067* (1.000)*	1.683 (1.681)	
<i>ENFORCEMENT</i>	0.568 (1.000)	0.545 (1.000)	0.601 (1.000)	0.056 (0.000)	1.403 (1.402)	
<i>Sample Size</i>	650	387	263			

Variables Definitions

*PROBABILITY* = the probability of taxpayers being audited and prosecuted by tax authorities for the region (*Factor1*).

*EXPERTISE* = the sufficiency and expertise of tax inspectors and audit agents for the region (*Factor2*).

*OUTCOME* = the audit outcomes or consequences (including tax deficiencies settled and overdue payment surcharges, penalties, and fines) for the region (*Factor3*).

*ENFORCEMENT* = tax enforcement, an indicator variable that equals 1 if the average ranking of the sum of the ranks for *PROBABILITY*, *EXPERTISE*, and *OUTCOME* is above the country level median and 0 otherwise.

\*represents significance at the 10% level.



**Table 5 Mean (Median) Values of *ETR5* and Control Variables for Tax-Increase and Tax-Decrease firms**

	All		Tax-Increase firms		Tax-Decrease firms		Difference		t-value	z-stat.
<i>ETR5</i>	0.229	(0.204)	0.114	(0.137)	0.398	(0.333)	0.284***	(0.196)***	26.354	(21.609)
<i>LAG_INST</i>	0.139	(0.056)	0.137	(0.058)	0.142	(0.055)	0.004	(-0.003)	0.292	(-0.322)
<i>SOE</i>	0.697	(1.000)	0.718	(1.000)	0.665	(1.000)	-0.053	(0.000)	-1.442	(-1.441)
<i>ROA</i>	0.041	(0.038)	0.043	(0.042)	0.037	(0.034)	-0.006	(-0.008)**	-1.377	(-2.100)
<i>SIZE</i>	21.691	(21.632)	21.709	(21.626)	21.664	(21.637)	-0.046	(0.011)	-0.594	(0.021)
<i>LEVERAGE</i>	0.515	(0.532)	0.509	(0.519)	0.525	(0.559)	0.016	(0.040)	1.192	(1.406)
<i>TOBIN'S Q</i>	2.101	(1.844)	2.085	(1.819)	2.123	(1.865)	0.038	(0.046)	0.553	(0.630)
<i>LOSS</i>	0.080	(0.000)	0.072	(0.000)	0.091	(0.000)	0.019	(0.000)	0.871	(0.871)
<i>NCF</i>	0.089	(0.078)	0.077	(0.074)	0.106	(0.086)	0.029	(0.012)	1.380	(1.446)
<i>CAPITAL_INT</i>	0.280	(0.247)	0.274	(0.240)	0.288	(0.262)	0.014	(0.023)	0.979	(0.966)
<i>INVENTORY_INT</i>	0.174	(0.140)	0.169	(0.143)	0.181	(0.139)	0.012	(-0.004)	1.038	(0.276)
<i>INTANGIBLE</i>	0.043	(0.027)	0.045	(0.030)	0.040	(0.024)	-0.005	(-0.006)**	-1.303	(-2.178)
<i>N</i>	650		387		263					

\*\* , \*\*\* represents significance at the 5% and 1% levels, respectively.

Refer to appendix A for variable definitions.

**Table 6 Results of regressing *DCA* on *QUALITY\_HIGH* and *ENFORCEMENT***

	All	Tax-Increase firms	Tax-Decrease firms
<i>QUALITY_HIGH</i>	-0.015 (-1.65)*	-0.020 (-2.03)**	-0.008 (-0.42)
<i>ENFORCEMENT</i>	0.006 (0.91)	-0.006 (-0.75)	0.026 (2.08)**
<i>LAG_INST</i>	0.018 (0.76)	0.029 (0.98)	0.025 (0.59)
<i>SOE</i>	-0.006 (-0.75)	0.006 (0.56)	-0.025 (-2.01)**
<i>ROA</i>	0.180 (1.56)	0.135 (1.11)	0.228 (0.89)
<i>SIZE</i>	0.007 (1.58)	0.008 (1.67)*	0.001 (0.17)
<i>LEVERAGE</i>	-0.051 (-2.26)**	-0.045 (-1.62)	-0.035 (-0.75)
<i>TOBIN'S Q</i>	-0.010 (-1.86)*	-0.004 (-0.62)	-0.020 (-1.89)*
<i>LOSS</i>	-0.006 (-0.34)	-0.017 (-0.66)	-0.002 (-0.06)
<i>NCF</i>	-0.112 (-4.62)***	-0.095 (-2.88)***	-0.153 (-3.62)***
<i>CAPITAL_INT</i>	0.033 (1.47)	0.007 (0.25)	0.057 (1.41)
<i>INVENTORY</i>	0.234 (4.97)***	0.231 (3.52)***	0.239 (3.43)***
<i>INTANGIBLE</i>	-0.063 (-0.98)	-0.056 (-0.67)	-0.166 (-1.47)
<i>LAG_DA</i>	-0.108 (-1.61)	-0.126 (-1.34)	-0.100 (-1.13)
<i>INTERCEPT</i>	-0.185 (-1.77)*	-0.213 (-1.79)*	-0.169 (-0.88)
<i>INDUSTRY</i>	YES	YES	YES
<i>N</i>	650	387	263
<i>Adj_R2</i>	0.216	0.189	0.228
<i>F</i>	4.681	2.924	2.637
<i>p</i>	0.00	0.00	0.00

\*, \*\*, \*\*\* represents significance at the 10%, 5%, and 1% levels, respectively. The standard errors adjusted for heteroscedasticity are reported in parentheses.

