

Does Tax Enforcement Influence the Financial Reporting Quality of Private Firms? Evidence from a Natural Experiment in China

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February, 2018

We thank, for their helpful comments, research workshops/Ph.D. seminar participants from City University of Hong Kong, Sun Yat-sen University, and University of Waterloo. Jeong-Bon Kim and Bing Li acknowledge partial financial support for this project from the Wadsworth Endowed Chairship at the University of Waterloo and the City University of Hong Kong Start-up Grant. Guangzhong Li acknowledges the financial support from the National Natural Science Foundation of China (71772190) and the Fundamental Research Fund for the Central Universities of Sun Yat Sen University. Fansheng Jia acknowledges the financial support from the China Ministry of Education of Humanities and Social Science Foundation (17YJC790058). All errors are, of course, our own.

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ABSTRACT

This study investigates how local government tax enforcement influences the financial reporting quality (FRQ) of privately held firms. To establish a causal relation between the two, we exploit China's province-managing-county (PMC) reform in 2003 as an exogenous shock to prefectural governments' fiscal revenue and tax enforcement. Our results reveal that the heightened post-reform tax enforcement leads to improved FRQ for private firms incorporated in a PMC-reformed city. The positive effect of the PMC reform on FRQ becomes insignificant: (1) when the local prefectural government is less fiscally squeezed in the post-reform period; (2) for private firms outside the prefectural local government's tax jurisdiction; or (3) for state-owned enterprises (SOEs) for which the prefectural city government has less incentive to collect tax. Our heterogeneous treatment tests find that the positive effect is stronger for non-SOEs with less managerial agency problems and for non-SOEs that might be more concerned about the adverse reputation consequence of tax planning. We also find that the stricter tax enforcement induced by the PMC reform reduces tax avoidance by privately held firms. Our study provides valuable insights into the role of local government tax enforcement in shaping private firms' FRQ in emerging countries with weak legal and institutional infrastructures.

JEL Classification: G38, H26, M40

Keywords: Tax enforcement, Accounting quality, Province-managing-county reform

1. Introduction

Extending current literature on the financial reporting of privately held firms (firms not traded on public stock exchanges) (e.g., Ball and Shivakumar 2005; Burgstahler et al. 2006, Givoly et al. 2010; Chen et al. 2011; Hope et al. 2013; Bonacchi et al. 2016), this study investigates how the local government's tax enforcement influences the financial reporting quality (FRQ) of private firms under its jurisdiction. For this purpose, we take advantage of China's province-managing-county (PMC) reform that started in 2003. Under this reform, prefectural local governments generally experience a revenue shortfall or fiscal squeeze (Liu and Alm 2016), thus incentivizing them to implement stricter tax enforcement to redress lost revenue. As an exogenous shock to prefectural local governments' fiscal revenue and tax enforcement, the PMC reform, thus, provides a natural experimental setting in which to apply a difference-in-differences (DiD) analysis, aiming to establish a *causal* relation between local governments' tax enforcement and private firms' FRQ at the local level.

Examining the *causal* link between government tax enforcement and private firms' FRQ is interesting and relevant for the following two reasons. First, in their comprehensive review of the recent tax research, Hanlon and Heitzman (2010) propose that more work on privately held firms may be important beyond using them as a comparison group for publicly held firms, since private firms have different ownership structures, different financial reporting incentives, and different external monitoring mechanisms, and constitute a large portion of our economy.¹ However, prior research

¹ For the Chinese manufacturing sector studied in this paper, the share of total profits contributed by publicly listed firms was only about 15% in 2007 (Data source: CSMAR database).

has paid little attention to the role of government tax enforcement in private firms' financial reporting, in part because it is both difficult and costly to collect financial data on private companies that are, in most cases, not subject to the mandatory disclosures and public filings. To fill this void, we construct a large sample of privately held firms in China to examine the relation between tax enforcement and FRQ.

Second, like many emerging countries, private firms in China are required by law to submit the financial statements to government agencies. The government agencies, including local industry and commerce administration bureau and tax authority, actually make all kinds of inspection decisions based on the analyses of the private firms' financial reporting.² However, little is known about how effectively the government can influence private firms' FRQ. By providing evidence for the causal and heterogeneous treatment effects of tax enforcement on *private* firms' FRQ, our study not only provides evidence on how tax enforcement influences private firms that are, in general, of greater economic importance, but it also helps us better understand private firms' financial reporting incentives in China, a representative of emerging markets with relatively weak legal and institutional infrastructures.

It is unclear, *ex ante*, how the government tax enforcement affects private firms' FRQ. On the one hand, due to its tax claim on a firm's profit, the government is, in effect, the largest minority shareholder in all companies (Dyck and Zingales 2004; Desai et al. 2007). Like other minority shareholders, the government has an incentive to ensure that it receives a "true" share of profits *via* tax collection. The government, therefore, has an interest in ensuring the accurate reporting of taxable income, which helps to

² For example, most Chinese large tax bureaus have developed computer programs to screen the financial statements and classify enterprises into different audit classes (Huang 1996).

improve firms' FRQ. In the U.S. where the Securities and Exchange Commission (SEC) is a non-tax government agency responsible for regulating and monitoring public firms' financial reporting, Hanlon et al. (2014) find a positive *association* between tax enforcement and public firms' FRQ.

On the other hand, as a bystander of capital markets, private firms are subject to fewer regulations and face relatively low demands for high-quality accounting information. The major capital providers to private firms often have exclusionary access to inside information and typically take a more active role in management (Chen et al. 2011). This may give rise to greater information asymmetry between controlling insiders and outside stakeholders, making it more difficult and costlier for outside stakeholders to monitor privately held firms, in comparison with publicly listed firms. Consequently, when the government implements tougher tax enforcement, private firms may engage more in opportunistic reporting to avoid tax, which could lead to a higher obfuscation and a lower FRQ. An implication from the above discussion is that findings from public firms may not be directly applicable to private firms; thus, it is ultimately an empirical question whether tougher tax enforcement by the local government affects the FRQ of private firms under its tax jurisdiction.

Examining the causal relation between local government tax enforcement and private firms' FRQ is a challenging task for the following reasons. First, government tax enforcement is unobservable and, thus, difficult to measure. Although existing theories have emphasized the importance of tax enforcement in various aspects of corporate finance, the reliable proxies for tax enforcement are still difficult to construct (Dyck and Zingales 2004; Desai and Dharmapala 2006; Desai et al. 2007). Second, examining the

effect of tax enforcement on private firms' FRQ requires explicit consideration of correlated omitted variables and potential reverse causality associated therewith. For example, if local firms tend to report low-quality accounting information to avoid tax, the government may implement stricter tax enforcement. In other word, low-quality accounting information may trigger stricter tax enforcement. Alternatively, the link between government tax enforcement and FRQ may simply be driven by some correlated omitted variables. For instance, firms that enjoy protection from politicians might care less about FRQ; for these firms, tax enforcement could also be relatively less strict.

To address these issues, we use, as a natural experimental setting, the PMC reform under which prefectural local governments experience a shortfall in revenue sources or fiscal squeeze. Since 2003, the Chinese central government has gradually launched the PMC reform across the provinces. The PMC reform removes the prefectural city government as the intermediate layer between the provinces and counties, replacing the “city-managing-county” fiscal system with direct management by the provincial government of all fiscal transactions between the province and counties (see Fig. 1). Aiming to ease the financial strain on county-level governments, the PMC reform generally inflicts severe revenue loss on prefectural city governments (Liu and Alm 2016, p85). Chen (2017) finds that local governments will implement tougher tax enforcement when experiencing a fiscal squeeze due to this abolition. Exploiting the PMC reform, our study focuses mainly on how changes in government tax enforcement (associated with the PMC reform) are linked to the FRQ of firms within the jurisdiction of a prefectural city government. As the PMC reform are staggered over time and across

cities, China's PMC reform provides a unique opportunity to apply the DiD approach with firm and year fixed effects to evaluate the *causal* impact of tax enforcement on *private* firms' reporting behavior.

To examine how the PMC reform affects FRQ, we first obtain firm-level data from the Annual Surveys of Industrial Production conducted by the Chinese National Bureau of Statistics. We construct a novel dataset from numerous official sources to identify the PMC-reformed cities and the timing of PMC reform in each of them. After merging PMC-reformed cities with firm locations, our DiD estimation finds that private firms' FRQ measured by discretionary accrual and discretionary revenue improves when their cities of incorporation experience the PMC reform. The reverse causality tests suggest that the parallel assumption is satisfied and the PMC reform improves private firms' FRQ, not *vice versa*. Consistent with our causal interpretation of the effect of PMC reform on FRQ, we also find that this effect gradually *increases* in the post-reform period.

To further confirm tax enforcement channels through which the PMC reform affects FRQ, we examine how the effect varies with the prefectural city government's needs/incentives of greater enforcement. First, we test whether the effect varies with the degree of the prefectural city government's fiscal squeeze and its potential alternative revenue streams outside the budget system. If the effect of PMC reform is due to fiscally squeezed cities implementing tougher tax enforcement, the effect should be weaker for cities experiencing little impact on their revenue and those with more alternative revenue sources. We find supportive evidence that the effect disappears for prefectures in which the reformed counties contributed less to their fiscal revenue before the reform, and for

prefectures with abundant land supply which can be used to generate fiscal revenue from land leasing in the post-reform period.

Second, we test whether the effect varies with a firm's tax jurisdiction status. The effect of PMC reform on FRQ could only be a byproduct of tax authorities' interest in the accurate reporting of taxable income. If the effect is due to fiscally squeezed cities pursuing tougher tax enforcement, it can only affect firms under the prefectural city government's tax jurisdiction. We find that PMC reform has no effect on firms controlled by the central government or provincial government, over which the prefectural city government has no tax jurisdiction. For local firms within the tax jurisdiction, though, the effect of PMC reform remains significant and stronger.

Finally, we examine whether the effect of PMC reform varies with different incentives of the prefectural city government to collect tax from particular firm types. In China, local governments play the dual role of tax collector and tax payer. Tang et al. (2017) find that, following the 2002 Chinese tax-sharing reform, provincial governments may expropriate the central government's tax revenue by encouraging direct provincial-government-controlled firms to avoid tax. In a similar vein, we argue that prefectural city governments may have less incentives to collect tax from prefectural government-controlled firms than from non-state-owned enterprises (non-SOEs), as all the taxes collected by prefectural governments will be passed on to the provincial government, which is responsible for redistribution. Our results show that, for firms within the prefectural city government's tax jurisdiction, the PMC reform only affects non-SOE firms' FRQ.

After establishing the *causal* effect of tax enforcement on private firms' FRQ, we implement double DiD tests to examine whether the effect of PMC reform varies with firm characteristics. We believe that the tests of heterogeneous treatment effect can not only help to mitigate the concern that some omitted firm or city variables are driving our results but also help to shed light on the other forces internal to firms might influence the effect of external monitoring by the tax authority.

In China, because of insufficient manpower, tax audits are not sufficient and the tax evasion is prevailing (Chan and Mo 2000). The cost of being caught due to tax evasion is relatively low, a fine of not more than five times the amount of tax evaded.³ Therefore we expect the factors that affect the effectiveness of tax enforcement on FRQ could be different in China. Inspired by Hanlon et al. (2014), we first examine whether the effect of PMC reform varies with firms' managerial agency problems. Following Ang et al. (2000) and Singh and Davison (2003), we measure managerial agency costs by the industry-adjusted annual operating expense to sales ratio. Firms with above-median expenses-sales ratios in the same year, city, and industry are classified as firms with high managerial agency problems. Our results show that the positive effect of tax enforcement is more pronounced and stronger for firms with lower managerial agency problems.

Graham et al. (2014) demonstrate that reputation concern is the second most important factor that helps to explain why firms do not adopt aggressive tax planning

³ Any person who willfully attempts in any manner to evade or defeat any tax imposed by this title or the payment thereof shall, in addition to other penalties provided by law, be guilty of a felony and, upon conviction thereof, shall be fined not more than \$100,000 (\$500,000 in the case of a corporation), or imprisoned not more than 5 years, or both, together with the costs of prosecution (The tax code, 26 United States Code section 7201).

strategies. To the extent that tax audits and being caught for tax evasion may lead to a significant loss of firms' reputation, our second heterogeneous treatment test examines whether that private firms that concern more about their reputations are more likely to increase their FRQ when facing heightened tax enforcement. Consistent with this conjecture, we find that firms with higher profitability and more growth opportunities experience a more pronounced improvement in FRQ.

