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Article

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China Journal of Accounting Studies (CJAS)

Provided in Cooperation with:

Accounting Society of China (ASC), Beijing

Suggested Citation: Li, Xiaoxia; Zhou, Tong (2024) : Bank branching and corporate tax avoidance: Evidence from a quasi-natural experiment of banking deregulation in China, China Journal of Accounting Studies (CJAS), ISSN 2169-7221, Taylor & Francis, Abingdon, Vol. 12, Iss. 3, pp. 591-614, <https://doi.org/10.1080/21697213.2023.2300287>

This Version is available at:

<https://hdl.handle.net/10419/338540>

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Bank branching and corporate tax avoidance: evidence from a quasi-natural experiment of banking deregulation in China

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ABSTRACT

Using the small and medium-sized commercial banks' market entry reform policy implemented in 2009 in China as a quasi-natural experiment of banking deregulation, we examine its effect on corporate tax avoidance. Our empirical results show that banking deregulation significantly reduces corporate tax avoidance. Banking deregulation not only promotes the expansion of joint-stock banks and city commercial banks, but also increases the credit supply and bank competition in the region. Further tests imply that banking deregulation restrains corporate tax avoidance through two channels: alleviating financial constraints and strengthening external monitoring. Our paper sheds new light on the spillover effects from regulations in the banking sector to tax management behaviours in the corporate sector.

KEYWORDS

Banking deregulation; corporate tax avoidance; financial constraints; external monitoring; financial supply side reform

1. Introduction

Corporate tax avoidance has long been regarded as a means of tax planning for modern enterprises. It is also deemed as an important part of corporate investment strategy. However, a large body of literature finds that tax avoidance behaviours may weaken corporate development quality and corporate value in many ways, such as reducing investment efficiency (Armstrong et al., 2015; Liu & Ye, 2013), increasing business risk (Badertscher et al., 2013; Hasan et al., 2014; Kim et al., 2011), and damaging corporate reputation (Hasan et al., 2017; Kanagaretnam et al., 2018; Zhang et al., 2017). As pointed out by the 18th National Congress of the Communist Party of China, promoting China's economy towards high-quality development has become the top priority of economic reforms. Since the economic and social costs of corporate tax avoidance are considerable, it is important to guide enterprises to reasonable tax avoidance through various policies.

Obtaining internal financing through tax savings is one of the important motivations for firms to carry out tax avoidance activities (Goh et al., 2016; Khan et al., 2017). Frank and Goyal (2003) and Bates et al. (2009) show that external investors are at an information

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Paper accepted by Donghua Chen.

 Supplemental data for this article can be accessed online at <https://doi.org/10.1080/21697213.2023.2300287>

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disadvantage situation compared with corporate insiders, so the cost of outer financing is significantly higher than that of internal financing. If firms can retain more internal cash flow through tax savings, then they can meet their capital needs of future investment with relatively low financing costs. Given the difficulties in accessing affordable financing faced by most Chinese firms, the internal financing needs seem more urgent, and tax avoidance behaviours become more prominent in China (Cai & Liu, 2009; Wang, 2018; Liu et al., 2017).

Bank loans are the main source of external financing for Chinese firms (Allen et al., 2005; Li, 2002; Su et al., 2011).¹ As the core of the Chinese financial system, the banking sector has experienced a course of reform from high concentration to market competition. As a milestone in the financial supply side reform, the *Opinions on the Adjustment of the Market Entry Policy of Branches of Small and Medium-sized Commercial Banks (Trial)* issued by the China Banking Regulatory Commission (CBRC) in April 2009 has profoundly changed the market structure of the banking sector. This banking deregulation policy promotes the expansion of joint-stock commercial banks and city commercial banks, enhances the degree of competition in the banking sector, and forms a multi-level, multi-type and diversified modern banking institution system (Zhang et al., 2017; Zhang et al., 2019). Our research question is, as the market entry regulation of bank branches is relaxed, whether corporate tax avoidance behaviours are strengthened or weakened?

Our paper is novel in unveiling the effect and channels of banking deregulation on corporate tax avoidance. Our identification design is based on the spatial heterogeneity of the banking deregulation policy effect, which allows us to adopt a difference-in-differences estimation approach. Examining a sample of industrial enterprises, we find that the banking deregulation policy significantly reduces the degree of corporate tax avoidance. Further tests show that this banking deregulation policy significantly promotes the expansion of joint-stock banks and city commercial banks, increases credit supply, and intensifies competition among banks. As a result, banking deregulation restrains corporate tax avoidance through two channels: alleviating financial constraints and strengthening external monitoring.

This study contributes to the literature in three aspects. First, we extend the literature on the factors of corporate tax avoidance from the perspective of banking deregulation policy. Prior studies have pointed out various internal and external factors that affect corporate tax avoidance, such as ownership structure (Bradshaw et al., 2019; McGuire et al., 2014), management incentives (Desai & Dharmapala, 2006; Dyreng et al., 2010), internal information environment (Gallemore & Labro, 2015), information disclosure monitoring (Gupta et al., 2014; Hope et al., 2013), market competition and market risk (Cai & Liu, 2009; Isin, 2018), policy uncertainty (Chay & Suh, 2009), economic cycle (Chen et al., 2016), and institutional environment (Fan & Tian, 2013; Liu & Ye, 2014). However, as an important institutional factor that could change the availability and cost of capital, the banking deregulation policy has not yet attracted enough attention in the literature on corporate tax avoidance. Our paper finds that banking deregulation policy can significantly inhibit corporate tax avoidance behaviours, which expands the research scope of banking (de-)regulation literature.

¹For example, Allen et al. (2005) find that the proportion of bank loan to the indirect financing in China is approximately 90%.

Second, our paper supplements to the literature on the economic consequences of banking deregulation policies. Prior studies have investigated the impact of banking deregulation policies on banks' risk management, liquidity management, lending decisions, and operational efficiency from the perspective of banks (Beck et al., 2010; Cai, 2016; Cosimano, 1987; Gao et al., 2022; Humphrey & Pulley, 1997; Keil & Müller, 2020; Saunders et al., 1990; Tewari, 2014). Some researchers have turned to explore corporate behaviour consequence of banking deregulation policies, including corporate leverage (Braggion & Ongena, 2019), corporate operation risk (Jiang et al., 2020), and innovation and entrepreneurship (Amore et al., 2013; Black & Strahan, 2002; Cornaggia et al., 2015; Kerr & Nanda, 2009; Krishnamurthy, 2015; Lu & Wang, 2019; Zhang et al., 2017). To the best of our knowledge, we are the first to examine the effect of banking deregulation policies on corporate tax avoidance. To do so, we identify the spatial heterogeneity of banking deregulation policy effect and employ a difference-in-differences method. Our empirical design provides a new tool for follow-up studies in Chinese context.

Lastly, the empirical results of this paper provide policy implications for deepening the structural financial supply side reform. During the market-oriented reform of the banking sector, the coverage of bank branches has been continuously expanded, the degree of market competition has been continuously improved, and the allocation efficiency of credit resource has been optimised. Our article not only unveils a micro-founded path via which financial reforms influence corporate tax avoidance. It also advocates practical implications for promoting high-quality development of Chinese enterprises.

2. Institutional background and hypothesis development

2.1. Institutional background of banking deregulation policy in China

On 16 April 2009, the General Office of the China Banking Regulatory Commission (CBRC) issued the *Opinions on the Adjustment of the Market Entry Policy of Branches of Small and Medium-sized Commercial Banks (Trial)*, which is also named as *CBRC No.143 Policy* for short. Different from banking deregulation policies of the United States,² the *CBRC No.143 Policy* has announced particular regulation on the expansion of joint-stock banks and city commercial banks. Specifically, for those joint-stock banks and city commercial banks that have already established branches in one city, the *CBRC No.143 Policy* has cancelled the restriction on the addition of branches in the same city. More importantly, the *CBRC No.143 Policy* has also relaxed the restrictions on these two types of banks when they set up new branches in different cities in the same province. That is, for joint-stock banks that have established branches in the capital city of a province, the *CBRC No.143 Policy* has greatly eased the restrictions on operating capital, the number of branches, and the approval authority when they set up branches in the same province. At the same time, the

²The banking deregulation policies in the United States are implemented by states, which can be divided into two types: inter-state and intra-state (Chava et al., 2013). When the inter-state deregulation policy is implemented, firms controlled by banks but located in other states are allowed to acquire banks in the state, so the competition between banks in the state will be intensified. On the contrary, when the intra-state deregulation policy is implemented, mergers and acquisitions between firms controlled by banks in the state will be more convenient, which strengthens the market power of banks. For comparison, this paper finds that there exists inter-city heterogeneity in the *CBRC No.143 Policy* in China.

city commercial banks are also allowed to establish additional branches in other cities in the province where their legal entities are registered.

Thus, the *CBRC No.143 Policy* has formed a banking deregulation policy shock for the market entry of bank branches. If the joint-stock banks have already set up branches in the capital city of a province, or the city commercial banks have already registered their legal entities in a city of a province, those other cities of the same province are exposed to the expansion shock of the *CBRC No.143 Policy*, which leads to the increase of regional credit supply and bank competition.³ Because there existed variations in financial supply between cities before the announcement of the *CBRC No.143 Policy*, the branch expansion driven by the *CBRC No.143 Policy* is also different, giving rise to the spatial heterogeneity of banking deregulation policy effect. Specifically, the less financial supply in the city is before 2009, the more branches of joint-stock banks and city commercial banks will enter the city after 2009, and the greater effect of the *CBRC No.143 Policy* is imposed on the city after 2009.⁴ Using the exogenous variation in credit supply environment faced by firms located in different cities,⁵ we are able to identify and test the effect of banking deregulation policies on corporate tax avoidance and its channels by using a difference-in-differences approach.

2.2. Development of two competing hypotheses

On the one hand, banking deregulation may reduce corporate tax avoidance behaviour through alleviating financial constraints or strengthening external monitoring.

First, banking deregulation can increase the supply of credit resource in the region and the availability of credit resources for local firms (Cai, 2016; Fraise et al., 2018; Rice & Strahan, 2010). Existing literature points out that one of the important motives of corporate tax avoidance is to save cashflow and improve liquidity (Cai & Liu, 2009; Goh et al., 2016; Khan et al., 2017). Since the Chinese capital market is still under developed, there are structural problems in the allocation of credit resources, which is manifested as that firms rely heavily on bank credits to raise financing while they are faced with difficulties in accessing affordable financing. When firms suffer severe financial constraints, they are more likely to increase the degree of tax avoidance in order to retain more cashflow (Edwards et al., 2016; Law & Mills, 2015). However, after the implementation of the banking deregulation policy, the bank branches in the region expand significantly, and the following increasing credit supply can alleviate the financial constraints of firms, thereby reducing corporate tax avoidance behaviours. We refer it as the 'alleviating financial constraints' channel.

