

# **Parent-Subsidiary Common Managers and Corporate Tax Planning:**

## **Evidence from China**

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### **ABSTRACT**

An interesting, but neglected phenomenon in the corporate governance practice of company's subsidiaries is that top managers of the parent company are often appointed as directors or managers of the subsidiaries. These parent-subsidiary "common managers" can obtain first-hand internal knowledge about the firm's operations and thus are better able to identify tax avoidance opportunities and to implement tax-reducing strategies. Using a unique hand-collected data of common managers for Chinese listed firms, we find that when a firm's top managers (Chairmen, CEOs, and CFOs) take a position in the subsidiary, this firm has a lower effective income tax rate than other firms. The results are stronger for firms with more intangible assets, firms with related-party transactions in the past year, and firms with more diversified business segments. Moreover, the tax-reducing effect of common managers is more pronounced for those common managers who are also the CFOs of the parent company, for those who are the operating manager of the subsidiary company, and for those whose related subsidiaries play a more important role in the whole company's performance. Our main conclusion holds for the effective tax rate based on cash-paid taxes, for both subsamples of SOE and non-SOE firms, for both subsamples of firms with or without multiple nominal tax rates. Furthermore, such an effect is robust to the change analysis and the 2SLS estimation.

**VERY PRELIMINARY—COMMENTS AND SUGGESTIONS WELCOME!**

## **1. Introduction**

Companies create subsidiaries to serve important business purposes, such as product market expansion, corporate restructuring, and efficient tax planning (e.g., PwC 2013). The academic literature, however, has paid little attention to the governance of subsidiaries. Specifically, in some firms, the top managers (Chairman, CEO and CFO) are concurrently appointed as board members (including chairmen, vice chairmen or executive directors of the board) or senior managers (including supervisors, CEOs, legal representative, or other senior executives) of the subsidiaries or joint-ventures. We call these firms as firms with parent-subsidiary “common managers”. In this paper, we examine one particular arrangement of the governance of subsidiaries, the appointment of common managers, in the context of tax planning.

In the recent accounting literature, there is an explosion of empirical studies on the cross-sectional determinants of tax avoidance. Motivated from an agency theory perspective, these studies tend to focus on parent-level governance mechanisms, such as ownership structures (e.g., Chen, Chen, Cheng and Shevlin 2010), executive incentives (e.g., Rego and Wilson 2012), and board characteristics (e.g., Armstrong et al. 2011), or inter-firm relationships, such as supplier-customer relationships (e.g., Cen et al. 2016) and relationships established via common directors (e.g., Brown and Drake 2014). Although tax planning is among the key motives of setting up subsidiaries, the question of how the governance of subsidiaries affects the efficiency of tax planning is unexplored in the tax literature. The lack of research on the role of subsidiary governance limits our understanding of corporate tax planning given that most tax planning strategies rely on the cooperation of subsidiaries (Dyreng, Lindsey and Thornock 2013). This study fills this void.

In general, the top management of a company needs knowledge about the firm to make decisions regarding tax planning strategies. The relevant knowledge spreads among various divisions of a company and the management's knowledge level varies across firms, which can lead to cross-sectional variations in the efficiency of tax management (Li, Minnis, Nagar and Rajan 2014; Gallemore and Labro 2015). We argue that the parent-subsidary common managers can obtain important first-hand internal knowledge about the firm's operation and such internal knowledge facilitates the identification of tax planning opportunities and the implementation of tax avoidance strategies. For example, to identify the potential transfer pricing schemes across different business units, managers need to have knowledge about the nature of the operations of these units and the different local tax regimes for these units. Decision theory suggests that the quality and quantity of information on which decisions are based affects the quality of decisions made (Gallemore and Labro 2015). As such, top management of firms appointing common managers is expected to be more capable of identifying tax planning opportunities than that of other firms. Moreover, many tax planning arrangements, such as those involving related party transactions, require the coordination of different business units within a business group. With a better understanding of the subsidiaries' business, common managers are expected to be better able to coordinate tax planning transactions across different subsidiaries of a company. In sum, as our first hypothesis, we predict that firms with common managers have an advantage in identifying tax avoidance opportunities and are more effective in implementing tax-reducing strategies, and hence these firms are expected to have a lower effective income tax rate than other firms.

To test our prediction, we use a hand-collected dataset of Chinese listed firms for which we can obtain the information about parent-subsidary common managers. Specifically, starting from the year of 2005, Chinese listed companies are required to disclose top managers' positions

in all business entities other than parent company, including those within or outside a business group. As far as we are aware, mandatory disclosure of top management's positions in the subsidiary firms of a business group does not exist in the U.S. or other major economies around the world. We collect the relevant information of common managers for Chinese listed firms during 2009 to 2013. Our sample period starts from 2009 so as to exclude the period before China's adoption of International Financial Reporting Standards (IFRS) in 2007 and the sample year of 2008 when the global financial crisis occurred.

Besides the benefit of the uniqueness of data, the use of Chinese list firms helps increase the power of our analyses. The Chinese Central and local governments offer a series of corporate income tax incentives, which create tax planning opportunities for listed firms with non-foreign-country subsidiaries (Shevlin et al. 2012). Moreover, the enforcement of tax regulations in China generally lies in the hands of local governments, which also creates tax planning opportunities in exploring different enforcement levels across firms with different business structures. Note that in China, each consolidated subsidiary must calculate its current taxes on an independent legal entity basis, and thus, the profits of one subsidiary cannot be used to offset the losses of another subsidiary. As such, Chinese firms have strong incentives to engage in intra-group profit-shifting.

Consistent with our prediction, we find that firms with common managers have significantly lower effective tax rates than other firms. These findings are robust to controlling for various determinants of tax avoidance, as well as industry and year fixed effects. Our main conclusion remains unchanged for the alternative measure of effective tax rate based on cash-paid taxes. In the additional analyses, our main conclusion continues to hold for the sample partition of state-owned enterprises (SOEs) and non-SOEs, and for the sample partition of firms with or

without multiple nominal tax rates. The main conclusions remain unchanged for the change analyses and the 2SLS estimation method.

To provide more concrete evidence on the mechanisms of how common managers facilitate tax planning, we examine whether the negative effect of common managers on effect tax rates is more pronounced for firms whose intra-group transactions are less likely to be challenged by the tax authorities. Consistent with our prediction, the negative effect of common managers is more pronounced for firms with more intangible assets, for firms with intra-group related party transactions in the previous year, and for firms with more diversified business segments. These findings are consistent with the notion that it is more difficult for tax authorities to challenge the authenticity and the fairness of the intra-company transactions when the firms have more subjective transfer-pricing scheme, have historical records of related-party transactions or have a more complex business structure.

The tax-avoiding effect of common managers is expected to vary with these managers' expertise and with the extent of acquiring internal knowledge through their subsidiary positions. Consistent with the predictions, we find that the effect of common managers is more pronounced when the common managers are the CFOs of the parent companies, when they are the operating managers rather than the board director of the subsidiary company, and when these common managers' subsidiaries play a more important role in the whole company's performance (as proxied by the total net incomes of these subsidiaries scaled by parent company's sales). These findings lend further credence to our main conclusions.

Our study contributes to the literature on corporate tax avoidance. Recent research generally focuses on the effect of ownership structure and traditional governance mechanisms on tax avoidance. Our study examines the effect a new aspect of a firm's overall governance structure,

parent-subsiary common managers, on tax avoidance. At the theoretical level, our research is closely related to Gallemore and Labro (2015), who argue that high-quality internal information environment facilitates the identification and implementation of tax planning strategies. They find that better internal information quality, as proxied by more effective internal controls and more accurate management forecasts, is associated with lower levels of effective tax rates. Our study is different from theirs by examining a more direct proxy of managerial knowledge of a firm's subsidiaries.

Our research also contributes to the corporate governance literature by examining how a hitherto unexplored aspect of governance setting, namely, top management holding positions in subsidiaries, affects corporate decision outcomes. Some prior studies have examined how the relationship between division managers and CEOs affects the internal capital allocations and the overall firm value (e.g., Duchin and Sosyura 2013). As an extension of this line of research, our results suggest that CEOs' working knowledge of and relations with subsidiaries are also an important factor that influences corporate policies and operating outcomes.

Our study also adds to the emerging accounting literature in understanding the financial reporting, corporate taxation, and corporate governance of Chinese listed companies. With the Chinese economy becoming the second largest and its local stock market the third largest in the world, it is of particular interest to investors around the world to understand the capital market of this country. Our paper adds to this understanding by examining one determinant of tax planning activities of Chinese listed firms.

The remainder of this paper proceeds as follows. Section 2 reviews related literature and presents our empirical predictions. Section 3 describes the data and variable measurements. Section 4 presents the main empirical analyses. Section 5 discusses additional tests and robustness

checks. Section 6 presents the 2SLS analysis including the determinants of appointing common managers. Section 7 concludes.

## **2. Literature review and hypothesis development**

### *2.1 Prior literature on tax avoidance*

Dyreng, Hanlon, and Maydew (2008) show that one-fourth of their sample firms are able to maintain the long-run cash effective tax rates below 20%, whereas another one-fourth pay more than 35% (i.e., the statutory tax rate) of their pre-tax income to the government. Two survey works, by Shackelford and Shevlin (2001) and Hanlon and Heitzman (2010), respectively, ask why some firms avoid more taxes than others and call for more research along this line. Rego (2003) echoes this call and shows that larger, more profitable, multinational companies avoid more tax than other firms, supporting the existence of economics of scale for tax planning. In the recent studies, both Lisowsky (2010) and Wilson (2009) identify several firm-level characteristics that are common for a sample of tax shelter participants. Specifically, they find that firms with larger book-tax differences, more foreign operations, more aggressive financial reporting, and greater financial complexity are more likely to enter into tax shelters.

There is an explosion of research investigating the role of executive compensation, corporate governance, and ownership structures in tax planning (e.g., Philips 2003; Chen et al. 2010; McGuire, Wang and Wilson 2014; Armstrong, Blouin and Larcker 2012; Chyz, Leung, Li and Rui 2012; Rego and Wilson 2012; Badertscher, Katz and Rego 2013). This stream of research incorporates the agency theory into the development of theoretical predictions. Phillips (2003) finds that compensating managers on after-tax income rather than before-tax income, reduces managerial shirking and leads to a higher level of tax avoidance. Armstrong, Blouin and Larcker

(2012) show that the incentive compensation for the tax director is negatively associated with the GAAP-based effective tax rates, but not cash-based effective tax rates. Moreover, Desai and Dharmapala (2006) argue that managers can engage in tax avoidance for the sake of rent extraction. They further show that when paying more equity incentives to managers, firms actually have a lower extent of tax avoidance behaviors because the interests of managers and shareholders are better aligned with higher percentage of equity-based compensation, and thus followed by a decreased level of managers' rent extraction through tax avoidance. Consistent with the notion that tax avoidance facilitates managers' rent extraction, Chyz et al. (2012) show that employee labor unions can reduce the level of tax avoidance by constraining managers' ability to extract rents through risky tax strategies. Furthermore, Rego and Wilson (2012) argue that risk-averse managers need to be sufficiently motivated to take aggressive tax strategies which involve considerable risk and uncertainty. Consistent with their argument, they find that Top executives' equity-risk incentives (i.e., Vega) are positively correlated with several measures of tax aggressiveness.