Our paper contributes to the existing literature in several ways. First, Keen and Kotsogiannis (2002) show that federal tax architecture has an important effect on state tax, and that coordination between federal and state taxes would be welfare-improving. Our study shows that fiscal tax architecture change can affect private firms' FRQ through its effect on local government's incentive to implement stricter tax enforcement.

Second, we provide evidence on the *causal* effect of tax enforcement on improving private firms' FRQ, consistent with the theory proposed by Desai et al. (2007) that tax authorities serve as a corporate governance mechanism of insiders and improve the quality of financial reporting by public firms. Furthermore, we show that managerial agency issues internal to firms may significantly attenuate the effect of external monitoring by the tax authority in China. Consistent with Graham et al. (2014), we find that reputation concern might be an important reason why private firms improve their FRQ when tax enforcement is stricter. Our findings are interesting and relevant given that private firms, as the major source of employment and economic growth in most countries, are of greater economic significance than publicly listed firms.

Finally, our study has policy implications that can be generalized to other economies, as the fiscal hierarchical system is a global phenomenon and local

government plays an important role as both tax payer and tax collector in many economies. While prior literature has shown that changing a hierarchical fiscal management system may induce a significant change in city governments' taxation behaviors, expenditure patterns, and economic performance (Ma 2005; Mookherjee 2006; Li et al. 2016; Liu and Alm 2016), our study suggests that the changes of hierarchical fiscal system may affect firms' FRQ. This has important implications for a firm's cost of capital and, thus, its investment and financing decisions.

2. Institutional Background and Hypothesis Development

2.1. Financial reporting of private firms in China

Similar to most countries, private firms in China are not subject to the mandatory disclosures of their financial statements. However, there are regulations that require private firms to report financial statements. For example, the "Law of Corporation (1999)" specifically requires that a company shall establish its financial and accounting system in accordance with the relevant national statutes, administrative regulations and the stipulations of the finance authority under the State Council (Article 174). Article 25 of the Law of the People's Republic of China on the Administration of Tax Collection also requires that, taxpayers shall, within the time limit..., truthfully complete the formalities for tax declaration and submit tax returns, financial and accounting statements as well as other relevant information on tax payments as required for the taxpayers by the tax authorities in light of actual needs. In general, the private firm's financial statements do not need to be audited by external auditors before 2004 until the "Law of Corporation (2004)" further requires that all the financial statements must be audited by external auditors.

In China, private firms' financial statements remain confidential to the public and the reporting quality of private firms is more likely to be influenced by factors related to conformity with tax reporting, government regulations, and objectives other than meeting the information needs of external providers of capital, which is similar to private firms in most other countries (Ball and Shivakumar 2005; Burgstahler et al. 2006). Due to the insufficient manpower, the Chinese large local tax authorities first rely on computer program to screen the accounting information, and then make tax audit decision (Huang 1996; Chan and Mo 2000). We therefore expect an influence of tax enforcement on private firms' FRQ.

2.2. PMC reform and prefectural city governments' fiscal squeeze

Unlike the Western-style multi-party system, China has a single-party political system, with political consultation led by the Communist Party of China (CPC). Under China's systems of government and administrative division, the country's government system has five hierarchical levels: (1) central; (2) provinces; (3) cities; (4) counties; and (5) townships (Jin et al. 2005). Fiscal arrangements in China also follow the same hierarchical system, and a higher-level government has a great deal of discretion in determining the fiscal arrangements of the lower-level government immediately below (Li et al. 2016). In this paper, "local governments" refers to the prefectural city governments that report to provincial governments.

Since 2002, the tax-sharing reform has clearly defined the revenue assignments between the central and provincial governments for the first time in Chinese history (Xu

2011; Liu and Martinez-Vazquez 2014).⁴ However, sub-provincial fiscal arrangements have not been formalized by any laws or regulations (Liu and Alm 2016). The central government grants provincial governments the discretion to set up their own intergovernmental fiscal relationships within the provinces.

With the political superiority of each government level over the level(s) below, financial pressure tends to be gradually pushed down to subordinate government levels (Guo et al. 2016; Li et al. 2016). Under such an administrative-power-oriented system, a prefecture-level city also tends to favor its city proper at the expense of its subordinate counties. For example, prefectural city governments not only pass fiscal pressure onto county governments but also withhold the transfer payments of counties from the provincial or central government (Ma 2005; Li et al. 2016).

As such, the relationship between prefectural city and county governments has often been dubbed, for example, “city extorting county,” “city living off county,” and “city suppressing county” (Ma 2005). Consequently, county and township governments have lost their independence in making appropriate development policies based on local conditions and a large gap emerged between revenue and expenditure assignments at the county level (Liu and Alm 2016). In response to these problems/concerns, the central government launched the so-called PMC fiscal reform in the early 2000s, replacing the previous fiscal relationship between city and county governments with a direct fiscal relationship between provincial and county governments, as shown in Figure 1.

[INSERT FIG. 1 ABOUT HERE]

⁴ The sharing ratio between the central government and provincial government was 50:50 in 2002, but has been 60:40 since 2003.

The PMC reform has imposed a fiscal squeeze on prefectural city governments because: (1) post-reform, prefectural governments lose not only the chance to collect county revenue through administrative powers but also the chance to seize fiscal transfers allocated to counties from the central or provincial government; (2) the reform clarifies the expenditure obligation of provinces, cities, and counties, preventing municipal governments from pushing down their own expenditure responsibilities to counties; and (3) post-reform, prefectural cities must still pay special subsidies to support the development of counties' economies.

Anecdotal evidence also indicates that the PMC reform has imposed a fiscal squeeze or revenue shortfall on prefectural city governments. For example, in the Sichuan province, the sharing ratio of corporate income tax among the central, province, city, and county governments was 60:14:12:14 prior to the PMC reform. The 14% of tax belonging to the county governments was shared with the prefectural city government. Post-reform, county governments share their tax directly with provincial governments, based on the proportions predetermined by the reform. Consequently, prefectural city governments lost their share of 14% from counties' tax, but must still pay the special transfer to counties.⁵ As another example, the prefectural city government of Zhuzhou (a city in Hunan province) gave about RMB 200 million in subsidies to its county governments before the PMC reform in 2010. Having lost its tax-sharing with county governments in 2010, the prefectural city government was still required to give RMB 137 million in subsidies to its counties that year, followed by RMB 228 million in 2011. In sum, the PMC reform caused the prefectural city government of Zhuzhou to face a

⁵ http://finance.ifeng.com/a/20131228/11358788_0.shtml

serious fiscal squeeze (Yu 2012), while incentivizing the prefectural city government to implement stronger tax enforcement to redress the lost tax revenue.

2.3. Hypothesis development

In response to a potential shortfall in revenue, instead of tougher corporate tax enforcement, the local government could alternatively (1) spend less; (2) lease more land; or (3) increase individual tax enforcement. However, untabulated results reveal that the fiscal expenditures for PMC reformed cities do not experience a decrease in post-PMC reform period. We also believe it is unlikely for local government to rely on stricter *individual* tax enforcement to compensate for the potential loss in fiscal revenue, given that the individual tax only account for about 10% of the total tax revenue in China (Sheng, 2016).

We therefore maintain that the PMC reform leads to stricter *corporate* tax enforcement. Under this maintained assumption, the question of whether and how the strict tax enforcement influences private firms' FRQ still needs to be resolved. On the one hand, as the PMC reform exogenously triggers stricter tax enforcement and leads to less tax avoidance (as shown in our robustness check section), the strict tax enforcement by the tax authority is likely to have a positive spillover effect on financial reporting quality through the reduced obfuscation resulting from reduced tax avoidance. Supporting this view, Hanlon et al. (2014) find that higher tax enforcement by the tax authority has a positive association with financial reporting quality for the U.S. public firms. Moreover, the strict tax enforcement induced by the PMC reform increases the likelihood of a firm being detected for aggressive tax planning and strategies, thereby increasing the expected

non-tax cost associated with tax avoidance (e.g., reputation loss). One can therefore expect that in the post-PMC reform period, private firms in China are likely to improve FRQ to convey, to the tax authority, a credible signal that they do not engage in aggressive tax planning. To provide systematic evidence on the above prediction, we propose and test our first hypothesis, stated in alternative form as follows.

H1A: *All else being equal, stricter tax enforcement induced by the PMC reform increases financial reporting quality of private firms in China.*

On the other hand, facing the stricter tax enforcement, firms may choose to disclose lower-quality financial reports to facilitate tax avoidance or tax evasion. This could be particularly true for private firms in China where local tax authorities at the prefectural level do not have sufficient resources and capabilities to strictly implement tax enforcement and the non-tax cost of being caught for tax evasion (e.g., reputation loss) for private firms is relatively low, compared to the U.S. Under this scenario, one can expect that financial reporting quality is lower in the post-PMC-reform period, which is opposite to the prediction in H1A. The above discussion leads us to hypothesize our second hypothesis, stated in alternative form as follows.

H1B: *All else being equal, stricter tax enforcement induced by the PMC reform reduces financial reporting quality of private firms in China.*

3. Research design, data, and variables

3.1. Empirical Specification

As the PMC reform was implemented in different prefectures in different years, its impact on FRQ could be analyzed in a staggered regulation setting. To identify the effect

of PMC reform on private firms' FRQ, we specify the following baseline regression:

$$FRQ_{i,j,t} = \alpha_i + \gamma_t + \beta FisDum_{j,t} + \delta X_{i,j,t} + \varphi Z_{j,t} + \varepsilon_{i,j,t}, \quad (1)$$

where i denotes firms; j denotes cities of incorporation; t denotes time; FRQ refers to financial reporting quality; α_i represents firm fixed effects; γ_t represents year fixed effects; and $FisDum_{j,t}$ is an indicator variable that equals 1 for firm-year observations experiencing the PMC reform in year t , and 0 otherwise. $X_{i,j,t}$ includes some firm characteristics; and $Z_{j,t}$ includes the city-level control variables.

We estimate Eq. (1) with firm and year fixed effects to control for time-invariant omitted firm characteristics and firm-invariant uncontrolled year-specific factors, respectively. β is our DiD estimator of the effect of PMC reform on FRQ. Following Bertrand et al. (2004) and Bertrand and Mullainathan (2003), we report the standard errors clustered by city of incorporation. Together with the firm and year fixed effects, this approach accounts for correlations of the error terms: (i) across different firms in a given city of incorporation and year (i.e., cross-sectional correlation); (ii) across different firms in a given city/county of incorporation over time (i.e., across-firm serial correlation); and (iii) within the same firm over time (i.e., within-firm serial correlation) (Petersen 2009).

3.2. Data

Our firm-level data is extracted from the Annual Surveys of Industrial Production from 1998 to 2006,⁶ conducted by the China National Bureau of Statistics. The data

⁶ Our sample ends at 2006 because the new accounting standard announced by the Ministry of Finance of People's

include all SOEs, regardless of their annual sales, and non-SOE manufacturing firms reporting more than 5 million Yuan (approximately US\$ 600,000) of annual sales. It includes all mining and manufacturing firms, as well as firms involved in the production and supply of electricity, water, and heat. In our analysis, however, we only include manufacturing firms, so as to alleviate concerns about potential heterogeneity in accounting data among firms across different industries and/or between more-regulated and less-regulated industries. As we are interested in *private* firms' FRQ, we exclude public firms from our sample.

We hand-collected the PMC reform data from the *Provincial Government Gazette* of each province. As the highest authority of local government, the provincial government, together with the provincial communist party committee, publishes its policies and regulations to the public, under the title of "*Provincial Government Gazette*," on the official provincial website.⁷ The information we collected includes title, issue date, implementation date, and the counties undergoing PMC reform. The economic data of each city is extracted from the China City Statistical Yearbook from 1998 to 2006, which covers all prefecture-level cities.⁸

Following Cai and Liu (2009), we exclude firms with missing or negative data for employees, total liabilities, accounts receivables, inventory, fixed assets, and depreciation. The observations with negative or larger than one ownership structure (measured by the fraction of paid-in-capital contributed by different types of investors) and leverage

Republic of China was implemented in 2007.

⁷ The official documents are usually titled "Circular of the People's Government of X Province Concerning the implementation of 'Province-Managing-County' Fiscal Reform" or "Circular of the of the People's Government of X Province Concerning the Expansion of the Scope of 'Province-Managing-County' Fiscal Reform."

