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A review of tax avoidance in China

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ABSTRACT

This paper synthesizes the major empirical findings of the burgeoning tax avoidance research in China from the accounting, finance, and economics literature over the last 13 years. It surveys the evidence in four main areas: (1) the mechanisms through which Chinese firms avoid income taxes; (2) the effects of government ownership and agency problem on tax avoidance; (3) tax avoidance and political connections; and (4) the roles of book-tax conformity, tax enforcement, and corporate governance. It also discusses the appropriateness of tax avoidance measures in the Chinese setting. Finally, it proposes important directions for future research.

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1. How do firms avoid taxes?

While current studies mainly focus on the determinants of tax avoidance, the ways in which firms avoid taxes is an overarching concern. Evidence in the literature shows that the main mechanisms of corporate tax avoidance in China include location migration, income shifting through transfer mispricing, inter-temporal income shifting through accruals management, and consumption bribery.

Taking advantage of the tax rate differentials across regions, Wu et al. (2007) investigate how firms react to the termination of a local government's first levying and then rebating taxes (FLTRT) policy. The authors find that firms losing the benefits of FLTRT lower their tax burden by changing their registration locations to regions with preferential tax rates. However, firms controlled by local governments do not choose location migration as their tax avoidance strategy, due in part to the local government's incentives to stabilize local incomes and the local economy.

Lo et al. (2010) and Shevlin et al. (2012) examine income relocation activities from a high to a low tax jurisdiction via transfer pricing manipulation. Using the ratio of gross profit from related-party sales to gross profit

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from unrelated-party sales to proxy for transfer pricing strategies, [Lo et al. \(2010\)](#) examine the effects of tax, financial reporting, and tunneling incentives on transfer pricing manipulation. They hypothesize that when managers' bonus plan is determined by the firm's reported earnings or the listed firm enjoys a reduced corporate tax rate, the firm has incentives to shift profits into the listed firm through transfer mispricing. In addition, government-controlled firms are more likely than the privately owned firms to siphon profits out of a listed company through transfer pricing manipulation. Hence, the shifting of profits increases with the ownership percentage of the controlling shareholder. Consistent with these expectations, the authors find that the transfer mispricing proxy is positively associated with firms' marginal tax rate, management's bonus, and the percentage of shares owned by the government as the controlling shareholder.

While their investigation centers on related parties (also known as affiliated firms) that are not part of a consolidated group, [Shevlin et al. \(2012\)](#) explore income shifting within a book-consolidated group. Shifting income out of a consolidated group reduces the profit of one of the parties, thereby increasing nontax costs. In contrast, shifting income among consolidated parties can reduce the firm's tax payments without affecting the listed firm's aggregate reported pretax income. A contribution of this paper is that the authors construct a measure of tax rate differential adjustments (TRDA, TRD*) to directly estimate the tax savings from shifting income to lower-taxed subsidiaries within a consolidated group. Chinese income tax laws require each consolidated subsidiary to calculate its current taxes on an independent legal entity basis. In contrast, Chinese accounting standards require that all controlled subsidiaries consolidate their income for book purposes. Such a different reporting treatment, along with substantial tax rate differentials across subsidiaries, allow firms to avoid taxes via income shifting at a low financial cost. More importantly, the disclosure in B-share firms' tax footnote captures this practice. The authors demonstrate that intangible-intensive firms and firms with a rights issue exhibit more tax savings from income shifting. However, they find no evidence that state-owned enterprises (SOEs) shift more (less) income than other firms after (before) the 2002 tax-sharing reform, presumably because of the small sample size.

Using the 2007 New Enterprise Income Tax Law reform as a setting, [Lin et al. \(2012\)](#) and [Lin et al. \(2014\)](#) investigate how firms use inter-temporal income shifting to save taxes through accruals management (e.g., accelerating expenses or deferring revenues) in the anticipation year of a tax rate cut. Identifying firms whose marginal tax rates (MTR) were greater than 25% in the pre-reform period as tax-induced earnings management motivated firms, [Lin et al. \(2012\)](#) report that firms with expected lower tax rates after the reform reported negative discretionary current accruals in 2007. However, this practice is less evident for SOEs with a larger state-owned ownership percentage and firms with stronger corporate governance.

[Lin et al. \(2014\)](#) develop their hypotheses based on an analysis of the nontax cost considerations of different ownership structures. Compared with public firms, private firms may engage in more inter-temporal income shifting because their nontax costs associated with reporting lower earnings are low. In contrast, public firms have a high financial reporting cost as they face more pressure from capital markets, public disclosure, and external monitoring. By limiting the sample to public and private firms with a tax rate decrease after 2007, the authors find that private firms report more negative current accruals before the year of the tax rate reduction than in other periods and that private firms report more income-decreasing current accruals than public firms in 2007. This suggests that firms take book-tax trade-offs into consideration when making tax decisions.