Firms' ownership structures also have impacts on the extent of tax avoidance. Chen et al. (2010) find that family firms are less tax aggressive than non-family firms. They interpret the findings as the evidence that family owners are willing to forgo tax benefits to avoid the non-tax cost of a potential price discount arising from minority investors' concern about family owners' rent-seeking. In addition, McGuire, Wang and Wilson (2014) examine the impact of the dual-class share structure on tax avoidance. They find that the wedge between voting rights and cash flow rights is negatively correlated with the extent of tax avoidance, implying that managers are insulated from the takeover by the wedge and thus avoid the costly efforts associated with tax planning. Lastly, Badertscher, Katz and Rego (2013) find that the separation of ownership and



control rights facilitates the risk-sharing, which in turn motivates the managers to undertake risky tax strategies.

Besides firm-level characteristics, the heterogeneity in individual managers' ability or preferences also contributes to the variation in firms' tax avoidance behaviors. This individual-level perspective sounds similar to, but is fundamentally different from the perspective of agency theory. Dyreng, Hanlon and Maydew (2010) make an initial move to examine whether individual executives have their own person-specific impacts on corporate tax avoidance. The empirical results indicate that individual executives play a significant role in determining the level of corporate tax avoidance. Law and Mills (2015) find that CEOs with military experience are more aggressive in tax planning. Besides managers' characteristics, prior studies have shown that the tax-specific industry expertise of the external audit firm influences its clients' level of tax avoidance (McGuire, Omer and Wang 2012).

Shevlin (2016) provides a more complete and updated summary of the literature on the determinants of tax avoidance. He concludes that the literature is somewhat saturated. We notice, however, that the impact of subsidiary governance on the effectiveness of tax planning is hitherto unexplored although most tax planning strategies rely on the cooperation of subsidiaries (Dyreng et al. 2013). Moreover, most of the studies in the tax avoidance literature focus on U.S. firms, and we know relatively less about the tax avoidance behavior of firms in major emerging markets, such as China.

## *2.2 Primary hypothesis*

Tax avoidance strategies rely on managers' good knowledge about the company. Without good information, tax-reducing opportunities might be overlooked, coordination of tax planning across the different parts of the firm might be difficult, tax risk might be high and the firm's

documentation might not be acceptable to the tax authorities (Gallemore and Labro 2015). Given that the implementation of many tax-avoidance strategies involve with firm's internal knowledge, such as transfer pricing among a firm's subsidiaries or the efficient tax filing for tax credits, some anecdotal evidence and prior studies (McKinnon 2012; Gallemore and Labro 2015) argue and show that firms with higher-quality internal information environment are better able to identify and implement tax-reducing strategies.

Similar to higher-quality internal information environment, the appointment of a firm's top managers as its subsidiary managers, either as board directors or managers of this firm's subsidiaries, can facilitate these top managers' acquisition of the first-hand knowledge about the operation of these subsidiaries. Such internal knowledge implies that these parent-subsidiary common managers' tax planning decisions are based on high-quality information which allows a more effective tax-reducing strategy. Specifically, the successful identification of tax planning opportunities often requires the knowledge of operations of the different parts of a business group. For example, to achieve the goal of tax avoidance through the transfer pricing schemes across business units at different locations (i.e., subject to different local tax regimes), managers need to know not only the marginal tax rates faced by each business unit, but also the current operating status and the predicted future performance of these units.

Moreover, top managers' internal knowledge is also helpful for them to identify tax-avoidance opportunities by making a good use of the tax policies at different locations. For example, different tax regimes might allow different depreciation methods for PP&E for tax purposes. As another example, local governments have different tax policies for R&D investment tax credit. In China, each consolidated subsidiary must calculate its current taxes on an independent legal entity basis, and thus, the profits of one subsidiary cannot be used to offset the

losses of another subsidiary for the tax-filing purpose of the whole company. As such, top managers' internal knowledge about the tax policies faced by the subsidiaries could be important for the company to allocation internal capitals, including PP&E and R&D investments, across business units, as one critical part of tax-avoidance strategy.

Furthermore, the implementation of tax-reduced strategies requires the coordination of the different business units within a corporate group. Those top managers with subsidiary positions are expected to have closer working relationships with subsidiary managers, and thus, are better able to coordinate the tax planning strategies across different subsidiaries. In sum, our first hypothesis is thus stated as follows:

*H1: Ceteris paribus, firms with parent-subsidiary common managers have lower effective tax rates than other firms.*

### *2.3 Cross-sectional variations*

The tax planning strategy is subject to the scrutiny of tax authorities. Some factors affects the enforcement of the tax authority on the intra-company transactions. The subjectivity of the transfer pricing is an important factor for the firm's argument for the feasibility of the intra-company transactions. With higher subjectivity of the transfer pricing scheme, it becomes more difficult for the tax authority to challenge the intra-company transactions. Consistent with this notion, Schumpeter (2012) reports the U.S. anecdotal evidence that corporate profit-shifting among subsidiaries is particularly popular among technology and drug companies because they can have many intra-company royalty transactions related to their intellectual property, the value of which is especially subjective. As a result, we expect that the parent-subsidiary common managers have more flexibility in implementing the tax-reducing strategies based on their internal knowledge when the company has more intangible assets.

Besides the subjectivity of transfer pricing scheme, a firm's history of the related party transactions in previous years is another useful factor for the firm to deal with the tax authorities' scrutiny over the tax-avoidance plans through related party transactions. With the previous records of related party transactions, top managers can conduct the tax-avoidance transactions and claim them as the arm's-length related party transactions. As such, we expect that the parent-subsidiary common managers have more flexibility in conducting tax-reducing strategies based on their internal knowledge for firms with related party transactions in previous years. It implies a more pronounced effect of parent-subsidiary common managers on the effective tax rates for these firms.

Lastly, the tax-authority's scrutiny is affected by the nature of the company's business. As pointed out by Wentland (2016), tax authorities often assess a firm's taxes by comparing this firm with industry peers. As a result, it may be difficult for tax examiners to evaluate the appropriate tax treatment of a firm with a more complex structure of corporate incomes. Moreover, the diversified business structure provides more tax-planning opportunities besides those from lower extent of tax-authority's scrutiny. Specifically, diversifying into various industry operations has been linked to tax benefits in prior literature (Lewellen 1971; Smith and Stulz 1985; Leland 1998; Graham and Smith 1999; Wentland 2016). One source of the tax benefits comes from the profit-shifting transactions among the subsidiaries whose revenues are less covariant with each other. Therefore, we expect that firms with diversified revenues have more tax planning opportunities and that the effect of parent-subsidiary common managers on firm's tax planning is more pronounced for firms with more diversified business revenues.

The above discussions lead to the following hypotheses (in alternative form):

*H2a: Ceteris paribus, the negative relation between the effective tax rates and the existence of common managers, as hypothesized in H1, is more pronounced for firms with a higher ratio of intangible assets to total assets.*

*H2b: Ceteris paribus, the negative relation between the effective tax rates and the existence of common managers, as hypothesized in H1, is more pronounced for firms with related-party transactions involved with subsidiaries in the previous year.*

*H2c: Ceteris paribus, the negative relation between the effective tax rates and the existence of common managers, as hypothesized in H1, is more pronounced for firms with more diversified business.*

The common managers' characteristics, including their job titles and positions, reflect their expertise and decision power in executing the tax-reducing plan. Some characteristics have implications for the usefulness of subsidiary positions in improving these common managers' internal knowledge for tax planning. First, a firm's CFO is expected to be the major person responsible for designing and implementing tax-avoidance strategies. Therefore, the appointment of subsidiary position is expected to be more useful for tax-avoidance plans when this common manager is the firm's CFO. Second, the subsidiary position is expected to benefit the common managers to a varying degree in terms of acquiring firms' internal knowledge. Specifically, the common managers should obtain more internal knowledge when they are involved in the continuous business operations of the subsidiary. Therefore, we expect that the tax-reducing effect of the common managers is more pronounced when these managers hold a position as the manager of the subsidiary rather than a position as only the member of the subsidiary's board.

Third, the common managers are expected to benefit from their subsidiary positions to a different extent which depends on the relative importance of those subsidiary to the whole company. We argue that common managers can acquire a more comprehensive understanding of the firm's operations when the related subsidiaries have a higher level of influence on the whole company's operating performance. Specifically, we calculate the total profits of the related subsidiaries, scaled by parent company's sales revenue, and expect a more pronounced effect of common managers when the related subsidiaries play a more important role in firm's operations.

The above discussions lead to our third hypothesis (in alternative form):

*H3a: Ceteris paribus, the negative relation between the effective tax rates and the existence of common managers, as hypothesized in H1, is more pronounced for firms with their CFOs being the common managers.*

*H3b: Ceteris paribus, the negative relation between the effective tax rates and the existence of common managers, as hypothesized in H1, is more pronounced for firms with the common managers being the subsidiary's managers other than board directors.*

*H3c: Ceteris paribus, the negative relation between the effective tax rates and the existence of common managers, as hypothesized in H1, is more pronounced for firms with the common managers for whom the related subsidiaries are more important for firm performance.*

### **3. Institutional background, Sample selection and the measures of key variables**

#### *3.1 Mandatory disclosure of senior management's subsidiary position and sample selection*

On December 31, 2004, the China Securities Regulatory Commission (CSRC) issued the *Notice on Promulgating the Standards Concerning the Contents and Formats of Information Disclosure by Companies Offering Securities to the Public No.2 — Contents and Formats of Annual Reports (2004 Revision)*. Among those revised disclosure requirements for listed companies, the CSRC expanded the information disclosure about corporate senior executives by adding one item to the Article 26 of the Standards: “*The Company shall disclose the main working experiences of directors, supervisors, senior executives; and the information about their positions in all other business entities besides those shareholding entities.*” The “all other business entities” refers to all entities other than the parent company, including the firm's subsidiaries and joint-ventures. As a result, starting from 2005, Chinese listed firms report their senior management's positions in subsidiaries and joint-ventures if there is any. According to the positions reported in the listed companies' annual reports, top management could be also appointed as board directors (including chairmen or executive directors of the board) or senior managers (including supervisors, CEOs, or other senior executives) of the firm's subsidiaries or joint-ventures.

