Tax Revenue Pressure and Taxpaying Credit Ratings

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Yunxia Bai, Yu Cai, Lili Dai, and Yewei Wu

Yunxia Bai and Yu Cai are from the School of Economics and Management at Tongji University, Shanghai, China. Lili Dai is from the Business School of New South Wales University, Sydney, Australia. Yewei Wu (the corresponding author) is from the School of Business Administration at Guangxi University, Nanning, China. The authors' contact information is as follows. Bai, +86-21-6598-2279, yxbai@aliyun.com; Cai: +86-21-6598-1551, caiyu@tongji.edu.cn; Dai, +61-2-9065-1612; lili.dai@unsw.edu.au; Wu, +86-771-3232-880, yeweiwu@gxu.edu.cn, Postal address: No. 100 University Road, Nanning, China, 530004. We appreciate constructive comments from the participants of the 3rd Credit Scoring and Credit Rating Conference (CSCR III) conference held in Northwest A&F University in October 2024. We thank the organizing committee of the CSCR III for the Best Paper award. All errors are our own responsibilities. The paper was previously circulated under the title of "Tax Revenue Target and the Quality of Taxpaying Credit Rating".

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ABSTRACT

A taxpaying credit rating system was recently implemented in China, which provides valuable information regarding the creditworthiness of companies as taxpayers. We investigate whether the level of taxpaying credit ratings is unduly influenced by the tax revenue pressure facing tax authorities and whether bond investors recognize the associated bias in the ratings. Our findings indicate that when local tax authorities are under pressure to meet tax revenue targets, and when ratings are assigned by county-level authorities, a firm's tax contributions significantly increase its likelihood of being rated as an A-level taxpayer. Conversely, the positive effect of tax compliance on the probability of receiving an A-level rating is significantly diminished. Upon receiving an A-level rating, there is a notable increase in the excess returns and trading volume of the bonds issued by the firm. However, these positive reactions significantly decline when tax authorities face high pressure from tax revenue targets and when they operate at county levels. Our findings suggest that the pressure to meet tax revenue targets may compromise the integrity of taxpaying credit ratings, and that bond investors are able to discern the quality of these ratings.

Keywords: Taxpaying credit ratings; Tax revenue targets; Tax contributions; Bond trading; Rating quality.

JEL Codes: G1; G2; H2.

1. Introduction

A taxpaying credit system has been established in China to evaluate the creditworthiness of companies as taxpayers. This assessment is conducted by tax authorities based on the extent to which companies have fulfilled their tax payment obligations over a specified period. The taxpaying credit rating system aims to promote corporate tax compliance and serves as a crucial component of the broader social credit system in China, which seeks to quantify the creditworthiness and trustworthiness of individuals and various social entities (Raghunath, 2024; Werbach, 2022). As expected, the taxpaying credit ratings provide valuable insights not only into a company's creditworthiness as a taxpayer but also regarding its reliability as a debtor (Ayers et al., 2010). While some studies demonstrate the positive economic impacts of this system (Fan et al., 2023; Li et al., 2023), the question of how these taxpaying credit ratings are initially determined remains underexplored. Our study aims to address this gap by investigating whether the tax revenue pressures on tax authorities introduce bias into the taxpaying credit ratings, as well as examining the reactions of key stakeholders, such as bond investors, in recognizing the nuances of these ratings.

The taxpaying credit system is designed as a tool for implementing incentive-based tax administration, also known as flexible tax management, in China. Within this framework, tax authorities assess the credit levels of companies based on their taxpaying records and categorize them into four distinct levels: A, B, C, and D. Companies that achieve an A-level taxpaying credit rating are eligible for various rewards from tax authorities and other governmental departments, including customs services and banking regulators. Generally, the independence of the raters is crucial for the credibility of the ratings and influences how the market responds to them (Xia, 2014). For taxpaying credit ratings to provide valuable information regarding the creditworthiness of market entities and facilitate market transactions, it is essential that the rating process administered by the government maintains a sufficient degree of independence and impartiality to accurately reflect the true credit levels of companies.

Government-led credit ratings can, in theory, achieve a high level of independence since authorities do not charge firms for the ratings they provide, unlike bond rating agencies or auditing firms, which impose fees when certifying a company’s conditions. However, the relationship between tax authorities and companies in China is more complex and dynamic

than a simple cat-and-mouse game (Deng and Luo, 2011). China's tax authorities operate under a tax revenue target management system, which establishes annual tax collection goals for each level of authority at the beginning of the year. By year-end, higher-level tax departments and local governments evaluate whether these targets have been achieved. Due to the traditional reliance of local governments on expansionary fiscal strategies and the "expenditure-driven revenue" budgeting rule (Chen, 2017), tax authorities often experience significant pressure to meet these tax revenue targets. While tax revenue forecasts are also utilized to set revenue targets for tax authorities in jurisdictions such as the United States, the European Union, and OECD countries (McNab et al., 2007; Bischoff & Gohout, 2010; Pina & Venes, 2011; Beetsma et al., 2013; Jochimsen & Lehmann, 2017), only in China do tax revenue targets directly influence the annual performance evaluations of the tax staff, with unmet targets resulting in unfavorable evaluations of their work.[1]

Tax officials in China could resort to various strategies to meet revenue targets. When achieving these targets proves challenging, they may intensify tax inspections and even impose excessive tax rates. Conversely, when targets are more attainable, they may reduce inspection efforts and, in some instances, refrain from collecting taxes to avoid raising the revenue baseline for the following year (Bai et al., 2019; Deng and Luo, 2011). Major taxpayers play a crucial role in assisting governments in achieving fiscal income goals and enabling tax authorities to meet their revenue targets. As a result, major taxpayers often receive various forms of government support, including more lenient enforcement, financial subsidies, official recognition, and resource allocation (Li et al., 2023). This preferential treatment of major taxpayers, along with strategic tax administration practices, suggests that under the tax revenue target management system, the financial constraints faced by tax authorities may influence how revenue targets are achieved and also how taxpaying credit ratings are reached. For instance, companies that make substantial tax contributions might receive an A-level rating from local tax bureaus, despite potential issues with their tax compliance.[2]

[1] To ensure the achievement of tax revenue targets, tax authorities frequently implement measures such as "signing target management responsibility agreements," "assigning responsibilities to individuals," and "one-vote veto systems" to promote compliance. For instance, in 2007, a symposium of local tax bureaus in Shaanxi Province explicitly emphasized the necessity of strengthening the evaluation of target responsibility systems to guarantee the fulfillment of annual tax and fee revenue objectives.

[2] The China National Petroleum Corporation Fuel Oil Co., Ltd., for example, received an A-level taxpaying

We measure a firm's tax contributions by the ratio of its corporate income tax expenses to the total corporate income tax revenue collected at the provincial level by tax authorities. Figure 1 illustrates the average tax contributions of A-rated firms compared to non-A-rated firms for each year in our sample, spanning from 2015 to 2018. In the full sample, it appears that firms with an A-level rating contribute significantly more in taxes than their non-A-level counterparts. We then measure the pressure on tax authorities to meet tax revenue targets by calculating the degree to which the ex-post tax revenue falls short of the ex-ante tax revenue budget, and divide the sample into two groups based on the median value of this pressure indicator. Figure 1 seems to show that when the tax revenue pressure is low, the difference in tax contributions between A-rated and non-A-rated firms is relatively small. However, when tax revenue pressure is high, A-rated firms contribute substantially more than non-A-rated firms. This suggests that heightened tax revenue pressure could intensify the conflict of interest that tax authorities face between taxpaying credit ratings and tax administration, potentially prompting them to prioritize tax contributions during the rating process and as a result, undermine the integrity of taxpaying credit ratings.

[Insert Figure 1 about Here]

We formally test the hypothesis that the pressure on tax authorities to collect sufficient tax revenue may negatively impact the integrity of taxpaying credit ratings. Our analysis utilizes a sample of firms for which data on taxpaying credit ratings and bond trading are both available. We find that, prior to incorporating any variables related to tax authorities into the model, tax contributions do not significantly correlate with the probability of receiving an A-level rating, while tax compliance is positively associated with this probability. However, after accounting for the pressure to meet tax revenue targets and the potential influence of tax authorities operating at the county level, which may indicate poor tax governance, we observe that the effect of tax contributions on the likelihood of receiving an A-level rating is significantly

credit in Zhuhai from 2014 to 2021. However, in 2022, the National Audit Office revealed that since 2006, the company had illegally sold nearly 180 million tons of imported crude oil, resulting in significant tax revenue losses. Similarly, Jeya Co., Ltd. (stock code: 301108) was recognized as an outstanding taxpayer in Tongling City from 2018 to 2020 but was found to have falsified export information to fraudulently claim tax refunds. Other companies, such as Dali Pharmaceuticals (stock code: 603963), Zhongshan Genova Furniture Co., Ltd., and Haizheng Pharmaceuticals (stock code: 600267), have faced similar issues. These cases illustrate that A-level taxpaying credit ratings do not always indicate high tax compliance and may involve violations.

amplified. Conversely, the positive impact of tax compliance on achieving A-rated status is notably diminished in both scenarios.

Another crucial issue we attempt to address in this study is whether the bond market can assess the quality of taxpaying credit ratings. Bond investors are receptive to corporate credit information. They have a strong incentive to rigorously evaluate issuing firms and demand return spreads for the risks they are exposed to (Bharath et al., 2008; Duff and Einig, 2009b). The bond market, as it is primarily driven by institutional investors, can be well-positioned to discern the information provided by taxpaying credit ratings. We find that after a firm receives an A-level rating, the bond market reacts to the news favorably, with a significant increase in both the excess bond returns and trading volumes in the next two months after the news. Furthermore, we find the positive reactions are contingent on the quality of the ratings: the positive reactions are significantly diminished if the tax authorities involved are subject to high pressure to meet tax revenue targets or if the rating-issuing tax authorities are at the county level.

Our study contributes to four strands of literature. First, it expands on research related to the quality of credit ratings. Existing literature primarily examines the independence of rating agencies under the "issuer-pays" model (Griffin and Tang, 2012; Jiang et al., 2012; Xia, 2014). These studies argue that the revenue dependency of rating agencies on issuers introduces bias into the rating process, resulting in final ratings that may not fully and objectively reflect the credit risk of issuers. In contrast to bond ratings, taxpaying credit ratings are provided at no cost to both the rated companies and the users of the ratings. As a public good, taxpaying credit ratings could differ significantly from the bond ratings provided by bond rating agencies in terms of rating independence. However, our findings reveal that government-led taxpaying credit ratings also face challenges related to independence, thereby broadening the scope of credit rating research.

Second, this study enhances the understanding of the unique system of taxpaying credit ratings. Prior research generally confirms that favorable taxpaying credit ratings are associated with positive economic benefits. For instance, firms with higher ratings enjoy better access to advantageous bank lending conditions, receive more trade credit from their suppliers, and are more likely to increase their investments, particularly in research and development (R&D) and

innovation (Fan et al., 2023; Li et al., 2023). However, relatively few studies have examined how these ratings are determined and the integrity of the ratings themselves. At the firm level, Wang et al. (2023) find that when the controlling individual of a firm obtains foreign residency rights, the firm has a lower likelihood of being rated as an A-level taxpayer. In contrast, our findings indicate that specific attributes of tax authorities serve as significant external determinants of these ratings.

Third, this study aims to enhance the existing body of literature on social trust, specifically focusing on taxpaying credit as a distinct subset of this concept. Prior research has demonstrated that social trust can significantly promote economic growth and improve social efficiency (La Porta et al., 1997; An et al., 2022). However, existing studies primarily examine the impact of social trust on international trade, corporate finance, and mergers and acquisitions (Guiso et al., 2009; Duarte et al., 2012), often adopting a regional cultural perspective. Furthermore, these analyses predominantly concentrate on trust among market participants, with a notable lack of investigations into the broader concept of social trust, which includes taxpaying credit (Raghunath, 2024; Werbach, 2022). Our paper evaluates the integrity of ratings concerning corporate creditworthiness from the perspective of taxpayers, as well as the extent of market recognition of such creditworthiness. Specifically, it investigates the secondary bond market and demonstrates that government-established credit ratings can effectively reduce corporate transaction costs, with the impact contingent upon the quality of the ratings.

Finally, our study contributes to the ongoing debate on fiscal decentralization. Local governments are often more effective than central governments in formulating public policies because they incur lower costs to gather information about their residents (Hayek, 1945). Through the voting process, local governments can enhance the allocation of resources to achieve a more efficient outcome (Stigler, 1957). Our study identifies two factors that may influence the informational content of tax credit ratings, and the two factors are related to fiscal decentralization: the pressure from tax revenue targets and the administrative level of the tax-collecting authority. Our findings suggest that there are potential drawbacks for the central government in delegating tax collection powers to local authorities. Our findings align with recent tax reforms in China in 2018, which consolidated the powers of state and local bureaus

into a single entity (Liu et al., 2022).

2. Institutional Background

In an effort to incentivize tax compliance among firms and to enhance the management of compulsory taxation, the State Taxation Administration (STA) of China implemented a modern tax credit rating system on July 4, 2014. This initiative is governed by the "Administrative Measures on Tax Credit Rating" (hereafter "Administrative Measures") that the STA issued in that year, as well as the "Tax Credit Rating Indicators and Methods," which stipulate that all eligible taxpayers are subject to regular assessments of their tax compliance in the previous tax year. The inaugural list of A-level taxpayers was published in April 2015. By utilizing the Social Uniform Credit Code—a unique and immutable identifier assigned to legal entities—individuals can verify whether a firm has attained an A-level credit rating for a specific year (Li et al., 2023). The taxpaying credit rating constitutes a fundamental element of the social credit system implemented by the Chinese government. This system is designed to promote an increased awareness of integrity among businesses by assessing their creditworthiness and providing incentives to companies that achieve high credit ratings.