The most recent paper by [Tang \(2020\)](#) corroborates a unique type of corporate political activity (CPA) that firms undertake to lower their tax burden. Specifically, the author investigates whether and to what extent firms bribe tax officials through gift-giving, banqueting, and entertaining activities and the payoffs that firms gain from these practices. Studies of tax-related CPA in the U.S. have shown that firms connect to politics through lobbying, political action committees, and campaign contributions to influence tax policies and enforcement ([Correia, 2014](#)). However, these types of CPA cannot be generalized to China because of China's one-party system. Instead, consumption bribery (i.e., getting things done by offering lavish gifts, entertainment, and travel opportunities) is widely used to establish connections with government officials and reap preferential treatment in China ([Tang, 2020](#)).

Using one-year survey data, [Cai et al. \(2011\)](#) find that Chinese firms with a high industry tax burden incur more entertainment and travel costs (ETC), suggesting that ETC contain "greasy" money. [Tang \(2020\)](#) extend their study by using panel data extracted from publicly available financial statements and more refined research designs (e.g., the residual method, exogenous shocks, two-stage least squares estimations, and alter-

native tax burden measures). The author provides systematic evidence on the existence of tax corruption and bribery at the firm level. The results show that, on average, a one-standard-deviation increase in consumption bribery decreases a firm's total tax burden by 0.65%, translating into tax savings of RMB40 million (equivalent to US\$6.44 million). The decision of consumption bribery and its outcomes are determined by firm size, the strength of political connectedness, industry competitiveness, and the levels of local corruption, economic development, and marketization. This paper is the first to study listed firms' ability to reduce their tax burden through bribery and to verify the existence and magnitude of tax corruption in China using publicly disclosed financial statement data. It extends contemporary research on tax-related CPA.

Taken together, the mechanisms of tax avoidance in China documented by studies to date include location migration, income relocation from high to low tax-rate jurisdictions through transfer pricing manipulation, inter-temporal income shifting through accruals management, and consumption bribery.

2. Government ownership, the agency problem, and tax avoidance

A distinctive feature of Chinese capital markets, relative to their counterparts in developed countries, is the concentrated government ownership. Approximately 73% of listed firms are directly controlled by the government through the State Asset Management Bureau (SAMB) or government institutions or indirectly controlled through their prior SOEs (CSRC, 2005). On average, the largest shareholder owns more than 40% of a listed firm's shares (Chan et al., 2016).¹ The unique organizational structure formed by incompletely restructured SOEs, and the concentrated ownership and weak corporate governance mechanisms, create an environment conducive to insider abuse (Tang, 2016). Unlike most Western countries where diffuse ownership structures are typical and the principal-agent problem (i.e., the Type I agency problem) is prevalent, agency conflicts between controlling and minority shareholders (i.e., the Type II agency problem) in China are acute. Controlling shareholders' tunneling practices are pervasive and have been well documented (Chan et al., 2016; Tang, 2016; Lo et al., 2010).

Given this background, the managers of government-controlled firms have competing incentives for tax avoidance. They have incentives to make tax decisions favorable to the government rather than maximizing investors' interests because they are appointed and evaluated by the government. They are eager to protect government revenues by avoiding aggressive tax planning because such tax planning will raise the after-tax profits that benefit minority shareholders at the expense of the government (Bradshaw et al., 2019; Tang & Firth, 2011; Shevlin et al., 2012; Chan et al., 2016). However, these managers also have incentives to avoid taxes to maximize the corporate resources under their control and to facilitate the expropriation of such resources from minority shareholders (Tang, 2016; Tang & Firth, 2011; Chan et al., 2016; Tang et al., 2017; Lo et al., 2010).

The emerging agency perspective on tax avoidance suggests that tax avoidance activities create a shield for the diversion of rents, which facilitates the diversion of resources from shareholders to managers, or from minority shareholders to controlling shareholders (Desai and Dharmapala (2006); Tang, (2019)). Examples include telling outside shareholders that income-shifting out of the firm is for tax avoidance purposes or claiming that insider transactions are not reported to avoid detection by tax authorities (Chan et al., 2016). Therefore, whether SOEs avoid paying less or more tax than on-SOEs is an interesting empirical question.