⁸ Excluding autonomous prefectures and prefecture regions, which are at the same administrative level as prefecture-level cities.

variables are excluded.

We also exclude nine cities/provinces from our sample. First, the four centrally administered municipalities – Beijing, Shanghai, Tianjin, and Chongqing – are excluded from our study because these cities are under the direct control of the Chinese central government. Second, we exclude Zhejiang, Ningxia, and Hainan provinces, as Zhejiang and Ningxia have implemented the fiscal PMC system since the founding of the People’s Republic of China, whereas Hainan has implemented the PMC system since 1988. Third, we also exclude Xinjiang Autonomous Region, as the fourteen prefectures in its jurisdiction are all autonomous prefectures and prefecture regions, except Urumchi and Karamay. The fiscal arrangements of an autonomous prefecture are directly controlled by the central government. The autonomous prefecture regions comprise counties, but have no prefecture-level city. Therefore, we exclude Xinjiang Autonomous Region from our sample.⁹ Fourth, we also exclude the Tibet Autonomous Region because Tibet relies heavily on central transfer payments and its manufacturing sector is extremely backward.

We exclude the municipalities of special economic zones and the municipalities with independent planning status under China’s National Social and Economic Development Plan¹⁰ whose financial planning is administered by central government. Firms without valid information for calculating FRQ are also excluded. Firms located in PMC-reformed counties are also excluded from our analysis, as they are mostly under county governments’ tax jurisdiction (rather than that of prefectural city governments).

After all of these exclusions, we have a final sample of 639,712 firm-year

⁹ The conclusions are unchanged by adding Urumchi and Karamay to the sample.

¹⁰ The municipalities of special economic zones are Shenzhen, Shantou, Xiamen, and Zhuhai; the municipalities with independent planning status under the National Social and Economic Development Plan are Dalian, Tsingtao, Ningbo, Xiamen, and Shenzhen.

observations in 22 provinces for the sample period of 1999–2006. To reduce potential problems of outliers, all other continuous variables are winsorized at the 1st and 99th percentiles of the distribution.

3.3. Variables

3.3.1. Measures of PMC

Our key variable of interest, *FisDum*, is an indicator variable for the introduction of PMC reform, which equals 1 if a city implemented PMC reform in year t , and 0 otherwise.

3.3.2. Measures of FRQ

There is no consensus on how to measure FRQ (e.g., Dechow et al. 2010), particularly for private firms. Following Kothari et al. (2005), our first proxy for FRQ is to estimate discretionary accruals as the residuals from the following regressions, estimated in each year for each *three-digit* industry with at least ten observations:

$$TA_{i,t} = \alpha + \beta(1/Assets_{i,t-1}) + \gamma\Delta Sales_{i,t} + \delta PPE_{i,t} + \varphi Roa_{i,t} + \varepsilon_{i,t}, \quad (2)$$

where $TA_{i,t}$ is total accruals in year t , defined as the change in non-cash current assets minus the change in current liabilities, excluding the current portion of long-term debt, minus depreciation and amortization, scaled by lagged total assets.¹¹ $\Delta Sales_{i,t}$ is the annual change in revenue in year t scaled by lagged total assets. $PPE_{i,t}$ represents net property, plant, and equipment in year t scaled by scaled by lagged total assets. $Roa_{i,t}$

¹¹ Due to data limitations, we use change in inventories and accounts receivables to proxy for change in non-cash current assets.

refers to the return on assets in year t . Our main proxy for FRQ is the absolute value of discretionary accruals. We multiply the absolute values of discretionary accruals by minus one (-1) to obtain our measure of accrual quality (AQ); a higher value of AQ , thus, represents higher FRQ. Throughout the paper, our measure of FRQ is its first proxy as defined above, i.e., AQ , unless stated otherwise.

For robustness checks, we also use different proxies for FRQ. Our second proxy for FRQ is defined as the negative of the absolute values of discretionary revenues, which are the residuals from the following regressions, estimated separately in each year for each three-digit industry with at least ten observations (McNichols and Stubben 2008; Stubben 2010)¹²:

$$\Delta AR_{i,t} = \alpha + \beta \Delta Sale_{i,t} + \varepsilon_{i,t}, \quad (3)$$

where $\Delta AR_{i,t}$ is the annual change in accounts receivables in year t .

Our third proxy for FRQ is defined as the negative of the absolute values of discretionary accruals, which are the residuals from the following regressions, estimated separately in each year for each three-digit industry with at least ten observations (Dechow et al. 1995):

$$TA_{i,t} = \alpha + \beta(\Delta Sales_{i,t} - \Delta AR_{i,t}) + \gamma PPE_{i,t} + \varepsilon_{i,t} \quad (4)$$

Our fourth and fifth proxies for FRQ are the negatives of the absolute values of discretionary accruals, which are the residuals from Eq. (2), estimated in each year, separately, for each *two-* and *four-digit* industry, respectively, with at least ten

¹² We use discretionary revenues proposed by McNichols and Stubben (2008) and by Stubben (2010) for the following reasons. First, measures of discretionary revenues exhibit substantially less measurement error and bias than measures of discretionary accruals (Stubben, 2010). Second, some accruals, such as depreciation, are closely related to investment and therefore could be affected by fundamental performance rather than pure accounting choice. Third, manipulation of revenues is the most common form of earnings management. Last, this measure has been widely used in the recent literature of private firms' FRQ (Chen et al., 2011; Hope et al., 2013).

observations (Kothari et al. 2005).

3.3.3. Other control variables

Following Francis et al. (2005) and Hanlon et al. (2014), our baseline regression in Eq. (1) controls for the firm characteristics associated with the incentive to manage earnings, including firm leverage, ROA, firm size, sales growth rate, capital intensity, intangibles, and firm age. We also include product market competition in Eq. (1) to control for the impact of external environments on FRQ. We control for the mean FRQ in firm's three-digit SIC industry in a given year, excluding the firm itself, as a measure of time-varying industry-year control. To control for variations in local economic conditions, we control for the city-level GDP and population. The details of each variable's construction are provided in Appendix A.

3.4. Sample description

Panel A of Table 1 describes the sample of PMC reforms used in this study. It is evident that the PMC reform began to affect some provinces from 2004, as reflected by the non-zero value of *FisDum* starting in 2004. Panel B reports the province-level average of AQ, i.e., our first proxy for FRQ, and *FisDum*. During our sample period, eight provinces implemented the PMC reform.

[INSERT TABLE 1 ABOUT HERE]

Table 2 reports the summary statistics for the main variables used in our regression analysis. The mean and median of AQ are -0.2063 and -0.1257, respectively. The average total assets are RMB 46.25 million (approximately US\$ 5.93 million). Compared to the

average firm size of US\$ 1,215 million reported in Hanlon et al. (2014), the sample used in our study mainly comprises small, local, privately held firms. The average firm age is about 11 years. The firms in our sample generally experienced high sales growth, with an average annual growth rate of 35.48%. The average leverage ratio is 56.34%, which is similar to the results documented in prior research (e.g., Li et al. 2009).

[INSERT TABLE 2 ABOUT HERE]

Figure 2 presents an overview of the evolution of average FRQ in the sample cities over time, classified by PMC-reformed and non-PMC-reformed cities. The solid and dashed lines reflect the average value of FRQ for the PMC-reformed and non-PMC-reformed cities, respectively. The figure suggests that there were parallel trends of decreasing FRQ over time before the PMC reform. The formal test of parallel-trend assumption will be conducted in Table 4. After the PMC reform, the average FRQ of non-PMC-reformed cities continues its decreasing trend, whereas the PMC-reformed cities experience an improvement in FRQ, starting from the year in which the PMC reform is implemented.

[INSERT FIG. 2 ABOUT HERE]

4. Empirical results

4.1. Basic results

We begin our analysis by examining the impact of the PMC reform on the FRQ using our full sample of private firms in China. As shown in columns (1)-(3) of Table 3, we find that the coefficients on *FisDum* are positive (0.011, 0.011, and 0.012, respectively) and significant at the 1% level. This finding suggests that a firm increases

its reporting quality in response to the PMC reform. It holds even after controlling for firm characteristics (*Lev*, *Roa*, *Size*, *Growth*, *Firm age*, *CapInt*, *Intang*); industry competition (*Hhi*); local economic conditions (*Gdp*, *Pop*); the average FRQ of other firms in the same industry and same year (*AQ_Ind*); and firm and year fixed effects. The impact of PMC reform on FRQ is not only statistically significant but also economically significant. The estimated *FisDum* coefficient of 0.011 in column (1) implies that the average FRQ measured by *AQ* will improve by 8.75% ($0.012^*/0.1257$) for an average firm that experiences the PMC reform, given that median of *AQ* for our sample is -0.1257, respectively, as shown in Table 2.

[INSERT TABLE 3 ABOUT HERE]

As Lennox et al. (2016) point out, absolute discretionary accruals may be problematic if the PMC reform causes the sign of discretionary accruals to change. In that case, the effect of PMC reform cannot be captured by the unsigned discretionary accruals measure. For example, if the pre-reform discretionary accruals are +0.01 and the post-reform discretionary accruals (scaled by assets) are -0.01, the absolute value does not change during the PMC reform year, whereas the signed value drops by 0.02. To address this problem, we confirm our main results using the signed discretionary accruals, which are reported in columns (4) and (5) of Table 3. The results show that both *AQ*-increasing ($AQ > 0$) and *AQ*-decreasing ($AQ < 0$) earnings management will be curtailed after the PMC reform.

In short, the results of our baseline regressions in Table 3 are consistent with the prediction in Hypothesis H1A, suggesting that private firms in China improve their financial reporting quality in response to stricter tax enforcements caused by the PMC

reform. To address potential threats to the internal validity of our baseline finding, in the next section, we conduct multi-period dynamic analysis and various cross-sectional tests.

4.2. Multi-period dynamic analysis and reverse causality

Table 3 documents a positive association between the PMC reform and FRQ of private firms in our sample. Although it is unlikely that city-level private firms' FRQ triggers the PMC reform (as shown in Appendix B), we perform multi-period dynamic analysis to address the issue of potential reverse causality, following the Bertrand and Mullainathan (2003) approach. More specifically, we replace the *FisDum* dummy with five dummy variables: *Year+2* (*Year+1*) is an indicator variable that equals 1 for firm-years two years (one year) after the city incorporated the PMC reform, and 0 otherwise; *Event Year* is an indicator variable that equals 1 for firm-years in the year of the PMC reform, and 0 otherwise; *Year-1* (*Year-2*) is an indicator variable for firm-years one year (two years) before the city incorporated the PMC reform.

[INSERT TABLE 4 ABOUT HERE]

Column (1) of Table 4 reports the results. We find that the coefficients on *Year-1* and *Year -2* are insignificant. The insignificant coefficients on *Year-1* and *Year -2* suggest that no FRQ effect can be found prior to the PMC reform and that the parallel trend assumption is satisfied. More importantly, we find that the coefficient on *Event Year* (0.009) is smaller than the coefficient on *FisDum* reported in column (3) of Table 3 (0.012) and smaller than those on *Year+1* (0.013) and *Year+2* (0.014). This finding suggests that the PMC reform gradually exerts its effect on private firms' FRQ.

As a second test, we replace the *FisDum* indicator with the proportion of counties

under the jurisdiction of a prefectural city government whose fiscal relations therewith have been removed (*FisPro*). It is, in principle, possible that the average FRQ affects the probability of incorporating the PMC reform, which may imply reverse causality. However, in reality, it is unlikely that the FRQ of city-level private firms affects *FisPro*. On the contrary, if the PMC reform and a fiscal squeeze on the prefectural city government lead to an increase in tax enforcement and, consequently, an improvement in FRQ, we expect a stronger effect of *FisPro* on FRQ. As shown in column (2) of Table 4, we find that the coefficient on *FisPro* is positive and significant at the 1% level, which is consistent with our conjecture. This finding suggests that the heightened tax enforcement associated with the PMC reform is a major cause of the increase in private firms' FRQ.

In short, our results presented in Table 4 suggest that the positive effect on FRQ of tax enforcements induced by the PMC reform is unlikely to be driven by the presence of reverse causality in Eq. (1).

4.3. Further evidence on the tax enforcement channel

Our explanation for the results reported in Table 3 is that the exogenous shock of the fiscal squeeze forces local government to implement stricter tax enforcement practices, which in turn exerts a positive effect on private firms' FRQ. To strengthen the *causal* relation between the tax enforcement and FRQ, we perform various cross-sectional tests on how the effect of PMC reform varies with the prefectural city government's: (1) post-reform fiscal squeeze; (2) tax jurisdiction; and (3) incentive to impose stricter tax enforcement.