The information about senior management's positions in firm's subsidiaries is manually collected from the datasets in the China Stock Market and Accounting Research (CSMAR) and the WIND database. The CSMAR provides the dataset of senior executives' positions in all business entities other than the parent company from 2005 onward. The WIND provides the dataset of the listed company's subsidiaries and joint-ventures. Both datasets are based on the information disclosed in the annual reports. We collect the sample of parent-subsidiary common managers from the year of 2009 because China adopted the new accounting standards of IFRS in 2007 and the global financial crisis occurred in 2008. Using all the sample firms from 2009 to 2013, we manually match the records of business entities between these two datasets so as to identify those subsidiaries for which the parent company's top management (Chairman, CEO and CFO) holds a position. We rely on the financial and trading datasets in CSMAR for the listed companies' financial information including accounting information and stock price information. Moreover, the Center for Chinese Economic Research (CCER) provides the information about the state ownership and the WIND database provides the information about income taxes. In our sample selection, we exclude financial firms and require the availability of data for the calculation of effective tax rates and control variables in the regressions. Following prior studies (Dyreng et al. 2010; Chen et al. 2010), we delete firm-years with negative pre-tax income. As shown in Panel A of Table 1, we obtain a sample of 8,612 firm-years (2,353 unique firms) fulfilling the aforementioned data requirements. Among the sample, a total of 3,136 firm-years (36.4% of the sample) are identified as those with parent-subsidiary common managers. Panel B of Table 1 presents the sample distribution of those firm-years with common managers across years and various job titles. In general, the percentage of firms with common managers has an increasing trend over our sample period, increasing from 31.95% in 2009 to 37.55% in 2013, with the

exception that the percentage in 2011 is highest at 42.19%. In terms of these common managers' job titles in the parent companies, our sample consists of 2,487 firm-years involved with CEO title, 2,253 firm-years with Chairman title and 1,089 firm-years with CFO title. As for the job titles in the subsidiary companies, the majority of these common managers are the board directors of the subsidiaries, with 2,239 firm-years involved with Chairman title and 1,634 involved with director positions (other than Chairman). Only a small portion of common managers serve as the managers of the subsidiaries (793 firm-years).

### *3.2 Measures of income tax rates*

Following prior literature, we use effective tax rates to measure the extent of corporate tax avoidance, with a lower effective tax rate implying a higher extent of tax avoidance. In prior studies, two measures of effective tax rates are commonly used in this literature, GAAP effective tax rate (*GAAP\_ETR*) and cash effective tax rate (*CASH\_ETR1*). Specifically, *GAAP\_ETR* is calculated as the income tax expense divided by pre-tax income. *CASH\_ETR1* is defined as cash tax payment divided by pre-tax income. In the setting of China's capital market, Chinese listed firms' cash flow statements do not provide the separate item for cash payment of income tax, but only report an aggregate number of cash payment for all taxes (including income taxes). Robinson (2012) shows that the extent of income tax planning is positively associated with non-income-tax remittances, suggesting that firms which avoid income taxes tend to avoid non-income taxes as well. Hence we still use the aggregate cash payment of taxes to calculate the measure of *CASH\_ETR1*. As an alternative measure of cash-based effective tax rate, we follow Li, Liu and Ni (2014) and use the information disclosed in the balance sheet and income statement to estimate the tax rate. Specifically, the second measure of cash-based effective rate, *CASH\_ETR2*, is calculated as income tax expenses minus the change in income tax payable (i.e., ending tax payable minus



beginning income tax payable) and then minus the net deferred tax for the current year. The net deferred tax for the current year is the change in deferred tax liability (i.e., ending balance minus beginning balance) minus the change in deferred tax assets (i.e., ending balance minus beginning balance). Then it is scaled by pre-tax income. Considering the measurement errors of *CASH\_ETRI* and *CASH\_ETR2* for Chinese listed firms' income tax burden, we only use *CASH\_ETRI* and *CASH\_ETR2* in the additional analyses and use *GAAP\_ETR* as our main measure of effective tax rate for our main analyses.

Consistent with prior studies (Dyreng et al. 2010; Chen et al. 2010), we delete observations with negative pre-tax income. If *GAAP\_ETR* is smaller than zero (larger than one), we set this variable to be zero (one). Panel A of Table 2 presents the descriptive statistics of key variables. The mean and median *GAAP\_ETR* for our sample is 19.6% and 17.1%, respectively. It also shows that 36.4% of our sample firm-years have parent-subsidiary common managers (*TOP\_SUB*=1). Our sample firms have an average size of 8.49 billion RMB (around 1.25 billion USD) and return-on-asset of 6.1% (calculated based on pre-tax income). The high value of average *ROA* is partially due to the deletion of negative pre-tax income firms in our sample selection procedure. Moreover, these firms have an average age of 10 years and are followed by 9.28 analysts on average. We note that our sample of Chinese listed firms have a large number of subsidiary companies, with mean (median) value of 15.8 (10.0) subsidiaries. Furthermore, 48.0% of our sample firms are state-owned enterprises (*SOE*) and these firms receive government's subsidy counting for 1.2% of their sales on average. Lastly, 26.1% of these sample firm-years are subject to more than one nominal income tax rate according to the records from CSMAR database.

As shown in Panel B of Table 2, the correlation between *GAAP\_ETR* and the indicator for common managers, *TOP\_SUB*, is negative and statistically significant (Pearson correlation

coefficient = -0.075; Spearman correlation coefficient = -0.076). These univariate analyses support our first hypothesis that firms with common managers have a lower effective tax rate than other firms. This correlation table also shows that *GAAP\_ETR* is also negatively correlated with ROA, market-to-book ratio, the analyst coverage, capital investment, R&D investment, government subsidy, the indicator for multiple nominal income tax rate, and the absolute value of discretionary accruals. On the other hand, it shows that *GAAP\_ETR* is higher for larger firms, old firms, firms with more subsidiary firms, SOE firms and firms with more minority shareholders' interests. In the following section, we test our H1 using multivariate regressions.

## 4. Main Empirical Analysis

### 4.1 Test of H1

To test H1, we estimate the following regression model:

$$\begin{aligned}
 GAAP\_ETR_{i,t} = & \alpha + \beta TOP\_SUB_{i,t} + \gamma_1 SIZE_{i,t} + \gamma_2 ROA_{i,t} + \gamma_3 SG_{i,t} + \gamma_4 MB_{i,t} + \gamma_5 ANA_{i,t} \\
 & + \gamma_6 LOSS_{i,t} + \gamma_7 STDRET_{i,t} + \gamma_8 INVEST_{i,t} + \gamma_9 PPE_{i,t} + \gamma_{10} RD_{i,t} + \gamma_{11} AGE_{i,t} \\
 & + \gamma_{12} NUMSUB_{i,t} + \gamma_{13} MINORITY_{i,t} + \gamma_{14} SOE_{i,t} + \gamma_{15} Gov\_Subsidy_{i,t} \\
 & + \gamma_{16} Multi\_Taxrate_{i,t} + \gamma_{17} AbsDA_{i,t} + Year_t + Industry_i + \varepsilon_{i,t} \quad (1)
 \end{aligned}$$

where:

*GAAP\_ETR* = Effective tax rate as measured by current year's income tax expenses divided by pre-tax income. If this variable is smaller than zero (larger than one), we set this variable to be zero (one). Firm-years with negative pre-tax income are excluded.

*TOP\_SUB* = An indicator variable for firms with common managers. Specifically, it equals 1 if a firm's top management (Chairman, CEO and CFO) takes a position in this firm's any subsidiary company, and 0 otherwise.

All other variables are defined in the Appendix. According to H1, we expect the coefficient  $\beta$  to be negative. In the above Equation (1), we include year and industry fixed effects to control for potentially omitted time- and industry-specific factors. As for the control variables, we add the firm's market capitalization (*SIZE*), return on assets (*ROA*), sales growth ratio (*SG*), market-to-

book ratio (*MB*), and analyst coverage (*ANA*). We also control for variables possibly affecting the income tax rates: the ratio of firm's capital expenditures to assets (*INVEST*), the standard deviation of stock returns (*STDRET*), the percentage of PPE to total assets (*PPE*), R&D expenditures (*R&D*), and firm's age (*AGE*). Moreover, we control for the characteristics of the firms' subsidiaries by including the number of subsidiaries (*NUMSUB*) and the value of minority shareholders' equity (*MINORITY*) in the regression model. Furthermore, we control for two firm characteristics unique to Chinese listed firms: the indicator for state-owned enterprises (*SOE*) and the government's subsidy (*Gov\_Subsidy*). Finally, we control for firm's earnings management (*AbsDA*) and control for the effect of firm's multiple nominal tax rates (*Multi\_Taxrate*) on the overall effective income tax rates.

Table 3 presents the regression results. *GAAP\_ETR* is negatively correlated with firms' *ROA* (coefficient= -0.349, t= -8.03), which is consistent with Li et al. (2014). The results also show a lower effective tax rate for firms with more R&D investments (*RD*), firms with higher government's subsidy (*Gov\_subsidy*), firms with more analyst following and firms which are subject to multiple nominal tax rates (*Multi\_Taxrate*). The results also show a higher effective tax rate for firms more subsidiary companies (*NUMSUB*) and more minority shareholders' interests (*MINORITY*). More importantly, the variable of interest, *TOP\_SUB*, has a significantly negative coefficient (coefficient= -0.009, t= -2.50), consistent with our H1 that firms which appoint parent-subsidiary common managers have a lower effective income tax rate than other firms. Specifically, the average magnitude of such income tax benefits is around 0.9% of pre-tax income, which is approximately 5% of the average *GAAP\_ETR*.

#### 4.2 Tests of H2

According to H2a and H2b, parent-subsidary common managers have a higher level of flexibility in implementing tax-reducing strategies through intra-group transactions when firms' transfer pricing schemes are more subjective and when the related-party transactions are more prevalent in previous years. We capture the subjectivity of the transfer prices by firms' intangible assets divided by total assets (*Intangibility*). The prevalence of related-party transactions is captured by the record of the previous year's related party transactions involving subsidiaries. Moreover, as stated in H2c, diversified business structure provides the parent-subsidary common managers with more opportunities to plan the tax avoidance. We measure the diversification of firm's business as one minus the Herfindahl index of segmental revenues.

We estimate the model as follows:

$$GAAP\_ETR_{i,t} = \alpha + \beta_1 TOP\_SUB_{i,t} + \beta_2 TOP\_SUB_{i,t} \times Firm\_Char_{i,t} + \beta_3 Firm\_Char_{i,t} + \gamma_n \mathbf{Controls} + \varepsilon_{i,t} \quad (2)$$

In Eq. (2), *Firm\_Char* is one of the three indicators: (1) *High\_Intangibility*, the indicator for firms whose ratio of intangible assets to total assets (*Intangibility*) is higher than the sample median; (2) *RPT*, the indicator for firms having related party transactions with their subsidiaries last year (*RPT*); (3) *High\_Diversification*, the indicator for firms whose business diversification measure is higher than the sample median. The Appendix provides detailed definitions of these indicator variables. Our H2 implies that the coefficient on the interaction term is negative ( $\beta_2 < 0$ ). Table 4 reports the regression results. We find a negative coefficient on the interaction terms of *TOP\_SUB* with *High\_Intangibility* in Column (1) (coefficient= -0.014, t= -2.02), with *RPT* in Column (2) (coefficient = -0.014, t= -2.13) and with *High\_Diversification* in Column (3) (coefficient= -0.017, t= -2.20). Overall, these empirical results support our H2 (H2a, H2b and H2c).