The taxpayer credit ratings are primarily based on information derived from corporate tax data and external reference sources. External reference information includes data provided by various institutions, such as banks, environmental protection agencies, customs authorities, industry and commerce bureaus, and housing authorities. Corporate tax information is categorized into three levels of indicators. The first level comprises two categories: regular and non-regular indicators. Regular indicators consist of secondary indicators, including tax declaration data, tax payment records, invoice and tax control device information, as well as registration and bookkeeping details. These types of information are routinely generated by businesses during the evaluation year. In contrast, non-regular indicators refer to information that is not frequently produced by taxpayers, such as tax inspection data. This category primarily includes secondary indicators such as tax assessments, tax audits, anti-tax avoidance investigations, and tax enforcement actions. Each secondary indicator is linked to multiple tertiary indicators, resulting in nearly 100 detailed indicators in total, thereby enhancing the diversity of information sources.

The rating process is conducted by the tax authorities. Before April each year, the

authorities assess the credit levels of companies based on information from the previous year. The annual evaluation score is calculated using a point deduction system. If a taxpayer's regular and non-regular indicators are complete, the rating begins at 100 points; if non-regular indicators are missing, the rating starts at 90 points. Tax credit levels are classified into four categories: A, B, C, and D. An A-level tax credit is awarded to taxpayers with an annual evaluation score above 90 points; a B-level tax credit is granted to those with a score between 70 and 90 points; a C-level tax credit is given to those with a score between 40 and 70 points; and a D-level tax credit is assigned to those with a score below 40 points or determined by a judgment.

Tax authorities have discretion in the taxpaying credit rating process, notwithstanding that the system is well-developed and sophisticated. Taxpaying credit deductions are primarily generated automatically based on data recorded in the tax management system, but whether and how this data is recorded still depends on the judgment of local tax officials. For example, Article 19 of the "Administrative Measures" stipulates that "a taxpayer cannot be rated as an A-level taxpayer if they have zero or negative declarations for value-added tax (VAT) or business tax for three consecutive months or a cumulative six months within an evaluation year due to abnormal reasons." However, the definition of "abnormal reasons" is not clearly specified and relies on the judgment of tax officials. Similarly, Article 15 of the "Administrative Measures" states, "The annual evaluation score uses a deduction method. If a taxpayer's information on recurring and non-recurring indicators within the evaluation year is complete, the score starts at 100 points; if non-recurring indicator information is missing, the score starts at 90 points." The collection of non-recurring indicator information depends entirely on the tax department's tax assessments, audits, and inspections. This means that if a taxpayer undergoes a tax department inspection, their starting score is 100 points, making it easier to be rated as an A-level taxpayer; conversely, if the inspection is not conducted, it results in missing non-recurring indicators, starting the score at 90 points. Even one deduction item would prevent an A-level rating.

The results of the rating assessments are disseminated and employed by the tax authorities. Annually, in April, the tax authorities publish the list of A-level tax credit companies from the preceding year; however, they do not make public the lists for B, C, and D-level companies.

A-level companies qualify for various incentive measures, which can be broadly classified into approval incentives, convenience incentives, and resource incentives, as detailed in the Internet Appendix Table IA1. For instance, firms that receive an A-level rating experience a markedly enhanced ability to secure government approval for licenses or certificates. Furthermore, A-level rated firms are eligible for increased domestic bank credit and receive preferential treatment when applying to issue foreign bonds. Additionally, these firms can access greater tax benefits and experience expedited processing of their tax returns. Such preferential treatments are exclusively available to A-level rated firms (Fan et al., 2023).

3. Hypothesis Development

Local government officials in China are heavily tasked with economic management and often encounter limited promotion opportunities if they fail to stimulate economic growth (Cao et al., 2019; Lyu et al., 2018). To achieve this objective, they frequently increase fiscal expenditures, which can strain local government finances (Jin et al., 2005). To alleviate this pressure, local governments strive to enhance tax revenue, incorporating it into fiscal budgets as revenue targets and effectively shifting the fiscal burden onto tax authorities to meet these objectives. Within the frameworks of administrative contracting and performance evaluation systems, tax authorities are incentivized to achieve these targets. However, this can sometimes lead to conflicts of interest between tax collection efforts and taxpaying credit ratings, potentially resulting in collusion between tax authorities and taxpayers, thereby undermining the integrity of taxpaying credit ratings (Tirole, 1986, 1992; Laffont, 2000).[3]

Companies seeking economic benefits aim to cultivate favorable relationships with local governments, which can lead to collusion with tax authorities. For example, large taxpayers may time or increase their tax payments to help meet tax revenue targets. In return, tax authorities might relax enforcement or even grant them concessions, providing access to additional resources and administrative conveniences (Fan et al., 2023).[4] Furthermore, the

[3] According to collusion theory (Tirole, 1986, 1992; Laffont, 2000), the principal offers a contract to both the supervisor and the agent, who may form a private side contract. If the agent possesses private information that is not available to the supervisor, they may collude to conceal their actions from the principal. Efforts by the principal to disrupt this collusion through incentives or bureaucratic measures can sometimes backfire, resulting in a stable equilibrium of collusion. In the context of tax credit ratings, the higher tax authority can be viewed as the principal, the lower tax authority as the supervisor, and the company as the agent.

[4] In 2020, the finance department of Huaiyuan County, located in Anhui Province, implemented a policy that required local tax contributions as a prerequisite for disbursing project funds.

value of A-level credits is enhanced by various regulations that offer administrative approvals and improved access to economic resources for A-level taxpayers, as demonstrated in the Internet Appendix Table A1. Consequently, A-level tax credit ratings can function as a cost-effective mechanism for collusion between companies and tax authorities, offering advantages in resource access and administrative approval.

On the other hand, tax authorities in China, particularly at the lower levels, may prioritize revenue targets over strict compliance with tax regulations, often resulting in collusion with companies (Bai et al., 2019; Deng and Luo, 2011). Importantly, these authorities have the discretion to grant A-level qualifications more liberally to incentivize large taxpayers and stabilize tax revenue. As discussed in the previous subsection on the institutional background, the establishment of non-recurring indicator scores in the rating process indirectly reflects the tax authority's emphasis on tax assessments and audits that enhance revenue. This system allows tax authorities to determine a taxpayer's credit level based on their participation in tax assessments and audits, particularly whether they are classified as A-level taxpayers. Consequently, tax credit ratings can serve as a tool for tax authorities to guide enterprises in achieving tax revenue objectives.

In theory, absent any distorting incentives from tax authorities in meeting tax revenue targets, taxpaying credit ratings should not be affected by the size of tax contributions but rather be determined solely by the degree of tax compliance. However, due to real institutional factors, the focus of tax authorities on tax contributions rather than tax compliance can unfortunately distort the relationship between tax compliance and taxpaying credit ratings. High tax contributions do not necessarily equate to high compliance. When tax authorities experience significant pressure to collect sufficient tax revenue, this distortion can become more pronounced. This leads to our first hypothesis.

H1: The positive association between taxpaying credit ratings and tax contributions is stronger, whereas the positive correlation between taxpaying credit ratings and tax compliance is weaker, when tax authorities experience increased pressure for higher tax revenue.

The distortion effect is also expected to be more pronounced when the raters are grassroots tax authorities, who are often susceptible to issues related to poor tax governance. According to Articles 4 and 7 of the "Administrative Measures," tax authorities, including those at the

county level, are tasked with conducting credit ratings for enterprises within their jurisdiction. Higher-level governments clearly possess greater bargaining power when negotiating tax-sharing contracts with lower-level governments. Fiscal pressure is translated into tax revenue targets through the budget formulation process. In response to this pressure, higher-level governments, equipped with enhanced bargaining power, shift the burden onto lower-level governments, resulting in a phenomenon known as "layered increase" (Bai et al., 2019), which ultimately places the most significant tax revenue pressure on grassroots-level governments. Under the administrative contracting and performance assessment system, grassroots-level governments are strongly incentivized to extract off-budget tax revenues from companies within their jurisdiction. This situation leads to frequent tax-related issues, such as tax distribution disputes and illegal taxation practices at the grassroots level (Zhou, 2005).

Consequently, when evaluating taxpaying credit ratings, grassroots-level tax authorities may place excessive emphasis on the total amount of taxes paid by companies while downplaying the importance of tax compliance. Large taxpayer companies are more likely to receive an A-level taxpaying credit rating from these authorities. This creates a situation where a company, despite being classified as an A-level taxpayer, may not necessarily exhibit strong tax compliance. As a result, the relationship between tax compliance and taxpaying credit is compromised.[5] Therefore, our second hypothesis is as follows.

H2: The positive association between taxpaying credit ratings and tax contributions is stronger, whereas the positive correlation between taxpaying credit ratings and tax compliance is weaker, when the taxpaying credit ratings are issued by grassroots-level tax authorities.

4. Research Design

4.1 Empirical Models

We employ the following probit models in Equations (1) and (2) to investigate whether the level of taxpaying credit ratings is affected by the pressure on the tax authority stemming from tax revenue targets (H1) and the administrative level of the tax authority (H2).

$$\text{Prob}(TaxCredit_{i,t}=1)=\alpha_0+\alpha_1 Contri_{i,t}\times TaxPlan_{p,t}+\alpha_2 Compli_{i,t}\times TaxPlan_{p,t} \quad (1)$$

[5] Also, government misconduct in tax collection can erode trust in government among market participants, potentially leading to more extensive and concealed tax evasion practices by companies (Besley et al., 2019; Li et al., 2016; Duan et al., 2018).

$$+\alpha_3 Contri_{i,t}+\alpha_4 Compli_{i,t}+\alpha_5 TaxPlan_{p,t}+X_{i,t}+\mu_j+\lambda_t+\varepsilon_{i,t}.$$

$$\text{Prob}(TaxCredit_{i,t}=1)=\beta_0+\beta_1 Contri_{i,t}\times XJ_{i,t}+\beta_2 Compli_{i,t}\times XJ_{i,t} \quad (2)$$

$$+\beta_3 Contri_{i,t}+\beta_4 Compli_{i,t}+\beta_5 XJ_{i,t}+X_{i,t}+\mu_j+\lambda_t+\varepsilon_{i,t}.$$

In the two models presented, the subscript i denotes the company, j signifies the industry, p represents the province, and t indicates the year. The variable $TaxCredit$ is assigned a value of 1 if the company is classified as A-level for taxpaying credit, and 0 otherwise. It is important to note that the A-level taxpaying credit list for year t is published in the subsequent year, $t+1$. The variable $Contri$ represents the ratio of the company's income tax expense to the total corporate income tax revenue of the province in which the firm operates. The variable $Compli$ represents the tax compliance of the company, calculated as the difference between the actual tax rate and the nominal (or statutory) tax rate. A larger value for this variable indicates that the actual tax rate is closer to the nominal tax rate, thereby suggesting higher compliance (Hanlon and Heitzman, 2010; Chen et al., 2010). The actual tax rates can be assessed using the variable, $ETR = \frac{\text{Income Tax Expense}}{\text{EBIT}}$ (Shevlin, 1987). The variable, $TaxPlan$, captures the pressure on provincial tax authorities resulting from tax revenue targets. It is defined as (Tax Revenue Budget - Tax Revenue Final) / (Tax Revenue Budget). The planned tax revenue is part of the broader fiscal budget, with the proposed figures submitted by tax authorities at the beginning of the year. A higher value for this variable indicates a greater disparity between planned and actual figures, thereby reflecting increased pressure on tax authorities. Finally, the binary variable XJ represents whether it is the grassroots-level (i.e., county-level) tax authorities who oversees the company and provides taxpaying credit rating for it, assuming a value of 1 if the tax authority is at the county level, and 0 otherwise.

We do not make predictions regarding whether the size of tax contributions alone can significantly affect the likelihood of a firm receiving A-level ratings. However, we do anticipate that when tax authorities face increased pressure to meet tax revenue targets or operate at the grassroots administrative level, they may assess a firm's taxpaying credit rating based on the magnitude of its tax contributions. In such cases, large taxpayers may receive favorable ratings, even if these ratings are not justified by other metrics, such as tax compliance. This means that both α_1 and β_1 in Equations (1) and (2) will be significantly positive, thereby confirming the

validity of our two hypotheses (H1 and H2).

$X_{i,t}$ refers to a set of control variables, which include: firm size (*SIZE*), defined as the natural logarithm of total assets; leverage (*LEV*), represented by the ratio of total liabilities to total assets; profitability (*ROA*), characterized as the ratio of net profit to total assets; fixed asset ratio (*PPE*), defined as the ratio of net fixed assets to total assets; listing status (*LIST*), where 1 indicates a listed company and 0 indicates otherwise; ownership concentration (*TOP1*), proxied by the shareholding ratio of the largest shareholder; ownership type (*SOE*), where a value of 1 denotes a state-owned enterprise and 0 denotes otherwise; and legal environment (*PROTECT*), which is the natural logarithm of the component of the market-oriented index concerning "market legal environment" as in Fan et al. (2001). μ_j and λ_t represent industry and year fixed effects respectively, and $\varepsilon_{i,t}$ denotes the residuals. The regression standard errors are clustered at the company level, and continuous variables are winsorized at the 1% and 99% percentiles. Table 1 presents the variable definitions in details.