Motivated by the agency theory of tax avoidance, Tang (2016) dissects the incentives behind SOEs' tax avoidance from the perspective of tunneling. By analyzing the incomplete privatization process, the author proposes that incompletely restructured SOEs have strong motivations and capabilities to expropriate wealth from minority shareholders. Evidence from a sample of B-share listed firms from 1999 to 2004 indicates that SOEs controlled by the central government (SOECG) and SOEs controlled by local governments (SOELG) engage in more tunneling activities than SAMB and non-SOEs do as the shareholding percentage increases. Further, the magnitude of their tunneling increases with the level of tax avoidance, suggesting that tunneling can be an incentive for tax avoidance.

¹ Although privatization reform substantially reduced the percentage of SOEs to 38% in Chinese stock markets, SOEs still made up 64.36% of the total market capitalization at the end of 2014 (Wong 2016).

Chan et al. (2016) provide direct evidence of tunneling-related tax avoidance. They find that corporate tax avoidance is positively associated with firms' tunneling magnitude after controlling for firm characteristics, corporate governance, and institutional factors that affect tunneling. Further investigation of the economic consequences of tunneling-related tax avoidance shows that the market discounts the value of firms that are strongly suspected of engaging in such practices. Specifically, for aggressive tunneling-related tax avoidance firms, a 1% increase in tax avoidance results in a decrease in firm valuation of between 0.17% and 0.21%, amounting to between RMB4.42 and RMB5.32 million. For aggressive tunneling-related tax avoidance firms with opaque disclosure, a 1% increase in tax avoidance leads to a 0.42% decrease in firm valuation, equaling approximately RMB9 million. These findings support the agency perspective on tax avoidance and reconcile the mixed evidence on the economic consequences of tax avoidance in U.S. studies (see Hanlon & Heitzman, 2010).

Li et al. (2017b) explore SOEs' tax avoidance activities in the context of China's split-share structure reform. Before the split-share structure reform in 2005, government-held shares were non-tradable. SOEs expropriated minority shareholders' wealth through cash distribution and tunneling. After the reform, government-held shares became freely tradable at market prices, better aligning the incentives/interests of the controlling shareholder with those of minority shareholders. Therefore, the mitigation of the agency conflict between controlling and minority shareholders motivates SOEs to create profits and enhance firm value through tax avoidance. Consistent with this prediction, Li et al. (2017b) present robust evidence that SOEs engage in more tax avoidance after the reform. This effect is more pronounced for local SOEs, firms located in regions with financial deficits, and firms with fewer layers, consistent with the view that government intervention plays a role in SOEs' tax avoidance strategies.

While these studies focus on agency problems from a business perspective, Tang et al. (2017) provide new insights into this aspect through the lens of intergovernmental agency problems. Local governments play dual but conflicting roles in China. They serve as tax collectors on behalf of the central government, and they are controlling shareholders of the firms from which they collect taxes. Being a tax collector, local governments tend to maximize the taxes collected to increase local fiscal revenue. However, as dominant shareholders, they have incentives to avoid taxes to maximize their after-tax returns. Prior to 2002, the tax-sharing system required that the income taxes collected from local government-controlled firms (LG firms) be exclusively assigned to the local governments and that those collected from central government-controlled firms (CG firms) be assigned exclusively to the central government. As such, there was no intergovernmental agency conflict, as local governments retained 100% of the taxes they collected. The payoff of collecting taxes was higher than that of avoiding taxes for local governments. The new tax-sharing system implemented in 2002, however, requires that the income taxes of LG firms be equally shared with the central government. Therefore, local governments must make trade-offs between the cost of sharing taxes with the central government and the cost of sharing after-tax profits with minority shareholders.

Using the 2002 tax-sharing reform as a natural experiment and a propensity score matching difference-in-differences method, Tang et al. (2017) explore how local governments balance their tax collection and tax avoidance incentives and whether local governments direct the firms they control toward tax avoidance to expropriate the central government's tax revenue. They provide robust evidence that tax collectors can also be tax avoiders and that the propensity of local governments (tax collectors versus tax avoiders) is determined by the tax revenue sharing ratio and their ownership percentage in the controlled listed firms. When local governments' ownership percentage in their controlled firms is higher than the tax-sharing ratio, local governments direct their controlled firms to avoid taxes. The reason is doing so increases both outside shareholders' return on investment and local governments' extra-budgetary revenue. Evidence also reveals that the tax avoidance of LG firms is significantly associated with local fiscal conditions, in line with the view that local governments expropriate central tax revenue to meet their financial needs through tax avoidance. This paper contributes to the literature on tax and public finance by incorporating a principal-agent government model into firms' tax behavior and shedding light on the long-unsolved puzzle of why SOEs avoid taxes.