Second, banking deregulation can intensify the degree of competition among banks (Gao et al., 2022). Banking deregulation induces more bank branches to enter the market, which greatly shortens the geographical distance between banks and firms. The closer the distance between banks and firms is, the more the banks can fully understand the business activities and financial accounting of the firms, which helps to reduce the information asymmetry between banks and firms (Lu & Wang, 2019). When more banks compete for a credit contract with a firm, they have to exploit more corporate information

³To fully utilise the fact that the policy leads to heterogeneity of the banking deregulation policy effect between cities in the same province, we control province-year fixed effect in the regressions.

⁴The spatial heterogeneity of banking deregulation policy effect is supported by the empirical results in Section 4.2 of this paper.

⁵The robustness tests in Section 4.1 of this paper rule out other possible city-level factors.

so as to provide competitive credit contracts (Berger et al., 2001; Jiang et al., 2019). As a result, the external monitoring power of firms is strengthened when banks collect and analyse corporate information (Anginer et al., 2014). Kim et al. (2011), Cheng et al. (2012) and Huseynov et al. (2017) document that the enhancement of external monitoring is associated with weaker corporate tax avoidance behaviours. In turn, with the enhancement of external monitoring, firms inevitably need to disclose more information, which further curbs corporate tax avoidance (Hope et al., 2013). Therefore, the banking deregulation policy that increases the degree of bank competition can strengthen the external monitoring and induce lower corporate tax avoidance behaviours. We refer it as the 'strengthening external monitoring' channel.

To sum up, the banking deregulation policy may restrain corporate tax avoidance through alleviating financial constraints or strengthening external monitoring. Therefore, we propose the first competing hypothesis H_a :

H_a : Banking deregulation can significantly decrease corporate tax avoidance.

On the other hand, banking deregulation may also promote corporate tax avoidance behaviours through reducing opportunity costs or weakening risk screening.

First, banking deregulation leads to more fierce competition among banks, a decline in the risk premium of corporate loans, and an increase in firms' probability to obtain bank loans (Ruckes, 2004; Sengupta, 2007). When firms make tax avoidance decisions, they have to trade off between the benefits of cashflow saving on the one hand and the costs of production risks, trading risks, financial risks, and taxation risks on the other hand (Badertscher et al., 2013; Hasan et al., 2014; Isin, 2018). As firms' credit environment and external financing opportunities are improved, the opportunity costs of their tax avoidance behaviours decrease, which may strengthen their motivation to tax avoidance. Thus, the implementation of the banking deregulation policy intensifies competition among banks and reduces the opportunity cost of corporate tax avoidance, prompting firms to achieve higher tax avoidance goals. We refer it as the 'reducing opportunity costs' channel.

Moreover, in order to compete for credit contracts, banks may not conduct the necessary reputation checks and risk screening when the competition among banks increases (Fungóvá et al., 2017). When banks fail to screen corporate risks, firms may boost their profits and business performance through aggressive tax avoidance, so as to obtain bank loans at even lower costs (Parsons et al., 2018). In addition, if most banks provide credit contracts without enough effective screening, the information environment gradually becomes opaque and corporate tax avoidance behaviours become difficult to detect (Gallemore & Labro, 2015). Therefore, after the banking deregulation policy is implemented, some banks may try to obtain short-term competitive advantages but ignore the necessity of investigating corporate reputation and business risks. As a result, corporate tax avoidance behaviours increase. We refer it as the 'weakening risk screening' channel.

To sum up, the banking deregulation policy may promote corporate tax avoidance through reducing opportunity costs or weakening risk screening. Therefore, we propose the second competing hypothesis H_b :

H_b : Banking deregulation can significantly increase corporate tax avoidance.

3. Research design

3.1. Sample and data

The initial sample of this study includes the industrial enterprises from 1998 to 2013 (Brandt et al., 2012; Nie et al., 2012). Furthermore, following Cai and Liu (2009), Fan and Tian (2013), Liu et al. (2017), we process the initial samples as follows: (1) excluding observations with operating income less than 5 million yuan, total assets less than 5 million yuan, and employees fewer than 30; (2) excluding observations with abnormal accounting indicators, such as total assets is less than fixed assets, total assets is less than current assets, total assets is negative, accumulated depreciation is less than depreciation in current year; (3) excluding enterprises whose business status is suspended, prepared, cancelled, as well as those enterprises established before 1900; (4) excluding observations with negative pre-tax profit; (5) excluding enterprises with missing key variables.⁶

As of April 2009, there are no joint-stock banks in Tibet, Qinghai, Ningxia and Guizhou, so enterprises located in these four provinces are excluded in this paper.⁷ Also, we exclude enterprises located in Beijing, Tianjin, Shanghai, Chongqing and the capital city of each province in the main regressions, so as to examine the changes in corporate tax avoidance behaviours caused by the expansion of joint-stock banks' branches and city commercial banks' branches after the implementation of banking deregulation policy.⁸ The bank branch data are from the China Security Market and Accounting Research (CSMAR) database, and the city-level economic and social statistics are from the China City Statistical Yearbook. The final sample contains 366,487 observations. All continuous variables are winsorised at 1% and 99% level.

3.2. Model and variables

We use a difference-in-differences approach to test the competing hypotheses of H_a and H_b :

$$ETR_{i,j,t} = \beta_0 + \beta_1 BDIMPACT_j \times POST_t + \beta_2 CONTROLS_{i,j,t-1} + \gamma_i + \gamma_k + \gamma_{J,t} + \mu_{i,j,t} \quad (1)$$

where i, j, J, k, t are indexes for enterprise, city, province, industry and year. The dependent variable is effective tax rate ($ETR_{i,j,t}$), defined as the ratio of income tax to pre-tax profit. The higher $ETR_{i,j,t}$ is, the lower tax avoidance behaviours of enterprise i located in city j in year t is.⁹ Of note, other tax avoidance variables that are commonly used in the literature include BTD (Hanlon & Heitzman, 2010), $DDBTD$

⁶The key variables of this paper include: tax avoidance (ETR), size($SIZE$), leverage(LEV), return on asset(ROA), the proportion of property, plant and equipment to total assets (PPE), corporate age($CORPAGE$), and state-owned enterprise dummy(SOE).

⁷The market share of city commercial banks was relatively small around 2009.

⁸As reported in the Online Appendix Table OA.3, the results remain robust when enterprises located in Beijing, Tianjin, Shanghai, Chongqing and the capital city of each province are included in the sample.

⁹Following Bradshaw et al. (2019), Dyreng et al. (2010) and Hope et al. (2013), ETR is set to 1 if it is above 1, and set to 0 if it is below 0.

(Desai & Dharmapala, 2006) and the gap between nominal tax rate and effective tax rate (Chen et al., 2016). However, they are not applicable in this study.¹⁰

The independent variable is the interaction term of the impact of banking deregulation policy ($BDIMPACT_j$) and the policy implementation year ($POST_t$). $BDIMPACT_j$ is a continuous variable,¹¹ defined as the inverse (namely, multiplied by negative one) of the sum of state-owned banks' branches, joint-stock banks' branches, and city commercial banks' branches per 100 million yuan GDP of each city as of April 2009. The smaller the value of $BDIMPACT_j$ is, the less the financial supply of city j before 2009 is, the more the joint-stock bank branches and city commercial bank branches will enter city j after 2009, and the more the city j is affected by the *CBRC No.143 Policy*. $POST_t$ is equal to 1 if the year is during and after 2009, and 0 otherwise.

Following Hope et al. (2013), Bradshaw et al. (2019) and Chen et al. (2016), $CONTROLS_{i,j,t-1}$ denotes a series of corporate control variables, including size ($SIZE$), leverage (LEV), return on assets (ROA), the proportion of property, plant and equipment to total assets (PPE), corporate age ($CORPAGE$), state-owned enterprise dummy (SOE), all of which are one-year lag values. The regression model also includes firm fixed effects (γ_i) and industry fixed effects (γ_k) to control firm and industry characteristics that do not change over time. The model further controls for provincial-year fixed effects ($\gamma_{j,t}$) to eliminate other possible effects of inter-province policy changes. The standard error is clustered at the city level. The definition of main variables is shown in Table 1.

3.3. Descriptive statistics

Table 2 reports the descriptive statistics for our main variables. The mean (median) value of the effective tax rate (ETR) is 0.183 (0.200), and the standard deviation is 0.151, indicating that there are great variations in tax burden borne by industrial enterprises in the sample. The minimum (maximum) value of $BDIMPACT$ is -0.774 (-0.113), suggesting that there is 0.1 and 0.8 commercial bank branch per 100 million yuan of GDP as of April 2009 at minimum and maximum, respectively. In addition, 3.5% of industrial enterprises in the sample are state-owned enterprises. The descriptive statistics of other variables are shown in Table 2 in detail.

4. Empirical results

4.1. Banking deregulation and corporate tax avoidance

Based on regression model (1), we examine the impact of banking deregulation on corporate tax avoidance. The empirical results in Table 3 show that banking deregulation inhibits corporate tax avoidance. Specifically, when Column (1) only controls for size, corporate

¹⁰The industrial enterprises database only provides operating cash flow from 2004 to 2007, and it also do not provide the data of deferring corporate tax and nominal tax rate, The missing data makes it impossible to calculate BTD , $DDBTD$ and the gap between nominal income tax rates and effective income tax rate. In addition, the industrial enterprises database only provides intermediate input data from 1999 to 2007, but the banking deregulation policy used in this paper implemented in 2009, so we are not able to use the national income accounting method proposed by Cai and Liu (2009) and Fan and Tian (2013).

¹¹Following Qian (2008) and Yang et al. (2021), this paper builds a difference-in-difference model based on the continuous variable $BDIMPACT$. Continuous variables are used because the spatial heterogeneity of banking deregulation policy is continuous. Therefore, such empirical design can better estimate the economic significance of the policy effects, and avoid the arbitrariness of dividing treatment groups and control groups at the same time. In the robustness test of Online Appendix Table OA.6, we use a binary variable to measure the independent variable, and the results are still robust.