4.3.1. The role of the post-reform fiscal squeeze

We use two variables to measure the effect of PMC reform on prefectural city governments' post-reform fiscal squeeze. The first is the total area of land within the prefectural jurisdiction.¹³ In China, the government owns the land and offers land use rights in the form of ground leases, allowing developers to build on the land (Anglin et al. 2014). Since China's 1994 fiscal reform, the recentralization of fiscal revenue at the national and sub-national levels and the imbalance of fiscal revenue and expenditure responsibilities have left city and county governments facing mounting fiscal pressures (Liu and Alm 2016). As an important part of the tax-sharing reform, local governments are granted extensive discretion to exploit land and are permitted to keep all the land-leasing proceeds as a source of local government revenue.¹⁴ This means that cities with a larger land area have more flexibility in coping with the fiscal freeze or revenue shortfall associated with the PMC reform.

We, therefore, hypothesize that cities with a larger land supply will face a less severe post-reform fiscal squeeze, causing the PMC reform-induced tax enforcement to be less strict and, thus, its impact on FRQ to be less pronounced. Columns (1) and (2) in Table 5 report the estimation results examining the effect of PMC reform on FRQ for cities with different areas of land under their jurisdictions. Consistent with our expectation, we only find a positive and significant effect of PMC on FRQ for firms whose city of incorporation has a smaller land supply from which to extract revenue outside the fiscal budgetary system.

¹³ Measuring land supply using the area of the urban district, both in absolute terms and as a proportion of the prefectural region area, produces similar results.

¹⁴ According to Liu and Alm (2016), while land leasing revenue accounted for 10% (6%) of total subnational government budgetary revenue (expenditures) in 1999, it increased to 61% (35%) in 2011.

Our second measure of the post-PMC-reform fiscal squeeze is the ratio of reformed counties' fiscal revenue to cities' total revenues in the year before the PMC reform. For cities whose PMC-reformed counties only account for a small proportion of their pre-reform tax revenue, we expect only a little negative shock to fiscal revenue. Therefore, the impact of PMC reform on FRQ might be weaker. As shown in columns (3) and (4), we find that, consistent with our expectation, the impact of PMC reform is insignificant for firms whose cities of incorporation experienced little impact upon their fiscal revenue from the reform; conversely, firms whose cities of incorporation experienced a high negative shock to fiscal revenue record a significant increase in FRQ.

[INSERT TABLE 5 ABOUT HERE]

4.3.2. The role of prefectural governments' tax jurisdictions

If the fiscal squeeze on a local city government fosters stricter tax enforcement and, therefore, affects FRQ, one would expect the PMC reform to have no effect on the FRQ of firms outside the local city government's tax jurisdiction. Testing this expectation also helps to better identify the causal relation between tax enforcement and FRQ: for example, if the omitted local economic condition is what drives the positive association between the PMC reform and FRQ, one would expect the effect of PMC reform on firms' FRQ to be the same regardless of firms' tax jurisdiction status.

Table 6 reports the results of this test. As shown in column (1), for firms outside city governments' tax jurisdictions (i.e., central-government-controlled firms and provincial-government-controlled firms over which the local city government has no tax jurisdiction), we do not find a significant effect of PMC reform. In sharp contrast, as shown in column (2), firms within a local government's tax jurisdiction show a positive

effect of PMC reform on their FRQ.

[INSERT TABLE 6 ABOUT HERE]

4.3.3. The incentive to enforce taxation

To provide further evidence on the tax enforcement channel through which the PMC reform affects FRQ, we examine how the effect varies with different incentives for the local government to collect tax from a particular firm type. In China, the 2002 tax sharing reforms have clearly established tax revenue assignments and expenditure responsibilities between the central and provincial governments. Meanwhile, provincial governments have been granted the authority to manage their fiscal relationships within their jurisdictions. In turn, provincial governments have authorized prefectural city governments to do likewise with county governments (Martinez-Vazquez et al. 2008; Liu et al. 2014; Liu and Alm 2016). In this fiscal arrangement, local city governments act as both tax inspectors and tax payers.

The dual, but conflicting, roles of local city governments are prominent for local-government-controlled SOEs. By appointing the board chairperson or CEO of local-government-controlled SOEs, the local city government exerts substantial control over SOEs' personnel and operational activities. Meanwhile, to enhance their career prospects, the appointed board chairperson or CEO tend to maximize the total payoff for the local government that controls their firms. Tang et al. (2017) show that, in China, local governments, as the controlling shareholders and tax collectors of local-government-controlled firms (LGC firms), may expropriate central government's tax revenue and direct the firms they control to avoid tax. The existing literature also documents that LGC firms are less frequently audited and are punished less harshly

when they are caught avoiding tax (Chen et al. 2011; Shevlin et al. 2012; Lin, et al 2017).

As our last cross-sectional test, we examine the effect of PMC reform for LGC firms and others. Since local city governments have smaller stakes in non-LGC firms, we expect that the incentive to increase tax enforcement will be stronger for these firms compared to LGC firms, given that increased tax enforcement is costly. We use two variables to proxy for the incentive. The first is a *de facto* measure based on the state ownership of firms. For local firms in which the local government's share exceeds 50%, local government has more control and a greater incentive to expropriate provincial government's tax revenue. The second variable is a *de jure* measure based on firms' affiliation. For firms affiliated with the prefectural government, we hypothesize that the incentive to increase tax enforcement is weaker.

[INSERT TABLE 7 ABOUT HERE]

Table 7 reports the results of this test. As shown in columns (1) and (3), we find that consistent with our conjecture, the effect of PMC reform on FRQ is insignificant in SOEs for which the local city government has less incentive to collect tax or increase tax enforcement. In marked contrast, as shown in columns (2) and (4), we find a significant impact of PMC reform on FRQ for non-SOE firms (state-owned shares less than 50%) and firms not affiliated with prefectural local governments, respectively, for which the local city government has stronger incentives to collect tax.

5. Further Analyses and Empirical Extensions

The preceding empirical analyses document that the positive effect of PMC reform on FRQ is mainly concentrated in non-SOEs under local governments' tax jurisdictions. The following sections extend these analyses by implementing double DiD tests to examine the heterogeneous treatment effect. We believe that the examinations of heterogeneous treatment effect can not only help to mitigate the concern that some omitted firm or city variables are driving our results but also help to shed light on the factors that might affect the effectiveness of external tax monitoring. Specifically, we examine the role of managerial agency issues internal to the firms and the reputation concerns of firms in shaping the effect of PMC reform on FRQ.

5.1. The role of managerial agency costs

The existing literature suggests that tax enforcement can serve as an effective external monitoring device in preventing managers from diverting wealth away from shareholders (Desai et al. 2007). Hanlon et al. (2014) find that, in the presence of other external monitors, the incremental effect of tax enforcement on FRQ will be weaker. However, whether the stricter tax enforcement can improve FRQ in the presence of the managerial agency issues internal to the firms remains an empirical question.

Following Ang et al. (2000) and Singh and Davidson (2003), we use the annual city and industry mean adjusted operating expenses to sales ratio as the proxy for agency costs between shareholders and managers. Firms with above-median adjusted expense ratio in the same year, city, and industry are classified as firms with high managerial agency costs. As shown in Panel A in Table 8, we find that the coefficient on the interaction term, *FisDum*High Expenses*, is negative. This finding suggests that the positive effect of tax enforcement, as reflected in the positive coefficient on *FisDum*,

becomes weaker for firms with high managerial agency costs. Stated another way, firms with managerial agency problems tend to disclose lower-quality financial reports when facing stricter tax enforcement.

[INSERT TABLE 8 ABOUT HERE]

5.2. The role of reputation concerns

In China, the economic cost of being caught for tax evasion is relatively low, a fine of not more than five times the amount of tax evaded. Another potentially important cost of being caught for tax evasion is reputation loss. In this regard, Bankman (2004) suggests that a firm that aggressively avoids taxes may be labeled a “poor corporate citizen,” which might adversely affect product market outcomes. While the existing empirical evidence on the reputational effects for firms accused of engaging in tax shelters is mixed (Hanlan and Slemrod 2009; Gallemore et al. 2014; Austin and Wilson 2013), Graham et al. (2014) find that reputational concerns significantly reduce the probability of which managers engage in aggressive tax planning.

When tax enforcement becomes stricter and the (expected) cost of tax avoidance or tax evasion increases, private firms engage in less tax avoidance and create less obfuscation for tax avoidance, which leads to a higher quality of financial reporting. To the extent that reputation loss increases the expected non-tax cost associated with tax avoidance or tax evasion, the effect of stricter tax enforcement on FRQ is likely to be more pronounced for firms with reputation concerns.

As the firms examined in this study are private firms, the degree of their reputation concerns are proxied by firms’ growth opportunities captured by sales growth rate (*Growth*) and firms’ profitability captured by *Roa*. Firms associated with above-median

sales growth rate and above-median *Roa* in the same year, city, and industry are classified as firms that concerns more about their reputations. As shown in Panel B and Panel C in Table 8, we find that the coefficients on both *FisDum*High Growth* and *FisDum*High Profitability* are positive and significant at the conventional level, suggesting that the positive effects of tax enforcement are stronger for firms with more growth opportunities and high profitability.

6. Robustness checks

Our analyses thus far provide evidence that tax enforcement improves FRQ. In this section, we perform several robustness checks. Our first robustness check is to use different measures of FRQ. As explained earlier, we employ four alternative measures of FRQ that have been widely used in prior earnings management research. As shown in Table 9, we find the coefficients on *FisDum* to be significant and positive across the four different measures (*FRQ1* to *FRQ4*), suggesting that our results are robust to using alternative measures of FRQ.

[INSERT TABLE 9 ABOUT HERE]

As our second robustness check, we estimate Eq. (1) at the prefectural level, after first calculating the averages for FRQ and other firm characteristics for all sample firms in each city. As shown in Table 10, the coefficients on *FisDum* are positive and significant across three different regression specifications, suggesting that our main results from the city-level regressions remain unchanged.

[INSERT TABLE 10 ABOUT HERE]

Our third robustness check is to examine whether the PMC reform indeed incentivizes firms to engage less in aggressive tax avoidance. Following Cai and Liu (2009), the model we estimate is specified as follows:

$$\begin{aligned}
 Report\ profit_{i,j,t} = & \alpha_i + \gamma_t + \beta_2 FisDum_{j,t} * Profit_{i,j,t} + \beta_1 Profit_{i,j,t} + \delta_1 X_{i,j,t} \\
 & + \beta_2 X_{i,j,t} * Profit_{i,j,t} \alpha_i + \varepsilon_{i,j,t}
 \end{aligned} \tag{5}$$

The dependent variable (*Report profit*) is the pre-tax accounting profits reported by each firm, scaled by total assets. *Profit* is the imputed profits, calculated as profit from the national income account divided by total assets. Details of the calculation of *Profit* are provided in Appendix A. In this model, the degree of tax avoidance is measured by the first derivative of *Report profit* with respect to *Profit*, i.e. $\beta_1 + \beta_2 FisDum_{j,t}$. $\beta_2 > 0$ indicates less tax avoidance. Table 11 reports results for regressions in Eq. (5). As shown in Table 11, we find that the coefficients on *FisDum*Profit* is significantly positive, and that the first derivative of *Reported Profit* (i.e., $\beta_1 + \beta_2 FisDum_{j,t}$) is also positive, suggesting that the tax enforcement induced by the PMC reform has led to less tax avoidance by *private* firms in China. This finding using a sample of private firms complements Hoopes et al.'s (2012) finding that IRS enforcement reduces *public* firms' tax avoidance.

[INSERT TABLE 11 ABOUT HERE]

Our last robustness check is to further examine whether the effect of PMC reform on FRQ is confounded by unobserved changes in local business conditions. For each treated city, we match a control city that has the closest probability of being PMC-reformed. After the matching, we then estimate Eq. (1) using the reformed and matched sample. As shown in Panel B of Appendix C, we find that the coefficients on *FisDum* in columns (1) to (3) are positive and all highly significant, and that the

coefficient on *Event Year*, *Year+1*, and *Year+2* in columns (4) to (6) are all positive and significant, while the coefficients on *Year-1* and *Year-2* are insignificant. The above results using the matched sample buttress and enrich our earlier finding that the PMC reform improves private firms' FRQ in the pre-PMC-reform period.