Based on a 1999–2012 sample, Bradshaw et al. (2019) report a contradictory result, showing that SOEs exhibit higher effective tax rates (ETRs) and cash ETRs (their proxy for tax avoidance) than non-SOEs, and that local SOEs pay more taxes than central SOEs. They interpret this as evidence that SOEs (local SOEs) engage in less tax avoidance than non-SOEs (central SOEs). The underlying assumption is that the probability

of SOE managers being promoted is associated with SOEs' income tax paid; therefore, managers have an incentive to pay more taxes. However, these results should be interpreted with caution. First, their ETR measure neither rules out the effect of tax rate differentials nor controls for the impact of the new Enterprise Income Tax Law, effective in 2008, on firms' tax burden.² Hence, it reflects an innate tax burden more than tax avoidance. Second, their cash ETR measure is strongly correlated with the ETR measure because, before 2007, most firms adopted a tax payable method under which income tax expense equaled current tax expense. Moreover, the authors do not separate firms using the tax payable method from those using the tax effect method, which limits the ability of the cash ETR to capture tax deferral strategies. Furthermore, the study ignores the effects of the 2005 split-share reform and the 2002 tax-sharing reform on SOEs' tax avoidance decisions (see Li et al., 2017b; Tang et al., 2017).

Using confidential tax audit data, Chan et al. (2010) also find that firms with a higher percentage of government ownership are less tax compliant, although that is not their focus.³ A concurrent working paper by Chow et al. (2019) investigates the relationship between SOEs and tax evasion. Using a novel dataset of detected tax evasion cases disclosed in annual reports, the authors demonstrate that SOEs are more likely to evade taxes (the most aggressive form of tax avoidance) than non-SOEs. To further clarify why their findings contradict those from Bradshaw et al. (2019), the authors perform a set of correlation analyses. They conclude that neither the ETR nor the cash ETR used in Bradshaw et al. (2019) captures aggressive tax avoidance (especially tax evasion). They also find that tax evading SOEs are less likely to be caught and subject to more lenient penalties than non-SOEs when caught. These results document SOEs' inherent privilege from their rooted political connections and offer an alternative explanation for why SOEs are more tax aggressive than non-SOEs are.

Overall, the distinct feature of concentrated government ownership derived from China's incomplete privatization process creates acute agency problems and extraordinary rent expropriation incentives for government-owned firms. This institutional setting provides a new perspective that enables researchers to resolve interesting issues that the U.S. setting cannot. For example, why do SOEs avoid taxes? Who is the ultimate tax decision-maker for a firm: the controlling shareholder or the CEO? Do tax avoidance incentives go beyond the traditional purpose of tax savings? To what extent do rent extraction and tax avoidance interact? How do investors distinguish between real tax avoidance and diversionary tax avoidance? Under what circumstances is tax avoidance value-enhancing? How do intergovernmental agency problems affect tax avoidance in a decentralized tax administrative system?

3. Tax avoidance and political connections

The tax benefits of establishing political connections have been documented in the literature (see the review in Barrick and Brown, 2019). Studies show that U.S. firms attempt to influence tax policies and enforcement (e.g., audit intensity, audit outcomes, preferential tax treatment) through lobbying, campaign contributions, and political action committees (Chen et al., 2018). In contrast, Chinese firms engage in tax-related political activities mainly through connected directors and CEOs (Wu et al., 2012; Shen et al., 2019) and consumption bribery (Tang, 2020). For example, Wu et al. (2012) conjecture that private firms are in a disadvantageous position compared to SOEs because they lack government connections. The authors predict and provide evidence that hiring current or former government or military personnel as the chairman or CEO helps non-SOEs to lower their effective tax rates. However, there is no significant difference in the ETRs of SOEs with connected managers and those without connected managers. These results suggest that political connections do provide tax benefits to private firms and that SOEs have the strongest political connections rooted in government ownership.

² Prior to the new Enterprise Income Tax Law, state-owned and private-owned firms were subject to a corporate income tax rate of 33%, whereas foreign-invested firms (a subset of non-SOEs) were taxed at only 15%. Since 2008, all firms (SOEs and non-SOEs) have been taxed at 25%.

³ Chan et al. (2013b) find a negative association between government-owned firms and tax avoidance. However, this association only exists for SOECG firms.

Chen et al. (2019) examine the effect of provincial governors' regional favoritism on corporate tax avoidance activity. They propose that firms located in a municipality where the incumbent provincial governor has held a key office for more than one year receive political favoritism (e.g., preferential tax policies, lax enforcement, lenient levies), making these firms more tax aggressive. The results show that firms located in regions formerly administered by the incumbent provincial governors exhibit a higher level of tax avoidance than other firms. Additional analysis reveals that politically connected firms (i.e., firms whose chairmen or CEOs previously held positions in local government) in the favored region avoid more taxes than other firms in the same region. However, the channels through which governors convey such favoritism remain unknown.

