

*Research article***The impact of corporate tax outcomes on forced CEO turnover****Xue Chang***

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Abstract: As market competition has increased in recent years, CEO turnover has become more frequent. The tax avoidance activities maximize after-tax profits. After the CEO turnover, the company's strategy needs to be repositioned. Therefore, this paper analyzes the impact of corporate tax avoidance on CEO turnover. This paper selects the Chinese A-share market from 2010 to 2019. It combines theoretical analysis and empirical research to explore the impact of corporate tax avoidance on CEO turnover and further analyzes the relationship under different ownerships. This paper finds a negative relationship between tax rates and forced CEO turnover. Listed companies with lower tax rates increase social concern, leading to public doubts and inspections by tax authorities, which further damage the company's reputation. CEO turnover is the quick and easy way to respond to public accusations. This paper also finds that state-owned enterprises (SOEs) undertake more social responsibilities than non-state-owned enterprises (non-SOEs). The main contributions of this paper are as follows: From the theoretical perspective, this paper conducts systematic research on corporate tax avoidance and CEO turnover and analyzes the relationship under different ownerships. In practice, this paper puts forward relevant policy recommendations for the long-term development of enterprises and social responsibilities.

Keywords: corporate tax avoidance; CEO turnover; corporate social responsibility; agency problem**JEL Codes:** M40, H25

1. Introduction

Chief Executive Officer (CEO) turnover is essential in corporate governance (Clayton et al., 2005). Dismissing the CEO can effectively rebuild the company's reputation and restores the shareholders' confidence (Jensen & Meckling, 1976). This study investigates the relationship between tax issues and

forced CEO turnover using linear probability models. This paper finds a negative relationship between tax rates and forced CEO turnover. This paper also finds that state-owned enterprises undertake more social responsibilities than non-state-owned enterprises.

Our research expands the research perspective by investigating the impact of tax outcomes on forced CEO turnover from different theories, which helps to understand corporate tax avoidance from a complete perspective and enriches the existing literature. Firstly, this paper documents the important relationship between tax outcomes and forced CEO turnover. Many researchers question the role of CEOs in tax planning because they are not tax experts and do not know the details of tax strategy. This paper studies the role of the CEO in corporate tax planning. Secondly, this paper provides a new perspective on forced CEO turnover. CEO turnover is a hot issue in the current research, but the existing studies focus on the impact of corporate performance on CEO turnover. Few studies analyze the relationship between tax avoidance and forced CEO turnover. Thirdly, this paper enriches the existing literature on tax avoidance. Many researchers have investigated the reasons and impacts of tax avoidance since the literature published by Hanlon and Heitzman (2010). However, few of them analyze tax avoidance from corporate social responsibility theory. This paper also analyzes the relationship under different ownerships, which provides a new perspective on corporate tax avoidance and CEO turnover.

2. Literature review

2.1. Tax avoidance

In recent years, many researchers have paid attention to tax avoidance. Graham et al. (2012) reviewed the literature of the three top accounting journals (*Accounting Review*, *Journal of Accounting and Economics*, and *Journal of Accounting Research*) and finds an upward trend in tax avoidance literature. Much literature has analyzed the tax avoidance motivations and consequences (Dharmapala and Desai, 2007). This paper defines tax avoidance broadly as covering any matter that reduces the company's tax payment compared to pre-tax income (Dyreng et al., 2008). This paper does not measure tax aggressiveness, tax risk, tax evasion, or tax shelters. Previous studies have shown substantial variation in effective tax rates. Many factors affect tax strategies, such as board composition, company structure, and management compensation. Among many factors, the influence of executives is the most important. Kim et al. (2011) finds that managers can manipulate income and hide negative information through complex tax techniques. Slemrod (2004) finds that if the marginal benefits of tax avoidance are more significant than the marginal costs, managers will take all measures to reduce the tax expenses. Companies that use after-tax incentive compensation have lower effective tax rates than companies that use pre-tax performance incentive compensation (Gaertner, 2014; Powers et al., 2016). Tax avoidance can affect the cost of equity, enterprises value, investors' attitude, management reputation, leverage, and so on.