Table 1. Variable definition.

| Variable | Definition |
|--|--|
| Enterprise level dependent variable | |
| <i>ETR</i> | Income tax/pre-tax profit. The greater the value is, the less the corporate tax avoidance is. |
| City level dependent variables | |
| <i>JSBCCB_WEIGHT</i> | The proportion of the sum of joint-stock banks' branches and city commercial banks' branches to the sum of state-owned banks' branches, joint-stock banks' branches and city commercial banks' branches. |
| <i>JSBCCB_DEN</i> | the sum of joint-stock banks' branches and city commercial banks' branches per 10,000 population. |
| <i>LOAN</i> | The loan balance scaled by population. |
| <i>CR3_ALL</i> | The inverse (namely, multiplied by negative one) of the proportion of the sum of the top three banks' branches to the sum of state-owned banks' branches, joint-stock banks' branches and city commercial banks' branches. |
| <i>CR3_JSBCCB</i> | The inverse number (namely, multiplied by negative one) of the proportion of the sum of the top three banks' branches to the sum of joint-stock banks' branches and city commercial banks' branches. |
| Independent variables | |
| <i>BDIMPACT</i> | The inverse number (namely, multiplied by negative one) of the sum of state-owned banks' branches, joint-stock banks' branches and city commercial banks' branches per 100 million yuan GDP of each city as of April 2009 |
| <i>POST</i> | Equals 1 if the year is during and after 2009, and 0 otherwise. |
| Enterprise level control variables | |
| <i>SIZE</i> | The natural logarithm of total assets. |
| <i>LEV</i> | Total liabilities/total assets. |
| <i>ROA</i> | Net profit/total assets. |
| <i>PPE</i> | The proportion of property, plant and equipment to total assets. |
| <i>CORPAGE</i> | The natural logarithm of the years since the enterprise was founded. |
| <i>SOE</i> | Equals 1 if the enterprise is state-owned enterprise, and 0 otherwise. |
| City level control variables | |
| <i>GDPPC</i> | The natural logarithm of GDP per capita |
| <i>POP</i> | The natural logarithm of population |
| <i>FDI</i> | The ratio of foreign direct investment to GDP |

Table 2. Descriptive statistics.

| Variable | N | Mean | Min | Median | Max | SD. |
|----------------------|---------|--------|--------|--------|--------|-------|
| <i>ETR</i> | 366,487 | 0.183 | 0.000 | 0.200 | 0.751 | 0.151 |
| <i>BDIMPACT</i> | 366,487 | -0.309 | -0.774 | -0.285 | -0.113 | 0.129 |
| <i>POST</i> | 366,487 | 0.493 | 0.000 | 0.000 | 1.000 | 0.500 |
| <i>SIZE</i> | 366,487 | 10.52 | 8.613 | 10.29 | 14.59 | 1.268 |
| <i>LEV</i> | 366,487 | 0.546 | 0.016 | 0.549 | 1.437 | 0.280 |
| <i>ROA</i> | 366,487 | 0.113 | 0.000 | 0.056 | 0.841 | 0.156 |
| <i>PPE</i> | 366,487 | 0.359 | 0.011 | 0.328 | 0.913 | 0.215 |
| <i>CORPAGE</i> | 366,487 | 2.240 | 0.000 | 2.197 | 4.710 | 0.704 |
| <i>SOE</i> | 366,487 | 0.035 | 0.000 | 0.000 | 1.000 | 0.184 |
| <i>JSBCCB_WEIGHT</i> | 2,584 | 0.014 | 0.000 | 0.000 | 0.156 | 0.028 |
| <i>JSBCCB_DEN</i> | 2,584 | 0.018 | 0.000 | 0.000 | 0.351 | 0.052 |
| <i>LOAN</i> | 2,584 | 1.240 | 0.072 | 0.545 | 14.98 | 2.233 |
| <i>CR3_ALL</i> | 2,584 | -0.738 | -0.942 | -0.750 | -0.471 | 0.100 |
| <i>CR3_JSBCCB</i> | 2,584 | -0.964 | -1.000 | -1.000 | -0.470 | 0.107 |
| <i>GDPPC</i> | 2,584 | 0.489 | -1.138 | 0.464 | 2.244 | 0.755 |
| <i>POP</i> | 2,584 | -3.376 | -5.230 | -3.330 | -2.225 | 0.597 |
| <i>FDI</i> | 2,584 | 0.003 | 0.000 | 0.002 | 0.015 | 0.003 |

age, firm fixed effects, industry fixed effects, and province-year fixed effects, the coefficient on $BDIMPACT \times POST$ is 0.051 and significantly positive. It suggests that, compared to enterprises located in the city with the maximum financial supply, the tax avoidance behaviours of the enterprises located in the city with the minimum financial supply is reduced by 0.22 standard deviations after the banking deregulation policy is implemented. When Column (2)

Table 3. Effect of banking deregulation on corporate tax avoidance.

| | Dependent variable: <i>ETR</i> | | |
|-------------------------------|--------------------------------|-----------------------|-----------------------|
| | (1) | (2) | (3) |
| <i>BDIMPACT</i> × <i>POST</i> | 0.051** (2.051) | 0.051** (2.045) | 0.051** (2.060) |
| <i>SIZE</i> | -0.007*** (-6.201) | -0.007*** (-6.190) | -0.007*** (-5.766) |
| <i>CORPAGE</i> | 0.044*** (6.969) | 0.044*** (6.928) | 0.044*** (6.791) |
| <i>SOE</i> | | 0.007** (2.086) | 0.007** (2.108) |
| <i>LEV</i> | | -0.000 (-0.037) | -0.001 (-0.271) |
| <i>ROA</i> | | | -0.004 (-0.571) |
| <i>PPE</i> | | | -0.005 (-1.445) |
| Firm fixed effects | YES | YES | YES |
| Industry fixed effect | YES | YES | YES |
| Province-year fixed effect | YES | YES | YES |
| Observations | 366,487 | 366,487 | 366,487 |
| Adjusted R ² | 0.361 | 0.361 | 0.361 |

The *t*-values in parentheses are based on standard errors that are clustered by city. *, **, and *** indicate statistical significance at the 10%, 5%, and 1% levels, respectively.

additionally controls for state-owned enterprises dummy and leverage, the coefficient on *BDIMPACT*×*POST* is also significantly positive at the 5% level. When Column (3) controls for all enterprise-level variables, the coefficient on *BDIMPACT*×*POST* is 0.051 and remains significant at the 5% level. In summary, [Table 3](#) shows that after the implementation of the *CBRC No.143 Policy*, enterprises located in cities with higher exposure to the banking deregulation policy reduce their tax avoidance behaviours, which supports the competing hypothesis H_a .

4.2. Robustness tests

To examine the robustness of our findings, we conduct the following tests:

First, to alleviate the endogenous concern, we use the spatial distribution of commercial bank branches in each city as of April 2009 to measure the impact of banking deregulation policy in each city. However, the spatial distribution of commercial banks' branches is also affected by local economic and social factors, which may lead to endogenous concerns. Considering that the expansion shock of the *CBRC No.143 Policy* is at the city level, we follow Heider and Ljungqvist (2015) and Brav et al. (2018) to control for the interaction term of cities' characteristics and the policy implementation year dummy (*POST*), so as to rule out the interference of economic development, financial development, and the local tax avoidance tendency, among others possible factors at the city level. Specifically, economic development is measured by the growth of GDP per capita (*GDPPC_GROWTH*) and GDP growth rate (*GDP_GROWTH*), financial development is measured by financial marketisation index (*FMINDEX*, Liu & Ye, 2014), and the local tax avoidance tendency of is measured by the average tax burden of local enterprises (*TAXAVO*). As reported in Online Appendix Table OA.1, when we control for these possible interference factors at the city level one by one, the coefficient on *BDIMPACT*×*POST*

remains statistically significant and positive, supporting the inhibitory effect of banking deregulation on the tax avoidance behaviours of local enterprises.

Second, we conduct robust checks using alternative dependent variables. Following Zimmerman (1983), Gupta and Newberry (1997), and Zhang et al. (2015), we reconstruct an alternative variable *ETR_ex*, which removes the observation with *ETR* greater than 1 or less than 0. In addition, we also follow Dyreng et al. (2008) and Wang et al. (2018) to use the mean value of *ETR* three-year or five-year before and after as the long-run *ETR* (*LONGRUN_ETR1* and *LONGRUN_ETR2*). In Online Appendix Table OA.2, we replaced the dependent variables of regression model (1) with the above three alternative variables. The coefficients on *BDIMPACT*×*POST* are still significantly positive, and the coefficient magnitude is also highly close to that of Table 3.

Third, we conduct robust checks using alternative independent variables. The variable *BDIMPACT* used in the main regression is calculated based on the branches of three types of banks: state-owned banks, joint-stock banks and city commercial banks. In this part, we re-calculate *BDIMPACT1* only based on state-owned banks' branches, and *BDIMPACT2* based on state-owned banks' branches, joint-stock banks' branches, city commercial banks' branches and rural commercial banks' branches. Results reported in Columns (1) and (2) of Online Appendix Table OA.3 lend support to the baseline findings. Moreover, when we add those enterprises located in Beijing, Tianjin, Shanghai, Chongqing and the capital cities of provinces back to the sample, the results of Column (3) of Online Appendix Table OA.3 show that our main findings are not subject to sample selection.

Fourth, we also exclude the influence of other tax policies. On the one hand, the State Council issued the *Notice on Correcting Local Governments' Refundable Tax Policies*, which requires that all regions stop implementing their local refundable tax policies from 1 January 2000. Subsequently, the Ministry of Finance announced that the refundable tax policies for listed firms could be retained until 31 December 2001. On the other hand, the new Tax Law, promulgated in 2007, has unified the corporate income tax rate, pre-tax deduction items, preferential tax policies, and tax collection and management, all of which may affect the corporate tax avoidance behaviours (Luo & Yang, 2011). In order to control for the impact of the abolition of local refundable tax policies and the adoption of new Tax Law, we follow the practices of Wang et al. (2018) and Li and Chen (2021) and remove the samples before 2002 and before 2007, respectively. The regression results are shown in Columns (1) and (2) of Online Appendix Table OA.4. The results support the robustness of Table 3. Moreover, when the global financial crisis broke out in 2008, China's central government immediately adopted active fiscal policies and moderately loose monetary policies. During the implementation of the *Four Trillion Stimulus Policy*, enterprises' financial constraints may be alleviated by easier government subsidies and cheaper bank loans. As Bai et al. (2016) and Liu et al. (2018) point out that state-owned enterprises are more likely to obtain credit resources from the *Four Trillion Stimulus Policy*, we introduce the interaction term *SOE*×*STIMULUS* into the regression model.¹² The dummy variable *STIMULUS* equals one if the year is 2009 or 2010, and zero otherwise.