[Insert Table 1 about Here]

4.2 Sample Selection and Data Sources

In addition to H1 and H2, we will also investigate how bond investors process taxpaying credit ratings. Our sample of firms is therefore limited to those for which the bond trading data are available. The inferences of H1 and H2 are, however, not affected as we show in robustness tests where we use a bigger sample without the bond trading. Our sample selection procedure starts with the 5,497 companies whose bonds were traded on the Shanghai and Shenzhen Stock Exchanges or the Interbank Bond Market of China from 2015 to 2018. The sample period commences in 2015 because, although the STA's official website published the list of A-level taxpayers starting in 2014, none of the bond-issuing firms appeared on the 2014 list. The sample period concludes in 2018 due to data downloading restrictions imposed by the STA, which prevent the algorithmic retrieval of rating data from 2019 onward. The following types of firms were further excluded: (1) financial firms; (2) firms with negative pre-tax profits; (3) firms with actual tax rates greater than 1 or less than 0 (Gupta and Newberry, 1997); (4) firms with missing key variables. The final sample includes 4,075 bond-issuing firms with a total of 12,192 firm-year observations. Among these, 245, 557, 1,327, and 1,092 firms were rated as

A-level taxpayers in 2015, 2016, 2017, and 2018, respectively. Data on the bond-issuing firms and the bonds were obtained from the Wind Financial Terminal, while the fiscal and taxation data for each province were sourced from the Finance Yearbook of China, compiled by the Ministry of Finance of China (MOF) and downloadable from the CNKI database.

Table 2 presents the descriptive statistics for the primary variables. Approximately 23.9% of the sample firms are classified as A-level taxpayers (*TaxCredit*). The mean of tax contribution (*Contri*) is 0.7%, indicating that, on average, a firm contributes 0.7% of the total corporate income tax revenue for the province. The mean of the effective tax rate (*ETR*) is 0.209, which aligns with the findings in the existing literature (see, e.g., Liu and Liu, 2014). The mean of tax compliance (*Compli*) is -0.029, suggesting that the actual tax rate is on average below the statutory tax rate. The mean of tax revenue pressure (*TaxPlan*) is approximately 0, indicating that, overall, the actual tax revenues match the planned amounts. Yet, it is important to note that this pressure metric has a standard deviation of 0.036, suggesting that actual revenues typically deviate from target values by 3.6%. Firms located in county-level administrative regions (*XJ*), which are subject to county-level tax authorities, account for 13.8% of the sample. The average shareholding ratio of the largest shareholder (*TOP1*) is 77.9%, indicating the prevalence of a dominant shareholder in our sample firms. Additionally, 23.1% of the samples consist of listed companies (*LIST*), and 79.3% firms are state-owned enterprises (*SOE*).

[Insert Table 2 about Here]

5. Empirical Analyses

5.1 Main Findings

Using probit model estimation, Table 3 illustrates the influence of tax contributions and tax compliance on a firm's likelihood of receiving A-level ratings. We find that the coefficient for tax contribution (*Contri*) is not significant in column (1), while the coefficient for the tax compliance measure (*Compli*) is significantly positive. This pattern persists in column (3), where both variables are included in the model. These results suggest that tax authorities primarily rely on tax compliance when assessing taxpayer credit ratings, rather than on tax contributions. This approach is appropriate and aligns with the laws and regulations governing tax credit ratings.

[Insert Table 3 about Here]

Table 4 presents the regression results for the model specified in Equation (1), which includes the variable representing pressure from tax revenue targets (*TaxPlan*) and the variable on the administrative level of the tax authority (*XJ*). From column (1), we observe that the coefficient on the interaction term between tax contribution and *TaxPlan* (*Contri*×*TaxPlan*) is significantly positive. This finding suggests that as pressure to meet tax revenue targets increases, tax authorities place greater emphasis on tax contribution when evaluating taxpayer credit ratings. Thus, in regions experiencing high tax revenue pressure, tax contribution has a substantial impact on the likelihood of a firm being classified as an A-level taxpayer. Conversely, the coefficient on the interaction term between tax compliance and tax revenue pressure (*Compli*×*TaxPlan*) is significantly negative, indicating a reduced sensitivity between tax compliance and A-level taxpayer credit ratings. This implies that when tax revenue pressure is elevated, tax authorities relax their requirements for tax compliance in taxpayer credit rating assessments. In summary, when tax authorities encounter significant pressure to meet tax revenue targets, they prioritize tax contribution over tax compliance in determining A-level taxpayer credit ratings, thereby supporting H1.

[Insert Table 4 about Here]

From column (2) of Table 4, we observe that the coefficient on the interaction term between tax contribution and the grassroots administration level dummy (*Contri*×*XJ*) is significantly positive. Furthermore, the coefficient on the interaction term between tax compliance and the grassroots dummy (*Compli*×*XJ*) is significantly negative. These findings suggest that county-level tax authorities prioritize tax contribution when evaluating taxpayer credit ratings, while simultaneously lowering their requirements for tax compliance, thereby supporting H2.

5.2. Bond Investors' Reactions

Bond investors seek information about bond-issuing companies to minimize their investment risks, particularly the risk of default (Sengupta, 1998). However, due to the constraints of information search costs and limitations in research capabilities and resources, bond investors may struggle to obtain all relevant information. Bond rating agencies, which act as key information intermediaries in the bond market, also face their own challenges. Their independence is often questioned because they operate on an issuer-paid business model.

Consequently, their ratings have not been as effective in providing risk warnings as they could have been (Becker & Milbourn, 2011; Duff and Einig, 2009a; Opp et al., 2013). The importance of credit information has become particularly pronounced for bond investors in China in recent years for two reasons. First, bonds are often associated with complex collateral and guarantor structures. Second, the belief in rigid repayment began to erode in 2014, leading to a dramatic increase in the number and value of bond defaults. As a result, there has been a heightened demand for high-quality credit information among bond investors.

Taxpaying credit ratings serve as valuable incremental information for bond investors seeking to reduce uncertainty and mitigate information risks (Easley and O'Hara, 2004). Government-provided information complements a firm's self-disclosure, enabling bond investors to more accurately predict future cash flows. Consequently, an A-level rating in taxpaying credit is a positive indicator of a firm's capacity to repay its debts. Furthermore, taxpaying credit assessments are based not only on a company's tax information but also on non-tax data from various sources, including banks, customs, and other government agencies such as those involved in commerce, environmental protection, and quality inspection. This rating offers a comprehensive overview of a company's integrity and its commitment to adhering to market regulations. Therefore, it serves as a reliable indicator of whether a firm will act in good faith, comply with the law, and honor its business contracts, including debt obligations.

We have demonstrated that the integrity of taxpaying credit ratings is adversely affected by pressures related to tax revenue targets and poor tax governance at the grassroots level. In such cases, the ratings may place excessive emphasis on a company's tax contributions rather than its tax compliance. This raises the question of whether bond investors can accurately assess the varying quality of taxpaying credit ratings. When the integrity of taxpaying credits is compromised, the informational value regarding a company's ability and commitment to repay debt diminishes. Furthermore, in these situations, investors may perceive the firm unfavorably, suspecting it of colluding with tax authorities to secure an A-level rating. In instances of collusion, the integrity of the company's accounting records may also be called into question. As a result, bond investors face significant challenges in evaluating a company's creditworthiness as a debtor based on its taxpayer credit rating. Therefore, we anticipate that

an A-level rating from tax authorities, particularly in the context of high tax revenue pressure or at the county level, may not sufficiently alleviate investors' concerns regarding the risk of debt repayment. To determine whether bond investors can discern the quality of taxpaying credit ratings, the following difference-in-difference (DID) model is used to demonstrate the impact of receiving an A-level rating on bond trading:

$$Ret_{i,t+1,(j,j+1)} = \beta_0 + \beta_1 Treat_i \times Post_t + X_{i,t} + Z_i + \tau_i + \mu_j + \gamma_t + \varepsilon_{i,t}. \quad (3)$$

In the model, *i* denotes the bond, *t* the year, and *j* the month of the A-rating announcement. Following Kecskés et al. (2013), excess bond returns are used to measure investor reactions.[6] $Ret_{i,t+1,(j,j+1)}$ represents the excess return of bond *i* from month *j* to month *j*+1 in year *t*+1. Monthly returns in the next year are investigated because the ratings are publicized with a lag of one year. We also examine bond trading volumes, using them as the dependent variable. $Amt_{i,t+1,(j,j+1)}$ denotes the natural logarithm of bond trading volume from month *j* to month *j*+1. *Treat* is an indicator variable on whether the firm was ever rated as an A-level taxpayer during the entire period. The variable *Post* indicates the first year of receiving an A-level rating and the subsequent years. $X_{i,t}$ represents firm-specific variables, similar to those in Equation (1). Z_i includes bond-specific variables, such as the rating assigned by bond rating agencies (*Rating*), remaining maturity (*TOMATU*), and other relevant factors.[7] The term, τ_i, represents bond fixed effects, which mitigate the influence of time-invariant unobservable factors on the estimation results and absorb variables such as the bond issuance amount, coupon rate, and the market on which the bond is traded (exchange market vs. interbank bond market). The terms, μ_j and γ_t, represent industry and year fixed effects, respectively, while $\varepsilon_{i,t}$ is the residual. To show the differential effects, it is essential to include data from earlier years. So, the sample period for the bond trading dataset is selected to span from 2013 to 2018. Additionally, we exclude firms that were rated as A-level taxpayers but subsequently further changed their status.

[6] Similar to cumulative abnormal returns in the stock market analysis, bond returns serve as effective indicators of investor reactions. Instead of relying on imputed yield to maturity estimates provided by certain data vendors, we utilize bond returns that are accompanied by actual trading data to accurately reflect genuine investor responses.

[7] The credit rating (Rating) is a natural number from 1 to 5, with a principal rating of below AA- taking 1; AA- taking 2, AA taking 3, AA+ taking 4, and AAA taking 5. *TOMATU* is the natural logarithm of the remaining number of years plus 1.

The final bond-level sample comprises 13,225 bonds, resulting in 37,023 bond-year observations. The continuous variables of this bond dataset are winsorized at the 1st and 99th percentiles.

We start with portfolio analyses to determine whether a company's designation as an A-level taxpayer on the STA's website elicits significant reactions in the bond market. Table 5 shows the average excess bond returns in month *j*, those from month *j* to j+*1*, and those from month *j* to month *j*+2, with month *j* representing the month when the A-level rating was announced on the STA's website. Our findings indicate that the average excess return in the announcement month is -0.0005, which is not statistically significant from zero. Yet, the average excess returns from month *j* to *j*+1, and those from month *j* to *j*+2, are respectively 0.0027 and 0.0069, which are both statistically significant at the 1% level. This suggests that being rated as an A-level taxpayer leads to significantly positive returns for the company's bonds in the next two months. Therefore, taxpayer credit appears to provide incremental information to the bond market, with the A-level rating being viewed favorably by bond investors.

[Insert Table 5 about Here]

Table 6 presents the regression results for the DID model, with standard errors clustered at the bond level. The coefficients for the interaction term *Treat*×*Post* in columns (1) and (2) are significantly positive, indicating that companies rated as A-level taxpayers experience higher bond returns compared to those not rated as A-level taxpayers. This finding suggests that bond investors utilize taxpaying credit information when making investment decisions and adjust the risk-return profile for bonds issued by A-level taxpayer companies. Additionally, the coefficients for *Treat*×*Post* in columns (3) and (4) are also significantly positive, demonstrating that being rated as an A-level taxpayer enhances the trading activity of the company's bonds, further underscoring the informational value of the A-level taxpayer rating.

Although the DID model is designed to mitigate endogeneity concerns to a large extent, there may still be systematic differences between A-level and non-A-level taxpayer companies. To address this issue, we employ the Propensity Score Matching (PSM) method to create a matched sample that eliminates significant differences in observable firm characteristics between the two types of companies due to selection bias. The matching of treated and

untreated firms is based on all control variables, and we utilize a one-to-one nearest-neighbor matching procedure with replacement, applying a caliper of 0.01. After matching, our unreported analyses indicate that there are no significant differences in the control variables between the treatment and control groups, demonstrating good matching quality. The matched samples are then used to estimate the DID model, with the results presented in columns (5) to (8) of Table 6. The coefficients for *Treat*×*Post* using the PSM sample are all significantly positive, suggesting that being classified as an A-level taxpayer can increase bond returns and trading volume, which is consistent with the results from the full sample regression.

[Insert Table 6 about Here]

The DID model operates under the implicit assumption of parallel trends. To test whether this assumption holds, following Cao et al. (2022), we decompose the DID variable (*Treat*×*Post*) into event year-specific components: *Before* represents the product of the dummy variable for the year prior to receiving the A-level taxpayer credit rating and the treatment indicator variable; *Current* is the product of the dummy variable for the current year of receiving the A-level rating and the treatment indicator variable; *After1* is the product of the dummy variable for the first year after receiving the A-level rating and the treatment indicator variable; and *After2* is the product of the dummy variable for the second year after receiving the A-level rating and the treatment indicator variable. Columns (1) to (4) of Table 7 show that the coefficients for *Before* are not statistically significant, suggesting that there were no notable differences in excess bond returns and trading volumes between the treatment and control groups prior to receiving the A-level taxpayer credit rating. This finding supports the parallel trends assumption.