7. Conclusion

China's PMC reform that started in 2003 represents an exogenous negative shock to local city governments' fiscal revenue. When local tax capacity constraints are not binding (Chen 2017), prefectural local governments may pursue stricter tax enforcement to meet their fiscal expenditure responsibilities. This is critical because a large local government deficit casts doubt on the incumbent government officials' ability to govern and could, consequently, damage their careers (Zhou 2007; Fan et al. 2009).

Using the PMC reform as a potential exogenous shock to prefectural governments' tax enforcement, we find that this reform improves private firms' FRQ. However, the effect disappears: (1) when the local prefectural government is less fiscally squeezed in the post-PMC-reform period; (2) when firms are outside the local prefectural government's tax jurisdiction; and (3) in firms upon which the local prefectural government has less incentive to impose stricter tax enforcement. These results suggest that the stricter tax enforcement induced by the PMC reform increases private firms' FRQ. Our main findings are robust to different measures of FRQ.

Examining the heterogeneous treatment effect of PMC effect on private firms' FRQ, we find that stricter tax enforcement becomes less effective in firms with higher managerial agency costs and firms that concern more about the reputation experience a

higher improvement in FRQ. In line with our story, we also find that the PMC reform reduces tax avoidance.

Overall, we provide causal evidence on the positive spillover effect of tax enforcement on private firms' FRQ. Our results also suggest that inter-government agency conflicts affect local governments' incentives to enhance tax enforcement and, consequently, shape the effect of PMC reform on firms' FRQ. Contributing to the existing literature, our study not only suggests that tax enforcement can be a corporate governance mechanism that prominently affects FRQ but also provides valuable insights into the factors that may affect the efficacy of tax enforcement in countries weak legal and institutional infrastructures.

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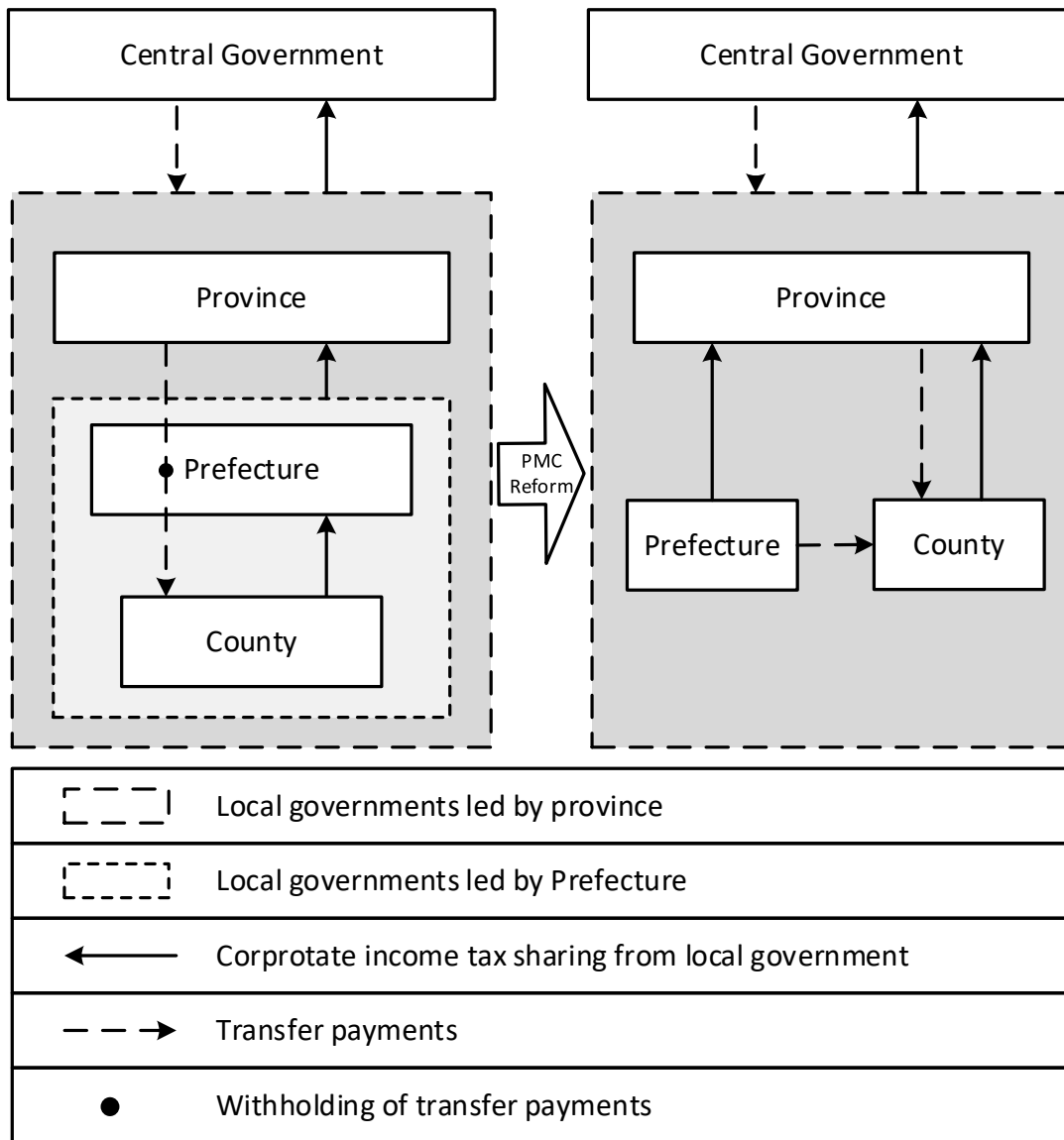


Figure 1 The fiscal relation before and after the province-managing-county (PMC) reform

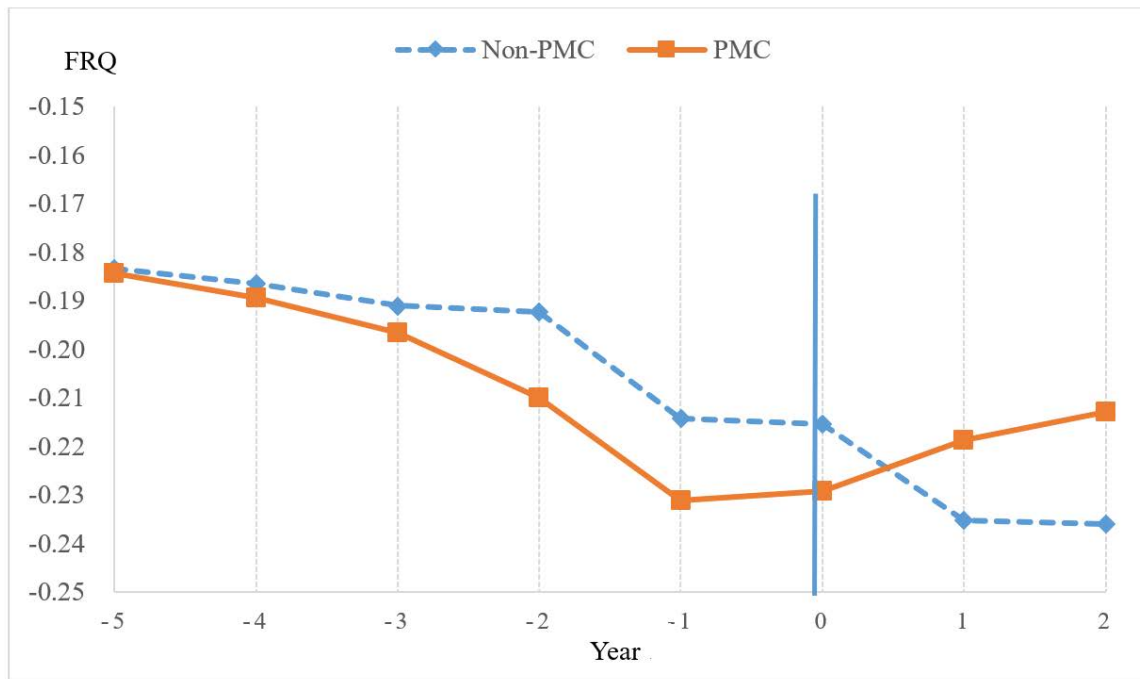


Figure 2 The pre- and post-reform financial reporting quality of PMC firms and non-PMC firms

TABLE 1
Sample description across years and provinces.

Panel A: The means of AQ and FisDum across years

| Year | AQ | FisDum | Obs. |
|--------------|---------|--------|---------|
| 1999 | -0.1794 | 0 | 56,421 |
| 2000 | -0.1815 | 0 | 61,580 |
| 2001 | -0.1848 | 0 | 60,597 |
| 2002 | -0.1932 | 0 | 68,710 |
| 2003 | -0.2077 | 0 | 76,534 |
| 2004 | -0.2156 | 0.0789 | 70,549 |
| 2005 | -0.2313 | 0.1571 | 116,894 |
| 2006 | -0.2186 | 0.2143 | 128,427 |
| Total | -0.2063 | 0.0804 | 639,712 |

Panel B: The means of AQ and FisDum across provinces

| Province | AQ | FisDum | Obs. | Province | AQ | FisDum | Obs. |
|-----------------|---------|--------|---------|----------|---------|--------|--------|
| Gansu | -0.2390 | 0 | 2,980 | Qinghai | -0.1777 | 0 | 551 |
| Hunan | -0.2279 | 0 | 26,205 | Shaanxi | -0.1771 | 0 | 10,544 |
| Shandong | -0.2276 | 0 | 80,586 | Yunan | -0.1491 | 0 | 5,798 |
| Guangdong | -0.2239 | 0 | 118,100 | Jilin | -0.2452 | 0.4115 | 2,338 |
| Inter Mongorial | -0.2200 | 0 | 2304 | Fujian | -0.2284 | 0.6481 | 20,991 |
| Heilongjiang | -0.1988 | 0 | 11,334 | Liaoning | -0.2229 | 0.235 | 27,243 |
| Sichuan | -0.1919 | 0 | 25,896 | Jiangxi | -0.216 | 0.1957 | 12,592 |
| Shanxi | -0.1906 | 0 | 9,966 | Hubei | -0.2085 | 0.2721 | 19,787 |
| Guangxi | -0.1866 | 0 | 11,969 | Hebei | -0.2014 | 0.3162 | 39,874 |
| Jiangsu | -0.1852 | 0 | 147,103 | Henan | -0.1966 | 0.1179 | 46,017 |
| Guizhou | -0.1785 | 0 | 5,194 | Anhui | -0.1848 | 0.3733 | 12,340 |
| Total | -0.2063 | 0.0804 | 639,712 | | | | |

Notes:

Combining firm-level data with the province-managing-county (PMC) reform data, our final sample comprises 639,712 firm-year observations from 1999 to 2006. *AQ* refers to the first measure of financial reporting quality, defined as -1 multiplied by the absolute value of discretionary revenues. *FisDum* equals 1 for prefectures experiencing PMC reform, and 0 otherwise. Panel A reports the average *AQ* and *FisDum* across years. Panel B reports the means of *AQ* and *FisDum* across provinces. The definitions of *AQ* and *FisDum* are provided in Appendix A.

TABLE 2
Descriptive statistics

| Variable | mean | min | p25 | p50 | p75 | max | sd | Obs. |
|-----------------|-------------|------------|------------|------------|------------|------------|-----------|-------------|
| <i>AQ</i> | -0.2063 | -1.0966 | -0.2706 | -0.1257 | -0.0537 | -0.0020 | 0.2261 | 639,712 |
| <i>FisDum</i> | 0.0804 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 1.0000 | 0.2720 | 639,712 |
| <i>Lev</i> | 0.5634 | 0.0047 | 0.3774 | 0.5900 | 0.7719 | 1.0000 | 0.2562 | 639,712 |
| <i>Roa</i> | 0.0807 | -0.2403 | 0.0023 | 0.0298 | 0.1030 | 0.7762 | 0.1546 | 639,712 |
| <i>Size</i> | 9.7615 | 6.4135 | 8.7933 | 9.6105 | 10.5947 | 13.5751 | 1.3851 | 639,712 |
| <i>Growth</i> | 0.3548 | -0.9908 | -0.0740 | 0.1419 | 0.4587 | 5.8039 | 0.9573 | 639,712 |
| <i>FirmAge</i> | 2.1636 | 0.0000 | 1.6094 | 2.0794 | 2.6391 | 7.6044 | 0.8321 | 639,712 |
| <i>CapInt</i> | 0.3436 | 0.0016 | 0.1783 | 0.3151 | 0.4826 | 0.8992 | 0.2095 | 639712 |
| <i>Intang</i> | 0.0190 | 0.0000 | 0.0000 | 0.0000 | 0.0014 | 0.2944 | 0.0516 | 639712 |
| <i>Hhi</i> | 0.0068 | 0.0009 | 0.0035 | 0.0063 | 0.0095 | 0.0223 | 0.0040 | 639,712 |
| <i>AQ_Ind</i> | -0.1522 | -0.2830 | -0.1734 | -0.1506 | -0.1298 | -0.0055 | 0.0309 | 639712 |
| <i>Gdp</i> | 2.2580 | 0.3204 | 0.8700 | 1.5714 | 2.8792 | 15.6052 | 2.0977 | 639,712 |
| <i>Pop</i> | 6.1480 | 4.6145 | 5.8550 | 6.2196 | 6.5291 | 7.1305 | 0.5033 | 639,712 |

Notes:

This table presents summary statistics of the main variables in the regression analysis. The definitions of the variables are provided in Appendix A.