¹²As Zheng et al. (2018) point out, enterprises with credit connection with banks (i.e. the control group in the baseline regression model) are more likely to obtain new loans from *Four Trillion Stimulus Policy*. Therefore, *Four Trillion Stimulus Policy* may result in underestimating the real impact of banking deregulation on corporate tax avoidance.

The regression results in Column (3) of the Online Appendix Table OA.4 show that our main results are robust after controlling the effect of the *Four Trillion Stimulus Policy*.¹³

Finally, we also conduct other robustness tests, such as adjusting the regression sample period and using the binary indicators to measure the key independent variables. The corresponding regression results, as reported in Online Appendix Tables OA.5 and OA.6, also lend support to the robustness of the main results.

5. Channel test

As the research hypothesis H_a points out, the inhibiting effect of banking deregulation policy on corporate tax avoidance is driven by the fact that the banking deregulation policy promotes the expansion of joint-stock banks and city commercial banks, increases regional credit supply and strengthens the competition between banks, and thus reduces corporate tax avoidance through alleviating financial constraints and strengthening external monitoring.¹⁴ In the following sections, we first take the perspective of banks and examine the impact of banking deregulation on the bank expansion, credit supply, and the degree of bank competition. Then, we take the perspective of enterprises and test the two possible channels of alleviating financial constraints and strengthening external monitoring.

5.1. Bank-level manifestation

5.1.1. Banking deregulation and bank expansion

As Zhang et al. (2017) point out, the banking deregulation policy promotes the branch expansion of joint-stock banks and city commercial banks and gradually weakens the absolute monopoly position of state-owned banks. To examine bank expansion, we first examine whether joint-stock banks and city commercial banks significantly increase their branches in cities with less ex ante financial supply after the implementation of the *CBRC No.143 Policy* in 2009. We use city-year panel data and the following regression model (2):

$$JSBCCB_{j,t} = \beta_0 + \beta_1 BDIMPACT_j \times POST_t + \beta_2 CONTROLS_{j,t-1} + \gamma_j + \gamma_{j,t} + \mu_{j,t} \quad (2)$$

The subscripts j , J , and t represent the city, province, and year, respectively. The dependent variable $JSBCCB_{j,t}$ measures the intensity of joint-stock banks' branches and city commercial banks' branches in city j in year t . We use two variables as proxies for bank expansion: $JSBCCB_WEIGHT$ is the proportion of the sum of joint-stock banks' branches and city commercial banks' branches to the sum of state-owned banks' branches, joint-stock banks' branches and city commercial banks' branches; $JSBCCB_DEN$ is the sum of joint-stock banks' branches and city commercial banks' branches per 10,000 population. The greater the value of the two proxies are, the more branches of joint-stock banks and city commercial banks are established in the city.

¹³In addition, we also identify high-tech enterprises and western enterprises to exclude the alternative explanation of the heterogeneity of tax avoidance behaviour caused by the different applicable tax rates. After removing the samples of high-tech enterprises and western enterprises, the regression results of this paper are still robust.

¹⁴The empirical results of this paper do not support the competitive hypothesis H_b , indicating that such promoting effect of banking deregulation on corporate tax avoidance is weak or even inexistent, so this paper does not further test the possible channels of hypothesis H_b .

The key dependent variable is the interaction term of banking deregulation policy ($BDIMPACT_j$) and the year of policy implementation ($POST_t$), whose definition are consistent with that in the regression model (1). $CONTROLS_{j,t-1}$ are the control variables at the city level, including GDP per capita ($GDPPC$), population (POP) and the proportion of foreign direct investment to GDP (FDI). The definitions of these city-level control variables are elaborated in Table 1. Similar to regression model (1), model (2) also controls for city fixed effects and province-year fixed effects, and standard errors are clustered at the city level.

Table 4 reports the results. In Columns (1) and (3), the coefficients on $BDIMPACT \times POST$ are significantly positive at the 1% level, indicating that the implementation of the banking deregulation policy significantly promotes the establishment of joint-stock banks' branches and city commercial banks' branches. The coefficients are also economically significant: compared with the cities with the maximum ex ante financial supply, the expansion intensity of joint-stock banks and city commercial banks in the cities with the minimum financial supply increases by 0.1–0.2 standard deviations after the implementation of the policy. Further, we construct the interaction terms of $BDIMPACT$ and each year dummies, introduce them into the regression model, and conduct the parallel trend test. The results

Table 4. Effect of banking deregulation on bank expansion.

| | Dependent variable: <i>JSBCCB_WEIGHT</i> | | Dependent variable: <i>JSBCCB_DEN</i> | |
|-------------------------------|---|---------------------|--|-----------------------|
| | (1) | (2) | (3) | (4) |
| <i>BDIMPACT</i> × <i>POST</i> | 0.005*** (2.887) | | 0.014*** (3.880) | |
| <i>BDIMPACT</i> ×2005 | | −0.000 (−0.424) | | −0.002 (−1.338) |
| <i>BDIMPACT</i> ×2006 | | 0.001 (0.609) | | −0.000 (−0.110) |
| <i>BDIMPACT</i> ×2007 | | 0.000 (0.342) | | 0.002 (1.309) |
| <i>BDIMPACT</i> ×2008 | | −0.001 (−0.652) | | 0.004 (1.607) |
| <i>BDIMPACT</i> ×2009 | | 0.001* (1.708) | | 0.004*** (2.634) |
| <i>BDIMPACT</i> ×2010 | | 0.001 (0.860) | | 0.007*** (2.634) |
| <i>BDIMPACT</i> ×2011 | | 0.006** (2.214) | | 0.019*** (3.550) |
| <i>BDIMPACT</i> ×2012 | | 0.012*** (3.057) | | 0.029*** (3.909) |
| <i>BDIMPACT</i> ×2013 | | 0.011*** (2.630) | | 0.031*** (3.447) |
| <i>GDPPC</i> | −0.006** (−2.005) | −0.006* (−1.815) | −0.029*** (−5.272) | −0.028*** (−5.148) |
| <i>POP</i> | 0.033** (2.380) | 0.032** (2.281) | 0.021 (1.022) | 0.018 (0.874) |
| <i>FDI</i> | −0.057 (−0.157) | −0.059 (−0.161) | −1.434** (−2.324) | −1.442** (−2.346) |
| City fixed effect | YES | YES | YES | YES |
| Province-year fixed effect | YES | YES | YES | YES |
| Observations | 2,584 | 2,584 | 2,584 | 2,584 |
| Adjusted R ² | 0.951 | 0.951 | 0.963 | 0.963 |

The *t*-values in parentheses are based on standard errors that are clustered by city. *, **, and *** indicate statistical significance at the 10%, 5%, and 1% levels, respectively.

are reported in Columns (2) and (4) in Table 4. As observed, the expansion of joint-stock banks and city commercial banks immediately appeared in and after 2009, while such effect was not significant before 2009. Therefore, the parallel trend is verified.

5.1.2. Banking deregulation, credit supply and bank competition

In order to analyse the impact of banking deregulation on credit supply and bank competition, we replace the dependent variables of model (2) with measures of credit supply and bank competition. Specifically, in Columns (1) and (2) of Table 5, the dependent variable *LOAN* is defined as the RMB loan balance per capita of each city at the end of the year. In Column (1), the coefficient on *BDIMPACT*×*POST* is significant at the 1% level, suggesting that the banking deregulation policy significantly increases the credit supply of cities with less ex ante financial supply. Also, the coefficient on *BDIMPACT*×*POST* is also economically significance: compared with the cities with the maximum ex ante financial supply, the credit supply of the cities with the minimum financial supply increases by 0.32 standard deviations after the implementation of the policy. Thus, banking deregulation enables joint-stock banks and city commercial banks to set up more branches and increase the credit supply in the region, which is consistent with the findings of Gao et al. (2022).¹⁵

Following Jiang et al. (2019), the dependent variable in Columns (3) and (4) is *CR3_ALL*, which is defined as the inverse number (namely, multiplied by negative one) of the proportion of the sum of the top three banks' branches to the sum of state-owned banks' branches, joint-stock banks' branches and city commercial banks' branches. The greater the value of *CR3_ALL* is, the more competitive the banking sector in the city is. The regression results in Column (3) show that the coefficient on *BDIMPACT*×*POST* is significant at the 1% level. Further, we focus on the banking competition that are more likely caused by the expansion of joint-stock banks and city commercial banks. In Columns (5) and (6) of Table 5, the dependent variable *CR3_JSBCCB* is defined as the inverse number (namely, multiplied by negative one) of the proportion of the sum of the top three banks' branches to the sum of joint-stock banks' branches and city commercial banks' branches. Again, the greater the value of *CR3_JSBCCB* is, the tougher the competition between joint-stock banks and city commercial banks. The regression results in Column (5) show that the coefficient on *BDIMPACT*×*POST* is significant at 1% level. Compared with the city with the maximum ex ante financial supply, the competition between joint-stock banks and city commercial banks in the city with the minimum financial supply increases by 0.35 standard deviations after the implementation of the policy. Such results are also consistent with the findings in Zhang et al. (2017) and Lv and Wang (2019) that the banking deregulation policy promotes the branch expansion of joint-stock banks and city commercial banks and changes the competition structure of the banking sector. Columns (2), (4) and (6) of Table 5 provide supportive results to the parallel trend assumption.

¹⁵Based on the unique loan data of enterprises provided by the China Banking and Insurance Regulatory Commission, Gao et al. (2022) use a similar empirical framework and find that the banking deregulation policy has promoted enterprises in the regions imposed greater policy effect to obtain loans from joint-stock banks and city commercial banks.