Shen et al. (2019) investigate the effect on tax avoidance of political connections through hometown, workplace, and education ties. The results show that CEO and board member hometown ties (Laoxiang) with the local municipal Party committee secretary increase a firm's tax avoidance by 7.4%, whereas past employment ties only increase tax avoidance by 0.5%. There is no evidence that college ties affect tax avoidance. In addition, the effect of hometown ties on tax avoidance is only significant for non-SOEs, indicating that SOEs depend less on political connections to obtain resources from the government than non-SOEs do. Further analysis shows that hometown ties serve as a sturdy political shield and that politically connected firms are more likely to receive government subsidies.

Tang (2020) also shows that non-SOEs, small firms, SOEs with weak political connections, and firms in competitive industries spend more on entertainment and travel expenses to bribe tax officials to lower their tax burden than their counterparts do, implying that these firms have a stronger need to build political connections to clear bureaucratic obstacles and gain competitive advantages.

4. The effects of book-tax conformity, tax enforcement, and corporate governance on tax avoidance

4.1. Book-tax conformity

Book-tax conformity refers to reducing the extent to which managers can report accounting earnings that differ from taxable income based on accounting and tax rules, or vice versa (Tang, 2015). Since 1985, China has moved from basing financial accounting standards on tax codes towards an independent book-tax system. Before 1985, there were no book-tax differences (BTD) because the rules for measuring accounting income were the same as those for measuring taxable income. With the harmonization of China's Generally Accepted Accounting Principles with the International Financial Reporting Standards and the importation of some international tax laws, the gap between accounting and tax income has gradually increased (Chan et al., 2013a; Tang & Firth, 2011). The book-tax system divergence allows managers to aggressively report financial profits and taxable income simultaneously. Tang and Firth (2011) note that Chinese BTD fluctuate over time, but the variation cannot be solely attributed to regulatory changes during the observation period. Instead, they find that tax avoidance explains 27.8% of abnormal BTD.

Using confidential tax audit data for listed firms from 1996 to 2003, Chan et al. (2010) document that firms' tax noncompliance (measured as tax audit adjustments from Chinese tax authorities) increases as book-tax reporting conformity decreases. The informativeness of book-tax differences for tax noncompliance decreases as book-tax reporting conformity decreases. These results are consistent with Tang (2015) who demonstrates that a highly aligned book-tax system mitigates earnings management and increases tax compliance in an international setting.

4.2. Tax enforcement

Research on the role of tax enforcement in curbing tax avoidance is limited partly because of the difficulty in measuring tax enforcement. Lin et al. (2018) investigate a direct relation between tax enforcement and firms' tax burden and whether political connections (measured by board members' workplace ties) reduce the sensitivity of the ETR to tax enforcement. They first construct a province-level tax enforcement measure using aggregate data from the China Tax Audits Yearbook (2003–2013), including (i) permanent employees; (ii) tax inspectors; (iii) employees with a Bachelor's degree and/or professional qualification, and their age range; (iv) corporate taxpayers; (v) corporate tax returns audited; (vi) audit departments; (vii) suspicious cases; (viii)

cases prosecuted; (ix) cases closed; (x) regional tax revenue; (xi) tax deficiencies settled; (xii) overdue tax surcharges; and (xiii) tax penalties, interest, and fines. They classify this data into three factors (i.e., probability, expertise, and outcome) and construct an aggregate enforcement measure by ranking and calculating three factors' mean ranking for each region and year.

Next, [Lin et al. \(2018\)](#) demonstrate that tax enforcement strength is positively associated with ETR, suggesting that strong regional enforcement increases firms' tax burden in that region. However, this positive association is weakened for firms with a politically connected board. The authors interpret this as evidence that tax agencies subject the tax aggressiveness of connected firms to less scrutiny and lighter punishment, making their tax burden significantly lower than the statutory rate. However, two questions remain unanswered. Should connected firms have a lower tax burden than non-connected firms? If so, is the lower tax burden a result of connected firms receiving more preferential tax rates and subsidies (see [Shen et al., 2019](#)) or a reflection of connected firms benefiting from lenient tax enforcement and engaging in more tax avoidance? Does the association between ETR and political connections significantly differ between weak and strong enforcement regions?⁴

Using two tax enforcement intensity proxies (measured by the industries that are subject to stricter scrutiny by the tax authority in a year and the amount of tax revenue collected from tax audits scaled by the total tax revenues collected in a province respectively), [Chow et al. \(2019\)](#) find no evidence that past tax enforcement intensity curbs tax evasion. Instead, there is evidence showing that the strength of local law enforcement helps prevent tax evasion.