2.2. The CEO turnover

CEO turnover can be used to change enterprise strategy as the CEO is the decision-maker and implementer of enterprise strategy. CEO turnover has become a core issue in strategy, organization, finance, and leadership in recent years. According to the previous literature, the main factors that affect CEO turnover are company performance, industry competitiveness, board composition, insider ownership, and so on. CEO turnover is an important part of corporate governance. Board has the

responsibility to replace the inappropriate CEOs if they cannot meet the requirements of shareholders (Weisbach, 1988). Douglas and Hou (2011) proposes that corporate fraud in non-SOEs is more likely to change the CEO in China compared with state-owned companies. Fee et al. (2013) shows that effectively distinguishing between forced and non-forced CEO turnover can reduce bias in the test, which can robustly analyze the relationship between tax and CEO turnover. Because forcing the CEO to leave is a deliberate action taken by the board, the company plans to change direction, strategy, and leadership. In developed countries, CEO turnover has been widely analyzed. However, the determinants of CEO turnover remain unclear in countries with weak legal systems and underdeveloped financial systems. It is rare to explore the impact of the tax rate on forced CEO turnover in China. Our research also complements the existing literature on CEO turnover.

2.3. Relevant research on the relationship between corporate tax avoidance and CEO turnover

Although the CEO is not a tax expert and cannot directly influence the company's tax policies, the CEO is the ultimate decision-maker, whose position is higher than that of the tax director and CFO (Cazier et al., 2014). CEOs significantly impact effective tax rates more than CFOs (Desai & Dharmapala, 2006; Feldstein, 1999). The CEO can use "tone at the top" to indirectly influence the tax policies (Mason and Hambrick, 1984). They hold that the decision-making is affected by the CEO's characteristics, and has been confirmed by many studies (Chyz, 2013; Maydew et al., 2010; Olsen and Stekelberg, 2015; Wilson and Rego, 2012). They believe that the CEO significantly impacts corporate tax rates (Maydew et al., 2010). CEOs can adjust the company's annual budget to avoid taxes. Hiring or dismissing a tax director is part of the CEO's tax planning. The CEO can also instruct the CFO or tax directors to avoid tax by changing the compensation plan. Therefore, the CEO has the intention and ability to influence the company's tax strategy. Chyz et al. (2014) finds a positive relationship between tax avoidance and CEO overconfidence. Koester et al. (2016) finds that executives with more resources are more effective in participating in tax avoidance activities. Gaertner and Chyz (2018) analyses CEO turnover in the United States from 1993 to 2006. They find a relationship between the tax rates and forced CEO turnover. When the tax rate deviates from the industry average, the CEO is more likely to be replaced.

3. Hypotheses development

A company needs to gain legitimacy within society. Corporate attitudes towards corporate social responsibility, considerations of legitimacy, and more fundamental ethical issues affect the tax position of companies (Avi-Yonah, 2008).

Tax expenses are a primary way for companies to make social contributions (Lanis et al., 2018). Tax avoidance contravenes the expected social standards. Therefore, companies hardly ever publicize their tax avoidance practices (Sikka, 2010). Stakeholders regard tax avoidance as contradictory to their expectations of proper firm behaviors (Gayle et al., 2008; Lanis & Richardson, 2012, 2014). When a firm engages in tax avoidance, the organizational legitimacy of the firm is questioned by the public (Annuar et al., 2014). The public shame of tax-avoidant companies has been seen as an effective way to limit tax avoidance activities (Holt and Barford, 2013). CEOs safeguard the stakeholders' interests while executing their corporate duties (Freeman et al., 2004). Thus, companies seeking to uphold their legitimacy are expected to be less tax avoidant (Lanis & Richardson, 2012).

Tax avoidance incurs direct and indirect costs (Badertscher et al., 2013). From the dimension of direct expenses, companies not only need to pay related consulting fees and additional audit fees for tax planning, but they must also pay the punishment for tax avoidance, thereby reducing the company's cash inflow and shareholders' wealth (Slemrod, 2004). From the dimension of indirect costs, tax avoidance is formed through complex transactions, which will exacerbate the information asymmetry between insiders and outsiders. Since external investors cannot identify the actual situation of enterprises, they will demand a higher return. Tax avoidance will also increase the complexity of the operating structure and financial system and facilitate the management's opportunistic behaviors such as profit manipulation (Desai & Dharmapala, 2006; Frank et al., 2009). Companies are subject to more stringent external regulatory risks, such as audit firms, media, government, consumers, etc. (Wilson and Rego, 2012).

Corporate social responsibilities believe that tax avoidance costs are greater than their benefits (Chen et al., 2010). Reputational costs are a limiting factor in the tax literature, which firms and managers are willing to minimize their effective tax rates (Cheng et al., 2012; Graham et al., 2014; Slemrod and Hanlon, 2009). Slemrod and Hanlon (2009) suggests that when a company is involved in tax shelters, the company's share price declines. Bankman (2004) finds that firms may bear reputational and political costs for being labeled a "poor corporate citizen," which might adversely affect product market outcomes. Networks and media promote the establishment of a reputation mechanism and enhance the trust and efficiency of the market. Dyreng et al. (2017) find that companies that adopt tax avoidance strategies will harm the market value. The loss caused by reputation is far greater than the penalty imposed by the tax authorities (Karpoff and Lott, 1993).