### 4.3 Tests of H3

H3 predicts that the tax-reducing effect of a parent-subsidary common manager is more pronounced when the common manager is the CFO of the parent company (H3a) and when the common manager is the operating managers of the subsidiary company (H3b). In addition, as stated in hypothesis H3c, the influence of common managers on tax-reducing strategy is expected to be more pronounced when these managers' subsidiaries play a more important role for the whole company's performance. Accordingly, we use the sum of net incomes of the related subsidiaries, scaled by parent company's total sales, as the proxy for the relative importance of these subsidiaries within the company. Then we partition the sample based on the sample median of this proxy and expect a stronger effect for firms with higher value of this proxy (*High\_Subprofit*=1).

Note that these sample partitions are only relevant for the subsample of firm-years with common managers (i.e., firm-years with *TOP\_SUB*=1). Therefore, for the tests of H3, we add to Equation (1) only the interaction term between *TOP\_SUB* and these sample partition indicators. We do not include the standalone variables of these indicators:

$$GAAP\_ETR_{i,t} = \alpha + \beta_1 TOP\_SUB_{i,t} + \beta_2 TOP\_SUB_{i,t} \times CM\_Char_{i,t} + \gamma_n Controls + \varepsilon_{i,t} \quad (3)$$

Where *CM\_Char* is one of the three indicator variables: (1) *CFO\_SUB*, the indicator for the firms with at least one common manager and the common manager is the CFO of the parent company; (2) *Manager\_Sub*, the indicator for the firms with at least one common manager and the common manager is the operating manager of the subsidiary company; (3) *High\_Subprofit*, the indicator for firms with at least one common manager and those common managers' subsidiaries have a ratio of total net incomes scaled by parent company's sales revenue (*Subprofit*), higher than the sample median. These three variables are coded as 0 for firms without any common managers (i.e., firm-years with *TOP\_SUB*=0). The Appendix provides detailed definitions of these indicator variables.

Our H3 implies that the coefficient on the interaction term is negative ( $\beta_2 < 0$ ).

Table 5 presents the results for testing H3a, H3b and H3c. In Column (1) the results show a negative coefficient on  $TOP\_SUB \times CFO\_Parent$  (Coefficient= -0.015, t= -3.22), consistent with the hypothesis that the parent-subsidary common managers are more effective in implementing tax-reducing plans when they are also the CFOs of the parent companies. As shown in Column (2), the coefficient on  $TOP\_SUB \times Manager\_Sub$  is negative at a significance level of 0.05 (Coefficient= -0.010 and t= -2.09). This result implies that the common managers are better able to identify and implement tax-reducing strategies when they are also the operating managers involved in the operations of the subsidiary. Moreover, the results in Column (3) also show a negative coefficient on  $TOP\_SUB \times High\_Subprofit$  (Coefficient= -0.016 and t= -3.22), consistent with the notion that common managers obtain more internal knowledge when their subsidiaries play a more important role in the whole company's performance. Overall, these findings support our H3.

## 5. Additional Analyses and Robustness Checks

### 5.1 Regression results for $CASH\_ETR$

We next examine whether our results are robust to using cash-paid effective tax rates. As discussed in Section 3.2, the data of cash-paid *income* taxes are not separately disclosed for Chinese listed firms which disclose the aggregate cash payment for all taxes. As such, the first measure of  $CASH\_ETRI$  is a ratio of all cash-paid taxes and fees divided by pre-tax income. Recent studies show that firms which avoid income taxes tend to avoid non-income taxes as well (Robinson 2012). Therefore, we still show the results for  $CASH\_ETRI$  tax rate in Panel A of Table 6. Moreover, we estimate the cash-paid effective income tax rate by following the method

developed in Li et al. (2014). Specifically, the second measure of *CASH\_ETR2* is calculated as the income tax expenses minus the change in income tax payable (i.e., ending tax payable minus beginning income tax payable) and then minus the net deferred tax for the current year. The net deferred tax for the current year is the change in deferred tax liability (i.e., ending balance minus beginning balance) minus the change in deferred tax assets (i.e., ending balance minus beginning balance); the estimated cash-paid income tax is then scaled by pre-tax income.

Table 6, Panel A, shows a negative coefficient on the indicator *TOP\_SUB* for both regressions (Coefficient= -0.024,  $t = -2.88$  for *CASH\_ETR1*; Coefficient= -0.007,  $t = -1.81$  for *CASH\_ETR2*). Overall, we find supporting evidence that firms with parent-subsidiary common managers have a lower effective tax rate based on cash-paid taxes.

### 5.2 State-owned enterprises (SOEs) vs. non-SOEs

As a key feature of China's stock market, state-owned enterprises (SOEs) comprise a significant portion of the Chinese listed firms. As indicated in Table 2, 48% of our sample firms are SOEs. The tax-avoiding incentives for SOEs are arguably weaker than private-owned firms because SOEs are held to a higher level of social responsibility, including the contribution to local economy and government's fiscal health. On the other hand, SOEs have a close relationship with government and can have communication channels with government units including tax authorities. Such a government-enterprise relationship lowers the risk of tax audit and hence grants the SOEs with the flexibility in tax planning. In sum, it remains an empirical question whether SOEs' effective tax rate is different from that of non-SOEs. For our study, it is worth investigating whether the tax-reducing effect of common managers is applicable to both SOEs and non-SOEs.

Panel B of Table 6 presents the regression results, separately for the sample of SOE firms in Column (1) and non-SOE firms in Column (2). For both regressions, the coefficient on *TOP\_SUB*

is significantly negative ( $t = -1.89$  and  $-1.71$ , respectively). These results suggest that the appointment of common managers is associated with a lower effective income tax rate for both SOEs and non-SOEs. Our main conclusion holds for both subsamples of SOEs and non-SOEs.

### 5.3 Change analysis

Although we control for firms' characteristics in the regressions, our results might still be subject to the endogeneity issue resulting from the omitted correlated variables. A legitimate concern is that some firms are more likely to appoint the common managers than other firms and such firms also have a lower effective income tax rate, which leads to a negative correlation between the appointment of common managers and firm's effective tax rate. To relieve this concern, we impose additional requirement on the benchmark group of firm-years without common managers and examine whether our conclusion still hold after using the new benchmark sample firms. Specifically, we use the sample of firms which were listed on or before 2009 and experienced at least one switch for the status of common managers over the sample period of 2009-2013 (i.e., those firms with  $TOP\_SUB=0$  for some years and  $TOP\_SUB=1$  for other years). In this way, each firm acts as its own control vis-à-vis periods without common managers. As reported in Column (1) of Table 6, Panel C, we obtain a subsample of 1,844 firm-years for those firms experiencing at least one switch in the status of common managers. Using this reduced sample, we still find a negative coefficient on  $TOP\_SUB$  (coefficient =  $-0.011$ ,  $t = -1.75$ ), which lends the credence to our main conclusion.

We further examine the change in firm's effective income tax rate around the switch of common manager's appointment. Specifically, we use those firms experiencing only one change in appointing common managers over our sample period (i.e., those firms changing once from  $TOP\_SUB=0$  to 1 or from  $TOP\_SUB=1$  to 0). We run the regressions separately for these two



samples of firms as the pre- vs post-change analysis. As shown in Columns (2) and (3) of Table 6, Panel C, we find that a firm experiences a decrease in the effective tax rate when this firm starts to appoint the parent-subsidary common managers, as indicated by the negative coefficient on *POST* (coefficient = -0.029,  $t = -2.01$ ); on the other hand, when a firm rescinds the appointments of common managers, the increase in firm's effective tax rate is not significant ( $t = 0.56$ ). These results suggest that the enriched internal knowledge for newly appointed common managers is useful for firm's tax avoidance and that such an advantage of internal knowledge is not fully faded out for firm's tax planning after this firm pauses appointing common managers.

#### *5.4 Multiple nominal tax rates*

Our sample firms have subsidiaries at different locations, implying that different business units of these firms are subject to different local tax regimes. Therefore, some subsidiaries might have a lower nominal income tax rate than other subsidiaries of the same firm. The existence of multiple nominal tax rates facilitates the tax-reducing strategy through intra-group profit-shifting transactions. On the other hand, our argument for the effect of common managers' internal knowledge on tax-avoidance is not constrained to the tax planning opportunities resulted from different income tax rates of a firm's business units. In particular, for those firms whose business units are subject to the same nominal income tax rate, the effect of common managers on tax planning should continue to hold because the improved internal knowledge is helpful for common managers to identify tax planning opportunities resulting from the local tax regime's different tax regulation, such as the deductible items for calculation of taxable income (e.g., tax credit from capital investments or R&D investment).

To show that the common manager's effect on tax planning is beyond the use of different tax rates, we run the main regressions for two sample partitions based on the existence of multiple

nominal income tax rates. The information on multiple nominal income tax rates is disclosed in the footnote for income tax in the annual reports and we obtain the data from CSMAR database. The regressions results are shown in Panel D of Table 6. We find a negative coefficient on *TOP\_SUB* for both subsamples (coefficient =-0.012 and -0.007; t=-1.89 and -1.89; respectively). Therefore, our main conclusion is not only driven by the tax-planning opportunities resulting from different nominal income tax rates.

## **6. Two-stage Least Squares Estimation (2SLS) for the Tax-reducing Effect**

To further address the endogeneity issue, we use 2SLS method to examine the robustness of the documented tax-reducing effect of common managers. In the first-stage regression, we use the basic regression model for main analysis with *TOP\_SUB* being the dependent variables. In the first-stage regression of *TOP\_SUB*, we use two instrumental variables (IVs) to capture the location-specific travelling convenience. The travelling convenience is expected to affect the appointment of parent-subsidiary common managers since the common managers will probably consider the travelling cost (both time and monetary costs) before they take the subsidiary positions. Hence, firms located in the province of greater travelling convenience are expected to have a higher likelihood of appointing parent-subsidiary common managers. Two proxies for the travelling convenience are used for our 2SLS regressions. The first one is the quality of infrastructure (*Infrastructure*), measured by the miles of “high-quality” roads divided by the total miles of all roads in the province where the firm headquarters are located. The data is from the China Provincial Economic Datasets in the CSMAR database. The second proxy is the indicator for the higher level of mobility in the province (*High\_Mobility*). Specifically, the mobility (*Mobility*) is measured as total amount of passengers transported by public traffic vehicles, divided

by the total population of the province where the company headquarters is located. *High\_Mobility* is denoted as 1 for firm-years with the value of *Mobility* higher than the sample median, and 0 otherwise.