[Xiao and Shao \(2020\)](#) provide evidence that the enhanced tax enforcement driven by the implementation of the third stage of the China Tax Administration Information System pilot deters firms from hiding profits from tax authorities (e.g., underreporting accounts receivable or over-reporting accounts payable, inventory, or the number of employees).

[Cen et al. \(2017\)](#) examine the effect of regional tax enforcement intensity (their proxy for external governance) on the relation between tax avoidance and the cost of debt. Using China's New Regulation on bonds issuance in 2015 as a shock, the authors test for two competing effects of tax avoidance on the cost of debt: the tax-saving effect versus the risk exposure effect. The results reveal a negative (positive) relation between tax avoidance and the cost of debt before (after) the implementation of the New Regulation, suggesting that the risk exposure effect prevails over the tax-saving effect when the external governance of the bond market is weak. Evidence also shows that the relation between tax avoidance and the cost of debt varies with regional tax enforcement intensity.

4.3. Corporate governance

Few studies investigate the direct relation between corporate governance and tax avoidance. [Chan et al. \(2013a\)](#) use the percentage of independent directors on a board, board equity holdings, and CEO–chairman duality to measure corporate governance. The OLS results show that non-SOEs with CEO–chairman duality and more shares owned by directors are more tax aggressive. SOEs with higher board equity holdings also engage in more tax avoidance. However, there is no evidence that the percentage of independent directors on a board is associated with tax avoidance for either SOEs or non-SOEs. Another study by [Lin et al. \(2012\)](#) reports that firms with better corporate governance mechanisms (measured by a higher percentage of independent directors, the presence of an audit committee, and voluntary disclosure of internal control systems) engage in less inter-temporal tax-induced income shifting.

[Zhang et al. \(2016\)](#) study the relation between state pyramids and effective tax rates for local SOEs. They are not interested in tax avoidance. Instead, they regard a high ETR for SOEs as indicating a high level of

⁴ The benefits of establishing political connections include preferential tax treatment, low regulatory penalties, and less scrutiny and oversight ([Wu et al., 2012](#)). A low ETR can be driven by a low applicable tax rate and/or a high level of tax avoidance in China. If connected firms enjoy a low tax burden, it is unsurprising that the sensitivity of ETR to tax enforcement is mitigated for connected firms. Without teasing out the causes of a low ETR and the effect of political connections on ETR, it is difficult to conclude that firms with a lower ETR are more tax aggressive than their counterparts and that political connections weaken tax enforcement effectiveness in constraining tax avoidance.

government intervention. Claiming that a pyramidal structure can reduce government intervention, the authors hypothesize that local SOEs with more state pyramid layers have a lower ETR (their proxy for government intervention). They then attribute a negative relation to the role of pyramidal structures in reducing local SOEs' tax burdens. While it is unclear why a high ETR represents high political involvement, an alternative explanation of their results is that SOEs' multiple pyramidal structure facilitates income shifting, which lowers the corporate tax burden.

5. The appropriateness of tax avoidance measures

Prior literature has analyzed various tax avoidance measures commonly used in U.S. studies, such as ETR, BTD, Cash ETR, UTB (unrecognized tax benefits), tax sheltering (see Hanlon and Heitzman 2010 for a review). While each measure has its pros and cons, which measure is most appropriate depends on the specific research question. Careful thought should be given to the research question to be addressed, what will be measured and tested for, and what inferences can be drawn from the results given the measurement used. It is also crucial to ascertain whether and why U.S.-based tax avoidance measures can be readily applied to China's institutional and operating environments.

5.1. ETR

ETR is the most widely used metric in tax literature. A key limitation of the ETR measure, however, is its inability to distinguish between tax savings from innate tax preferences and tax savings from aggressive tax reporting. Unlike the U.S. setting where all corporations are subject to an identical statutory tax rate, Chinese firms are subject to heterogeneous income tax rates based on location, ownership type, firm age, and industry (Wu et al., 2007; Tang & Firth, 2011; Shevlin et al., 2012). As such, the ETR measure in China captures both innate tax rate differentials and intentional tax avoidance. Without controlling for the applicable tax rate, it is assertive to infer that firms with a lower ETR are more tax aggressive than those with a higher ETR. In my opinion, ETR is a good measure of tax burden whereas the modified ETR (e.g., $ATR - ETR$ or ETR/ATR) better captures tax avoidance.⁵

5.2. Cash ETR

The cash ETR measure is also a popular tax avoidance metric, which is the ratio of cash paid to pretax book income. One advantage of the cash ETR measure is that it captures tax deferral strategies but is not affected by changes in tax accounting accruals. The concern of mismatching over the cash ETR is not an issue in China, because China requires that all firms use the calendar year for both financial and tax reporting. However, caution should be taken that, before 2008, almost all Chinese listed firms adopted the tax payable method under which no deferred tax was recognized. Furthermore, income tax paid is not available in Chinese listed firms' cash flow statements. Researchers interested in this measure may have to estimate income tax paid and ensure that the firms in their sample adopt the tax effect method.