TABLE 3
Province-managing-county (PMC) reform and financial reporting quality (FRQ)

| Variable | (1) | (2) | (3) | (4) | (5) |
|----------------------|--------------------|-----------------------|-----------------------|-----------------------|-----------------------|
| | AQ | AQ | AQ | AQ>0 | AQ<0 |
| <i>FisDum</i> | 0.011*** (2.70) | 0.011*** (2.65) | 0.012*** (2.87) | -0.011** (-2.49) | 0.011* (1.73) |
| <i>Lev</i> | | -0.009* (-1.65) | -0.009 (-1.64) | -0.240*** (-43.72) | -0.326*** (-45.22) |
| <i>Roa</i> | | 0.065*** (10.41) | 0.066*** (10.63) | -0.076*** (-7.96) | 0.009 (1.08) |
| <i>Size</i> | | -0.065*** (-25.17) | -0.065*** (-25.23) | 0.017*** (5.75) | -0.083*** (-27.46) |
| <i>Growth</i> | | -0.025*** (-26.38) | -0.026*** (-26.37) | 0.022*** (21.85) | -0.025*** (-19.57) |
| <i>FirmAge</i> | | 0.022*** (16.08) | 0.022*** (16.03) | -0.016*** (-11.29) | 0.023*** (11.96) |
| <i>CapInt</i> | | 0.082*** (17.10) | 0.082*** (16.89) | -0.088*** (-17.26) | 0.067*** (9.01) |
| <i>Intang</i> | | 0.107*** (10.56) | 0.107*** (10.59) | -0.147*** (-12.02) | 0.042*** (2.96) |
| <i>Hhi</i> | | -0.372* (-1.81) | -0.368* (-1.80) | 0.837*** (3.70) | -0.022 (-0.06) |
| <i>AQ_Ind</i> | | 0.305*** (11.81) | 0.305*** (11.77) | -0.311*** (-10.08) | 0.264*** (5.50) |
| <i>Gdp</i> | | | 0.001* (1.88) | -0.000 (-0.04) | 0.003*** (2.72) |
| <i>Pop</i> | | | 0.004 (1.07) | 0.002 (0.45) | 0.003 (0.51) |
| Year effects | Yes | Yes | Yes | Yes | Yes |
| Firm effects | Yes | Yes | Yes | Yes | Yes |
| Obs. | 639,712 | 639,712 | 639,712 | 354,832 | 284,880 |
| R² | 0.003 | 0.041 | 0.041 | 0.059 | 0.094 |

Notes:

This table reports the fixed effects results from the following model:

$$FRQ_{i,j,t} = \alpha_i + \gamma_t + \beta FisDum_{j,t} + \delta X_{i,j,t} + \varphi Z_{j,t} + \varepsilon_{i,j,t}.$$

The dependent variables in columns (1)–(3) are the absolute values of discretionary revenues multiplied by -1 (**AQ**). The dependent variables in columns (4)–(5) are the values of discretionary revenues. Reported t-statistics, based on standard errors clustered by city of incorporation, are given in parentheses. Coefficient estimates significantly different from 0 at the 10%, 5%, and 1% levels are marked *, **, and ***, respectively. The definitions of other variables are provided in Appendix A.

TABLE 4
Province-managing-county (PMC) reform and financial reporting quality (FRQ): tests of reverse causality

| Variable | (1) AQ | (2) AQ |
|----------------------|-----------------------|-----------------------|
| <i>Year-2</i> | -0.002 (-0.65) | |
| <i>Year-1</i> | 0.001 (0.25) | |
| <i>Event Year</i> | 0.009* (1.72) | |
| <i>Year+1</i> | 0.013** (2.35) | |
| <i>Year+2</i> | 0.014*** (2.89) | |
| <i>FisPro</i> | | 0.038*** (6.10) |
| <i>Lev</i> | -0.009* (-1.65) | -0.010* (-1.66) |
| <i>Roa</i> | 0.066*** (10.57) | 0.067*** (10.84) |
| <i>Size</i> | -0.065*** (-25.24) | -0.065*** (-25.14) |
| <i>Growth</i> | -0.026*** (-26.37) | -0.025*** (-26.38) |
| <i>FirmAge</i> | 0.022*** (16.03) | 0.022*** (15.99) |
| <i>CapInt</i> | 0.082*** (16.90) | 0.083*** (16.92) |
| <i>Intang</i> | 0.108*** (10.59) | 0.107*** (10.52) |
| <i>Hhi</i> | -0.370* (-1.80) | -0.357* (-1.75) |
| <i>AQ_Ind</i> | 0.305*** (11.77) | 0.305*** (11.79) |
| <i>Gdp</i> | 0.001* (1.93) | 0.001* (1.93) |
| <i>Pop</i> | 0.004 (1.10) | 0.004 (1.09) |
| <i>Year effects</i> | Yes | Yes |
| <i>Firm effects</i> | Yes | Yes |
| Obs. | 639,712 | 639,712 |
| R² | 0.041 | 0.041 |

Notes:

This table reports the fixed effects results from the following model:

$$FRQ_{i,j,t} = \alpha_i + \gamma_t + \beta FisDum_{j,t} + \delta X_{i,j,t} + \varphi Z_{j,t} + \varepsilon_{i,j,t}$$

The dependent variable is the absolute value of discretionary revenues multiplied by -1 (*AQ*). *Year-2* is a dummy variable that equals 1 for a firm incorporated in a city that will experience PMC reform two years later. *Year-1* is a dummy variable that equals 1 for a firm incorporated in a city that will experience PMC reform one year later. *Event Year* is a dummy variable that equals 1 for a firm incorporated in a city that experiences PMC reform in that year. *Year+1* and *Year+2* are defined

similarly. *FisPro* is the proportion of counties under the prefectural city government whose fiscal relations therewith have been removed. Reported t-statistics, based on standard errors clustered by city of incorporation, are given in parentheses. Coefficient estimates significantly different from 0 at the 10%, 5%, and 1% levels are marked *, **, and ***, respectively. The definitions of other variables are provided in Appendix A.

TABLE 5

Province-managing-county (PMC) reform and financial reporting quality (FRQ): the role of fiscal squeeze

| Variable | <i>Land Supply under jurisdiction</i> | | <i>Ratio of province-managing-county's pre-reform fiscal revenue</i> | |
|----------------------|---------------------------------------|-----------------------|--|----------------------|
| | Low (1) | High (2) | Low (3) | High (4) |
| <i>FisDum</i> | 0.013*** (2.96) | 0.008 (0.72) | -0.001 (-0.21) | 0.013** (2.22) |
| <i>Lev</i> | -0.013 (-1.58) | -0.009 (-0.92) | -0.016 (-1.48) | 0.011 (0.96) |
| <i>Roa</i> | 0.064*** (7.08) | 0.067*** (7.01) | 0.058*** (4.77) | 0.104*** (5.81) |
| <i>Size</i> | -0.072*** (-18.62) | -0.073*** (-20.36) | -0.066*** (-17.43) | -0.071*** (-6.12) |
| <i>Growth</i> | -0.023*** (-16.77) | -0.026*** (-23.09) | -0.020*** (-11.43) | -0.026*** (-8.05) |
| <i>FirmAge</i> | 0.020*** (12.36) | 0.024*** (10.59) | 0.021*** (7.77) | 0.027*** (9.71) |
| <i>CapInt</i> | 0.079*** (11.30) | 0.081*** (10.47) | 0.078*** (6.13) | 0.087*** (8.54) |
| <i>Intang</i> | 0.115*** (7.31) | 0.095*** (6.53) | 0.112*** (4.60) | 0.132*** (4.82) |
| <i>Hhi</i> | -0.221 (-0.66) | -0.348 (-1.07) | -0.152 (-0.40) | 0.397 (0.56) |
| <i>Aqm</i> | 0.277*** (6.33) | 0.308*** (9.69) | 0.269*** (4.21) | 0.353*** (4.30) |
| <i>Gdp</i> | -0.003 (-0.92) | 0.002** (2.23) | -0.018* (-1.85) | 0.010 (1.18) |
| <i>Pop</i> | -0.001 (-0.06) | 0.003 (0.69) | -0.019 (-0.59) | 0.008 (0.71) |
| Year effects | Yes | Yes | Yes | Yes |
| Firm effects | Yes | Yes | Yes | Yes |
| Observations | 316,612 | 318,530 | 93,351 | 62,914 |
| R² | 0.043 | 0.044 | 0.036 | 0.052 |

Notes:

This table reports the fixed effects results from the following model:

$$FRQ_{i,j,t} = \alpha_i + \gamma_t + \beta FisDum_{j,t} + \delta X_{i,j,t} + \varphi Z_{j,t} + \varepsilon_{i,j,t}$$

The dependent variable is the absolute value of discretionary revenues multiplied by -1 (*AQ*). *Land supply under jurisdiction* is defined as the total area of land within the prefectural jurisdiction. *Ratio of province-managing-county's pre-reform fiscal revenue* is defined as the ratio of province-managing-county's fiscal revenue to prefecture fiscal revenue before the reform. Reported t-statistics, based on standard errors clustered by city of incorporation, are given in parentheses. Coefficient estimates significantly different from 0 at the 10%, 5%, and 1% levels are marked *, **, and ***, respectively. The definitions of other variables are provided in Appendix A.

TABLE 6

Province-managing-county (PMC) reform and financial reporting quality (FRQ): the role of tax jurisdiction

| Variable | Firms outside tax jurisdiction | Firms within tax jurisdiction |
|----------------------|--------------------------------|-------------------------------|
| | (1) | (2) |
| <i>FisDum</i> | 0.005 (0.55) | 0.012*** (2.91) |
| <i>Lev</i> | -0.008 (-0.51) | -0.009 (-1.62) |
| <i>Roa</i> | 0.035 (1.43) | 0.065*** (10.42) |
| <i>Size</i> | -0.031*** (-4.21) | -0.067*** (-25.38) |
| <i>Growth</i> | -0.021*** (-8.54) | -0.025*** (-25.85) |
| <i>FirmAge</i> | 0.010*** (2.73) | 0.022*** (16.18) |
| <i>CapInt</i> | 0.055*** (3.73) | 0.083*** (16.44) |
| <i>Intang</i> | 0.026 (0.66) | 0.110*** (10.48) |
| <i>Hhi</i> | -0.340 (-0.43) | -0.375* (-1.82) |
| <i>AQ_Ind</i> | 0.221*** (2.88) | 0.306*** (11.28) |
| <i>Gdp</i> | 0.001 (0.37) | 0.001* (1.65) |
| <i>Pop</i> | -0.025* (-1.67) | 0.004 (1.03) |
| Year effects | Yes | Yes |
| Firm effects | Yes | Yes |
| Observations | 22,137 | 617,575 |
| R² | 0.023 | 0.042 |

Notes:

This table reports the fixed effects results from the following model:

$$FRQ_{i,j,t} = \alpha_i + \gamma_t + \beta FisDum_{j,t} + \delta X_{i,j,t} + \varphi Z_{j,t} + \varepsilon_{i,j,t}$$

The dependent variable is the absolute value of discretionary revenues multiplied by -1 (*AQ*). *Firms outside local tax jurisdiction* include central- and province-government-controlled firms over which the prefectural government has no tax jurisdiction. *Firms within tax jurisdiction* include other private firms over which the prefectural government has tax jurisdiction. Reported t-statistics, based on standard errors clustered by city of incorporation, are given in parentheses. Coefficient estimates significantly different from 0 at the 10%, 5%, and 1% levels are marked *, **, and ***, respectively. The definitions of other variables are provided in Appendix A.