[Insert Table 7 about Here]

Table 8 examines the impact of tax revenue pressure on bond investors' reactions to A-level ratings. The sample is divided into two subsamples around the median value of *TaxPlan*. In columns (1) to (4), the coefficients for *Treat*×*Post* are significantly positive for the low-pressure group, while they are not significant for the high-pressure group. Similarly, in columns (5) to (8), the coefficients for *Treat*×*Post* remain significantly positive for the low-pressure group, but are not significant for the high-pressure group. Therefore, bond investors appear to respond only to A-level ratings from regions with low tax revenue pressure. This finding

supports the notion that the quality of taxpayer credit ratings may be compromised by tax revenue pressure, and that the bond market is capable of discerning the informational content of these ratings.

[Insert Table 8 about Here]

Table 9 shows the impact of the administrative levels of tax authorities on bond investors' reactions to taxpaying credit ratings. We find that the coefficients for the interaction term *Treat*×*Post* are significantly positive for the ratings assigned by provincial and municipal tax authorities (the "city" columns), while they are not significant for the subsample of ratings issued by county-level tax authorities (the "county" columns). Such results indicate that investors respond to A-level taxpaying ratings issued by provincial and municipal tax authorities, but do not respond similarly to ratings from county-level tax authorities. Therefore, when the tax authority issuing the rating is at the grassroots level, bond investors perceive the rating as containing relatively low informational value. This aligns with the hypothesis that poor tax governance at grassroots levels which over-emphasizes tax collection undermines the integrity of taxpayer credit ratings.

[Insert Table 9 about Here]

5.3 Robust Tests

5.3.1 An alternative sample

Our primary sample comprises firms for which bond trading data are available. To determine whether our findings are generalizable more broadly to firms that do not necessarily issue bonds, we utilize the national tax survey dataset to create an alternative sample. This is an administrative dataset containing detailed records of income tax for individual enterprises and was compiled jointly by China's STA and MOF through random stratified sampling. The most recent year for which such data are publicly available is 2016. Further descriptions of the data can be found in Chen et al. (2021). Based on this dataset, we construct an alternative sample of firms from 2014 to 2016, comprising a total of 800,301 firm-year observations. We find that the proportions of A-level taxpayers in this sample for the years 2014, 2015, and 2016 are 18.25%, 14.80%, and 13.17%, respectively. Since this dataset does not include information on the statutory tax rates applicable to each firm, we introduce two variables related to tax compliance in line with Fan and Wang (2019), which are respectively denoted as *ETR_diff* and

ETR_res. The former variable is defined as the firm's actual tax rate minus the average tax rate of all firms within the same year, city, and industry. The latter variable represents the regression residual from the annual within-industry regressions of the actual tax rate on the intercept. Both variables serve as positive indicators of tax variance, with higher values corresponding to a greater degree of tax compliance.

Table 10 presents the estimation results on the sample based on the national tax survey data. Columns (1) and (2) indicate that the coefficient on the interaction term between tax contribution and tax revenue pressure (*Contri*×*TaxPlan*) is significantly positive. In contrast, the coefficient on the interaction term between tax compliance and tax revenue pressure (*ETR_diff*×*TaxPlan*, or *ETR_res*×*TaxPlan*) is significantly negative. This suggests that as tax revenue pressure on tax authorities increases, the likelihood of receiving an A-level rating for taxpaying credit significantly rises with the size of tax contributions, while the effect of tax compliance significantly diminishes. Columns (3) and (4) reveal that the coefficient on the interaction term between tax contribution and county-level regions (*Contri*×*XJ*) is significantly positive, indicating that when the rating-issuing tax authority is at the county level, a firm's tax contribution enhances its probability of obtaining an A-level rating for taxpaying credit. In summary, the use of national tax survey data as an alternative data source confirms that our findings remain largely consistent.

[Insert Table 10 about Here]

5.3.2 Accounting for institutional reforms

During our sample period, there were significant reforms as well as substantial administrative changes to the tax system in China, including the implementation of the "VAT Reform" and the full rollout of "Golden Tax Phase III." These major events may influence the tax credit rating assessments conducted by tax authorities. The observed findings represent spurious correlations if they are in fact attributed to these institutional reforms. To mitigate a concern like this, we control for the interaction terms between year and industry fixed effects, as well as those between year and province fixed effects. The former accounts for the impact of industry-specific policy shocks, including VAT refund policies and other related measures, while the latter addresses regional policy shocks, encompassing the effects of "Golden Tax Phase III" and the "VAT Reform."

The Internet Appendix Table IA2 presents the estimation results after controlling for the interaction fixed effects, as previously discussed. The additional control of interaction fixed effects leads to a reduction in the number of observations used in the regressions due to the exclusion of singleton observations. Column (1) shows that the coefficient of the interaction term between tax contribution and tax revenue pressure (*Contri*×*TaxPlan*) remains significantly positive. Additionally, the coefficients of the interaction terms between tax compliance and tax revenue pressure (*Compli*×*TaxPlan*) are significantly negative. This suggests that tax revenue pressure enhances the positive impact of tax contribution on the probability of receiving an A-level rating, while the effect of tax compliance on that probability diminishes. Column (2) demonstrates that the coefficient of the interaction term between tax contribution and county-level dummies (*Contri*×*XJ*) remains significantly positive. This means that tax contribution can significantly aid a firm within county jurisdictions in obtaining an A-level rating for taxpaying credit. Therefore, after accounting for the potential influence of major institutional reforms, our findings remain robust.

5.3.3 Control for officials' promotion incentives

Local government officials can significantly influence regional tax administration (Li and Zhou, 2005). If this influence extends to taxpaying credit ratings, it could complicate our empirical analysis. For instance, an alternative explanation suggests that local officials may allocate more resources, including A-level ratings, to major taxpayers during their political promotion processes. This allocation is not driven by tax revenue pressure but is instead related to the promotion incentives of the officials. Higher ratings can provide companies with greater convenience and resource-based benefits, helping them gain a competitive advantage in the market. This, in turn, promotes local economic growth and ultimately assists officials in enhancing their prospects for political advancement. To evaluate this explanation, we control for the personal characteristics of officials, including the age and tenure of both the provincial party secretaries and the governors.

The Internet Appendix Table IA3 present the estimation results after accounting for the age of provincial party secretaries (*AGE_SJ*) and its squared term (AGE_SJ^2), the age of governors (*AGE_SZ*) and its squared term (AGE_SZ^2), the tenure of provincial party secretaries (*TENURE_SJ*) and its squared term ($TENURE\_SJ^2$), as well as the tenure of governors

(*TENURE_SZ*) and its squared term (*TENURE_SZ*^{2}). Column (1) demonstrates that the coefficient of the interaction term between tax contribution and tax revenue pressure (*Contri*×*TaxPlan*) remains significantly positive, as does the coefficient of the interaction term between tax compliance and tax revenue pressure (*Compli*×*TaxPlan*). Meanwhile, column (2) reveals that the coefficient of the interaction term between tax contribution and county-level administrative divisions (*Contri*×*XJ*) also remains significantly positive. In summary, these results indicate that after controlling for officials' promotion incentives, our findings remain robust.

5.3.3 Placebo tests

We employ a placebo test to address concerns that our primary finding may be influenced by important variables omitted from the analysis. Specifically, we randomly generate a hypothetical variable to replace tax contribution (*Contri*), assuming it follows a normal distribution with the same mean and standard deviation as the original tax contribution variable. This hypothetical variable is populated across the sample by randomly drawing from the normal distribution. Using a new sample that includes the hypothetical variable, we interact it with tax revenue pressure and the dummy variable for county-level tax authorities, and then conduct regressions. The experiments are performed 300 times, and in each experiment, we collect the z-value for the interaction term in the model. All z-values from the experiments are plotted in Figure 2. It is evident that the z-values predominantly fall within the range of confidence intervals, indicating that the interaction term between the hypothetical variable (intended to replace *Contri*) and tax revenue pressure or the county-level dummy is not significant. Therefore, the results presented in Figure 2 suggest that the omission of important variables from the model is unlikely to account for our findings. If it were, we would expect to observe significant interaction effects with this randomly generated hypothetical variable.

[Insert Figure 2 about Here]

We also perform a placebo test to assess the validity of the findings concerning the bond market's reaction to the receipt of an A-level rating. This test comprises 300 experiments, and in each experiment the DID term (*Treatment*×*Post*) is generated randomly. Specifically, we reshuffle the matching sample, which includes both treatment and control firms. The reshuffling process is accomplished by ranking the dataset according to a randomly generated

number between 0 and 1. The DID term derived from this reshuffled dataset is put back to the original dataset replacing the original DID variable when conducting the regression analysis. As a result of the experiments, we obtain 300 t-values for the DID term, which are illustrated in Figure 3. It is evident that, irrespective of whether the dependent variable is bond returns or trading volume, the t-values for the DID term predominantly reside within the confidence interval (i.e., the non-significant range). Therefore, the findings regarding the bond market's response to taxpaying credit ratings appear to be unaffected by unobservable variables.

[Insert Figure 3 about Here]

5.3.4 Other robustness tests

In the main analyses, we measure a firm's tax contribution by calculating the ratio of its corporate income tax expense, as disclosed in its income statements, to the total corporate income tax revenue collected by tax authorities at the provincial level. Alternatively, we can assess the firm's tax contribution based on all taxes being paid, as reported in its annual cash flow statements (see, e.g., Liu and Liu, 2014). We refer to this composite tax contribution measure as *Contri_total*. The regression results utilizing the composite tax contribution measure are presented in the Internet Appendix Table IA4. It can be observed that in columns (1), the coefficient on the interaction term between tax contribution and tax revenue pressure (C*ontri_total*×*TaxPlan*) remains significantly positive. Similarly, in columns (2), the coefficient on the interaction term between tax contribution and the county-level dummy (*Contri_total*×*XJ*) also remains significantly positive. These results indicate that the pressure from meeting tax revenue targets and poor tax governance at the grassroots level of tax authorities may influence the integrity of taxpaying credit ratings. Therefore, our findings are robust with respect to the use of the alternative tax contribution measure.

Tax revenue pressure is a crucial explanatory variable in our study, for which we apply robustness tests using two alternative measures. The variable, *TaxPlan1*, is defined as the ratio of the provincial tax revenue budget to the final accounts of tax revenue; the reciprocal of this ratio is commonly referred to as the "completion rate" in local governments' financial budget reports. A higher value of *TaxPlan1* indicates a lower completion rate and greater pressure to meet the tax revenue target. The variable, *TaxPlan2*, is calculated as (provincial tax revenue budget-provincial tax revenue final accounts) / GDP. This indicator assesses the gap in

achieving the tax revenue target relative to the size of the local economy, with a higher value signifying increased pressure to meet the tax revenue target. The Internet Appendix Table IA5 presents the regression results utilizing two alternative measures of tax revenue pressure. The findings indicate that the coefficients on the interaction terms between tax contribution and tax revenue pressure (*Contri*×*TaxPlan1*, *Contri*×*TaxPlan2*) in columns (1) to (2) are significantly positive. Furthermore, the coefficient on the interaction term between tax compliance and tax revenue pressure (*Compli*×*TaxPlan1*) is significantly positive as shown in column (1). These results suggest that tax revenue target pressure amplifies the effect of tax contribution on achieving an A-level rating while diminishing the effect of tax compliance on the same outcome, which is consistent with previous findings.

6. Conclusion

China has implemented an innovative taxpaying credit system to generate and disseminate information regarding the creditworthiness of companies as taxpayers. Such a system is uncommon on a global scale, and these ratings should be embraced by the market as a valuable supplementary resource for assessing the reliability of firms. While a few studies have highlighted the benefits of taxpaying credit ratings, there is a scarcity of research focusing on the determinants of these ratings. In this study, we examine the level of tax credit ratings in relation to certain attributes of the tax authorities that issue the ratings. Additionally, we investigate whether bond investors effectively utilize these ratings.

We find that when tax authorities experience significant pressure from tax revenue targets or operate at the grassroots level, the tax contributions of a firm substantially increase its likelihood of being classified as an A-level taxpayer. Conversely, the impact of tax compliance on this likelihood significantly diminishes. Our findings indicate a conflict of interest between the tax collection responsibilities of tax authorities and the taxpaying credit ratings, which ultimately compromises the integrity of these ratings. Further analysis of bond trading data suggests that bond investors respond positively to the favorable news of being designated as an A-level taxpayer. However, the significance of this news is notably diminished in ratings issued by tax authorities under high pressure from tax revenue targets or those operating at the grassroots level. Thus, bond investors appear to be able to discern the varying quality of ratings influenced by the conflicts of interest faced by tax authorities. Our findings remain robust in a

larger sample derived from an administrative dataset: the national tax survey. They are not affected by omitted variable bias, as demonstrated by placebo tests, and hold true when employing alternative measures of tax contributions and tax revenue pressure.

We believe that our study provides valuable insights into the integrity of taxpaying credit ratings. We argue that it is essential to ensure the independence of government-led credit ratings. Unlike market rating agencies that charge fees for their services, government-led credit ratings are provided at no cost and, in theory, should be highly independent. However, the pressures of tax revenue on local tax authorities may result in ratings that do not accurately reflect a company's true creditworthiness. Therefore, the government-led credit rating system can be enhanced by implementing specific institutional designs aimed at reducing administrative interference and ensuring independence. For instance, the government should minimize unreasonable interventions in tax target setting and excessive evaluations of target completion, allowing tax planning to concentrate more on accurate tax revenue forecasting. Additionally, the department responsible for tax credit ratings could be elevated to a higher-level tax authority, thereby structurally increasing the independence of tax credit ratings. Furthermore, improving the alignment between fiscal authority and administrative responsibilities at the local government level may also diminish the incentive for local governments to interfere in tax matters, thus safeguarding the independence of tax authorities in credit ratings. With appropriate adjustments, taxpaying credit ratings can serve as a crucial tool for promoting tax compliance and providing essential information to all market participants regarding the creditworthiness of firms.