Table 7 reports the regression results for 2SLS estimation. For the first-stage regression, both instrumental variables (*Infrastructure* and *High\_Mobility*) are positively correlated with *TOP\_SUB*. The F-test rejects the null hypothesis that the two IVs are not correlated with the use of parent-subsidiary common managers at the 0.001 level. The F-statistic is 12.98, higher than the critical F-value of 11.59 in the case of two instruments as recommended by Larcker and Rusticus (2010). This suggests that the instruments are effective. Moreover, the over-identification test fails to reject the null hypothesis that the instruments are not correlated with the second-stage regression residuals. The Chi-Square statistic is not statistically significant at the value of only 1.73 (p-value= 0.19). This indicates that the instruments are valid (i.e., exogenous IVs).

Column (2) of Table 7 presents the second stage regression of Equation (1). The coefficient on *TOP\_SUB* is still significantly negative (coefficient= -0.183, t= -2.92), implying that the appointment of parent-subsidiary common managers facilitates the corporate tax planning as evidenced by lower effective tax rates.

## **7. Conclusions**

This paper examines the effect of firms' appointment of parent-subsidiary common managers on firms' corporate tax planning. As one form of subsidiary governance, many firms' top managers also take a position as the board director (chairman or executive director) or the manager of the subsidiary company. The appointment of common managers is expected to improve the effectiveness of tax avoidance strategies, resulting in a lower effective tax rate (*ETR*). Such an improvement results from two facts. First, these common managers can obtain first-hand

internal knowledge about the operations of subsidiaries and the whole company, and thus they are better able to identify the tax planning opportunities (i.e., intra-company profit-shifting among different business units with different local tax regimes; or a better use of tax credits granted by different local tax regimes). Second, with a subsidiary position, these common managers can be better able to coordinate the tax planning activities involving the different business units of the company.

We hand-collect the information about parent-subsidiary common managers for Chinese listed firms which are subject to the mandatory disclosure of senior executives' positions in all business entities other than parent company (i.e., including subsidiary companies and joint ventures). Using the sample of 8,612 firm-years during 2009-2013, we find that a significant portion, 36.4%, of these firm-years have their top managers (Chairman, CEO or CFO) appointed as the board director or the manager of these firm's subsidiaries. Both univariate and multivariate analyses show a negative association between the indicator for firms with common managers and the effective income tax rates.

In the cross-sectional analyses, we find that the negative effect of common managers on effective tax rates is more pronounced for firms with more intangible assets, firms with the historical records of related party transactions in the previous year, and firms with more diversified business segments. These findings are consistent with the notion that the appointment of common managers is more beneficial for firm's tax avoidance strategy when the characteristics of firms' business make it difficult for tax authorities to challenge the authenticity and fairness of the intra-company transactions.

Moreover, we show that common managers' tax-reducing effect varies with the characteristics of common managers. Specifically, the effect of common managers is stronger

when the common manager is also the parent company's CFO and when the common manager is also the operating manager other than board director of the subsidiary company. Furthermore, consistent with the notion that common managers obtain internal knowledge of firm's operation through their subsidiary positions, we show that the appointment of common manager is associated with a more pronounced decrease in firm's effective tax rate when the related subsidiaries play a more important role in the whole company's operating performance.

Our main conclusions continue to hold for the alternative measure of effective tax rates based on cash-paid taxes, for both subsamples of SOEs and non-SOEs, and for both subsamples of firms with or without multiple nominal income tax rates. In one additional analysis, we use the sample of firms which have common managers in some years but not in other years over our sample period. Our main conclusion remains unchanged for this sample. We then conduct a further analysis of the change in firm's effective tax rate around the switching years. Our results show that the switching firms experience a decrease in the effective tax rate when they start to appoint common managers; but there is no obvious increase in the effective tax rate when firms pause the appointment of common managers. In the last analysis, we show that our conclusions are robust to the 2SLS estimation method.

Our paper contributes to the literature on corporate tax avoidance by examining the effect a new aspect of a firm's overall governance structure, parent-subsidiary common managers, on tax avoidance. Prior study by Gallemore and Labro (2015) argues that high-quality internal information environment facilitates the identification and implementation of tax planning strategies. They use the firm-level internal control weakness and the accuracy of management earnings forecasts as the proxies for managers' internal knowledge. We extend their study by using a more direct and salient measure of top managers' internal knowledge, these managers' internal

positions in the subsidiary companies. This new measure also makes contribution to the corporate governance literature. In particular, the internal positions of top managers are an important aspect of corporate governance which is largely unexplored due to the lack of publicly disclosed data.

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## APPENDIX

### Variable definitions

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#### *Dependent variable*

*GAAP\_ETR* = Effective tax rate as measured by current year's income tax expenses divided by pre-tax income. Firm-years with negative pre-tax income are excluded. If this variable is smaller than zero (larger than one), we set this variable to be zero (one). Income tax data is from WIND database and pre-tax income data is from CSMAR.

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#### *Key independent variable*

*TOP\_SUB* = An indicator variable for firms with common managers. Specifically, it equals 1 if a firm's top management (CEO, CFO and Chairman) serves as the board member or manager in this firm's any subsidiary company, and 0 otherwise. The information about top management's position in subsidiaries is obtained through hand-collection procedures using the information from CSMAR and WIND database.

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#### *Variables for cross-sectional analyses (firm level and division level variables)*

*High\_Intangibility* = An indicator variable that equals 1 when the ratio of intangible assets divided by total asset (*Intangibility*) is higher than sample median, and 0 otherwise.

*RPT* = An indicator variable that equals 1 when the firm has related-party transactions with its subsidiary in the previous year, and 0 otherwise.

*High\_Diversification* = An indicator variable for firms with higher diversification of businesses. Business diversification is measured as one minus the Herfindahl index of segmental revenues. This indicator equals 1 when the diversification measure is higher than the sample median, and 0 otherwise.

*CFO\_Parent* = An indicator variable that equals 1 when at least one position in subsidiaries is served by the firm's CFO within the sample of those firms with top management involved in subsidiaries' management (i.e., those firms with *TOP\_SUB*=1), and 0 otherwise. It is a division level variable for those firms with common managers and is set as 0 for those firms without any top management taking a position in subsidiaries (i.e., those firms with *TOP\_SUB*=0).

*Manager\_Sub* = An indicator variable that equals 1 for firms with at least one common manager who is also the operating managers of the subsidiary company, and 0 otherwise.

*High\_Subprofit* = the indicator for firms with at least one common manager and those common managers' subsidiaries have a ratio of total net income scaled by parent company's sales revenue (*Subprofit*), higher than the sample median.

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#### *Control variables*

*SIZE* = The natural logarithm of total asset.

*ROA* = Pre-tax income scaled by total assets.

*SG* = Sales growth, measured as the change of revenues from year  $t-1$  to year  $t$ , divided by the revenues in year  $t-1$ .

*MB* = Market-to-book ratio, measured as market value of equity divided by book value of equity.

*ANA* = Natural logarithm of one plus the total number of analysts following this firm.

<i>LOSS</i>	=	An indicator for loss firms.
<i>STDRET</i>	=	The standard deviation of monthly stock return for the current year.
<i>INVEST</i>	=	the ratio of firm's capital expenditures to total assets.
<i>PPE</i>	=	Property, plant and equipment divided by total asset.
<i>RD</i>	=	R&D expenditures divided by total assets.
<i>AGE</i>	=	Firm age, measured as the natural logarithm of the number of years since IPO.
<i>NUMSUB</i>	=	The natural logarithm of one plus the total number of subsidiaries.
<i>MINORITY</i>	=	Minority shareholders' equity divided by total equity.
<i>SOE</i>	=	An indicator variable that equals 1 when the ultimate controller of the firm is government agency, and 0 otherwise. The data is from CCER database.
<i>Gov_Subsidy</i>	=	Government's subsidy divided by total sales revenue.
<i>Multi_Taxrate</i>	=	The indicator for firms with multiple tax rate, based on CSMAR database.
<i>AbsDA</i>	=	Absolute value of discretionary accruals from Modified Jone's Model

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*Variables for additional analyses and the determinant model*

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<i>CASH_ETR1</i>	=	Effective tax rate as measured by cash-paid various taxes divided by pre-tax income. If this variable is smaller than zero (larger than one), we set this variable to be zero (one). Firm-years with negative pre-tax income are excluded. Data are obtained from the WIND database.
<i>CASH_ETR2</i>	=	Cash-paid income tax is estimated by the formula: income tax expenses minus the change in income tax payable (i.e., ending tax payable minus beginning income tax payable) and then minus the net deferred tax for the current year. The net deferred tax for the current year is the change in deferred tax liability (i.e., ending balance minus beginning balance) minus the change in deferred tax assets (i.e., ending balance minus beginning balance). Then it is scaled by pre-tax income. If this variable is smaller than zero (larger than one), we set this variable to be zero (one). Firm-years with negative pre-tax income are excluded.
<i>Infrastructure</i>	=	Miles of high-quality roads divided by the total miles of all roads in the province where the firm headquarters are located. The data is from the China Provincial Economic Datasets in the CSMAR database.
<i>Mobility</i>	=	The total amount of passengers transported by public traffic vehicles, divided by the total population of the province where the company headquarters is located. The data is from China Provincial Economic Datasets in the CSMAR database.

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**TABLE 1**  
**Sample selection and sample distribution**

This table reports the sample selection procedure in Panel A for our sample of firm-years during 2009-2013 and the distribution of these firm-years in Panel B.

*Panel A: Sample selection*

	# firm-years	# firms	# firm-years with common managers	# firm with common managers
1. All A-share firms	11,183	2,528	3,824	1,306
2. Excluding financial firms	10,977	2,484	3,747	1,281
3. Excluding firm-years with negative pre-tax income or those with missing values for effective tax rates ( <i>GAAP_ETR</i> )	10,053	2,484	3,520	1,260
4. Excluding firm-years with missing values for control variables in the regressions	8,612	2,353	3,136	1,192

*Panel B: Sample distribution of firm-years with common managers*

	# firm-years with common managers	# firm-years	%
<i>By fiscal year:</i>			
2009	417	1,305	31.95%
2010	499	1,506	33.13%
2011	743	1,760	42.19%
2012	694	1,956	35.48%
2013	783	2,085	37.55%
<i>By positions in parent company</i>			
	# firm-years with common managers		
CFO	1,089		
CEO	2,487		
Chairman	2,253		
<i>By positions in subsidiary companies</i>			
	# firm-years with common managers		
Chairman	2,239		
Director (other than Chairman)	1,634		
Managers (other than directors)	793		

**TABLE 2**  
**Descriptive statistics**

This table presents the summary statistics of the variables used in the main analyses (Panel A) and the correlations among them (Panel B). The sample includes 8,612 firm years during 2009-2013. Please see Appendix for the variable definitions.