5.3. BTD, DDBTD, and DTAX

BTD is a function of accounting-tax misalignment, earnings management, and tax avoidance. Tang and Firth (2011, 2012) perform a comprehensive study of the theoretical framework, composition, and different information content of Chinese BTBTD. One of the significant contributions made by Tang and Firth (2011) is distinguishing the regulatory and opportunistic components of BTBTD. The authors document that different reporting rules between accounting standards and income tax laws explain approximately 77% of BTBTD in China. Furthermore, the variation in ABTD is caused by earnings management, tax avoidance, and their interaction. These results provide a caveat for researchers when using BTBTD as a proxy for tax avoidance

⁵ Please note that the ATR of a listed firm may be different than that of its subsidiaries or parent firm. Using the weighted average ATR of consolidated parties will help minimize potential noise in the modified ETR.

and when using ABTD to separately investigate EM or TM. While the income-effect BTD is widely used in the U.S., Tang and Firth (2011) demonstrate that the tax-effect BTD is superior conceptually and empirically in the Chinese setting.⁶

A few studies follow Desai and Dharmapala (2006) to estimate discretionary BTD by regressing total BTD on total accruals, in which total accruals are used to control for earnings management. Under China's institutional background, however, the residual from Desai and Dharmapala's estimation model captures most of the regulatory differences between accounting and tax reporting rules. In addition, the effectiveness of total accruals in capturing earnings management is arguable. A similar measure is the discretionary portion (DTAX) of permanent BTD constructed by Frank et al. (2009). Permanent BTD is measured as the difference between the effective and statutory tax rates multiplied by pretax accounting income. An assumption underpinning this measure is that tax avoidance generates permanent differences, whereas earnings management creates only temporary differences. As a result, DTAX fails to reflect tax avoidance activity that may give rise to temporary differences, such as shifting income from a high- to a low-tax year.

6. Summary and thoughts for future research

China's unique institutional characteristics and its position as the world's second-largest economy provide excellent opportunities to research tax avoidance activities. These distinctive features include but are not limited to the acute Type II agency problem caused by the concentrated ownership structure, substantial tax rate differentials across firms, industries, regions, and years, double stock markets, rigid capital issuance requirements, the dual role of government as the tax claimant and the controlling shareholder of SOEs, the transition from a tax-based accounting system to a divergent accounting-tax system, and frequent accounting and tax reforms.

Given that China's tax regimes, enforcement, market practices, and institutional factors are quite different from those of the U.S., studies of these factors in the Chinese setting will supplement and enrich the tax literature. There are many potentially exciting avenues for future research. For example, do the magnitude and mechanisms of tax avoidance differ among ownership structures (e.g., SOELG vs. SOECG, SOEs vs. non-SOEs, public vs. private firms)? If so, why, and how? Do Chinese firms leverage mergers and acquisitions to avoid taxes? Apart from documenting the causes and consequences of tax avoidance, more in-depth studies of new devices for tax avoidance are needed. Such empirical work has the potential to contribute to our understanding of tax practices and corporate and individual behaviors in organizations. With the increasing role of multinational SOEs in the global marketplace, international transfer pricing and overseas tax haven investments are worthy of further exploration. While current studies dominantly focus on corporate income tax avoidance,⁷ research on whether and how taxpayers avoid other taxes (e.g., value-added tax, individual tax, capital gains tax) will be theoretically and practically crucial.

China's tax research has progressed rapidly in the last decade, but it is still at an early stage compared with U.S. studies. Its growth is impeded by concerns regarding methodological rigor and theoretical grounding. While some research results and measures built on U.S. studies cannot be readily transferred to the Chinese context, I encourage researchers to expand these boundaries by delving into both traditional tax theories and competing views. Integrating the unique features of China's capital markets and tax environments into the growing tax literature and developing a Chinese-specific theory will offer novel insights into the tax world and the implications of tax avoidance in emerging markets.

⁶ Tang and Firth (2012) find that regulatory and opportunistic sources of BTD have different implications for the accounting-based and market-based attributes of earnings quality. Abnormal BTD and normal BTD are incrementally informative about earnings persistence and go beyond the information in discretionary accruals and total accruals, suggesting that investigating BTD adds value to investors in assessing firms' underlying performance.

⁷ One exception is Li et al. (2017a), who investigate how individual investors' dividend taxes affect a firm's dividend payout policy. Although their focus is not on tax avoidance, they find that investors reduce trading activities in the month before a cum-dividend day to lower their dividend tax rates in response to the 2012 dividend tax reform.