References

An, J., Hou, W., & Lin, C. (2022). Epidemic disease and financial development. *Journal of Financial Economics*, 143(1), 332-358.

Ayers, B. C., Laplante, S. K., & McGuire, S. T. (2010). Credit ratings and taxes: The effect of book-tax differences on ratings changes. *Contemporary Accounting Research*, 27(2), 359-402.

Bai Y., Tang W., Liu G. (2019). Tax revenue targets and corporate tax burden. *Economic Research* (in Chinese), 5: 98-112.

Becker, B., & T. Milbourn. (2011). How did increased competition affect credit ratings?. *Journal of Financial Economics*, 101(3):493-514.

Beetsma, R., Giuliodori, M., Walschot, M., & Wierts, P. (2013). Fifty years of fiscal planning and implementation in the Netherlands. *European Journal of Political Economy*, 31, 119-138.

Besley, T., Jensen, A., & Persson, T. (2019). Norms, enforcement and tax evasion. NBER Working Paper, (25575).

Bharath, S. T., J. Sunder, S. V., & Sunder, S. V. (2008). Accounting quality and debt contracting. *The Accounting Review*, 83(1), 1-28.

Bischoff, I., & Gohout, W. (2010). The political economy of tax projections. *International Tax and Public Finance*, 17, 133-150.

Cao, C., Dong, Y., Hou, W., Liu, Y., & Qian, X. (2019). Provincial official turnover and bank loans. *Pacific-Basin Finance Journal*, 57, 101202.

Cao, Y., Dong, Y., Guo, T., & Ma, D. (2022). Short-sale deregulation and corporate tax aggressiveness: evidence from the Chinese market. *The European Journal of Finance*, 28(4-5), 326-355.

Chen, S. X. (2017). The effect of a fiscal squeeze on tax enforcement: Evidence from a natural experiment in China. *Journal of Public Economics*, 147, 62-76.

Chen, S., Chen, X., Cheng, Q., & Shevlin, T. (2010). Are family firms more tax aggressive than non-family firms?. *Journal of Financial Economics*, 95(1), 41-61.

Chen, Z., Liu, Z., Suárez Serrato, J. C., & Xu, D. Y. (2021). Notching R&D investment with corporate income tax cuts in China. *American Economic Review*, 111(7), 2065-2100.

Deng, Y. H., & Luo, T. (2011). Tax revenue manipulation by local taxation administrations in China. *Asia-Pacific Journal of Accounting & Economics*, 18(1), 61-75.

Duan, T., Ding, R., Hou, W., & Zhang, J. Z. (2018). The burden of attention: CEO publicity and tax avoidance. *Journal of Business Research*, 87, 90-101.

Duarte, J., Siegel, S., & Young, L. (2012). Trust and credit: the role of appearance in peer-to-peer lending. *Review of Financial Studies*, 25(8), 2455-2484.

Duff, A., & Einig, S. (2009a). Credit ratings quality: The perceptions of market participants and other interested parties. *The British Accounting Review*, 41(3), 141-153.

Duff, A., & Einig, S. (2009b). Understanding credit ratings quality: Evidence from UK debt market participants. *The British Accounting Review*, 41(2), 107-119.

Easley, D., & O'hara, M. (2004). Information and the cost of capital. *The Journal of Finance*, 59(4), 1553-1583.

Fan, G., Wang, X., & Zhang, L. (2001). Annual report 2000: Marketization index for China's

provinces. *China & World Economy*, 5, 1-12.
Fan, R., Pan, J., Wang, J. J., & Yu, M. (2023). Do government provided credit ratings enhance or impede a firm's access to trade credit? *Pacific-Basin Finance Journal*, 77, 101780.
Fan, Z. Y., & Wang, Q. (2019). The mystery of the low efficiency of fiscal subsidies: From the perspective of tax over-collection. *China Industrial Economics*, 2019(12), 23-41.
Griffin, J. M., & Tang, D. Y. (2012). Did subjectivity play a role in CDO credit ratings? *Journal of Finance*, 67(4), 1293-1328.
Guiso, L., Sapienza, P., & Zingales, L. (2009). Cultural biases in economic exchange? *Quarterly Journal of Economics*, 124(3), 1095-1131.
Gupta, S., & Newberry, K. (1997). Determinants of the variability in corporate effective tax rate: Evidence from longitudinal data. *Journal of Accounting and Public Policy*, 16(1), 1-39.
Hanlon, M., & Heitzman, S. (2010). A review of tax research. *Journal of Accounting and Economics*, 50(2-3), 127-178.
Hayek, F.A. (1945). The use of knowledge in society. *American Economic Review*, 35(4), 519–530.
Jiang, J. X., Harris, S. M., & Xie, Y. (2012). Does it matter who pays for bond ratings? Historical evidence. *Journal of Financial Economics*, 105(3), 607-621.
Jin, H., Qian, Y., & Weingast, B. R. (2005). Regional decentralization and fiscal incentives: Federalism, Chinese style. *Journal of Public Economics*, (89), 1719-1742.
Jochimsen, B., & Lehmann, R. (2017). On the political economy of national tax revenue forecasts: Evidence from OECD countries. *Public Choice*, 170, 211-230.
Kecskés, A., Mansi, S. A., & Zhang, A. J. (2013). Are short sellers informed? Evidence from the bond market. *The Accounting Review*, 88(2), 611-639.
La Porta, R., Lopez-De-Silanes, F., Shleifer, A., & Vishny, R. (1997). Trust in large organizations. *American Economic Review*, 87(2), 333-338.
Laffont, J.-J. (2000). Incentives and Political Economy. MIT press.
Li, C., Wang, Y., Wu, L., & Xiao, J. Z. (2016). Political connections and tax-induced earnings management: Evidence from China. *European Journal of Finance, 22*(4-6), 413-431.
Li, H. B., & Zhou, L. A. (2005). Political turnover and economic performance: The incentive role of personnel control in China. *Journal of Public Economics*, 89(9-10), 1743-1762.
Li, J., Wang, J. J., & Yu, M. (2023). Government provided rating, alleviation of financial constraints, and corporate investment. *Accounting & Finance*, 63(4), 3763-3779.
Liu, G., Liu, Y., & Zhang, C. (2022). Tax enforcement and corporate employment: Evidence from a quasi-natural experiment in China. *China Economic Review*, 73, 101771.
Liu, J., & Liu, F. (2014). Fiscal centralization, government control, and corporate tax burden—Evidence from China. *Accounting Research*, (01), 21-27+94. (In Chinese)
Lyu, C., Wang, K., Zhang, F., & Zhang, X. (2018). GDP management to meet or beat growth targets. *Journal of Accounting and Economics*, 66(1), 318-338.
McNab, R. M., Rider, M., & Wall, K. (2007). Are errors in official U.S. budget receipts forecasts just noise? Andrew Young School Research Paper Series Working Paper, 07-22.
Opp, C., Opp, M., & Harris, M. (2013). Rating agencies in the face of regulation. *Journal of Financial Economics*, 108(1), 46-61.
Pina, A. M., & Venes, N. M. (2011). The political economy of EDP fiscal forecasts: An

empirical assessment. *European Journal of Political Economy*, 27, 534-546.
Raghunath, N. (2024). Theorising quantified credibility in the age of big data: a case of China's Social Credit System. *The Journal of Chinese Sociology*, 11(1), 12.
Sengupta, P. (1998). Corporate disclosure quality and the cost of debt. *The Accounting Review*, 73(4), 459-474.
Shevlin, T. (1987). Taxes and off-balance-sheet financing: research and development limited partnerships. *The Accounting Review*, 62(3), 480-509.
Stigler, G.J. (1957). The tenable range of functions of local government. In Federal Expenditure Policy for Economic Growth and Stability Congress, Joint Economic Committee (eds.), pp. 213–219. Washington, DC: U.S. Government Printing Office.
Tirole, J. (1986). Hierarchies and Bureaucracies: On the role of collusion in organizations. *Journal of Law, Economics, and Organization*, 2(2), 181-214.
Tirole, J. (1992). Collusion and the theory of organizations. In J.-J. Laffont (Ed.), Advances in economic theory: Proceedings of the sixth world congress of the econometric society (pp. 127-154). Cambridge: Cambridge University Press.
Wang, Y., Zhang, Z., Zhang, F., & Wang, Y. (2023). When Controlling Persons Have Shelters: The Effect of Foreign Residency Rights on Tax Credit Ratings. *Emerging Markets Finance and Trade*, 59(7), 2252-2268.
Werbach, K. (2022). Orwell That Ends Well? Social Credit as Regulation for the Algorithmic Age. *University of Illinois Law Review*, 1417.
Xia, H. (2014). Can investor-paid credit rating agencies improve the information quality of issuer-paid rating agencies? *Journal of Financial Economics*, 111(2), 450-468.
Zhou, L. (2005). Inverted soft budget constraint: An organizational analysis of governmental behaviors. *Social Sciences in China*, 2, 132-143. (In Chinese)

Figure 1: Differential Tax Contributions in Relation to Tax Revenue Pressure

This figure illustrates the mean tax contributions of A-grade (i.e., A-level) and non-A-grade taxpayer firms each year for the full sample, as well as for the two subsamples divided by the pressure of meeting tax revenue targets. It illustrates that the difference in tax contributions between A-level and non-A-level taxpayers could be related to tax revenue pressure.

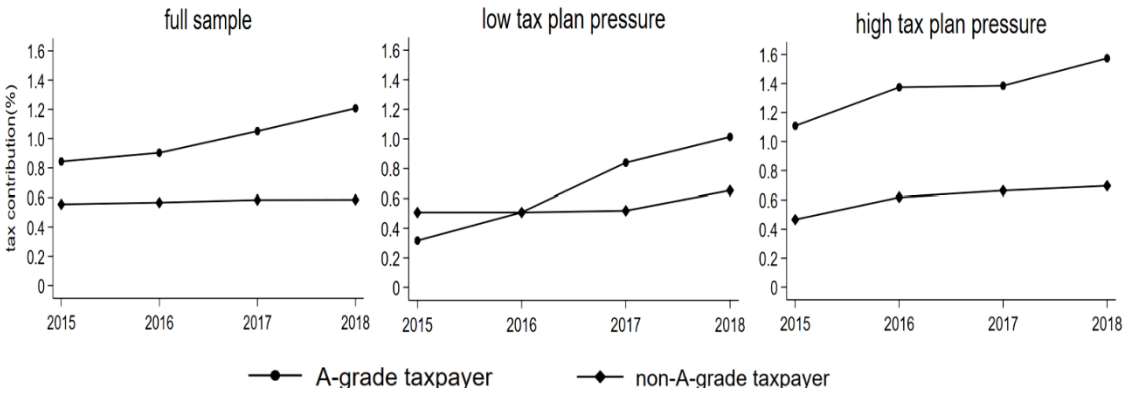

Figure 2: Placebo Test for the Baseline Regression

This figure illustrates the distribution of the z-value for the coefficient estimate of the interaction term in the probit model predicting A-level ratings (*TaxCredit*), as presented in the two columns of Table 4. The interaction term represents the difference-in-differences effect and specifically refers to either *Contri*×*Plan* or *Contri*×*XJ*.

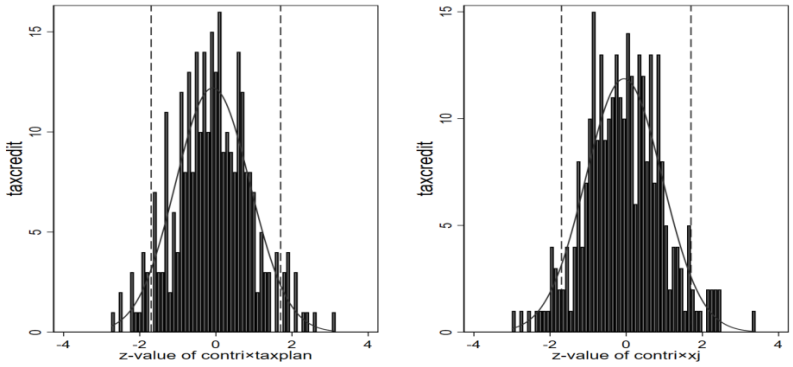

Figure 3: Placebo Test for the Bond Market Response to A-level Ratings

This figure illustrates the distribution of the t-value for the coefficient estimate of the interaction term in the OLS model predicting the bond market response to the news of A-level ratings, as presented in the first four columns of Table 6. The interaction term *Treat*×*Post* represents the difference-in-differences effect.