*Panel A: Descriptive statistics*

Variables	Obs.	Mean	Median	STD	Q1	Q3
<i>GAAP_ETR</i>	8,612	0.196	0.171	0.135	0.127	0.25
<i>CASH_ETR1</i>	8,612	0.674	0.689	0.297	0.415	1
<i>CASH_ETR2</i>	8,612	0.211	0.167	0.191	0.103	0.257
<i>TOP_SUB</i>	8,612	0.364	0	0.481	0	1
<i>SIZE(in mil. RMB)</i>	8,612	8,493	2,678	19,611	1,281	6,486
<i>ROA</i>	8,612	0.061	0.049	0.050	0.025	0.083
<i>SG</i>	8,612	0.249	0.140	0.626	0.008	0.310
<i>MB</i>	8,612	3.567	2.705	3.170	1.815	4.276
<i>ANA (raw)</i>	8,612	9.284	5	10.50	1	15
<i>STDRET</i>	8,612	0.123	0.116	0.042	0.095	0.143
<i>INVEST</i>	8,612	0.061	0.046	0.056	0.020	0.087
<i>PPE</i>	8,612	0.231	0.197	0.170	0.099	0.332
<i>RD</i>	8,612	0.012	0.005	0.016	0	0.019
<i>AGE (raw)</i>	8,612	10.07	10	5.926	4	15
<i>NUMSUB (raw)</i>	8,612	15.78	10	17.53	5	19
<i>MINORITY</i>	8,612	0.071	0.030	0.097	0.003	0.099
<i>SOE</i>	8,612	0.480	0	0.500	0	1
<i>Gov_Subsidy</i>	8,612	0.012	0.005	0.020	0.001	0.013
<i>Multi_Taxrate</i>	8,612	0.261	0	0.439	0	1
<i>AbsDA</i>	8,612	0.106	0.077	0.107	0.036	0.136
<i>Intangibility</i>	8,612	0.048	0.033	0.055	0.014	0.059
<i>RPT</i>	8,612	0.587	1	0.492	0	1
<i>Diversification (Herfindahl)</i>	6,397	0.792	0.906	0.234	0.576	1
<i>CFO_Parent</i>	3,136	0.347	0	0.476	0	1
<i>Manager_Sub</i>	3,136	0.253	0	0.435	0	1
<i>Subprofit</i>	2,824	0.044	0.012	0.098	0.001	0.045
<i>Infrastructure</i>	8,574	0.891	0.923	0.111	0.835	0.974
<i>Mobility</i>	8,574	31.12	26.43	17.93	19.27	42.56

*Panel B: Correlations among the variables used in main analyses .*

This panel reports Pearson (on the upper-right) and Spearman (on the lower-left) correlations above and below the diagonal, respectively, for the three samples used in main empirical analyses. All variable definitions are given in Appendix. The bold number is for a significance level of 0.05 or above.

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)	(17)	(18)
<i>GAAP_ETR<sub>i,t</sub>(1)</i>		<b>-0.075</b>	<b>0.116</b>	<b>-0.179</b>	-0.016	<b>-0.047</b>	<b>-0.125</b>	-0.011	<b>-0.095</b>	-0.007	<b>-0.209</b>	<b>0.177</b>	<b>0.143</b>	<b>0.145</b>	<b>0.097</b>	<b>-0.113</b>	<b>-0.039</b>	<b>-0.030</b>
<i>TOP_SUB<sub>i,t</sub>(2)</i>	<b>-0.076</b>		-0.018	<b>0.029</b>	-0.016	<b>-0.055</b>	<b>0.103</b>	<b>-0.048</b>	<b>0.09</b>	0.012	<b>0.139</b>	<b>-0.228</b>	-0.02	-0.001	<b>-0.113</b>	0.015	-0.023	<b>-0.033</b>
<i>SIZE<sub>i,t</sub>(3)</i>	<b>0.195</b>	-0.025		<b>-0.067</b>	0.025	<b>-0.353</b>	<b>0.416</b>	<b>-0.156</b>	-0.003	<b>0.109</b>	<b>-0.207</b>	<b>0.264</b>	<b>0.587</b>	<b>0.281</b>	<b>0.386</b>	<b>-0.142</b>	0.020	<b>-0.175</b>
<i>ROA<sub>i,t</sub>(4)</i>	<b>-0.133</b>	<b>0.059</b>	<b>-0.057</b>		<b>0.134</b>	<b>0.223</b>	<b>0.383</b>	<b>-0.029</b>	<b>0.056</b>	<b>-0.118</b>	<b>0.148</b>	<b>-0.121</b>	-0.022	<b>-0.073</b>	<b>-0.114</b>	-0.007	0.021	<b>0.139</b>
<i>SG<sub>i,t</sub>(5)</i>	<b>-0.037</b>	0.028	<b>0.064</b>	<b>0.240</b>		<b>0.117</b>	0.004	<b>0.062</b>	-0.004	<b>-0.057</b>	<b>-0.042</b>	<b>0.041</b>	0.011	<b>0.049</b>	<b>-0.029</b>	<b>-0.039</b>	0.014	<b>0.306</b>
<i>MB<sub>i,t</sub>(6)</i>	<b>-0.136</b>	<b>-0.035</b>	<b>-0.436</b>	<b>0.258</b>	<b>0.155</b>		<b>-0.035</b>	<b>0.249</b>	<b>-0.032</b>	<b>-0.071</b>	<b>0.035</b>	<b>0.042</b>	<b>-0.157</b>	<b>-0.032</b>	<b>-0.08</b>	<b>0.049</b>	<b>0.153</b>	<b>0.147</b>
<i>ANA<sub>i,t</sub>(7)</i>	<b>-0.071</b>	<b>0.1</b>	<b>0.391</b>	<b>0.443</b>	<b>0.198</b>	<b>0.051</b>		<b>-0.074</b>	<b>0.252</b>	0.012	<b>0.16</b>	<b>-0.25</b>	<b>0.205</b>	<b>-0.037</b>	0.021	<b>-0.039</b>	<b>0.046</b>	<b>-0.064</b>
<i>STDRET<sub>i,t</sub>(8)</i>	<b>-0.053</b>	<b>-0.049</b>	<b>-0.153</b>	<b>-0.045</b>	-0.001	<b>0.313</b>	<b>-0.062</b>		<b>-0.048</b>	<b>-0.073</b>	0.024	-0.01	<b>-0.097</b>	0.007	<b>-0.051</b>	<b>0.051</b>	<b>0.081</b>	<b>0.078</b>
<i>INVEST<sub>i,t</sub>(9)</i>	<b>-0.109</b>	<b>0.114</b>	-0.008	<b>0.116</b>	<b>0.081</b>	-0.001	<b>0.292</b>	<b>-0.063</b>		<b>0.28</b>	<b>0.104</b>	<b>-0.292</b>	<b>-0.113</b>	<b>-0.059</b>	<b>-0.093</b>	<b>0.086</b>	-0.020	<b>-0.034</b>
<i>PPE<sub>i,t</sub>(10)</i>	<b>-0.033</b>	0.018	<b>0.047</b>	<b>-0.129</b>	<b>-0.08</b>	<b>-0.083</b>	0.011	<b>-0.071</b>	<b>0.409</b>		<b>-0.146</b>	<b>0.112</b>	<b>-0.081</b>	<b>0.051</b>	<b>0.198</b>	0.022	<b>0.035</b>	<b>-0.151</b>
<i>RD<sub>i,t</sub>(11)</i>	<b>-0.28</b>	<b>0.168</b>	<b>-0.219</b>	<b>0.151</b>	<b>0.03</b>	<b>0.04</b>	<b>0.164</b>	0.014	<b>0.229</b>	<b>-0.046</b>		<b>-0.372</b>	<b>-0.154</b>	<b>-0.168</b>	<b>-0.247</b>	<b>0.163</b>	<b>-0.115</b>	<b>-0.029</b>
<i>AGE<sub>i,t</sub>(12)</i>	<b>0.194</b>	<b>-0.235</b>	<b>0.283</b>	<b>-0.183</b>	<b>-0.094</b>	<b>-0.058</b>	<b>-0.257</b>	<b>-0.038</b>	<b>-0.335</b>	0.027	<b>-0.432</b>		<b>0.297</b>	<b>0.293</b>	<b>0.431</b>	<b>-0.112</b>	<b>0.080</b>	<b>-0.065</b>
<i>NUMSUB<sub>i,t</sub>(13)</i>	<b>0.192</b>	-0.024	<b>0.581</b>	-0.020	<b>0.05</b>	<b>-0.204</b>	<b>0.198</b>	<b>-0.104</b>	<b>-0.092</b>	<b>-0.083</b>	<b>-0.177</b>	<b>0.298</b>		<b>0.327</b>	<b>0.22</b>	<b>-0.1</b>	<b>0.082</b>	<b>-0.146</b>
<i>MINORITY<sub>i,t</sub>(14)</i>	<b>0.192</b>	0.014	<b>0.344</b>	<b>-0.076</b>	<b>0.04</b>	<b>-0.129</b>	0.017	-0.014	<b>-0.068</b>	<b>0.029</b>	<b>-0.177</b>	<b>0.285</b>	<b>0.454</b>		<b>0.17</b>	<b>-0.068</b>	<b>0.073</b>	<b>-0.046</b>
<i>SOE<sub>i,t</sub>(15)</i>	<b>0.123</b>	<b>-0.113</b>	<b>0.383</b>	<b>-0.134</b>	<b>-0.045</b>	<b>-0.127</b>	0.021	<b>-0.061</b>	<b>-0.087</b>	<b>0.163</b>	<b>-0.284</b>	<b>0.402</b>	<b>0.225</b>	<b>0.215</b>		<b>-0.079</b>	<b>0.091</b>	<b>-0.146</b>
<i>Gov_Subsidy (16)</i>	<b>-0.228</b>	<b>0.073</b>	<b>-0.174</b>	0.008	<b>-0.052</b>	<b>0.062</b>	0.025	<b>0.049</b>	<b>0.203</b>	<b>0.091</b>	<b>0.319</b>	<b>-0.23</b>	<b>-0.061</b>	<b>-0.074</b>	<b>-0.146</b>		<b>-0.040</b>	<b>0.038</b>
<i>Multi_Taxrate (17)</i>	<b>-0.047</b>	-0.023	0.022	<b>0.028</b>	<b>0.049</b>	<b>0.225</b>	<b>0.044</b>	<b>0.095</b>	-0.014	<b>0.043</b>	<b>-0.122</b>	<b>0.062</b>	<b>0.087</b>	<b>0.116</b>	<b>0.091</b>	-0.017		<b>-0.005</b>
<i>AbsDA (18)</i>	<b>-0.049</b>	-0.027	<b>-0.214</b>	<b>0.111</b>	<b>0.070</b>	<b>0.152</b>	<b>-0.039</b>	<b>0.070</b>	<b>-0.066</b>	<b>-0.178</b>	0.012	<b>-0.076</b>	<b>-0.166</b>	<b>-0.122</b>	<b>-0.168</b>	0.017	-0.008	