**Table 7 Sensitivity Tests**

<b>Panel A: Control for lagged ROA in discretionary current accruals estimation</b>			
	<b>All</b>	<b>Tax-Increase firms</b>	<b>Tax-Decrease firms</b>
<i>QUALITY_HIGH</i>	-0.015 (-1.69)*	-0.020 (-2.06)**	-0.008 (-0.40)
<i>ENFORCEMENT</i>	0.006 (0.87)	-0.007 (-0.82)	0.027 (2.14)**
<i>CONTROL VARIABLES</i>	Included	Included	Included
<i>N</i>	650	387	263
<i>Adj_R2</i>	0.210	0.176	0.230
<i>F</i>	4.565	2.736	2.797
<i>P</i>	0.00	0.00	0.00

  

<b>Panel B: Use of 2007-year ex-post realized tax enforcement</b>			
	<b>All</b>	<b>Tax-Increase firms</b>	<b>Tax-Decrease firms</b>
<i>QUALITY_HIGH</i>	-0.015 (-1.66)*	-0.020 (-2.05)**	-0.008 (-0.41)
<i>ENFORCEMENT</i>	0.002 (0.23)	-0.016 (-1.84)*	0.025 (2.04)**
<i>CONTROL VARIABLES</i>	Included	Included	Included
<i>N</i>	650	387	263
<i>Adj_R2</i>	0.215	0.196	0.227
<i>F</i>	4.662	3.098	2.611
<i>p</i>	0.00	0.00	0.00

  

<b>Panel C: Controlling for NERI index</b>			
	<b>All</b>	<b>Tax-Increase firms</b>	<b>Tax-Decrease firms</b>
<i>QUALITY HIGH</i>	-0.015 (-1.65)*	-0.020 (-2.08)**	-0.010 (-0.48)
<i>ENFORCEMENT</i>	0.007 (0.93)	-0.008 (-0.92)	0.028 (2.27)**
<i>INDEX</i>	-0.001 (-0.24)	0.002 (0.73)	-0.003 (-0.76)
<i>CONTROL VARIABLES</i>	Included	Included	Included
<i>N</i>	650	387	263
<i>Adj_R2</i>	0.214	0.188	0.227
<i>F</i>	4.562	2.957	2.598
<i>p</i>	0.00	0.00	0.00

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**Panel D: Use of applicable tax rates for sample partition**

	<u>All</u>	<u>Tax-Increase firms</u>	<u>Tax-Decrease firms</u>
<i>QUALITY_HIGH</i>	-0.016 (-1.78)*	-0.023 (-1.67)*	-0.012 (-0.93)
<i>ENFORCEMENT</i>	0.006 (0.89)	-0.012 (-1.10)	0.020 (2.17)**
<i>CONTROL VARIABLES</i>	Included	Included	Included
<i>N</i>	644	302	342
<i>Adj_R2</i>	0.200	0.212	0.206
<i>F</i>	4.374	4.835	3.497
<i>P</i>	0.00	0.00	0.00

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**Panel E: Use of 5-year long-term ETR and 2008-year's ETR for sample partition**

	<u>All</u>	<u>Tax-Increase firms</u>	<u>Tax-Decrease firms</u>
<i>QUALITY_HIGH</i>	-0.015 (-1.70)*	-0.029 (-1.82)*	-0.012 (-1.13)
<i>ENFORCEMENT</i>	0.007 (0.94)	-0.022 (-1.63)	0.016 (1.92)*
<i>CONTROL VARIABLES</i>	Included	Included	Included
<i>N</i>	648	209	439
<i>Adj_R2</i>	0.216	0.156	0.253
<i>F</i>	6.933	2.279	5.940
<i>p</i>	0.00	0.00	0.00

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**Panel F: Omission of firms in Agricultural and Information Technology industries**

	<u>All</u>	<u>Tax-Increase firms</u>	<u>Tax-Decrease firms</u>
<i>QUALITY_HIGH</i>	-0.012 (-1.31)	-0.017 (-1.67)*	-0.007 (-0.38)
<i>ENFORCEMENT</i>	0.008 (1.12)	-0.005 (-0.61)	0.026 (2.08)**
<i>CONTROL VARIABLES</i>	Included	Included	Included
<i>N</i>	608	350	258
<i>Adj_R2</i>	0.215	0.182	0.232
<i>F</i>	4.483	2.687	2.672
<i>P</i>	0.00	0.00	0.00

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**Panel G: Drop firms in western region**

	<b>All</b>	<b>Tax-Increase firms</b>	<b>Tax-Decrease firms</b>
<i>QUALITY_HIGH</i>	-0.013 (-1.43)	-0.021 (-2.03)**	-0.007 (-0.31)
<i>ENFORCEMENT</i>	0.009 (1.15)	-0.011 (-1.22)	0.037 (2.85)***
<i>CONTROL VARIABLES</i>	Included	Included	Included
<i>N</i>	556	314	242
<i>Adj_R2</i>	0.213	0.192	0.244
<i>F</i>	4.139	2.609	2.628
<i>P</i>	0.00	0.00	0.00

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\*, \*\*, \*\*\* represents significance at the 10%, 5%, and 1% levels, respectively. The standard errors adjusted for heteroscedasticity are reported in parentheses.

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