TABLE 7

Province-managing-county (PMC) reform and financial reporting quality (FRQ): the role of local government tax's incentive

| | Prefectural government-controlled firms with state-owned share \geq 50% | Prefectural government-controlled firms with state-owned share $<$ 50% | Enterprises affiliated to prefectural government | Enterprises not affiliated to prefectural government |
|---------------------------|---|--|---|---|
| Variable | (1) | (2) | (3) | (4) |
| <i>FisDum</i> | 0.008 (1.23) | 0.013*** (2.87) | 0.004 (0.61) | 0.013*** (2.89) |
| <i>Lev</i> | 0.074*** (5.91) | -0.016*** (-2.64) | 0.005 (0.52) | -0.010 (-1.58) |
| <i>Roa</i> | 0.025 (1.04) | 0.060*** (9.86) | 0.033* (1.81) | 0.061*** (9.78) |
| <i>Size</i> | -0.017*** (-2.95) | -0.075*** (-27.68) | -0.009** (-2.09) | -0.073*** (-27.17) |
| <i>Growth</i> | -0.012*** (-8.67) | -0.027*** (-26.49) | -0.022*** (-11.72) | -0.026*** (-24.83) |
| <i>FirmAge</i> | 0.009*** (3.35) | 0.019*** (14.15) | 0.019*** (9.73) | 0.021*** (14.40) |
| <i>CapInt</i> | 0.056*** (4.84) | 0.081*** (15.49) | 0.094*** (9.76) | 0.079*** (15.07) |
| <i>Intang</i> | 0.087*** (3.85) | 0.130*** (11.28) | 0.016 (0.78) | 0.130*** (11.19) |
| <i>Hhi</i> | -0.002 (-0.00) | -0.322 (-1.41) | -0.434 (-0.68) | -0.420* (-1.84) |
| <i>AQ_Ind</i> | 0.203** (2.44) | 0.293*** (9.93) | 0.226*** (3.87) | 0.305*** (10.66) |
| <i>Gdp</i> | 0.004 (1.55) | 0.000 (0.41) | -0.001 (-0.77) | 0.001* (1.70) |
| <i>Pop</i> | 0.021* (1.76) | 0.001 (0.33) | 0.008 (0.62) | 0.005 (1.30) |
| Year effects | Yes | Yes | Yes | Yes |
| Firm effects | Yes | Yes | Yes | Yes |
| Observations | 55,513 | 562,062 | 59,259 | 558,316 |
| Adj. R² | 0.015 | 0.047 | 0.024 | 0.045 |

Notes:

This table reports the fixed effects results from the following model:

$$FRQ_{i,j,t} = \alpha_i + \gamma_t + \beta FisDum_{j,t} + \delta X_{i,j,t} + \varphi Z_{j,t} + \varepsilon_{i,j,t}.$$

The dependent variable is the absolute value of discretionary revenues multiplied by -1 (*AQ*). Columns (1)–(2) present the results from the sample of prefectural-government-controlled firms with a state-owned share at or above 50% and under 50%, respectively. Columns (3)–(4) respectively present the results from the sample of enterprises affiliated to the prefecture government and those not affiliated thereto. Reported t-statistics, based on standard errors clustered by city of incorporation, are given in parentheses. Coefficient estimates significantly different from 0 at the 10%, 5%, and 1% levels are marked *, **, and ***, respectively. The definitions of other variables are provided in Appendix A.

TABLE 8

Province-managing-county (PMC) reform and financial reporting quality (FRQ): the heterogeneous treatment effect

| Panel A The effect of PMC reform on firms with different managerial agency costs | | |
|--|-------------------------|---------------------|
| Variable | (1) | (2) |
| <i>FisDum</i> | 0.020** (3.37) | 0.017** (2.89) |
| <i>FisDum* High Expenses</i> | -0.012** (-3.05) | -0.007+ (-1.83) |
| <i>High Expenses</i> | | -0.006** (-5.99) |
| <i>Other controls</i> | Same as Table 5-Table 7 | |
| Year effects | Yes | Yes |
| Firm effects | Yes | Yes |
| Observations | 562,062 | 562,062 |
| Adj. R² | 0.047 | 0.047 |
| Panel B The effect of PMC reform on firms with different growth opportunities | | |
| Variable | (1) | (2) |
| <i>FisDum</i> | 0.009* (2.06) | 0.010* (2.13) |
| <i>FisDum* High Growth</i> | 0.007** (2.79) | 0.006* (2.37) |
| <i>High Growth</i> | | 0.001 (1.20) |
| <i>Other controls</i> | Same as Table 5-Table 7 | |
| Year effects | Yes | Yes |
| Firm effects | Yes | Yes |
| Observations | 562,062 | 562,062 |
| Adj. R² | 0.047 | 0.047 |
| Panel C The effect of PMC reform on firms with different profitability | | |
| Variable | (1) | (2) |
| <i>FisDum</i> | 0.008+ (1.78) | 0.009+ (1.95) |
| <i>FisDum* High Profitability</i> | 0.009* (2.03) | 0.008+ (1.67) |
| <i>High Profitability</i> | | 0.002* (2.22) |
| <i>Other controls</i> | Same as Table 5-Table 7 | |
| Year effects | Yes | Yes |
| Firm effects | Yes | Yes |
| Observations | 562,062 | 562,062 |
| Adj. R² | 0.047 | 0.047 |

Notes:

This table reports the fixed effects results from the following model:

$$FRQ_{i,j,t} = \alpha_i + \gamma_t + \beta_1 FisDum_{j,t} + \beta_2 FisDum_{j,t} * Indicator(High Firm Characteristics) + \beta_3 Indicator(High Firm Characteristics)_{j,t} + \delta X_{i,j,t} + \varphi Z_{j,t} + \varepsilon_{i,j,t}.$$

The dependent variable is the absolute value of discretionary revenues multiplied by -1 (*AQ*). The

indicator variable *High expenses* takes the value of one for firm with above-median annual city and industry mean adjusted operating expenses to sales ratio in the same year, city, and industry, and zero otherwise. The indicator variable *High Growth* takes the value of one for firm with above-median sales growth rate in the same year, city, and industry, and zero otherwise. The indicator variable *High Profitability* takes the value of one for firm with above-median *RoA* in the same year, city, and industry, and zero otherwise. Reported t-statistics, based on standard errors clustered by city of incorporation, are given in parentheses. Coefficient estimates significantly different from 0 at the 10%, 5%, and 1% levels are marked *, **, and ***, respectively. The definitions of other variables are provided in Appendix A.

TABLE 9

Province-managing-county (PMC) reform and financial reporting quality (FRQ): alternative measure of FRQ

| Variable | Alternative dependent variable | | | |
|----------------------|--------------------------------|-----------------------|-----------------------|-----------------------|
| | <i>FRQ1</i> | <i>FRQ2</i> | <i>FRQ3</i> | <i>FRQ4</i> |
| | (1) | (2) | (3) | (4) |
| <i>FisDum</i> | 0.004** (2.31) | 0.012*** (3.01) | 0.012*** (2.91) | 0.011*** (2.79) |
| <i>Lev</i> | -0.019*** (-8.91) | -0.003 (-0.45) | -0.010* (-1.68) | -0.009* (-1.68) |
| <i>Roa</i> | -0.010** (-2.46) | 0.058*** (8.00) | 0.068*** (10.58) | 0.063*** (11.11) |
| <i>Size</i> | -0.020*** (-12.36) | -0.066*** (-26.09) | -0.067*** (-25.24) | -0.062*** (-25.36) |
| <i>Growth</i> | -0.019*** (-30.64) | -0.027*** (-28.13) | -0.027*** (-27.28) | -0.024*** (-25.84) |
| <i>FirmAge</i> | 0.008*** (13.72) | 0.022*** (16.01) | 0.023*** (16.38) | 0.022*** (16.23) |
| <i>CapInt</i> | 0.065*** (19.22) | 0.085*** (17.62) | 0.082*** (16.26) | 0.081*** (17.44) |
| <i>Intang</i> | 0.046*** (8.72) | 0.105*** (10.28) | 0.109*** (10.67) | 0.103*** (10.24) |
| <i>Hhi</i> | 0.254** (2.29) | -0.334 (-1.55) | -0.443** (-2.10) | -0.173 (-0.90) |
| <i>AQ_Ind</i> | 0.032** (2.21) | 0.303*** (11.47) | 0.283*** (10.01) | 0.305*** (12.24) |
| <i>Gdp</i> | 0.001* (1.83) | 0.001* (1.89) | 0.001* (1.86) | 0.001* (1.91) |
| <i>Pop</i> | 0.006*** (3.08) | 0.004 (1.03) | 0.004 (1.14) | 0.004 (1.21) |
| Year effects | Yes | Yes | Yes | Yes |
| Firm effects | Yes | Yes | Yes | Yes |
| Observations | 639,712 | 639,712 | 639,712 | 639,712 |
| R² | 0.042 | 0.043 | 0.043 | 0.038 |

Notes:

Dependent variable *FRQ1* in column (1) is the negative of the absolute values of discretionary revenues, i.e., the residuals from the following regressions estimated separately for each three-digit industry and each year with at least ten observations (McNichols and Stubben 2008; Stubben 2010):

$$\Delta AR_{i,t} = \alpha + \beta \Delta \text{Sales}_{i,t} + \varepsilon_{i,t}.$$

Dependent variable *FRQ2* in column (2) is the negative of the absolute values of discretionary revenues, i.e., the residuals from the following regressions estimated separately for each three-digit industry and each year with at least ten observations (Dechow et al. 1995):

$$TA_{i,t} = \alpha + \beta(\Delta \text{Sales}_{i,t} - \Delta AR_{i,t}) + \gamma PPE_{i,t} + \varepsilon_{i,t}.$$

Dependent variables *FRQ3* and *FRQ4* in columns (3) and (4), respectively, are the negatives of the absolute values of discretionary revenues, i.e., the residuals from the following regressions estimated separately for each two- and four-digit industry and each year with at least ten observations (Kothari et al. 2005):

$$TA_{i,t} = \alpha + \beta(1/\text{Assets}_{i,t-1}) + \gamma \Delta \text{Sales}_{i,t} + \delta PPE_{i,t} + \varphi Roa_{i,t} + \varepsilon_{i,t}.$$

Reported t-statistics, based on standard errors clustered by city of incorporation, are given in parentheses. Coefficient estimates significantly different from 0 at the 10%, 5%, and 1% levels are marked *, **, and ***, respectively. The definitions of other variables are provided in Appendix A.

TABLE 10

Province-managing-county (PMC) reform and financial reporting quality (FRQ): prefecture-level regression

| Variable | (1) <i>FRQ</i> | (2) <i>FRQ</i> | (3) <i>FRQ</i> |
|----------------|--------------------|----------------------|----------------------|
| <i>FisDum</i> | 0.011*** (2.78) | 0.011*** (2.75) | 0.011*** (2.67) |
| <i>Lev</i> | | 0.028 (0.67) | 0.029 (0.71) |
| <i>Roa</i> | | -0.050 (-0.98) | -0.049 (-0.97) |
| <i>Size</i> | | 0.008 (1.33) | 0.008 (1.32) |
| <i>Growth</i> | | -0.035*** (-4.35) | -0.035*** (-4.35) |
| <i>FirmAge</i> | | 0.038*** (4.89) | 0.039*** (4.89) |
| <i>CapInt</i> | | 0.113** (2.20) | 0.113** (2.19) |
| <i>Intang</i> | | 0.095 (0.72) | 0.093 (0.70) |
| <i>Hhi</i> | | 2.565 (0.80) | 2.540 (0.79) |
| <i>Gdp</i> | | | -0.001 (-0.46) |
| <i>Pop</i> | | | -0.002 (-0.30) |
| Year effects | Yes | Yes | Yes |
| City effects | Yes | Yes | Yes |
| Obs. | 1,713 | 1,713 | 1,713 |
| No. of Cities | 273 | 273 | 273 |
| R ² | 0.195 | 0.293 | 0.292 |

Notes:

This table reports the fixed effects results from the following model:

$$\overline{FRQ}_{j,t} = \alpha_j + \gamma_t + \beta FisDum_{j,t} + \delta \overline{X}_{j,t} + \varphi Z_{j,t} + \varepsilon_{i,j,t}$$

The dependent variable \overline{FRQ} is the prefectural average absolute value of discretionary revenues multiplied by -1. \overline{X} includes the prefectural average firm characteristics. Reported t-statistics, based on standard errors clustered by the city of incorporation, are given in parentheses. Coefficient estimates significantly different from 0 at the 10%, 5%, and 1% levels are marked *, **, and ***, respectively. The definitions of other variables are provided in Appendix A.