**TABLE 3**  
**The effect of common managers on firm's effective tax rate**

This table presents the OLS regression results of the effective tax rate (*GAAP\_ETR*) on the indicator for firms with common managers who take a position in at least one subsidiary:

$$\begin{aligned}
 GAAP\_ETR_{i,t} = & \alpha + \beta TOP\_SUB_{i,t} + \gamma_1 SIZE_{i,t} + \gamma_2 ROA_{i,t} + \gamma_3 SG_{i,t} + \gamma_4 MB_{i,t} + \gamma_5 ANA_{i,t} \\
 & + \gamma_6 LOSS_{i,t} + \gamma_7 STDRET_{i,t} + \gamma_8 INVEST_{i,t} + \gamma_9 PPE_{i,t} + \gamma_{10} RD_{i,t} + \gamma_{11} AGE_{i,t} \\
 & + \gamma_{12} NUMSUB_{i,t} + \gamma_{13} MINORITY_{i,t} + \gamma_{14} SOE_{i,t} + \gamma_{15} Gov\_Subsidy_{i,t} \\
 & + \gamma_{16} Multi\_Taxrate_{i,t} + \gamma_{17} AbsDA_{i,t} + Year_t + Industry_i + \varepsilon_{i,t} \quad (1)
 \end{aligned}$$

*GAAP\_ETR* is measured as income tax expenses divided by pre-tax income. *TOP\_SUB* is an indicator for common managers, denoted as 1 if a firm's top management (CEO, CFO and Chairman) serves as the board member or manager in this firm's any subsidiary company, and 0 otherwise. The full sample consists of 8,612 firm-years during 2009-2013. The t-values are based on standard errors adjusted for firm clustering. \*\*\*, \*\*, and \* indicate the significance levels of 0.01, 0.05, and 0.10, respectively, based on two-tailed statistical tests. Please see Appendix for variable definitions.

	(1)	
	DV = <i>GAAP_ETR</i>	
	Coef.	T-value
<i>TOP_SUB</i>	-0.009**	-2.50
<i>SIZE</i>	-0.000	-0.14
<i>ROA</i>	-0.349***	-8.03
<i>SG</i>	-0.004*	-1.67
<i>MB</i>	0.001	1.24
<i>ANA</i>	-0.006***	-2.82
<i>STDRET</i>	-0.029	-0.71
<i>INVEST</i>	-0.026	-0.86
<i>PPE</i>	0.005	0.34
<i>RD</i>	-0.883***	-7.36
<i>AGE</i>	0.002	0.76
<i>NUMSUB</i>	0.012***	4.19
<i>MINORITY</i>	0.101***	4.56
<i>SOE</i>	0.003	0.64
<i>Gov_Subsidy</i>	-0.345***	-3.72
<i>Multi_Taxrate</i>	-0.007*	-1.66
<i>AbsDA</i>	-0.005	-0.33
Year fixed effects	YES	
Industry fixed effects	YES	
N	8,612	
Adj-R <sup>2</sup>	0.131	

**TABLE 4**  
**The effect of common managers on firm's effective tax rate –**  
**Cross-sectional analyses – Firm's characteristics**

This table reports the results from the following regression:

$$GAAP\_ETR_{i,t} = \alpha + \beta_1 TOP\_SUB_{i,t} + \beta_2 TOP\_SUB_{i,t} \times Firm\_Char_{i,t} + \beta_3 Firm\_Char_{i,t} + \gamma_n \mathbf{Controls} + \varepsilon_{i,t} \quad (2)$$

*GAAP\_ETR* is measured as income tax divided by pre-tax income. *TOP\_SUB* is an indicator for common managers, denoted as 1 if a firm's top management (CEO, CFO and Chairman) serves as the board member or top official in this firm's any subsidiary company, and 0 otherwise. *Firm\_Char* is the indicator for firms with high percentage of intangible assets (*High\_Intangibility*) in Column (1); the indicator for firms having related party transactions with their subsidiaries last year (*RPT*) in Column (2); and the indicator for firms with diversified business as proxied for by the lower Herfindahl index of segment revenues (*High\_Diversification*). The full sample consists of 8,612 firm-years during 2009-2013. The t-values are based on standard errors adjusted for firm clustering. \*\*\*, \*\*, and \* indicate the significance levels of 0.01, 0.05, and 0.10, respectively, based on two-tailed statistical tests. Please see Appendix for variable definitions.

	(1) <i>Firm_Char</i> = <i>High_Intangibility</i>		(2) <i>Firm_Char</i> = <i>RPT</i>		(3) <i>Firm_Char</i> = <i>High_Diversification</i>	
	Coef.	T-value	Coef.	T-value	Coef.	T-value
<i>TOP_SUB</i>	-0.002	-0.41	-0.001	-0.14	0.000	0.08
<i>TOP_SUB</i> × <i>Firm_Char</i>	-0.014**	-2.02	-0.014**	-2.13	-0.017**	-2.20
<i>Firm_Char</i>	0.013***	2.76	0.004	0.87	0.006	1.07
<i>SIZE</i>	0.000	0.04	-0.000	-0.12	-0.001	-0.33
<i>ROA</i>	-0.348***	-8.01	-0.348***	-8.00	-0.352***	-7.15
<i>SG</i>	-0.005*	-1.73	-0.004	-1.63	-0.005	-1.60
<i>MB</i>	0.001	1.22	0.001	1.24	0.001	0.74
<i>ANA</i>	-0.006***	-2.86	-0.006***	-2.85	-0.005**	-2.29
<i>STDRET</i>	-0.024	-0.59	-0.029	-0.71	-0.056	-1.19
<i>INVEST</i>	-0.035	-1.14	-0.027	-0.90	-0.039	-1.12
<i>PPE</i>	0.003	0.19	0.006	0.37	-0.003	-0.21
<i>RD</i>	-0.874***	-7.27	-0.879***	-7.31	-0.981***	-6.85
<i>AGE</i>	0.002	0.68	0.002	0.85	0.002	0.67
<i>NUMSUB</i>	0.011***	3.88	0.012***	4.10	0.013***	3.67
<i>MINORITY</i>	0.101***	4.59	0.102***	4.57	0.107***	4.25
<i>SOE</i>	0.003	0.66	0.003	0.65	0.005	0.95
<i>Gov_Subsidy</i>	-0.349***	-3.79	-0.343***	-3.70	-0.328***	-2.95
<i>Multi_Taxrate</i>	-0.007*	-1.67	-0.007*	-1.69	-0.011**	-2.11
<i>AbsDA</i>	-0.003	-0.22	-0.005	-0.33	-0.004	-0.22
Year fixed effects	YES		YES		YES	
Industry fixed effects	YES		YES		YES	
N	8,612		8,612		6,397	
Adj-R <sup>2</sup>	0.132		0.131		0.127	



**TABLE 5**  
**The effect of common managers on firm's effective tax rate –**  
**Cross-sectional analyses – Common manager's characteristics**

This table reports the results of the following regression:

$$GAAP\_ETR_{i,t} = \alpha + \beta_1 TOP\_SUB_{i,t} + \beta_2 TOP\_SUB_{i,t} \times CM\_Char_{i,t} + \gamma_n \mathbf{Controls} + \varepsilon_{i,t} \quad (3)$$

*GAAP\_ETR* is measured as income tax divided by pre-tax income. *TOP\_SUB* is an indicator for common managers, denoted as 1 if a firm's top management (CEO, CFO and Chairman) serves as the board member or top official in this firm's any subsidiary company, and 0 otherwise. In Column (1), *CM\_Char* is the indicator for the firm with at least one common manager and the common manager is the CFO of the parent company (*CFO\_Parent*); In Column (2), *CM\_Char* is the indicator for the firm with at least one common manager and the common manager is the operating manager of the subsidiary company (*Manager\_Sub*) (i.e., a position title other than the director of the subsidiary); In Column (3), *CM\_Char* is the indicator for the firm with at least one common manager and the total profits of related subsidiaries scaled by parent company's sales revenue is higher than the sample median (*High\_Subprofit*). *CM\_Char* is coded as 0 for firms without any common managers (i.e., when *TOP\_SUB*=0). The full sample consists of 8,612 firm-years during 2009-2013. The t-values are based on standard errors adjusted for firm clustering. \*\*\*, \*\*, and \* indicate the significance levels of 0.01, 0.05, and 0.10, respectively, based on two-tailed statistical tests. Please see Appendix for variable definitions.

	(1) <i>CM_Char</i> <i>= CFO_Parent</i>		(2) <i>CM_Char</i> <i>= Manager_Sub</i>		(3) <i>CM_Char</i> <i>= High_Subprofit</i>	
	Coef.	T-value	Coef.	T-value	Coef.	T-value
<i>TOP_SUB</i>	-0.004	-0.90	-0.006	-1.63	0.000	0.07
<i>TOP_SUB</i> × <i>CM_Char</i>	-0.015***	-3.22	-0.010**	-2.09	-0.016***	-3.22
<i>SIZE</i>	-0.000	-0.12	-0.000	-0.15	-0.000	-0.14
<i>ROA</i>	-0.347***	-7.98	-0.348***	-7.99	-0.345***	-7.81
<i>SG</i>	-0.004*	-1.67	-0.004	-1.64	-0.004	-1.45
<i>MB</i>	0.001	1.24	0.001	1.22	0.001	1.20
<i>ANA</i>	-0.006***	-2.83	-0.006***	-2.84	-0.006***	-2.76
<i>STDRET</i>	-0.029	-0.71	-0.029	-0.72	-0.024	-0.57
<i>INVEST</i>	-0.026	-0.87	-0.026	-0.88	-0.021	-0.67
<i>PPE</i>	0.006	0.38	0.005	0.35	0.001	0.04
<i>RD</i>	-0.877***	-7.30	-0.878***	-7.31	-0.933***	-7.61
<i>AGE</i>	0.002	0.76	0.002	0.72	0.003	1.06
<i>NUMSUB</i>	0.012***	4.28	0.012***	4.24	0.012***	4.02
<i>MINORITY</i>	0.102***	4.58	0.102***	4.59	0.107***	4.66
<i>SOE</i>	0.003	0.67	0.003	0.65	0.003	0.59
<i>Gov_Subsidy</i>	-0.341***	-3.68	-0.344***	-3.71	-0.380***	-4.12
<i>Multi_Taxrate</i>	-0.008*	-1.76	-0.007*	-1.69	-0.008*	-1.72
<i>AbsDA</i>	-0.005	-0.36	-0.005	-0.34	-0.006	-0.38
Year fixed effects	YES		YES		YES	
Industry fixed effects	YES		YES		YES	
N	8,612		8,612		8,300	
Adj-R <sup>2</sup>	0.131		0.131		0.134	

**TABLE 6**  
**The effect of common managers on firm's effective tax rate –**  
**Additional analyses**

Panel A reports the results of additional analysis using the alternative measures of cash-based effective tax rate. Two measures of *CASH\_ETRI* in Column (1) and *CASH\_ETR2* in Column (2) are as defined in Appendix. Panel B reports the regression results of GAAP-based effective tax rate (*GAAP\_ETR*) for SOE firms in Column (1) and non-SOE firms in Column (2). Panel C reports the change analysis for *GAAP\_ETR*. Panel D shows the results for firms with and without multiple nominal income tax rates. The full sample consists of 8,612 firm-years during 2009-2013. The t-values are based on standard errors adjusted for firm clustering. \*\*\*, \*\*, and \* indicate the significance levels of 0.01, 0.05, and 0.10, respectively, based on two-tailed statistical tests. Please see Appendix for variable definitions.