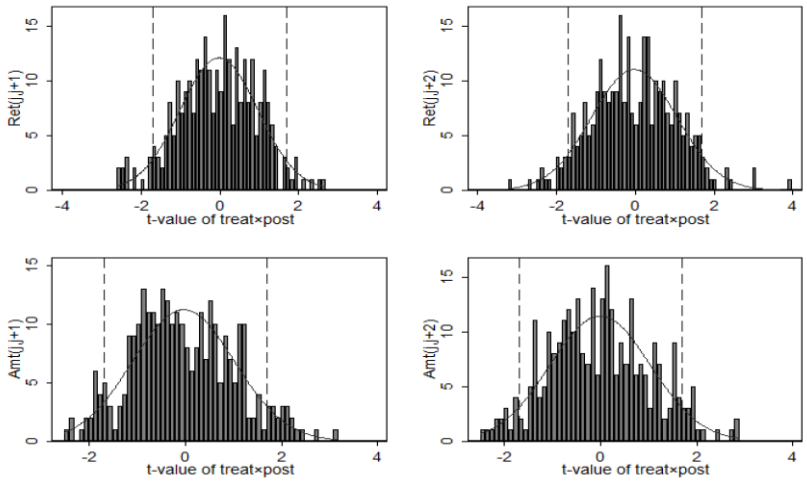

Table 1: Variable Definitions

This table shows the definitions of the major variables used in this study.

Variables	Definition
TaxCredit	The indicator variable for an A-level taxpayer, which is equal to 1 if the company is an A-level taxpayer, and 0 otherwise.
Contri	Corporate income tax expenses as a fraction of the aggregate corporate income tax revenue collected by tax authorities in the province where the firm resides.
ETR	Tax burden measure, defined as "Income tax expense / Earnings before interest and taxes."
Compli	Tax compliance measure, which is equal to the statutory tax rate minus *ETR*.
TaxPlan	The measure for the pressure to meet tax revenue targets, defined as "(Budgeted tax revenue - Actual tax revenue) / Budgeted tax revenue."
XJ	An indicator of whether the company is registered in a county and, therefore, subject to a county-level tax authority. The variable is assigned a value of 1 if the company is located in a county-level administrative region, and 0 otherwise.
SIZE	The natural logarithm of total assets.
LEV	Financial leverage, defined as "Total liabilities / Total assets."
ROA	The return on assets measure, defined as "Net profits / Ending total assets."
PPE	The ratio of power, plant and equipment to total assets, defined as "Net fixed assets / Total assets."
LIST	An indicator variable on whether the firm is a listed company.
SOE	An indicator variable on whether the firm is a stated-owned company.
TOP1	Ownership concentration measure, defined as the percentage of shares held by the largest shareholder.
PROTECT	The measure for the development of rule of law for each province, including the setting-up of legal framework for property-rights protection and contract enforcement, according to Fan et al. (2001).

Table 2: Descriptive Statistics of the Main Variables

This table provides summary statistics of the main variables for our sample. The variable, *TaxCredit*, is a binary variable that equals 1 if the taxpayer's rating is A and 0 otherwise. The variable, *Contri*, is the tax contribution of the firm, defined as the firm's tax expense relative to the total income tax collected in the province. *Compli* is the measure of tax compliance, indicating whether the firm pays taxes sufficiently as required by law. The variable, *TaxPlan*, is the pressure to meet tax revenue targets. *XJ* is a dummy variable indicating whether the firm is registered in a county and hence is subject to the county-level tax authority. Definitions of the other variables are provided in Table 1.

Variable	Obs.	mean	sd	Min	P25	P50	P75	Max
TaxCredit	12192	0.239	0.427	0.000	0.000	0.000	0.000	1.000
Contri	12192	0.007	0.028	0.000	0.000	0.001	0.005	0.929
ETR	12192	0.209	0.147	0.000	0.108	0.199	0.273	0.769
Compli	12192	-0.029	0.149	-0.250	-0.133	-0.027	0.032	0.534
TaxPlan	12192	0.000	0.036	-0.078	-0.018	-0.002	0.014	0.131
XJ	12192	0.138	0.345	0.000	0.000	0.000	0.000	1.000
SIZE	12192	23.876	1.166	20.022	23.127	23.758	24.511	27.201
LEV	12192	0.563	0.156	0.115	0.460	0.577	0.676	0.880
ROA	12192	0.023	0.025	0.000	0.007	0.015	0.030	0.133
PPE	12192	0.143	0.178	0.000	0.014	0.063	0.215	0.745
CF	12192	0.015	0.072	-0.267	-0.017	0.018	0.056	0.200
TOP1	12192	0.779	0.289	0.123	0.510	1.000	1.000	1.000
LIST	12192	0.231	0.421	0.000	0.000	0.000	0.000	1.000
SOE	12192	0.793	0.405	0.000	1.000	1.000	1.000	1.000
PROTECT	12192	2.050	0.285	0.838	1.964	2.067	2.221	2.566

Table 3: Tax Contributions, Tax Compliance and Taxpaying Credit Ratings

This table illustrates the association between tax contributions (tax compliance) and taxpaying credit ratings using probit regressions. The dependent variable, *TaxCredit,* is a binary variable that equals 1 if the taxpayer's rating is A and 0 otherwise. The variable, *Contri,* is the tax contribution of the firm, defined as the firm's tax expense relative to the total income tax collected in the province. *Compli* is the measure of tax compliance, indicating whether the firm pays taxes sufficiently as required by law. Definitions of the other variables are provided in Table 1. The standard errors of the coefficient estimates are shown in parentheses below them, and the regression standard errors are clustered by firm. Asterisks ***, **, and * denote statistical significance levels of 1%, 5%, and 10%, respectively.

	(1)	(2)	(3)
Variables	*TaxCredit*	*TaxCredit*	*TaxCredit*
Contri	1.165		0.704
	(1.18)		(1.22)
Compli		1.134***	1.119***
		(0.20)	(0.20)
SIZE	0.061**	0.073**	0.065**
	(0.03)	(0.03)	(0.03)
LEV	1.326***	1.100***	1.111***
	(0.23)	(0.23)	(0.23)
ROA	9.165***	11.009***	10.841***
	(1.37)	(1.39)	(1.41)
PPE	0.288	0.263	0.263
	(0.22)	(0.22)	(0.22)
CF	1.717***	1.580***	1.570***
	(0.43)	(0.43)	(0.43)
TOP1	-0.472***	-0.445***	-0.445***
	(0.17)	(0.17)	(0.17)
LIST	0.481***	0.452***	0.453***
	(0.11)	(0.11)	(0.11)
SOE	-0.244***	-0.233***	-0.233***
	(0.09)	(0.09)	(0.09)
PROTECT	0.914***	0.880***	0.890***
	(0.12)	(0.12)	(0.12)
Year FE	Yes	Yes	Yes
Industry FE	Yes	Yes	Yes
Constant	-4.658***	-4.893***	-4.755***
	(0.72)	(0.69)	(0.72)
Observations	12,192	12,192	12,192
Pseudo R^2	0.180	0.183	0.183

Table 4: The Impact of Tax Revenue Pressure and Tax Administration Levels on Ratings

This tables shows the effect of tax revenue pressure and the administration level of tax authorities on the taxpaying credit ratings using probit regressions. The dependent variable, *TaxCredit*, is a dummy variable equal to 1 if the taxpaying rating is A, and 0 otherwise. *Contri* is the tax contribution of the firm, defined as the tax expense of the firm relative to the total income tax collected by the province. *Compli* is the measure of tax compliance, indicating whether the firm pays tax sufficiently as required by law. *TaxPlan* is the measure of the pressure for meeting tax revenue targets. *XJ* is a dummy variable indicating whether the firm is registered in a county and hence is subject to the county-level tax authority. Definitions of the other variables are provided in Table 1. The standard errors of the coefficient estimates are provided in parentheses below them, and the regression standard errors are clustered by firm. Asterisks ***, **, and * indicate statistical significance levels of 1%, 5%, and 10%, respectively.

	(1)	(2)
Variables	*TaxCredit*	*TaxCredit*
Contri×TaxPlan	28.854***	
	(10.67)	
Compli×TaxPlan	-4.906**	
	(2.40)	
Contri×XJ		13.122***
		(4.20)
Compli×XJ		-0.957**
		(0.39)
Contri	1.360**	0.270
	(0.56)	(0.74)
Compli	0.404***	0.667***
	(0.11)	(0.12)
TaxPlan	1.879***	
	(0.45)	
XJ		-0.269***
		(0.07)
SIZE	0.025	0.031*
	(0.02)	(0.02)
LEV	0.450***	0.613***
	(0.13)	(0.13)
ROA		6.243***
		(0.81)
PPE	0.129	0.152
	(0.13)	(0.13)
CF	1.508***	0.904***
	(0.25)	(0.25)
TOP1	-0.261***	-0.243**
	(0.10)	(0.10)
LIST	0.322***	0.262***
	(0.06)	(0.06)
SOE	-0.212***	-0.135***
	(0.05)	(0.05)
PROTECT	0.591***	0.500***
	(0.06)	(0.06)
Year FE	Yes	Yes
Industry FE	Yes	Yes
Constant	-3.424***	-3.660***
	(0.42)	(0.42)
Observations	12,192	12,192
Pseudo R^2	0.179	0.185

Table 5: Bond Market Returns following the A-level Rating Announcements

This table shows the average excess returns of the bonds in the month of announcing A-level taxpaying credit ratings (month *j*), which are denoted as *Ret(j)*. It also shows the excess returns from the announcement month to the next two months after the announcement, which are denoted as *Ret(j, j+1)* and *Ret(j, j+2),* respectively.

Bond excess returns	observations	mean	p-value
Ret(j, j)	3892	-0.0005	0.4737
Ret(j, j+1)	3524	0.0027	0.0081
Ret(j, j+2)	3247	0.0069	0.0000

Table 6: Bond Market Reactions to Receiving A-level Taxpaying Credit Ratings

This table use shows the difference-in-difference effect of receiving an A-level taxpaying credit rating on bond returns and trading. *Ret(j, j+1)* and *Ret(j, j+2)* are respectively the bond excess returns from month *j* to month *j*+1 and *j*+2, with *j* denoting the A-rating publication month. *Amt(j, j+1)* and *Amt(j, j+2)* are respectively the bond trading volumes from month *j* to month *j*+1 and *j*+2. *Treat* is the dummy variable for the firm that receives an A-level rating. *Post* is the dummy variable for the years after receiving the A-level rating. *Rating* is the credit rating given by bond rating agencies. *TOMATU* is the time to maturity of the bond. Definitions of the other variables are provided in Table 1. The standard errors of the coefficient estimates are provided in parentheses below them, and the regression standard errors are clustered by bond. Asterisks ***, **, and * indicate statistical significance levels of 1%, 5%, and 10%, respectively.

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
	Full sample				PSM sample			
Variables	*Ret(j,j+1)*	*Ret(j,j+2)*	*Amt(j,j+1)*	*Amt(j,j+2)*	*Ret(j,j+1)*	*Ret(j,j+2)*	*Amt(j,j+*	*Amt(j,j+2)*
Treat×Post	0.011***	0.008**	0.211***	0.166**	0.010**	0.011**	0.222**	0.206**
	(0.00)	(0.00)	(0.07)	(0.07)	(0.00)	(0.01)	(0.11)	(0.10)
Rating	0.000	0.002	0.097	0.127*	-0.006	-0.004	0.130	0.197*
	(0.00)	(0.00)	(0.07)	(0.07)	(0.00)	(0.01)	(0.11)	(0.11)
TOMATU	-0.055***	-0.053***	1.533***	1.782***	-0.066***	-0.070***	1.608**	1.979***
	(0.01)	(0.01)	(0.13)	(0.13)	(0.01)	(0.01)	(0.20)	(0.21)
SIZE	0.003	0.003	0.420***	0.419***	0.008	0.007	0.071	0.006
	(0.01)	(0.01)	(0.14)	(0.14)	(0.01)	(0.01)	(0.20)	(0.21)
LEV	-0.071***	-0.081***	-1.875***	-1.759***	-0.058*	-0.077**	-0.973	-0.622
	(0.02)	(0.03)	(0.45)	(0.45)	(0.03)	(0.04)	(0.66)	(0.67)
ROA	0.097*	0.123**	-3.371*	-1.905	0.131*	0.095	-4.304*	-4.441*
	(0.05)	(0.06)	(1.78)	(1.78)	(0.08)	(0.08)	(2.43)	(2.41)
PPE	0.008	0.023	0.736	0.866	0.027	0.039	0.533	0.414
	(0.02)	(0.03)	(0.55)	(0.54)	(0.03)	(0.04)	(0.82)	(0.79)
REC	0.005	-0.023	0.789	0.422	0.089	0.009	2.313	1.585
	(0.06)	(0.06)	(1.00)	(1.01)	(0.09)	(0.09)	(1.51)	(1.53)
CF	-0.034	-0.023	0.494	0.180	-0.042	-0.026	0.471	0.538
	(0.02)	(0.02)	(0.46)	(0.46)	(0.03)	(0.04)	(0.73)	(0.72)
TOP1	0.012	-0.016	0.255	0.043	-0.003	-0.009	0.028	-0.139
	(0.02)	(0.02)	(0.44)	(0.43)	(0.03)	(0.03)	(0.68)	(0.66)
PROTECT	0.025**	0.012	0.227	0.326	0.030	0.005	0.258	0.420
	(0.01)	(0.01)	(0.24)	(0.24)	(0.02)	(0.02)	(0.38)	(0.37)
Year FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Bond FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Constant	-0.086	-0.033	-8.940***	-8.776**	-0.191	-0.117	-0.663	0.653
	(0.17)	(0.18)	(3.40)	(3.55)	(0.22)	(0.24)	(4.92)	(5.08)
Observation	16,266	15,983	37,023	37,023	5,396	5,346	11,384	11,384
Adj. R^2	0.295	0.319	0.244	0.284	0.284	0.340	0.244	0.279

Table 7: Test of the Parallel Trends

This table shows the difference-in-difference effects in the four years around the year in which the firm receives an A-level rating. *Ret(j, j+1)* and *Ret(j, j+2)* are respectively the bond excess returns from month *j* to month *j*+1 and *j*+2, with *j* denoting the A-rating publication month. *Amt(j, j+1)* and *Amt(j, j+2)* are respectively the bond trading volumes from month *j* to month *j*+1 and *j*+2. *Current* refers to the year of receiving of an A-rating, while *Before*, *After1* and *After2* refer to the first year before, the first year after, and the second year after receiving the A-level rating, respectively. *Rating* is the credit rating given by bond rating agencies. *TOMATU* is the time to maturity of the bond. Definitions of the other variables are provided in Table 1. The standard errors of the coefficient estimates are provided in parentheses below them, and the regression standard errors are clustered by bond. Asterisks ***, **, and * indicate statistical significance levels of 1%, 5%, and 10%, respectively.