Table 5. Effects of banking deregulation on credit supply and bank competition.

| | Dependent variable: <i>LOAN</i> | | Dependent variable: <i>CR3_ALL</i> | | Dependent variable: <i>CR3_JSBCCB</i> | |
|-------------------------------|------------------------------------|----------------------|---------------------------------------|---------------------|--|-----------------------|
| | (1) | (2) | (3) | (4) | (5) | (6) |
| <i>BDIMPACT</i> × <i>POST</i> | 1.075*** (4.142) | | 0.025*** (3.201) | | 0.057*** (3.695) | |
| <i>BDIMPACT</i> ×2005 | | -0.084 (-0.558) | | 0.001 (0.089) | | -0.011 (-1.093) |
| <i>BDIMPACT</i> ×2006 | | -0.081 (-0.689) | | 0.006 (0.671) | | -0.001 (-0.124) |
| <i>BDIMPACT</i> ×2007 | | 0.146 (1.226) | | -0.005 (-0.551) | | -0.002 (-0.212) |
| <i>BDIMPACT</i> ×2008 | | 0.247 (1.635) | | 0.014 (1.197) | | 0.004 (0.389) |
| <i>BDIMPACT</i> ×2009 | | 0.314*** (2.833) | | 0.009 (1.153) | | 0.021*** (2.961) |
| <i>BDIMPACT</i> ×2010 | | 0.703*** (3.111) | | 0.019** (2.200) | | 0.032** (2.480) |
| <i>BDIMPACT</i> ×2011 | | 1.739*** (3.878) | | 0.042*** (3.235) | | 0.109*** (3.616) |
| <i>BDIMPACT</i> ×2012 | | 2.204*** (4.130) | | 0.048*** (3.552) | | 0.123*** (3.022) |
| <i>BDIMPACT</i> ×2013 | | 2.115*** (3.794) | | 0.044*** (3.372) | | 0.081** (2.096) |
| <i>GDPPC</i> | -1.283** (-2.377) | -1.189** (-2.227) | -0.016 (-0.999) | -0.015 (-0.876) | -0.090*** (-3.154) | -0.085*** (-3.000) |
| <i>POP</i> | 2.107 (0.928) | 1.902 (0.832) | 0.019 (0.561) | 0.015 (0.437) | 0.168* (1.963) | 0.159* (1.835) |
| <i>FDI</i> | -51.091 (-1.203) | -51.745 (-1.228) | -0.416 (-0.299) | -0.422 (-0.303) | -3.277* (-1.754) | -3.304* (-1.772) |
| City fixed effect | YES | YES | YES | YES | YES | YES |
| Province-year fixed effect | YES | YES | YES | YES | YES | YES |
| Observations | 2,584 | 2,584 | 2,584 | 2,584 | 2,584 | 2,584 |
| Adjusted R ² | 0.877 | 0.878 | 0.900 | 0.900 | 0.738 | 0.739 |

The *t*-values in parentheses are based on standard errors that are clustered by city. *, **, and *** indicate statistical significance at the 10%, 5%, and 1% levels, respectively.

5.2. Firm-level channels

In Section 3, our paper has documented that banking deregulation policy significantly inhibits corporate tax avoidance, which supports the hypothesis H_a . The previous Section 4.2 further finds that the policy promotes the expansion of joint-stock banks and city commercial banks, increases the supply of regional credit, and intensifies competition among banks. In the next section, we conduct firm-level tests and examine the two possible channels through which banking deregulation curbs corporate tax avoidance: alleviating financial constraints and strengthening external monitoring.

5.2.1. Channel of alleviating financial constraints

The channel of alleviating financial constraints argues that banking deregulation alleviates financial constraints of enterprises by increasing the supply of credit, so as to restrain corporate tax avoidance. If this is the case, then the banking deregulation policy should be better able to alleviate enterprises with more severe financial constraints. To test so, we adopt the triple difference-in-differences regression model (3) to test the channel of alleviating financial constraints:

$$\begin{aligned}
 ETR_{i,j,t} = & \beta_0 + \beta_1 BDIMPACT_j \times POST_t \times HIGH_FC_i + \beta_2 BDIMPACT_j \times POST_t \\
 & + \beta_3 CONTROLS_{i,j,t-1} + \gamma_i + \gamma_k + \gamma_{j,t} + \mu_{i,j,t}
 \end{aligned}
 \tag{3}$$

where the subscripts i, j, J, k and t represent the enterprise, city, province, industry and year respectively. The definitions of the dependent variables $ETR_{i,j,t}$, the key independent variable $BDIMPACT_j \times POST_t$, and control variables $CONTROLS_{i,j,t-1}$ are the same as those in regression model (1). Two proxies are used to measure the moderating variable of financial constraints FC_i . The first proxy is *INTEREST*, defined as the interest expense scaled by total liability (Yu et al., 2019). The greater the value of *INTEREST* is, the severer financial constraints the enterprise faces. The second proxy is *SCORE*, which is constructed based on cash ratio, commercial credit ratio, enterprise scale, tangible assets ratio, repayment ratio, liquidity ratio, foreign investment ratio, return on assets and net sales rate (Yang, 2012).¹⁶ The smaller the value of FC_i is, the more serious financial constraints the enterprise suffers. The dummy variable *HIGH_FC* is set to one if the mean value of *INTEREST* (*SCORE*) between 2006 and 2008 is above (below) the industry median, otherwise it is set to zero.

The regression results are reported in Table 6. Whenever *INTEREST* or *SCORE* is used as the proxy for financial constraint (*FC*), the coefficient on the $BDIMPACT \times POST \times HIGH_FC$ is significantly positive at 1% level. It implies that the effect of banking deregulation on corporate tax avoidance is more prominent in enterprises facing more severe financial constraints. The economic significance of the coefficient infers that the banking deregulation policy reduces corporate tax avoidance by 47–343% more for enterprises facing severer financial constraints than for those enterprises with lower financial constraints. Therefore, the empirical results in Table 6 support the channel of alleviating financial constraints.

Table 6. Banking deregulation, financial constraints and tax avoidance.

| | Dependent variable: <i>ETR</i> | |
|--|--------------------------------------|-----------------------------------|
| | <i>FC</i> proxied by <i>INTEREST</i> | <i>FC</i> proxied by <i>SCORE</i> |
| | (1) | (2) |
| $BDIMPACT \times POST \times HIGH_FC$ | 0.022*** (3.060) | 0.072*** (7.340) |
| $BDIMPACT \times POST$ | 0.047* (1.932) | 0.021 (0.878) |
| <i>CONTROLS</i> | YES | YES |
| Firm fixed effects | YES | YES |
| Industry fixed effect | YES | YES |
| Province-year fixed effect | YES | YES |
| Observations | 208,122 | 203,577 |
| Adjusted R ² | 0.323 | 0.323 |

The t -values in parentheses are based on standard errors that are clustered by city. *, **, and *** indicate statistical significance at the 10%, 5% and 1% levels, respectively.

¹⁶Specifically, in each industry-year group, enterprises will be assigned one/two/three/four/five point(s) if their nine indicators lie in the lowest/second/third/fourth/highest quintile, respectively. The nine indicators including cash ratio, commercial credit ratio, enterprise size, tangible assets ratio, repayment ratio, liquidity ratio, foreign investment ratio, return on assets, and net profit rate of sales. Then, *SCORE* is constructed by adding up all the points for each enterprise in each year.

5.2.2. Channel of strengthening external monitoring

The channel of strengthening external monitoring argues that the banking deregulation policy enhances the competition among banks, exploits more corporate information, strengthens external monitoring, and thus restrains corporate tax avoidance behaviours. If this is the case, the inhabiting effect of banking deregulation on corporate tax avoidance should be more pronounced for those enterprises with higher information asymmetry (Muller & Riedl, 2002; Wongsunwai, 2013). To test so, we use the triple difference-in-difference regression model (4) to test the channel of strengthening external monitoring:

$$ETR_{ij,t} = \beta_0 + \beta_1 BDIMPACT_j \times POST_t \times HIGH_IA_i + \beta_2 BDIMPACT_j \times POST_t + \beta_3 CONTROLS_{ij,t-1} + \gamma_i + \gamma_k + \gamma_{j,t} + \mu_{ij,t} \quad (4)$$

Existing literature has documented that, the higher the management expense ratio (*SGA*) is, the more serious the principal-agent problem is, and the severer the information asymmetry between corporate internal and external environment (Ang et al., 2000; Singh & Davidson, 2003; Zeng & Zhang, 2009; Pan et al., 2020). In addition, the greater the proportion of the intangible assets (*INTANG*) is, the higher the enterprise relies on intangible assets that are difficult to evaluate, and the severer information asymmetry is (Aboody & Lev, 2000; Officer et al., 2009). Accordingly, the dummy variable *HIGH_IA* is set to one if the mean value of *SGA* or *INTANG* between 2006 and 2008 is higher than the industry median, and zero otherwise.

The regression results are shown in Table 7. No matter *SGA* or *INTANG* is used as the proxy for information asymmetry (*IA*), the coefficient on *BDIMPACT*×*POST*×*HIGH_IA* is significantly positive, indicating that the inhibiting effect of banking deregulation on corporate tax avoidance is more salient for enterprises with severer information asymmetry. The economic significance of the coefficient infers that the banking deregulation policy reduces corporate tax avoidance by 24–30% more for enterprises with higher information asymmetry than for enterprises with lower information asymmetry. Therefore, the empirical results in Table 7 support the channel of strengthening external monitoring.

5.3. Direct economic consequences of the two channels: the perspective of corporate investment

In this section, we further take the perspective of corporate investments and investigate the direct economic consequences of the two channels of alleviating financial constraints and strengthening external monitoring.