*Panel A: Effective tax rate based on cash-paid taxes (CASH\_ETR)*

	(1)		(2)	
	<i>CASH_ETRI</i>		<i>CASH_ETR2</i>	
	Coef.	T-value	Coef.	T-value
<i>TOP_SUB</i>	-0.024***	-2.88	-0.007*	-1.81
<i>SIZE</i>	-0.011*	-1.81	-0.004	-1.31
<i>ROA</i>	-2.706***	-24.66	-0.664***	-14.19
<i>SG</i>	-0.024***	-4.51	-0.028***	-10.08
<i>MB</i>	0.005***	3.01	0.001	0.82
<i>ANA</i>	0.006	1.34	0.004*	1.65
<i>STDRET</i>	-0.229***	-3.04	-0.049	-1.20
<i>INVEST</i>	-0.535***	-7.41	0.036	1.10
<i>PPE</i>	0.234***	7.75	-0.010	-0.67
<i>RD</i>	0.662**	2.05	-0.526***	-4.28
<i>AGE</i>	0.043***	6.09	0.001	0.29
<i>NUMSUB</i>	0.031***	4.66	0.012***	4.28
<i>MINORITY</i>	0.079*	1.66	0.096***	4.27
<i>SOE</i>	0.034***	3.27	-0.002	-0.33
<i>Gov_Subsidy</i>	-0.698***	-3.78	-0.267***	-2.88
<i>Multi_Taxrate</i>	-0.031***	-3.52	-0.011**	-2.46
<i>AbsDA</i>	-0.082***	-2.89	-0.043***	-2.81
Year fixed effects	YES		YES	
Industry fixed effects	YES		YES	
N	8,612		8,612	
Adj-R <sup>2</sup>	0.366		0.161	

Panel B: Effective tax rates (GAAP\_ETR) for stated owned enterprises (SOEs) and non-SOEs

	(1)		(2)	
	<i>SOE firms</i>		<i>Non-SOE firms</i>	
	Coef.	T-value	Coef.	T-value
<i>TOP_SUB</i>	-0.011*	-1.89	-0.007*	-1.71
<i>SIZE</i>	-0.001	-0.32	0.000	0.07
<i>ROA</i>	-0.396***	-5.22	-0.302***	-6.04
<i>SG</i>	-0.003	-0.74	-0.006**	-1.96
<i>MB</i>	0.002	1.18	0.000	0.28
<i>ANA</i>	-0.008**	-2.31	-0.005*	-1.76
<i>STDRET</i>	-0.119*	-1.82	0.026	0.51
<i>INVEST</i>	-0.115**	-2.21	0.053	1.52
<i>PPE</i>	0.031	1.51	-0.038*	-1.83
<i>RD</i>	-1.390***	-6.69	-1.110***	-8.36
<i>AGE</i>	0.002	0.48	0.006	1.59
<i>NUMSUB</i>	0.011***	2.62	0.015***	4.11
<i>MINORITY</i>	0.112***	3.65	0.099***	3.12
<i>Gov_Subsidy</i>	-0.466***	-3.09	-0.510***	-4.42
<i>Multi_Taxrate</i>	-0.008	-1.34	-0.007	-1.16
<i>AbsDA</i>	0.023	0.87	-0.020	-1.15
Year fixed effects	YES		YES	
Industry fixed effects	YES		YES	
N	4,137		4,475	
Adj-R <sup>2</sup>	0.107		0.143	

Panel C: Change analysis for firm's effective tax rate (GAAP\_ETR)

	<i>All Switching firms</i>		<i>Pre- vs. Post Analysis for firms switching only once</i>			
	(1)		(2)		(3)	
	Coef.	T-value	<i>Firms switching from TOP_SUB=0 to =1</i>		<i>Firms switching from TOP_SUB=1 to =0</i>	
	Coef.	T-value	Coef.	T-value	Coef.	T-value
<i>TOP_SUB</i>	-0.011*	-1.75				
<i>POST</i>			-0.029**	-2.01	0.009	0.56
<i>SIZE</i>	0.001	0.22	0.013	1.10	-0.006	-0.59
<i>ROA</i>	-0.236***	-2.62	0.145	0.85	-0.263*	-1.68
<i>SG</i>	-0.008	-1.54	-0.017	-1.35	-0.008	-1.19
<i>MB</i>	0.002	0.79	0.005	1.21	0.005	1.18
<i>ANA</i>	-0.011**	-2.30	-0.010	-1.44	-0.016	-1.57
<i>STDRET</i>	-0.159**	-2.10	0.170	1.05	-0.344**	-2.56
<i>INVEST</i>	-0.001	-0.02	-0.000	-0.00	0.168	1.20
<i>PPE</i>	-0.031	-1.09	0.008	0.17	-0.059	-1.06
<i>RD</i>	-0.689***	-2.92	-0.677	-1.54	-1.065*	-1.77
<i>AGE</i>	0.003	0.39	-0.040**	-2.38	0.011	0.77
<i>NUMSUB</i>	0.010	1.49	0.009	0.99	0.028**	2.39
<i>MINORITY</i>	0.075*	1.85	0.025	0.32	0.016	0.23
<i>SOE</i>	-0.001	-0.07	0.016	1.01	0.011	0.69
<i>Gov_Subsidy</i>	-0.179	-0.86	-0.021	-0.07	-0.316	-0.74
<i>Multi_Taxrate</i>	-0.018**	-2.15	0.005	0.24	-0.027*	-1.69
<i>AbsDA</i>	0.031	1.01	0.085	1.10	0.020	0.51
Year fixed effects	YES		YES		YES	
Industry fixed effects	YES		YES		YES	
N	1,844		464		550	
Adj-R <sup>2</sup>	0.145		0.108		0.197	

Panel D: Effective tax rates (GAAP\_ETR) for firms with and without multiple nominal income tax rates (Multi\_Taxrate =1 or 0)

	(1)		(2)	
	<i>Multi_Taxrate=1 firms</i>		<i>Multi_Taxrate=0 firms</i>	
	Coef.	T-value	Coef.	T-value
<i>TOP_SUB</i>	-0.012*	-1.89	-0.007*	-1.89
<i>SIZE</i>	-0.001	-0.31	-0.000	-0.02
<i>ROA</i>	-0.405***	-5.40	-0.338***	-6.87
<i>SG</i>	-0.002	-0.39	-0.005	-1.60
<i>MB</i>	0.002	1.56	0.001	0.55
<i>ANA</i>	-0.008*	-1.96	-0.005**	-2.16
<i>STDRET</i>	-0.039	-0.57	-0.022	-0.45
<i>INVEST</i>	-0.095*	-1.65	-0.001	-0.02
<i>PPE</i>	0.028	1.27	-0.006	-0.37
<i>RD</i>	-0.567***	-2.84	-0.984***	-7.22
<i>AGE</i>	-0.005	-1.06	0.005	1.46
<i>NUMSUB</i>	0.011**	2.23	0.012***	3.90
<i>MINORITY</i>	0.121***	3.48	0.093***	3.57
<i>SOE</i>	0.004	0.53	0.002	0.45
<i>Gov_Subsidy</i>	-0.169	-0.80	-0.381***	-3.75
<i>AbsDA</i>	-0.042*	-1.68	0.007	0.38
Year fixed effects	YES		YES	
Industry fixed effects	YES		YES	
N	2,251		6,361	
Adj-R <sup>2</sup>	0.120		0.133	

**TABLE 7**

**Two-stage least squares (2SLS) estimation of the influence of common managers on firm's effective tax rate**

This table presents the 2SLS estimation of the relation between the existence of common managers who also serve in firm's subsidiaries (*TOP\_SUB*) and the firm's effective tax rate (*GAAP\_ETR*). *DV* refers to the dependent variable in each column. In the first stage, *TOP\_SUB* is modeled using two instrument variables (IVs): the quality of local infrastructure (*Infrastructure*) and the mobility of the local society (*High\_Mobility*). *Infrastructure* is measured by the miles of "high-quality" roads divided by the total miles of all roads in the province where the firm headquarters are located. The mobility of local society (*Mobility*) is measured as total amount of passengers transported by public traffic vehicles, divided by the total population of the province where the company headquarters is located. *High\_Mobility* is denoted as 1 for firm-years with the value of *Mobility* higher than the sample median, and 0 otherwise. Data are obtained from the China Provincial Economic Datasets in the CSMAR database. The full sample consists of 8,574 firm-years during 2009-2013. The t-values are adjusted for heteroscedasticity. \*\*\*, \*\*, and \* indicate the significance levels of 0.01, 0.05, and 0.10, respectively, based on two-tailed statistical tests. Please see Appendix for variable definitions.

	Column (1)		Column (2)	
	First Stage		Second Stage	
	(DV = <i>TOP_SUB</i> )		(DV = <i>GAAP_ETR</i> )	
	Est. Coeff.	t-Stat	Est. Coeff.	t-Stat
<i>TOP_SUB</i>			-0.183***	-2.92
<i>Infrastructure</i>	0.154***	2.84		
<i>High_Mobility</i>	0.041***	3.44		
<i>SIZE</i>	-0.006	-0.87	-0.000	-0.07
<i>ROA</i>	-0.134	-1.18	-0.371***	-9.26
<i>SG</i>	0.008	0.95	-0.003	-1.02
<i>MB</i>	-0.003**	-2.13	0.001	0.78
<i>ANA</i>	0.017***	2.78	-0.003	-1.32
<i>STDRET</i>	-0.292**	-2.30	-0.085*	-1.77
<i>INVEST</i>	-0.013	-0.12	-0.029	-0.91
<i>PPE</i>	0.081**	2.18	0.018	1.28
<i>RD</i>	1.735***	4.10	-0.585***	-3.52
<i>AGE</i>	-0.125***	-14.41	-0.020**	-2.35
<i>NUMSUB</i>	0.014*	1.91	0.014***	5.37
<i>MINORITY</i>	0.348***	6.26	0.163***	5.76
<i>SOE</i>	-0.035***	-2.87	-0.004	-0.79
<i>Gov_Subsidy</i>	-0.289	-1.17	-0.403***	-4.11
<i>Multi_Taxrate</i>	0.013	0.96	-0.005	-0.98
<i>AbsDA</i>	-0.135***	-2.68	-0.031	-1.63
<i>First Stage Cragg and Donald Test (F-stat, 15% benchmark)</i>			(12.98)	
<i>Over-Identification Test (Chi-Square, p-value)</i>			(1.73, 0.19)	
<i>N</i>	8,574		8,574	