Declaration of Competing Interest

The authors declare that they have no known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper.

Appendix A. A comparison of studies on tax avoidance in China

Study	Tax avoidance measure	Findings
Wu et al. (2007)	$ETR = (\text{tax expense} - \text{deferred tax expense}) / \text{profit before interest and tax}$	Firms with FLTRT lower their tax burden by moving business registration location to low tax rate regions.
Chan et al. (2010)	$ADJ = \text{total tax audit adjustments} / \text{sales revenue}$	Tax noncompliance increases as book-tax conformity decreases.
Tang and Firth (2011)	$\text{Tax-effect BT}D = (\text{prima facie income tax expense} - \text{current tax expense}) / \text{total assets}$ $ABTD = \text{the component of BT}D \text{ unexplained by regulatory differences} / \text{total assets}$	Firms with strong incentives for earnings and tax management exhibit high ABTD.
Tang and Firth (2012)	$ABTD = \text{the component of BT}D \text{ unexplained by regulatory differences} / \text{average total assets}$ $NBTD = (BT}D - ABTD) / \text{average total assets}$	Firms with greater tax avoidance and earnings management exhibit less persistent earnings. Large NBTD increases the earnings–returns relation but large ABTD do not.
Wu et al. (2012)	$ETR = \text{income tax expense} / (\text{profit before tax} + \text{asset depreciation reserves excluding provisions for bad debts} - \text{investment returns} + \text{cash dividends received} + \text{cash bond interest received})$	Politically connected non-SOEs enjoy more tax benefits than their counterparts. There is no significant difference between the ETRs of connected and non-connected SOEs.
Shevlin et al. (2012)	$TRDA = \text{tax rate differential adjustments in tax footnote}$ $TRDA^* = PTBI^*(t_h - t_p) + TRDA$	Intangible-intensive firms and firms concerned with meeting minimum earnings thresholds to issue equity avoid taxes by shifting income from high-rate to low-rate subsidiaries within a consolidated group.
Chan et al. (2013b)	$ETR = \text{the current portion of tax expense} / \text{adjusted taxable income} (\text{profit before tax} + \text{asset impairment} - \text{investment returns}) (\text{excluding cash dividends and bond interests})$ $RETR = ETR / ATR$	There is a negative association between government-owned firms and tax avoidance, but only for firms owned by the central government. Firms with higher board equity holdings are more tax aggressive.
Tang (2016)	$ABTD = \text{abnormal BT}D \text{ with DACC control}$ $METR = ETR / ATR$ $MCETR = CETR / ATR$	SOELG and SOECG engage in more tunneling than SAMB and non-SOEs do. The tunneling magnitude of SOECG increases with their tax avoidance level.
Chan et al. (2016)	$DETR = ETR - ATR$	Tunneling is positively associated with tax avoidance. This association is more pronounced when firms are short of cash resources and the investor protection environment is weak. The market discounts this tunneling-related tax avoidance.

(continued on next page)

Appendix A (continued)

Study	Tax avoidance measure	Findings
Li et al. (2017b)	ETR with ATR control	SOEs increase their tax avoidance after the split-share structure reform.
Cen et al. (2017)	ETR = (income tax expense – deferred income tax expense) / (EBIT – interest expense) SME = STR – ETR	The relation between tax avoidance and the cost of debt varies with the strength of external corporate governance regulations.
Tang et al. (2017)	METR1 = (income tax expense/pretax book income)/ATR METR2 = (income tax expense/net operating cash flows)/ATR	The intergovernmental agency conflicts resulting from the 2002 tax-sharing reform have led to more tax avoidance by SOELG, particularly when SOELG's ownership percentage is higher than the tax-sharing ratio.
Lin et al. (2018)	ETR = income tax expense/pretax income before special items	The positive relation between tax enforcement and ETR is weakened by political connections.
Bradshaw et al. (2019)	ETR = current income tax expense/pretax income CETR = (current income tax expense + beginning-of-year income taxes payable – end-of-year income taxes payable)/pretax income	SOEs avoid fewer taxes than non-SOEs. SOEs' ETR/CETR is positively associated with the probability of manager promotion.
Chen et al. (2019)	TA_BTD = (pretax income – taxable income)/total assets TA_ETR = STR – ETR	Firms located in favored regions that were formerly administered by the incumbent provincial governor show a higher level of tax avoidance than other firms.
Shen et al. (2019)	Income-effect BTD = (pretax financial income – taxable income)/total assets DDBTD = the component of BTD unexplained by total accruals	CEO hometown ties to local government officials positively affect tax avoidance.

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