The channel of alleviating financial constraints can be reflected in the investment-cash flow sensitivity of the enterprises. Prior studies have documented that the severer financial constraints faced by enterprises, the higher their investment-cash flow sensitivity is (Denis & Sibilkov, 2010; Qu et al., 2011). If the banking deregulation policy can alleviate the financial constraints of enterprises, the investment-cash flow sensitivity of enterprises should decrease after the implementation of the policy. Following Denis and Sibilkov (2010), we take the change of the proportion of cash to fixed assets ($\Delta CASH$) as a proxy for

Table 7. Banking deregulation, external monitoring and tax avoidance.

| | Dependent variable: <i>ETR</i> | |
|--|---------------------------------|------------------------------------|
| | <i>IA</i> proxied by <i>SGA</i> | <i>IA</i> proxied by <i>INTANG</i> |
| | (1) | (2) |
| <i>BDIMPACT</i> × <i>POST</i> × <i>HIGH_IA</i> | 0.013** (2.375) | 0.010* (1.661) |
| <i>BDIMPACT</i> × <i>POST</i> | 0.044* (1.782) | 0.054** (2.099) |
| <i>CONTROLS</i> | YES | YES |
| Firm fixed effects | YES | YES |
| Industry fixed effect | YES | YES |
| Province-year fixed effect | YES | YES |
| Observations | 235,705 | 208,443 |
| Adjusted R ² | 0.331 | 0.323 |

The *t*-values in parentheses are based on standard errors that are clustered by city. *, **, and *** indicate statistical significance at the 10%, 5%, and 1% levels, respectively.

cash flow,¹⁷ and the new investment scaled by total assets (*NEW_INV*) as the dependent variable, and the triple interaction term *BDIMPACT*×*POST*× Δ *CASH* as the key independent variable. The regression results in Column (1) of Table 8 show that the coefficient on *BDIMPACT*×*POST*× Δ *CASH* is negative and statistically significant at the 10% level. This coefficient is also economically significant, implying that banking deregulation reduces the investment-cash flow sensitivity by 7.0% more for those enterprises located in cities with the minimum ex ante financial supply than those enterprises located in cities with the maximum ex ante financial supply. The above results suggest that the banking deregulation policy significantly reduces the investment-cash flow sensitivity of enterprises, which further confirms the channel of alleviating financial constraints.

The channel of strengthening external monitoring can be reflected in corporate over-investment. First, the information asymmetry between managers and investors may lead to self-interested behaviours of managers, while external monitoring can restrict the self-interested over-investment behaviour of managers (Chen et al., 2017). Second, external monitoring can also help enterprises transmit their internal information to outsiders, solicit feedback from outsider, improve the overall information environment and thus reduce the business mistakes caused by over-investment (Jung et al., 2013; Dutta & Nezlobin, 2017). Therefore, if banking deregulation can strengthen the external monitoring of enterprises, the over-investment behaviours of enterprises should be restrained after the implementation of the policy.

We follow Richardson (2006) and Zhang et al. (2019) to obtain the residual from the regression model of investment efficiency. The sign and size of the residual represent the direction and degree of the actual investment level deviating from the optimal investment level, respectively. Then, following Chen et al. (2011), Wu et al. (2012) and Jin et al. (2016), *OVERINV* is set to equal to the residual if the residual is greater than 0, and missing if the residual is less than 0. The greater the value of *OVERINV* is, the more serious the over-investment is. We then take *OVERINV* as the dependent variable in the baseline regression model, and *BDIMPACT*×*POST* as

¹⁷Limited by the financial accounting data provided by the industry enterprises database, we are not able to calculate the operating cash flow using the indirect approach.

Table 8. Effect of banking deregulation on corporate investments.

| | (1) | (2) |
|--|---------------------------------------|---------------------------------------|
| | Dependent variable: <i>NEW_INV</i> | Dependent variable: <i>OVERINV</i> |
| <i>BDIMPACT</i> × <i>POST</i> | −0.145 (−1.557) | −1.065** (−2.072) |
| <i>BDIMPACT</i> × <i>POST</i> × Δ <i>CASH</i> | −0.061* (−1.684) | |
| Δ <i>CASH</i> | 0.002 (0.345) | |
| <i>OTHER INTERACTION TERMS</i> | YES | NO |
| <i>CONTROLS</i> | YES | YES |
| Firm fixed effects | YES | YES |
| Industry fixed effect | YES | YES |
| Province-year fixed effect | YES | YES |
| Observations | 230,835 | 36,164 |
| Adjusted R ² | 0.479 | 0.380 |

The *t*-values in parentheses are based on standard errors that are clustered by city. *, **, and *** indicate statistical significance at the 10%, 5%, and 1% levels, respectively.

the key independent variable. The regression results in Column (2) of Table 8 show that, the coefficient on *BDIMPACT*×*POST* is positive and significant at the 5% level. Compared with that of the enterprises located in the city with the maximum ex ante financial supply, the over-investment of the enterprises located in the city with the minimum ex ante financial supply is reduced by 0.43 standard deviations after the implementation of the banking deregulation policy.¹⁸ These results indicate that the banking deregulation policy significantly reduces the over-investment of enterprises, which supports the channel of strengthening external monitoring.

6. Conclusion

This paper studies the effect of banking deregulation on corporate tax avoidance based on the small and medium-sized commercial banks market entry reform policy implemented by the CBRC in 2009 in China. We provide the following empirical findings: first, banking deregulation significantly reduces corporate tax avoidance behaviours. Second, the direct manifestation of the banking deregulation is the expansion of joint-stock banks and city commercial banks, which increases the credit supply and intensifies bank competition. Finally, the channel tests show that banking deregulation on the one hand alleviates financial constraints by increasing the supply of credit, and on the other hand strengthens the external monitoring by promoting bank competition. The two channels collectively inhibit corporate tax avoidance behaviours. Therefore, our study provides new evidence that the financial reform could make a difference to the behaviours of business entities.

Our study echoes to Chinese President Xi Jinping's statement in 2019 'to deepen the structural reform of the financial supply, we must implement the new development concept, strengthen the function of financial services, identify the emphasis of financial

¹⁸The standard deviation of *OVERINV* in the sample is 1.622.

services, and serve the real economy and people's lives as the basis', and 'to build a multi-layer, wide coverage and diverse banking system'. in the following two aspects. First, our results show that banking deregulation expands the branches and credit supply of non-state-owned banks, alleviates the financial dilemma of small and medium enterprises, and has a positive effect on improving the efficiency of credit resource allocation. In addition, we also find that banking deregulation intensifies the competition in the banking sector and forms an effective external monitoring power for enterprises by strengthening information acquisition, which also plays a certain external governance role in improving the quantity and quality of corporate information disclosure. Our study points to the following policy implications: the gradual introduction of the banking deregulation and competition policies, together with the expanding coverage of banking services, will not only help to solve the difficulties in accessing affordable financing faced by enterprises, but also help to improve the information environment and the quality of corporate information disclosure. Thus, the new evidence in our paper sheds light on the recent structural reform of the financial supply side in the 14th Five-Year Plan period.

Acknowledgments

We sincerely thank the Editor (Donghua Chen), and the two anonymous reviewers their constructive and insightful comments. Tong Zhou acknowledges support from the National Natural Science Foundation of China (Grant No.: 72003206). Xiaoxia Li acknowledges support from the Accounting Research Project of Guangdong Province in 2023-2024 (Grant No.: 20232-03). Both authors contributed equally to this research.

Disclosure statement

No potential conflict of interest was reported by the author(s).

Funding

The work was supported by the National Natural Science Foundation of China [72003206] and Accounting Research Project of Guangdong Province in 2023-2024 [20232-03].

References

- Aboody, D., & Lev, B. (2000). Information asymmetry, R&D, and insider gains. *The Journal of Finance*, 55(6), 2747–2766. <https://doi.org/10.1111/0022-1082.00305>
- Allen, F., Qian, J., & Qian, M. (2005). Law, finance, and economic growth in China. *Journal of Financial Economics*, 77(1), 57–116. <https://doi.org/10.1016/j.jfineco.2004.06.010>
- Amore, M. D., Schneider, C., & Žaldokas, A. (2013). Credit supply and corporate innovation. *Journal of Financial Economics*, 109(3), 835–855. <https://doi.org/10.1016/j.jfineco.2013.04.006>
- Ang, J. S., Cole, R. A., & Lin, J. W. (2000). Agency costs and ownership structure. *The Journal of Finance*, 55(1), 81–106. <https://doi.org/10.1111/0022-1082.00201>
- Anginer, D., Demirguc-Kunt, A., & Zhu, M. (2014). How does competition affect bank systemic risk? *Journal of Financial Intermediation*, 23(1), 1–26. <https://doi.org/10.1016/j.jfi.2013.11.001>
- Armstrong, C. S., Blouin, J. L., Jagolinzer, A. D., & Larcker, D. F. (2015). Corporate governance, incentives, and tax avoidance. *Journal of Accounting and Economics*, 60(1), 1–17. <https://doi.org/10.1016/j.jacceco.2015.02.003>