TABLE 11
Province-managing-county (PMC) reform and tax avoidance

| Variable | (1) | (2) | (3) |
|-------------------------------|----------------------|----------------------|----------------------|
| | <i>Report profit</i> | <i>Report profit</i> | <i>Report profit</i> |
| <i>FisDum*Profit</i> | 0.020*** (3.04) | 0.012** (2.06) | 0.010* (1.85) |
| <i>Profit</i> | 0.074*** (18.47) | -0.004 (-0.25) | -0.112** (-2.15) |
| <i>FisDum</i> | -0.010* (-1.94) | -0.007 (-1.48) | -0.008* (-1.70) |
| Firm Level CV | No | Yes | Yes |
| Profit*(Firm Level CV) | No | Yes | Yes |
| City Level CV | No | No | Yes |
| Profit*(City Level CV) | No | No | Yes |
| Year Effects | Yes | Yes | Yes |
| Firm Effects | Yes | Yes | Yes |
| Observations | 639,712 | 639,712 | 639,712 |
| Adjusted R² | 0.123 | 0.146 | 0.149 |

Notes:

According to Cai and Liu (2009), this table reports the various regression results from the following model:

$$Report\ profit_{i,j,t} = \alpha_i + \gamma_t + \beta FisDum_{j,t} * Profit_{i,j,t} + \delta_1 X_{i,j,t} + \delta_2 X_{i,j,t} * Profit_{i,j,t} + \varepsilon_{i,j,t}$$

Report profit is the pre-tax accounting profit reported by each firm scaled by total assets. *Profit* is the imputed profit, defined as imputed corporate profit from the national income account divided by total assets (see Appendix A). Positive β reflects that PMC reform leads to less aggressive tax avoidance. Reported t-statistics, based on standard errors clustered by city of incorporation, are given in parentheses. Coefficient estimates significantly different from 0 at the 10%, 5%, and 1% levels are marked *, **, and ***, respectively. The definitions of other variables are provided in Appendix A.

Appendix A. Definition of main variables

| Variable | Description |
|----------------------|---|
| <i>AQ</i> | Dependent variable (AQ) is -1 multiplied by the absolute values of discretionary revenues, which are the residuals from the following regressions, estimated separately for each three-digit industry and each year with at least ten observations: $TA_{i,t} = \alpha + \beta(1/Assets_{i,t-1}) + \gamma\Delta Sales_{i,t} + \delta PPE_{i,t} + \varphi Roa_{i,t} + \varepsilon_{i,t}.$ Following Kothari et al. (2005), $TA_{i,t}$ is total accruals in year t , defined as the change in non-cash current assets minus the change in current liabilities, excluding the current portion of long-term debt, minus depreciation and amortization, scaled by lagged total assets. $\Delta Sales_{i,t}$ is the annual change in revenue in year t scaled by lagged total assets. $PPE_{i,t}$ is net property, plant, and equipment in year t scaled by scaled by lagged total assets. $Roa_{i,t}$ is the return on assets in year t . |
| <i>FisDum</i> | Dummy variable equal to 1 for prefectures experiencing PMC reform, and 0 otherwise. |
| <i>Lev</i> | Leverage is defined as total liabilities scaled by total assets. |
| <i>Roa</i> | Return on Assets |
| <i>Size</i> | The natural logarithm of total assets. |
| <i>Growth</i> | Sales grow rate. |
| <i>FirmAge</i> | The natural logarithm of (firm age+1). |
| <i>CapInt</i> | The net value of property, plant and equipment scaled by total assets. |
| <i>Intang</i> | The value of intangible assets scaled by total assets. |
| <i>Hhi</i> | Three-digit industry Herfindahl–Hirschman Index |
| <i>AQ_Ind</i> | The mean of FRQ in the firm’s city of incorporation and three-digit SIC industry, respectively, in a given year, excluding the firm itself. |
| <i>Pop</i> | The population size of the firm’s city of incorporation. |
| <i>Gdp</i> | The GDP of the firm’s city of incorporation. |
| <i>Report profit</i> | The pre-tax accounting profit reported by each firm |
| <i>Profit</i> | Following Cai and Liu (2009), impute profit is a firm’s gross output minus intermediate inputs, excluding financial charges, total wage bill, current depreciation, and value-added tax. |

Appendix B. Province-managing-county (PMC) reform and financial reporting quality (FRQ): reverse causality test

| Variable | (1) <i>FisDum_{j,t}</i> | (2) <i>FisDum_{j,t}</i> | (3) <i>FisDum_{j,t}</i> |
|-------------------------------------|------------------------------------|------------------------------------|------------------------------------|
| <i>Lag</i> (\overline{AQ}) | -0.907 (-0.76) | 0.023 (0.02) | 0.149 (0.10) |
| <i>Lag</i> (\overline{Lev}) | | -2.253* (-1.82) | -2.049 (-1.58) |
| <i>Lag</i> ($\overline{Roā}$) | | 0.860 (0.58) | 0.807 (0.48) |
| <i>Lag</i> (\overline{Size}) | | -0.333* (-1.65) | -0.140 (-0.65) |
| <i>Lag</i> (\overline{Growth}) | | -0.244 (-0.89) | -0.306 (-1.00) |
| <i>Lag</i> ($\overline{Firmage}$) | | -0.451 (-1.38) | -0.850** (-2.42) |
| <i>Lag</i> (\overline{CapInt}) | | -4.859*** (-3.44) | -7.367*** (-4.11) |
| <i>Lag</i> (\overline{Intang}) | | 5.202 (1.00) | -2.967 (-0.51) |
| <i>Lag</i> (\overline{Hhi}) | | -108.208 (-0.97) | -131.335 (-1.10) |
| <i>Lag</i> (<i>Gdp</i>) | | | -0.325*** (-3.42) |
| <i>Lag</i> (<i>Pop</i>) | | | 0.441*** (2.91) |
| <i>Year</i> | Yes | Yes | Yes |
| <i>Observations</i> | 750 | 750 | 750 |
| <i>Wald Chi-Sqr</i> | 47.67 | 98.78 | 116.08 |
| <i>P value</i> | 0.00 | 0.00 | 0.00 |

Notes:

This table reports the probit regression results from the following model:

$$Probit(FisDum_{j,t}) = \alpha_{j,t-1} + \beta \overline{FRQ}_{j,t-1} + \delta \overline{X}_{j,t-1} + \gamma_t + \varepsilon_{j,t-1}.$$

The dependent variable, *FisDum*, is a dummy variable equal to 1 for prefectures experiencing PMC reform, and 0 otherwise. \overline{FRQ} is the prefectural average absolute value of discretionary revenues multiplied by -1. \overline{X} includes the lagged prefectural average firm characteristics. The model is estimated by Probit model. Reported t-statistics, based on standard errors clustered by city of incorporation, are given in parentheses. Coefficient estimates significantly different from 0 at the 10%, 5%, and 1% levels are marked *, **, and ***, respectively. The definitions of other variables are provided in Appendix A.

Appendix C

Province-managing-county (PMC) and financial reporting quality (FRQ): evidence from propensity score matching

Panel A: Probit regression results of pre-match sample and matched sample

| Variable | 2003 | | 2004 | | 2005 | | All |
|-------------------|----------------------|-------------------|----------------------|-------------------|---------------------|--------------------|-------------------|
| | Pre-M (1) | Post-M (2) | Pre-M (3) | Post-M (4) | Pre-M (5) | Post-M (6) | Matched (7) |
| <i>Gdp</i> | -1.583*** (-4.23) | -0.402 (-0.53) | -0.385 (-1.23) | 0.304 (0.35) | 0.506** (2.26) | 0.940 (1.25) | 0.151 (0.63) |
| <i>Pop</i> | 1.493*** (4.33) | -0.151 (-0.23) | 0.928** (2.39) | -0.217 (-0.27) | -0.618** (-2.28) | -0.814 (-0.84) | -0.194 (-0.71) |
| <i>Areas</i> | 0.418** (1.98) | 0.206 (0.59) | 0.268 (1.16) | 0.260 (0.54) | 0.076 (0.47) | -0.331 (-0.89) | -0.049 (-0.24) |
| <i>Fiscal</i> | 35.971*** (4.02) | 12.370 (0.68) | 6.064 (1.00) | -4.049 (-0.20) | -7.059** (-2.31) | -10.778 (-1.29) | -0.535 (-0.13) |
| <i>Constant</i> | -2.958* (-1.72) | 1.876 (0.63) | -6.847*** (-3.09) | -3.208 (-0.71) | -1.985 (-1.26) | 1.299 (0.43) | 0.695 (0.38) |
| Obs. | 226 | 58 | 209 | 30 | 212 | 42 | 130 |
| LR chi-sqr | 38.33 | 1.53 | 12.92 | 0.71 | 8.38 | 3.48 | 0.82 |
| P value | 0.00 | 0.82 | 0.01 | 0.95 | 0.08 | 0.48 | 0.94 |

Panel B. The impact of PMC reform on FRQ in matched sample

| Variable | (1) | (2) | (3) | (4) | (5) | (6) |
|---------------------------|--------------------|--------------------|--------------------|-------------------|--------------------|-------------------|
| | <i>AQ</i> | <i>AQ</i> | <i>AQ</i> | <i>AQ</i> | <i>AQ</i> | <i>AQ</i> |
| <i>FisDum</i> | 0.014*** (2.69) | 0.014*** (3.01) | 0.013*** (3.08) | | | |
| <i>Year-2</i> | | | | 0.001 (0.28) | -0.000 (-0.03) | 0.000 (0.03) |
| <i>Year-1</i> | | | | 0.004 (0.74) | 0.003 (0.82) | 0.003 (0.77) |
| <i>Event Year</i> | | | | 0.013* (1.79) | 0.012** (2.02) | 0.012** (2.05) |
| <i>Year+1</i> | | | | 0.019** (2.28) | 0.017*** (2.59) | 0.016** (2.42) |
| <i>Year+2</i> | | | | 0.015* (1.94) | 0.017*** (2.64) | 0.015** (2.36) |
| Firm level CV | No | Yes | Yes | No | Yes | Yes |
| City level CV | No | No | Yes | No | No | Yes |
| Year | Yes | Yes | Yes | Yes | Yes | Yes |
| Firm fixed effect | Yes | Yes | Yes | Yes | Yes | Yes |
| Obs. | 262,524 | 262,524 | 262,524 | 262,524 | 262,524 | 262,524 |
| Adj. R² | 0.003 | 0.041 | 0.041 | 0.003 | 0.041 | 0.041 |

Notes:

Appendix C examines whether the effect of PMC reform on FRQ is confounded by unobserved changes in local business conditions. For each treated city, we match a control city that has the closest probability of being PMC reformed. To ensure that the treated city and its “closest” control city are truly close to each other in business conditions, we further require that the difference in propensity score between the treated city and its “closest” control city must be within 1%, and we matched them one year before PMC reform occurred.

Panel A reports the results of propensity score matching using the following model:

$$Probit(FisDum) = \alpha_1 + \alpha_2 Gdp + \alpha_3 Population + \alpha_4 Areas + \alpha_5 Fiscal + \varepsilon.$$

Gdp is the logarithm of local GDP. *Population* is the logarithm of local total population. *Areas* is the logarithm of areas under jurisdiction. *Fiscal* is the gap between fiscal expenditure and fiscal revenue, scaled by local GDP.

Panel B reports the difference-in-differences tests examining the impacts of PMC reform on FRQ, using the propensity score matched sample from the following model:

$$FRQ_{i,j,t} = \alpha_{i,j,t} + \beta Treatment_{j,t} + \delta X_{i,j,t} + \varphi_i + \gamma_t + \varepsilon_{i,j,t}.$$

Reported t-statistics, based on standard errors clustered by city of incorporation, are given in parentheses. Coefficient estimates significantly different from 0 at the 10%, 5%, and 1% levels are marked *, **, and ***, respectively. The definitions of other variables are provided in Appendix A.