	(1)	(2)	(3)	(4)
Variables	*Ret(j,j+1)*	*Ret(j,j+2)*	*Amt(j,j+1)*	*Amt(j,j+2)*
Before	-0.003	-0.004	0.003	-0.018
	(0.00)	(0.00)	(0.08)	(0.08)
Current	0.011***	0.008**	0.521***	0.443***
	(0.00)	(0.00)	(0.07)	(0.07)
After1	0.018***	0.008	0.392***	0.279*
	(0.01)	(0.01)	(0.15)	(0.15)
After2	0.006	0.009	-0.440	-0.443*
	(0.01)	(0.01)	(0.28)	(0.26)
Rating	0.000	0.002	0.097	0.127*
	(0.00)	(0.00)	(0.07)	(0.07)
TOMATU	-0.054***	-0.053***	1.529***	1.774***
	(0.01)	(0.01)	(0.13)	(0.13)
SIZE	0.003	0.003	0.386***	0.390***
	(0.01)	(0.01)	(0.14)	(0.14)
LEV	-0.069***	-0.080***	-1.734***	-1.638***
	(0.02)	(0.03)	(0.45)	(0.45)
ROA	0.092*	0.120**	-3.542**	-2.029
	(0.05)	(0.06)	(1.78)	(1.78)
PPE	0.009	0.023	0.751	0.875
	(0.02)	(0.03)	(0.55)	(0.54)
REC	0.005	-0.023	0.845	0.474
	(0.06)	(0.06)	(1.00)	(1.01)
CF	-0.032	-0.022	0.543	0.216
	(0.02)	(0.02)	(0.46)	(0.45)
TOP1	0.012	-0.016	0.244	0.032
	(0.02)	(0.02)	(0.43)	(0.42)
PROTECT	0.025**	0.012	0.237	0.338
	(0.01)	(0.01)	(0.24)	(0.24)
Year FE	Yes	Yes	Yes	Yes
Bond FE	Yes	Yes	Yes	Yes
Constant	-0.080	-0.030	-8.321**	-8.252**
	(0.17)	(0.18)	(3.39)	(3.54)
Observations	16,266	15,983	37,023	37,023
Adj. R^2	0.296	0.320	0.247	0.287

Table 8: The Impact of Tax Revenue Pressure on Bond Market's Reactions to A-level Ratings

This table shows the effect of receiving A-level taxpaying credit ratings on bond markets in association with tax revenue pressure. Firms are put into two categories based on the pressure level of meeting tax revenue targets facing the tax authorities. *Ret(j, j+1)* and *Ret(j, j+2)* are respectively the bond excess returns from month *j* to month *j*+1 and *j*+2, with *j* denoting the A-rating publication month. *Amt(j, j+1)* and *Amt(j, j+2)* are respectively the bond trading volumes from month *j* to month *j*+1 and *j*+2. *Treat* is the dummy variable for the firm that receives an A-level rating. *Post* is the dummy variable for the years after receiving the A-level rating. *Rating* is the credit rating given by bond rating agencies. *TOMATU* is the time to maturity of the bond. Definitions of the other variables are provided in Table 1. The standard errors of the coefficient estimates are provided in parentheses below them, and the regression standard errors are clustered by bond. Asterisks ***, **, and * indicate statistical significance levels of 1%, 5%, and 10%, respectively.

Variables	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
	Ret(j,j+1)		*Ret(j,j+2)*		*Amt(j,j+1)*		*Amt(j,j+2)*	
	Low-pressure	High-pressure	Low-pressure	High-pressure	Low-pressure	High-pressure	Low-pressure	High-pressure
Treat×Post	0.017***	-0.002	0.018**	-0.005	0.257*	0.206	0.266*	0.051
	(0.01)	(0.01)	(0.01)	(0.01)	(0.15)	(0.16)	(0.14)	(0.15)
Rating	0.006	-0.001	0.008	0.002	-0.011	0.160	0.062	0.160
	(0.01)	(0.01)	(0.01)	(0.01)	(0.15)	(0.14)	(0.15)	(0.14)
TOMATU	-0.057***	-0.058***	-0.065***	-0.044***	1.805***	1.899***	2.147***	2.119***
	(0.01)	(0.01)	(0.02)	(0.01)	(0.26)	(0.30)	(0.26)	(0.30)
SIZE	-0.003	-0.006	0.018	0.000	0.531*	0.603**	0.466	0.570*
	(0.01)	(0.02)	(0.02)	(0.01)	(0.30)	(0.29)	(0.31)	(0.32)
LEV	-0.050	-0.052	-0.077	-0.062	-2.568***	-1.053	-2.401**	-1.052
	(0.05)	(0.05)	(0.06)	(0.05)	(0.95)	(0.95)	(0.96)	(0.92)
ROA	-0.054	0.263*	-0.027	0.221*	2.456	-4.645	1.230	-1.048
	(0.11)	(0.13)	(0.13)	(0.13)	(3.61)	(3.90)	(3.64)	(3.82)
PPE	-0.006	0.049	0.046	0.059	0.608	-0.086	0.015	0.242
	(0.05)	(0.04)	(0.07)	(0.04)	(1.16)	(1.13)	(1.15)	(1.16)
REC	-0.031	-0.045	-0.150	0.023	1.187	1.337	0.521	0.538
	(0.12)	(0.12)	(0.15)	(0.11)	(2.15)	(2.25)	(2.19)	(2.21)
CF	-0.005	-0.017	0.012	-0.056	-0.452	0.548	-0.386	0.108
	(0.05)	(0.04)	(0.06)	(0.04)	(0.94)	(0.98)	(0.93)	(0.94)
TOP1	-0.004	-0.010	0.002	-0.012	0.474	0.184	0.054	-0.159
	(0.03)	(0.06)	(0.05)	(0.04)	(0.86)	(0.92)	(0.85)	(0.87)
PROTECT	0.036	0.004	0.012	-0.004	-0.177	0.340	0.127	0.184
	(0.03)	(0.02)	(0.07)	(0.02)	(0.59)	(0.45)	(0.59)	(0.44)
Year FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Bond FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Constant	0.023	0.193	-0.464	0.037	-10.605	-14.585**	-9.225	-12.820*
	(0.36)	(0.41)	(0.46)	(0.33)	(7.44)	(7.11)	(7.57)	(7.76)
Observations	7,843	8,423	7,590	8,393	18,351	18,672	18,351	18,672
Adj. R^2	0.366	0.375	0.429	0.354	0.239	0.281	0.289	0.328
P-value	0.023		0.027		0.277		0.060	

Table 9: The Impact of Tax Administration Levels on Bond Market's Reactions to A-level Ratings

This table shows the effect of receiving A-level taxpaying credit ratings on bond markets in association with the level of the tax authority that issues the rating (i.e., county versus city). *Ret(j, j+1)* and *Ret(j, j+2)* are respectively the bond excess returns from month *j* to month *j*+1 and *j*+2, with *j* denoting the A-rating publication month. *Amt(j, j+1)* and *Amt(j, j+2)* are respectively the bond trading volumes from month *j* to month *j*+1 and *j*+2. *Treat* is the dummy variable for the firm that receives an A-level rating. *Post* is the dummy variable for the years after receiving the A-level rating. *Rating* is the credit rating given by bond rating agencies. *TOMATU* is the time to maturity of the bond. Definitions of the other variables are provided in Table 1. The "city" columns concern the ratings assigned by provincial and municipal tax authorities, while the "county" columns concern the ratings assigned by country-level tax authorities. The standard errors of the coefficient estimates are provided in parentheses below them, and the regression standard errors are clustered by bond. Asterisks ***, **, and * indicate statistical significance levels of 1%, 5%, and 10%, respectively.

Variables	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
	Ret(j,j+1)		*Ret(j,j+2)*		*Amt(j,j+1)*		*Amt(j,j+2)*	
	city	county	city	county	city	county	city	county
Treat×Post	0.010***	0.013	0.008**	-0.002	0.207***	0.136	0.146**	0.271
	(0.00)	(0.01)	(0.00)	(0.01)	(0.07)	(0.22)	(0.07)	(0.20)
Rating	0.000	0.005	0.000	0.016	0.144**	-0.222	0.173**	-0.188
	(0.00)	(0.02)	(0.00)	(0.02)	(0.07)	(0.19)	(0.07)	(0.19)
TOMATU	-0.052***	-0.075***	-0.050***	-0.048	1.600***	1.235***	1.857***	1.406***
	(0.01)	(0.02)	(0.01)	(0.04)	(0.14)	(0.41)	(0.14)	(0.41)
SIZE	0.003	-0.012	0.000	0.007	0.304**	1.472***	0.315**	1.355***
	(0.01)	(0.03)	(0.01)	(0.03)	(0.14)	(0.50)	(0.15)	(0.51)
LEV	-0.074***	-0.006	-0.080***	-0.038	-2.120***	-0.137	-1.809***	-1.112
	(0.02)	(0.09)	(0.03)	(0.09)	(0.49)	(1.35)	(0.49)	(1.32)
ROA	0.085	0.233	0.118**	0.071	-3.671**	-4.054	-2.043	-4.287
	(0.06)	(0.19)	(0.06)	(0.32)	(1.86)	(6.26)	(1.86)	(6.10)
PPE	0.005	0.044	0.024	-0.012	0.841	-1.190	0.932	-0.667
	(0.02)	(0.08)	(0.03)	(0.10)	(0.58)	(1.82)	(0.57)	(1.95)
REC	-0.003	0.043	-0.050	0.097	0.374	4.116	-0.128	4.159
	(0.06)	(0.12)	(0.07)	(0.11)	(1.07)	(2.70)	(1.09)	(2.58)
CF	-0.034	-0.011	-0.019	0.003	0.608	0.471	0.344	-0.318
	(0.02)	(0.06)	(0.03)	(0.07)	(0.50)	(1.25)	(0.49)	(1.19)
TOP1	0.021	-0.079	-0.006	-0.116	0.234	0.523	0.104	-0.263
	(0.02)	(0.07)	(0.02)	(0.07)	(0.47)	(1.15)	(0.46)	(1.15)
PROTECT	0.022*	0.018	0.005	0.009	0.168	0.393	0.214	0.738
	(0.01)	(0.03)	(0.01)	(0.04)	(0.27)	(0.61)	(0.26)	(0.62)
Year FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Bond FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Constant	-0.083	0.330	0.046	-0.147	-5.992*	-34.348***	-6.194*	-30.690***
	(0.17)	(0.76)	(0.18)	(0.82)	(3.56)	(11.79)	(3.72)	(11.81)
Observations	14,491	1,775	14,225	1,758	33,036	3,987	33,036	3,987
Adj. R^2	0.299	0.295	0.316	0.371	0.239	0.289	0.276	0.359
P-value	0.293		0.080		0.090		0.297	

Table 10: Alternative Sample Based on the National Tax Survey

This table shows whether taxpaying credit ratings are compromised by the pressure of meeting tax revenue and the county level tax authorities using alternative sample based on the national tax survey. The dependent variable, *TaxCredit,* is a binary variable that equals 1 if the taxpayer's rating is A and 0 otherwise. The variable, *Contri,* is the tax contribution of the firm, defined as the firm's tax expense relative to the total income tax collected by the province. *ETR_diff* and *ETR_res* are two measures of tax compliance, indicating whether the firm pays taxes sufficiently as required by law. The variable, *TaxPlan,* is the pressure to meet tax revenue targets. *XJ* is a dummy variable indicating whether the firm is registered in a county and hence is subject to the county-level tax authority. Definitions of the other variables are provided in Table 1. The standard errors of the coefficient estimates are shown in parentheses below them, and the regression standard errors are clustered by firm. Asterisks ***, **, and * denote statistical significance levels of 1%, 5%, and 10%, respectively.