- Badertscher, B. A., Katz, S. P., & Rego, S. O. (2013). The separation of ownership and control and corporate tax avoidance. *Journal of Accounting and Economics*, 56(2–3), 228–250. <https://doi.org/10.1016/j.jacceco.2013.08.005>
- Bai, C. E., Hsieh, C. T., & Song, Z. M. (2016). The long shadow of a fiscal expansion. *NBER Working Paper* 22801. <https://doi.org/10.2139/ssrn.3489381>
- Bates, T. W., Kahle, K. M., & Stulz, R. M. (2009). Why do US firms hold so much more cash than they used to? *Journal of Finance*, 64(5), 1985–2021. <https://doi.org/10.1111/j.1540-6261.2009.01492.x>
- Beck, T., Levine, R., & Levkov, A. (2010). Big bad banks? The winners and losers from Bank Deregulation in the United States. *The Journal of Finance*, 65(5), 1637–1667. <https://doi.org/10.1111/j.1540-6261.2010.01589.x>
- Berger, A. N., Goldberg, L. G., & White, L. J. (2001). The effects of dynamic changes in bank competition on the supply of small business credit. *Review of Finance*, 5(1–2), 115–139. <https://doi.org/10.2139/ssrn.282513>
- Black, S. E., & Strahan, P. E. (2002). Entrepreneurship and Bank Credit Availability. *Journal of Finance*, 57(6), 2807–2833. <https://doi.org/10.1111/1540-6261.00513>
- Bradshaw, M. T., Liao, G., & Ma, M. (2019). Agency costs and tax planning when the government is a Major shareholder. *Journal of Accounting and Economics*, 67(2–3), 255–277. <https://doi.org/10.1016/j.jacceco.2018.10.002>
- Braggion, F., & Ongena, S. (2019). Banking sector deregulation, Bank–firm relationships and corporate leverage. *The Economic Journal*, 129(618), 765–789. <https://doi.org/10.1111/ecoj.12569>
- Brandt, L., Biesebroeck, J. V., & Zhang, Y. (2012). Creative accounting or creative destruction? firm-level productivity growth in Chinese manufacturing. *Journal of Development Economics*, 97(2), 339–351. <https://doi.org/10.1016/j.jdeveco.2011.02.002>
- Brav, A., Jiang, W., Ma, S., & Tian, X. (2018). How does hedge fund activism reshape corporate innovation? *Journal of Financial Economics*, 130(2), 237–264. <https://doi.org/10.1016/j.jfineco.2018.06.012>
- Cai, H., & Liu, Q. (2009). Competition and corporate tax avoidance: Evidence from Chinese industrial firms. *The Economic Journal*, 119(537), 764–795. <https://doi.org/10.1111/j.1468-0297.2009.02217.x>
- Cai, W. (2016). Deregulation of branching restriction, geographic diversification and Bank Performance. *Journal of Financial Research*, 43(2), 127–141. In Chinese. CNKI:SUN:JRYJ.0.2016-06-009
- Chava, S., Oettl, A., Subramanian, A., & Subramanian, K. V. (2013). Banking deregulation and innovation. *Journal of Financial Economics*, 109(3), 759–774. <https://doi.org/10.1016/j.jfineco.2013.03.015>
- Chay, J. B., & Suh, J. (2009). Payout policy and cash-flow uncertainty. *Journal of Financial Economics*, 93(1), 88–107. <https://doi.org/10.1016/j.jfineco.2008.12.001>
- Chen, D., Kong, M., & Wang, H. (2016). Invest in me and repay me: Economic cycle and tax avoidance of state-owned enterprises. *Journal of Management World*, 05, 46–63. (In Chinese. <https://doi.org/10.19744/j.cnki.11-1235/f.2016.05.006>
- Chen, F., Hope, O. K., Li, Q., & Wang, X. (2011). Financial reporting quality and investment efficiency of Private firms in emerging markets. *The Accounting Review*, 86(4), 1255–1288. <https://doi.org/10.2308/accr-10040>
- Chen, R., El Ghouli, S., Guedhami, O., & Wang, H. (2017). Do state and foreign ownership affect investment efficiency? Evidence from privatizations. *Journal of Corporate Finance*, 42, 408–421. <https://doi.org/10.1016/j.jcorpfin.2014.09.001>
- Cheng, C. S. A., Huang, H. H., Li, Y., & Stanfield, J. (2012). The effect of hedge fund activism on corporate tax avoidance. *The Accounting Review*, 87(5), 1493–1526. <https://doi.org/10.2308/accr-50195>
- Cornaggia, J., Tian, X., & Wolfe, B. (2015). Does banking competition affect innovation? *Journal of Financial Economics*, 115(1), 189–209. <https://doi.org/10.1016/j.jfineco.2014.09.001>
- Cosimano, T. F. (1987). The federal funds market under bank deregulation. *Journal of Money, Credit and Banking*, 19(3), 326–339. <https://doi.org/10.2307/1992080>
- Denis, D. J., & Sibilkov, V. (2010). Financial constraints, investment, and the value of cash holdings. *Review of Financial Studies*, 23(1), 247–269. <https://doi.org/10.1093/rfs/hhp031>

- Desai, M. A., & Dharmapala, D. (2006). Corporate tax avoidance and high-powered incentives. *Journal of Financial Economics*, 79(1), 145–179. <https://doi.org/10.1016/j.jfineco.2005.02.002>
- Dutta, S., & Nezlobin, A. (2017). Dynamic effects of information disclosure on investment efficiency. *Journal of Accounting Research*, 55(2), 329–369. <https://doi.org/10.1111/1475-679X.12161>
- Dyreng, S., Hanlon, M., & Maydew, E. (2010). The effects of executives on corporate tax avoidance. *The Accounting Review*, 85(4), 1163–1189. <https://doi.org/10.2308/accr.2010.85.4.1163>
- Dyreng, S. D., Hanlon, M., & Maydew, E. L. (2008). Long-run corporate tax avoidance. *The Accounting Review*, 83(1), 61–82. <https://doi.org/10.2308/accr.2008.83.1.61>
- Edwards, A., Schwab, C., & Shevlin, T. (2016). Financial constraints and cash tax savings. *The Accounting Review*, 91(3), 859–881. <https://doi.org/10.2308/accr-51282>
- Fan, Z., & Tian, B. (2013). Tax competition, tax enjoyment and tax avoidance. *Economic Research Journal*, 48(9), 99–111. (In Chinese. CNKI:SUN:JYJ.0.2013-09-008)
- Fraisse, H., Hombert, J., & Lé, M. (2018). The competitive effect of a Bank Megamerger on credit supply. In *Journal of Banking & Finance* (Vol. 93, pp. 151–161). <https://doi.org/10.1016/j.jbankfin.2018.06.011>
- Frank, M. Z., & Goyal, V. K. (2003). Testing the pecking order theory of capital structure. *Journal of Financial Economics*, 67(2), 217–248. [https://doi.org/10.1016/S0304-405X\(02\)00252-0](https://doi.org/10.1016/S0304-405X(02)00252-0)
- Fungáčová, Z., Shamshur, A., & Weill, L. (2017). Does bank competition reduce cost of credit? cross-country evidence from Europe. *Journal of Banking & Finance*, 83, 104–120. <https://doi.org/10.1016/j.jbankfin.2017.06.014>
- Gallemore, J., & Labro, E. (2015). The importance of the Internal Information Environment for Tax Avoidance. *Journal of Accounting and Economics*, 60(1), 149–167. <https://doi.org/10.1016/j.jaccceco.2014.09.005>
- Gao, H., Ru, H., Townsend, R. M., & Yang, X. (2022). Rise of bank competition: Evidence from banking deregulation in China. *NBER Working Paper 25795*. <https://doi.org/10.2139/ssrn.3087081>
- Goh, B. W., Lee, J., Lim, C. Y., & Shevlin, T. (2016). The effect of corporate tax avoidance on the cost of equity. *The Accounting Review*, 91(6), 1647–1670. <https://doi.org/10.2308/accr-51432>
- Gupta, S., Mills, L. F., & Towery, E. M. (2014). The effect of mandatory financial statement disclosures of tax uncertainty on tax reporting and collections: The case of FIN 48 and multistate tax avoidance. *The Journal of the American Taxation Association*, 36(2), 203–229. <https://doi.org/10.2308/atax-50766>
- 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. [https://doi.org/10.1016/S0278-4254\(96\)00055-5](https://doi.org/10.1016/S0278-4254(96)00055-5)
- Hanlon, M., & Heitzman, S. (2010). A review of tax research. *Journal of Accounting and Economics*, 50(2–3), 127–178. <https://doi.org/10.1016/j.jaccceco.2010.09.002>
- Hasan, I., Hoi, C. K., Wu, Q., & Zhang, H. (2017). Does social capital matter in corporate decisions? Evidence from corporate tax avoidance. *Journal of Accounting Research*, 55(3), 629–668. <https://doi.org/10.1111/1475-679X.12159>
- Hasan, I., Hoi, C. K. S., Wu, Q., & Zhang, H. (2014). Beauty is in the eye of the beholder: The effect of corporate tax avoidance on the cost of bank loans. *Journal of Financial Economics*, 113(1), 109–130. <https://doi.org/10.1016/j.jfineco.2014.03.004>
- Heider, F., & Ljungqvist, A. (2015). As certain as debt and taxes: Estimating the tax sensitivity of leverage from state tax changes. *Journal of Financial Economics*, 118(3), 684–712. <https://doi.org/10.1016/j.jfineco.2015.01.004>
- Hope, O. K., Ma, M. S., & Thomas, W. B. (2013). Tax avoidance and geographic earnings disclosure. *Journal of Accounting and Economics*, 56(2–3), 170–189. <https://doi.org/10.1016/j.jaccceco.2013.06.001>
- Humphrey, D. B., & Pulley, L. B. (1997). Banks' responses to deregulation: Profits, technology, and efficiency. *Journal of Money, Credit, and Banking*, 29(1), 73–93. <https://doi.org/10.2307/2953687>
- Huseynov, F., Sardarli, S., & Zhang, W. (2017). Does index addition affect corporate tax avoidance? *Journal of Corporate Finance*, 43, 241–259. <https://doi.org/10.1016/j.jcorpfin.2017.01.008>

- Isin, A. A. (2018). Tax avoidance and cost of debt: The case for Loan-specific risk mitigation and public debt financing. *Journal of Corporate Finance*, 49, 344–378. <https://doi.org/10.1016/j.jcorpfin.2018.01.003>
- Jiang, F., Cai, W., Cai, X., & Li, X. (2019). Microeconomic effects of bank competition: Evidence from corporate financial constraint. *Economic Research Journal*, 54(6), 72–88. (In Chinese. CNKI:SUN:JYJ.0.2019-06-006)
- Jiang, T., Levine, R., Lin, C., & Wei, L. (2020). Bank deregulation and corporate risk. *Journal of Corporate Finance*, 60, 60. <https://doi.org/10.1016/j.jcorpfin.2019.101520>
- Jin, Y., Jin, Q., & Xuan, Y. (2016). To be inactive or overactive: Political incentives in firm investment. *Economic Research Journal*, 51(10), 126–139. In Chinese. CNKI:SUN:JYJ.0.2016-10-011
- Jung, B., Lee, W. J., & Weber, D. P. (2013). Financial reporting quality and labor investment efficiency. *Contemporary Accounting Research*, 31(4), 1047–1076. <https://doi.org/10.1111/1911-3846.12053>
- Kanagaretnam, K., Lee, J., Lim, C. Y., & Lobo, G. J. (2018). Societal Trust and Corporate Tax Avoidance. *Review of Accounting Studies*, 23(4), 1588–1628. <https://doi.org/10.1007/s11142-018-9466-y>
- Keil, J., & Müller, K. (2020). Bank branching deregulation and the syndicated loan market. *Journal of Financial and Quantitative Analysis*, 55(4), 1269–1303. <https://doi.org/10.1017/S0022109019000607>
- Kerr, W. R., & Nanda, R. (2009). Democratizing entry: Banking deregulations, financing constraints, and Entrepreneurship. *Journal of Financial Economics*, 94(1), 124–149. <https://doi.org/10.1016/j.jfineco.2008.12.003>
- Khan, M., Srinivasan, S., & Tan, L. (2017). Institutional ownership and corporate tax avoidance: New evidence. *The Accounting Review*, 92(2), 101–122. <https://doi.org/10.2308/accr-51529>
- Kim, J. B., Li, Y., & Zhang, L. (2011). Corporate tax avoidance and stock price crash risk: Firm-level analysis. *Journal of Financial Economics*, 100(3), 639–662. <https://doi.org/10.1016/j.jfineco.2010.07.007>
- Krishnamurthy, P. (2015). Banking deregulation, Local Credit Supply, and small-business growth. *Journal of Law and Economics*, 58(4), 935–967. <https://doi.org/10.1086/684489>
- Law, K. K. F., & Mills, L. F. (2015). Taxes and financial constraints: Evidence from linguistic cues. *Journal of Accounting Research*, 53(4), 777–819. <https://doi.org/10.1111/1475-679X.12081>
- Li, Q., & Chen, S. (2021). Corporate listings and tax avoidance. *Journal of World Economy*, 44(11), 169–193. (In Chinese. <https://doi.org/10.19985/j.cnki.cassjwe.2021.11.009>)
- Li, Z. (2002). Banking structure and the Small Medium-Sized Enterprise Financing. *Economic Research Journal*, 6, 38–45. (In Chinese. CNKI:SUN:JYJ.0.2002-06-004)
- Liu, H., & Ye, K. (2013). Does corporate tax avoidance affect investment efficiency? *Accounting Research*, 6, 47–53. In Chinese. <https://doi.org/10.3969/j.issn.1003-2886.2013.06.007>
- Liu, H., & Ye, K. (2014). Financial development, property rights and corporate tax burden. *Journal of Management World*, 03, 41–52. In Chinese. <https://doi.org/10.19744/j.cnki.11-1235/f.2014.03.005>
- Liu, H., Zhao, J., & Ye, K. (2017). Corporate tax avoidance, debt financing and sources of debt financing: Regression discontinuity analysis based on the reform of income tax collection and management system. *Journal of Management World*, 10, 113–129. In Chinese. <https://doi.org/10.19744/j.cnki.11-1235/f.2017.10.010>
- Liu, Q., Pan, X., & Tian, G. (2018). To what extent did the economic stimulus package influence bank lending and corporate investment decisions? Evidence from China. *Journal of Banking & Finance*, 86, 177–193. <https://doi.org/10.1016/J.JBANKFIN.2016.04.022>
- Lu, T., & Wang, H. (2019). The effect of Bank Deregulation on Firms' innovation-A quasi-natural experiment from shareholding commercial banks' branches established in county territory. *China Economic Quarterly*, 18(4), 1443–1464. In Chinese. <https://doi.org/10.13821/j.cnki.ceq.2019.03.13>
- Luo, D., & Yang, Y. (2011). Property rights, regional environment and the Implementation Effect of the New Enterprise Income Tax Law: A study based on the corporate Tax burden of listed companies in China. *Journal of Sun Yat-Sen University (Social Science Edition)*, 51(5), 200–210. In Chinese. <https://doi.org/10.3969/j.issn.1000-9639.2011.05.021>
- Mcguire, S. T., Wang, D., & Wilson, R. J. (2014). Dual class ownership and tax avoidance. *The Accounting Review*, 89(4), 1487–1516. <https://doi.org/10.2308/accr-50718>

- Muller, K. A., & Riedl, E. J. (2002). External monitoring of property appraisal estimates and information asymmetry. *Journal of Accounting Research*, 40(3), 865–881. <https://doi.org/10.1111/1475-679X.00074>
- Nie, H., Jiang, T., & Yang, R. (2012). The usage status and potential problems of Chinese industrial enterprise database. *Journal of World Economy*, 35(5), 142–158. (In Chinese. <https://doi.org/10.19985/j.cnki.cassjwe.2012.05.009>)
- Officer, M. S., Poulsen, A. B., & Stegemoller, M. (2009). Target-firm information asymmetry and acquirer returns. *Review of Finance*, 13(3), 467–493. <https://doi.org/10.1093/rof/rfn017>
- Pan, Y., Ning, B., & Dai, Y. (2020). Surname identification and corporate governance-based on the perspective of the same surname executives' clan notion. *China Economic Quarterly*, 19(1), 351–370. In Chinese. <https://doi.org/10.13821/j.cnki.ceq.2019.04.16>
- Parsons, C. A., Sulaeman, J., & Titman, S. (2018). The geography of financial misconduct. *Journal of Finance*, 73(5), 2087–2137. <https://doi.org/10.1111/jofi.12704>
- Qian, N. (2008). Missing women and the price of tea in China: The effect of sex-specific earnings on sex imbalance. *Quarterly Journal of Economics*, 123(3), 1251–1285. <https://doi.org/10.1162/qjec.2008.123.3.1251>
- Qu, W., Xie, Y., & Ye, Y. (2011). Information asymmetry and investment-cash flow sensitivity: An empirical research based on market microstructure theory. *Economic Research Journal*, 6, 105–117. In Chinese. <http://dspace.xmu.edu.cn:8080/dspace/handle/2288/17371>
- Rice, T., & Strahan, P. E. (2010). Does credit competition affect small-firm finance? *The Journal of Finance*, 65(3), 861–889. <https://doi.org/10.1111/j.1540-6261.2010.01555.x>
- Richardson, S. (2006). Over-investment of free cash flow. *Review of Accounting Studies*, 11(2), 159–189. <https://doi.org/10.1007/s11142-006-9012-1>
- Ruckes, M. (2004). Bank competition and credit standards. *Review of Financial Studies*, 17(4), 1073–1102. <https://doi.org/10.1093/rfs/hhh011>
- Saunders, A., Strock, E., & Travlos, N. G. (1990). Ownership structure, deregulation, and Bank risk taking. *Journal of Finance*, 45(2), 643–654. <https://doi.org/10.1111/j.1540-6261.1990.tb03709.x>
- Sengupta, R. (2007). Foreign entry and Bank competition. *Journal of Financial Economics*, 84(2), 502–528. <https://doi.org/10.1016/j.jfineco.2006.04.002>
- Singh, M., & Davidson, W. N. (2003). Agency costs, ownership structure and corporate governance mechanisms. *Journal of Banking & Finance*, 27(5), 793–816. [https://doi.org/10.1016/S0378-4266\(01\)00260-6](https://doi.org/10.1016/S0378-4266(01)00260-6)
- Su, L., Wang, Y., & Yu, M. (2011). Directors' bank background, corporate characteristics and debt financing. *Journal of Management World*, 10, 176–177. In Chinese. <https://doi.org/10.19744/j.cnki.11-1235/f.2011.10.018>
- Tewari, I. (2014). The distributive impacts of financial development: Evidence from mortgage markets during U.S. Bank branch deregulation. *American Economic Journal: Applied Economics*, 6(4), 175–196. <https://doi.org/10.1257/app.6.4.175>
- Wang, L. (2018). External financial shocks, financial constraints, and corporate tax avoidance. *Nankai Business Review*, 19(1), 155–168. In Chinese. <https://doi.org/10.3969/j.issn.1008-3448.2016.01.014>
- Wang, X., Ouyang, C., & Shi, Z. (2018). Controlling Shareholder's shares pledge, the risk of losing control rights and tax avoidance. *Economic Research Journal*, 53(1), 138–152. In Chinese. CNKI: SUN:JJYJ.0.2018-01-011
- Wongsunwai, W. (2013). The effect of external monitoring on Accrual-based and real earnings management: Evidence from Venture-backed initial public offerings. *Contemporary Accounting Research*, 30(1), 296–324. <https://doi.org/10.1111/j.1911-3846.2011.01155.x>
- Wu, C., Wu, S., Cheng, J., & Wang, L. (2012). The role of venture capital in the investment and financing behavior of listed companies: Evidence from China. *Economic Research Journal*, 47(1), 105–119. In Chinese. <http://dspace.xmu.edu.cn:8080/dspace/handle/2288/17432>
- Yang, J. (2012). Financial constraints and firms' exporting behavior: Empirical study on industrial firms. *China Economic Quarterly*, 11(4), 1503–1524. In Chinese. <https://doi.org/10.13821/j.cnki.ceq.2012.04.014>
- Yang, L., Wu, B., Li, S., & Peng, F. (2021). Can using Tax Credit for Financing Help Small Businesses Access Bank loans? Empirical evidence from the Policy of Tax Credit Bank loans. *Economic*

- Research Journal*, 56(7), 96–112. In Chinese. <http://www.cnki.com.cn/Article/CJFDTotal-JJYJ202107007.htm>
- Yu, M., Zhong, H., & Fan, R. (2019). Privatization, financial constraints, and corporate innovation: Evidence from China's industrial enterprises. *Journal of Financial Research*, 04, 75–91. In Chinese. CNKI:SUN:JRYJ.0.2019-04-005
- Zeng, Y., & Zhang, J. (2009). Can tax collection and management play a role in corporate governance? *Journal of Management World*, 03, 143–151. In Chinese. <https://doi.org/10.19744/j.cnki.11-1235/f.2009.03.016>
- Zhang, J., Zheng, W., & Xin, F. (2017). Bank deregulation, Structural Competition and Enterprises' innovation in China. *China Industrial Economics*, 10, 118–136. In Chinese. <https://doi.org/10.19581/j.cnki.ciejournal.2017.10.008>
- Zhang, L., Zhu, G., Li, S., & Li, X. (2019). Market environment, key industrial policies and enterprise productivity differences. *Journal of Management World*, 35(3), 114–126. <https://doi.org/10.19744/j.cnki.11-1235/f.2019.0038>
- Zhang, M., Ma, L., Zhang, B., & Yi, Z. (2015). Pyramidal structure, political intervention and firms' tax burden: Evidence from China's local SOEs. *Journal of Corporate Finance*, 36, 15–25. <https://doi.org/10.1016/j.jcorpfin.2015.10.004>
- Zhang, X., Li, Z., & Li, C. (2019). Bank competition, financial constraints, and corporate innovation: Evidence from industrial firms in China. *Journal of Financial Research*, 10, 98–116. (In Chinese. CNKI:SUN:JRYJ.0.2019-10-006
- Zhang, Y., Liu, M., & Peng, H. (2017). Social Trust and Tax Avoidance. *Accounting Research*, 9, 48–54. In Chinese. <https://doi.org/10.3969/j.issn.1003-2886.2017.09.007>
- Zheng, G., Wang, S., & Xu, Y. (2018). Monetary stimulation, Bank Relationship and innovation: Evidence from China. *Journal of Banking & Finance*, 89, 237–248. <https://doi.org/10.1016/j.jbankfin.2018.02.010>
- Zimmerman, J. L. (1983). Taxes and Firm Size. *Journal of Accounting and Economics*, 5, 119–149. [https://doi.org/10.1016/0165-4101\(83\)90008-3](https://doi.org/10.1016/0165-4101(83)90008-3)