	(1)	(2)	(3)	(4)
Variables	*TaxCredit*	*TaxCredit*	*TaxCredit*	*TaxCredit*
Contri×TaxPlan	4.776***	5.335***		
	(1.02)	(1.03)		
ETR_diff×TaxPlan	-0.180***			
	(0.05)			
ETR_res×TaxPlan		-0.067***		
		(0.02)		
Contri×XJ			0.712***	0.746***
			(0.17)	(0.17)
ETR_diff×XJ			-0.013**	
			(0.01)	
ETR_res×XJ				0.002
				(0.00)
Contri	-4.696***	-5.307***	-0.470***	-0.545***
	(1.00)	(1.01)	(0.11)	(0.11)
ETR_diff	0.230***		0.058***	
	(0.05)		(0.00)	
ETR_res		0.077***		0.010***
		(0.02)		(0.00)
TaxPlan	1.033***	1.048***		
	(0.05)	(0.05)		
XJ			-0.207***	-0.204***
			(0.01)	(0.01)
SIZE	0.217***	0.215***	0.219***	0.217***
	(0.00)	(0.00)	(0.00)	(0.00)
LEV	-0.066***	-0.066***	-0.073***	-0.072***
	(0.01)	(0.01)	(0.01)	(0.01)
PPE	-0.137***	-0.137***	-0.115***	-0.116***
	(0.02)	(0.02)	(0.02)	(0.02)
ROA	-0.224***	-0.252***	-0.211***	-0.243***
	(0.02)	(0.02)	(0.02)	(0.02)
CF	0.202***	0.198***	0.213***	0.207***
	(0.02)	(0.02)	(0.02)	(0.02)
SOE	-0.177***	-0.174***	-0.197***	-0.193***
	(0.02)	(0.02)	(0.02)	(0.02)
Year FE	Yes	Yes	Yes	Yes
Industry FE	Yes	Yes	Yes	Yes
Constant	-5.798***	-5.815***	-4.650***	-4.653***
	(0.07)	(0.07)	(0.04)	(0.04)
Observations	800,301	800,293	800,301	800,293
Pseudo R2	0.101	0.101	0.102	0.102

Internet Appendix

This appendix contains five tables starting from the next page.

Table IA1: Incentive Measures for A-level Taxpayers

This table presents the various incentive measures aimed at firms classified as A-level taxpayers in China. These measures are implemented by specific government departments and agencies.

Incentive type	Reward	Implementing department
Approval incentives	Green channel for administrative approval.	National Development and Reform Commission
	When approving the establishment, changes, and related business activities of securities, fund management companies, futures companies, and insurance companies, the tax information of the enterprise shall be taken as an important reference.	China Securities Regulatory Commission, China Insurance Regulatory Commission
	As a reference condition for selecting national civilized units.	Ministry of Civil Affairs
Convenient incentives	Priority power generation rights; Accelerate the filing of overseas bond issuance by enterprises; Simplify tax payment certificates in government bidding and tendering; Appropriately reduce the proportion of special inspections and spot checks on investment projects within the central budget; Reduce the frequency of price enforcement inspections and spot checks.	National Development and Reform Commission
	Single collection of value-added tax invoices for 3 months; Can be rated as a first-class export enterprise management enterprise; Cancel VAT invoice authentication.	State Administration of Taxation
	Value added telecommunications services provide convenience.	Ministry of Industry and Information Technology
	Prioritize processing and streamline procedures.	Ministry of Human Resources and Social Security
	Priority support for handling environmental protection permits.	Ministry of Environmental Protection
	Prioritize handling administrative approvals related to the business field.	Ministry of Commerce
	Import and export facilitation.	General Administration of Customs
	Priority processing of vehicle customs clearance procedures.	Ministry of Transport
	Provide convenient services for food and drug production and business approval matters.	China Food and Drug Administration
	Priority should be given to A-level taxpayers with good compliance in foreign exchange business as the pilot subjects for trade and investment facilitation reform measures.	State Administration of Foreign Exchange
Resource	Allocation of import and export quotas.	National Development and Reform

based incentives		Commission
	Priority should be given to A-level taxpayers when implementing arrangements for fiscal funding projects.	Ministry of Finance
	Discounts are given to value-added telecommunications services.	Ministry of Industry and Information Technology
	When the government bids for land supply, priority will be given to A-level taxpayers under the same conditions.	Ministry of Land and Resources
	As an important reference condition for bank credit financing and recorded in the financial credit information database as a good credit record.	The People's Bank of China; China Banking Regulatory Commission

Table IA2: Accounting for the Impact of Regional and Industry-Specific Policies

This table shows robustness of the main results by excluding the effect of regional and industry-specific policies. This is achieved by controlling for the interaction terms between industry and year fixed effects and the interaction terms between province and year fixed effects. The dependent variable, *TaxCredit*, is a binary variable that equals 1 if the taxpayer's rating is A and 0 otherwise. The variable, *Contri*, is the tax contribution of the firm, defined as the firm's tax expense relative to the total income tax collected by the province. *Compli* is the measure of tax compliance, indicating whether the firm pays taxes sufficiently as required by law. The variable, *TaxPlan*, is the pressure to meet tax revenue targets. *XJ* is a dummy variable indicating whether the firm is registered in a county and hence is subject to the county-level tax authority. Definitions of the other variables are provided in Table 1. The standard errors of the coefficient estimates are shown in parentheses below them, and the regression standard errors are clustered by firm. Asterisks ***, **, and * denote statistical significance levels of 1%, 5%, and 10%, respectively.

	(1)	(2)
Variables	*TaxCredit*	*TaxCredit*
Contri×TaxPlan	26.962**	
	(12.58)	
Compli×TaxPlan	-4.512*	
	(2.46)	
Contri×XJ		9.000**
		(4.48)
Compli×XJ		-0.440
		(0.36)
Contri	0.702	0.614
	(0.72)	(0.84)
Compli	0.617***	0.557***
	(0.12)	(0.13)
TaxPlan	1.709***	
	(0.46)	
XJ		-0.126*
		(0.07)
SIZE	0.027	0.024
	(0.02)	(0.02)
LEV	0.722***	0.682***
	(0.14)	(0.14)
ROA	6.488***	6.335***
	(0.84)	(0.83)
PPE	0.112	0.126
	(0.13)	(0.13)
CF	1.032***	0.979***
	(0.26)	(0.26)
TOP1	-0.298***	-0.292***
	(0.10)	(0.10)
LIST	0.226***	0.220***
	(0.06)	(0.06)
SOE	-0.139***	-0.133**
	(0.05)	(0.05)
PROTECT	0.541***	0.498***
	(0.07)	(0.07)
Industry×Year FE	Yes	Yes
Province×Year FE	Yes	Yes
Year FE	Yes	Yes
Industry FE	Yes	Yes
Constant	-2.528***	-2.342***
	(0.44)	(0.45)
Observations	11,221	11,221
Pseudo R2	0.187	0.186

Table IA3: Control for the Influence of Officials' Promotion Incentives

This table shows the robustness of the main results by controlling for the influence of local officials' promotion incentives. The age and tenure of party secretaries and governors in each province are used to control for the promotion incentives. The dependent variable, *TaxCredit,* is a binary variable that equals 1 if the taxpayer's rating is A and 0 otherwise. The variable, *Contri,* is the tax contribution of the firm, defined as the firm's tax expense relative to the total income tax collected by the province. *Compli* is the measure of tax compliance, indicating whether the firm pays taxes sufficiently as required by law. The variable, *TaxPlan*, is the pressure to meet tax revenue targets. *XJ* is a dummy variable indicating whether the firm is registered in a county and hence is subject to the county-level tax authority. Definitions of the other variables are provided in Table 1. The standard errors of the coefficient estimates are shown in parentheses below them, and the regression standard errors are clustered by firm. Asterisks ***, **, and * denote statistical significance levels of 1%, 5%, and 10%, respectively.

	(1)	(2)
Variables	*TaxCredit*	*TaxCredit*
Contri×TaxPlan	27.057**	
	(10.76)	
Compli×TaxPlan	-5.210**	
	(2.39)	
Contri×XJ		9.608**
		(4.31)
Compli×XJ		-0.601*
		(0.34)
Contri	0.524	0.263
	(0.61)	(0.73)
Compli	0.656***	0.601***
	(0.12)	(0.12)
TaxPlan	1.430***	
	(0.48)	
XJ		-0.170***
		(0.06)
SIZE	0.047***	0.043**
	(0.02)	(0.02)
LEV	0.663***	0.614***
	(0.13)	(0.13)
ROA	6.518***	6.396***
	(0.82)	(0.82)
PPE	0.128	0.141
	(0.13)	(0.13)
CF	0.954***	0.883***
	(0.25)	(0.25)
TOP1	-0.243**	-0.233**
	(0.10)	(0.10)
LIST	0.285***	0.280***
	(0.06)	(0.06)
SOE	-0.139***	-0.134***
	(0.05)	(0.05)
PROTECT	0.584***	0.548***
	(0.07)	(0.07)
AGE_SJ	255.185***	268.864***
	(33.72)	(33.24)
AGE_SZ	3.134	-0.368
	(39.45)	(40.09)
AGE_SJ^2	-31.090***	-32.751***
	(4.11)	(4.05)
AGE_SZ^2	-0.350	0.096
	(4.85)	(4.92)
TENURE_SZ	0.081**	0.056
	(0.04)	(0.04)
TENURE_SJ	0.069**	0.068**
	(0.03)	(0.03)
$TENURE\_SZ^2$	-0.010**	-0.008*
	(0.00)	(0.00)
$TENURE\_SJ^2$	-0.006*	-0.005
	(0.00)	(0.00)

Year FE	Yes	Yes
Industry FE	Yes	Yes
Constant	-533.888***	-554.937***
	(113.15)	(114.76)
Observations	12,192	12,192
Pseudo R2	0.190	0.191

Table IA4: Alternative Measure of Tax Contribution

This table shows robustness of the main results by defining the tax contribution variable differently. The dependent variable, *TaxCredit,* is a binary variable that equals 1 if the taxpayer's rating is A and 0 otherwise. The variable, *Contri,* is the tax contribution of the firm, defined as the firm's tax expense relative to the total income tax collected by the province. *Compli* is the measure of tax compliance, indicating whether the firm pays taxes sufficiently as required by law. The variable, *TaxPlan*, is the pressure to meet tax revenue targets. *XJ* is a dummy variable indicating whether the firm is registered in a county and hence is subject to the county-level tax authority. Definitions of the other variables are provided in Table 1. The standard errors of the coefficient estimates are shown in parentheses below them, and the regression standard errors are clustered by firm. Asterisks ***, **, and * denote statistical significance levels of 1%, 5%, and 10%, respectively.

	(1)	(2)
Variables	*TaxCredit*	*TaxCredit*
Contri_total×TaxPlan	30.846*	
	(16.19)	
Compli×TaxPlan	-4.609*	
	(2.38)	
Contri_total×XJ		18.061**
		(8.13)
Compli×XJ		0.348
		(0.35)
Contri_total	0.184	0.318
	(0.57)	(0.43)
Compli	0.634***	0.577***
	(0.12)	(0.11)
TaxPlan	1.853***	
	(0.46)	
XJ		-0.144***
		(0.06)
SIZE	0.038**	0.032**
	(0.02)	(0.01)
LEV	0.635***	0.592***
	(0.13)	(0.11)
ROA	6.411***	6.255***
	(0.80)	(0.69)
PPE	0.136	0.154
	(0.13)	(0.11)
CF	0.944***	0.869***
	(0.25)	(0.24)
TOP1	-0.251***	-0.243***
	(0.10)	(0.08)
LIST	0.264***	0.259***
	(0.06)	(0.05)
SOE	-0.136***	-0.132***
	(0.05)	(0.04)
PROTECT	0.542***	0.495***
	(0.06)	(0.05)
Year FE	Yes	Yes
Industry FE	Yes	Yes
Constant	-2.795***	-2.550***
	(0.42)	(0.35)
Observations	12,095	12,095
Pseudo R2	0.183	0.183

Table IA5: Alternative Measures of Tax Revenue Pressure

This table shows robustness of the main results by defining the tax revenue pressure variable differently. The dependent variable, *TaxCredit,* is a binary variable that equals 1 if the taxpayer's rating is A and 0 otherwise. The variable, *Contri,* is the tax contribution of the firm, defined as the firm's tax expense relative to the total income tax collected by the province. *Compli* is the measure of tax compliance, indicating whether the firm pays taxes sufficiently as required by law. The variable, *TaxPlan,* is the pressure to meet tax revenue targets. *XJ* is a dummy variable indicating whether the firm is registered in a county and hence is subject to the county-level tax authority. Definitions of the other variables are provided in Table 1. The standard errors of the coefficient estimates are shown in parentheses below them, and the regression standard errors are clustered by firm. Asterisks ***, **, and * denote statistical significance levels of 1%, 5%, and 10%, respectively.

	(1)	(2)
Variables	*TaxCredit*	*TaxCredit*
Contri×TaxPlan1	26.989**	
	(10.54)	
Compli×TaxPlan1	-4.935**	
	(2.30)	
Contri×TaxPlan2		258.375***
		(89.25)
Compli×TaxPlan2		-37.378
		(23.44)
Contri	-26.478**	0.705
	(10.44)	(0.63)
Compli	5.567**	0.628***
	(2.30)	(0.12)
TaxPlan1	1.353***	
	(0.45)	
TaxPlan2		13.313***
		(4.25)
SIZE	0.035**	0.034*
	(0.02)	(0.02)
LEV	0.654***	0.656***
	(0.13)	(0.13)
ROA	6.329***	6.339***
	(0.81)	(0.81)
PPE	0.142	0.146
	(0.13)	(0.13)
CF	0.946***	0.938***
	(0.25)	(0.25)
TOP1	-0.253***	-0.253***
	(0.10)	(0.10)
LIST	0.267***	0.268***
	(0.06)	(0.06)
SOE	-0.138***	-0.137***
	(0.05)	(0.05)
PROTECT	0.546***	0.550***
	(0.06)	(0.06)
Year FE	Yes	Yes
Industry FE	Yes	Yes
Constant	-4.117***	-2.758***
Observations	12,192	12,192
Pseudo R2	0.185	0.185