From the managers' perspective, they are strongly motivated not to participate in tax avoidance. Because reputation costs and punishment are the main factors, managers are unwilling to reduce effective tax rates (Cheng et al., 2012; Desai & Dharmapala, 2006; Slemrod & Hanlon, 2009). Scholes et al. (2005) finds that CEOs suffer reputational damage due to tax avoidance (Graham et al., 2014). As the corporation's spokesman, the CEO will likely become the "scapegoat." The company is more willing to change the CEO to improve its corporate image and show the market that it hopes to change its tax strategy.

As mentioned above, paying taxes is essential for enterprises to undertake social responsibility. Slemrod and Hanlon (2009) find that the company will be labeled as a "poor corporate citizen" when the tax rate is too low, which increases reputation costs. Stakeholders highly appraise companies that have made greater contributions to society. Companies that pay more taxes deliver excellent performance information to the market. In turn, companies will face stricter inspections by the tax authorities, media, and even customers resist, which will affect the company's market value. Based on the above analysis, this paper puts forward the first hypothesis.

H1A: The possibility of forced CEO turnover increases when the effective tax rates related to peer companies are low.

According to the principal-agent theory, the goal of the shareholders and managers is inconsistent. Shareholders aim for after-tax profits, and managers avoid risks (Desai & Dharmapala, 2006).

As a kind of operating cost, tax expenses reduce the net profit and affect the reinvestment and reproduction of the enterprise. Implementing tax avoidance can reduce the tax costs, retain more cash flow, and increase the competitiveness of enterprises (Blouin, 2014). As effective tax rates rise, the board of directors and shareholders tend to doubt the CEO's ability to manage the company's resources. Managers are more actively involved in tax avoidance to reflect their profitability and management level.

From the perspective of the CEO's interests, tax avoidance occurs in three situations. Firstly, if companies have a cooperating governance mechanism, CEOs can increase profits through tax avoidance

to obtain higher compensation. Secondly, if the company lacks adequate supervision and corporate governance mechanisms, it will not be able to coordinate agency problems through equity compensation. When there is no effective restriction and control, the CEO as a “rational person,” has self-interest motivation (Warfield and Cheng, 2005). They can use the tax avoidance transactions to grab private interests (Desai & Dharmapala, 2006). Slemrod (2004) finds that managers pursue retaining more surplus funds through the tax avoidance strategy for enterprise expansion or private interests. There is a complementary relationship between tax avoidance and the CEO’s rent-seeking (Desai & Dharmapala, 2006; Hanlon & Heitzman, 2010). Executives without adequate supervision will take radical tax avoidance decisions to seek private interest, and rent-seeking behavior will further enhance executives’ willingness and ability to implement tax avoidance transactions. The cash flow generated by tax avoidance is a supplement to executive compensation. Desai and Dharmapala (2006) find that if the compensation is increased, the degree of tax avoidance will be reduced. Managers tend to take aggressive tax avoidance if incentive contracts don’t work. Laguir et al. (2015) confirm that CEOs with more power will implement more radical tax avoidance strategies and seize more private interests accordingly. Therefore, CEOs are willing and able to manipulate profits by taking tax avoidance activities.

Compared with corporate misconduct, tax avoidance activity may have little impact on the company’s reputation. Unlike accounting fraud, tax avoidance is mostly legal or belongs to the gray area of tax law. The risks involved in tax avoidance may differ from other risks faced by companies (such as liquidity, competition, and continued operation risks). Therefore, the impact of tax avoidance on corporate reputation is not essential. Gallemore et al. (2014) studied the possibility of CEO turnover after tax avoidance participation has been publicly disclosed. They find no evidence of an increase in CEO turnover when the company participates in the tax avoidance, which shows that CEOs do not bear the reputation cost due to the choice of tax avoidance policies.

From the perspective of reducing agency costs and CEOs’ interests, CEOs are more willing to avoid taxes. Failure to participate in tax avoidance may result in the CEO unable to achieve the after-tax profit target and increase the possibility of dismissal. Therefore, this paper put forward the second hypothesis:

H1B: The possibility of forced CEO turnover increases when the effective tax rates related to peer companies are high.

From the property rights theory, there are great differences between state-owned and non-state-owned enterprises, which also brings about different effects of tax avoidance on CEO turnover. Shareholders have additional requirements for tax planning in state-owned enterprises.

SOEs have commercial and public welfare characteristics. The goals of SOEs are not only to increase corporate wealth but also to undertake social responsibilities such as economic development and social stability. To achieve social goals, state-owned enterprises must bear more tax expenses to maintain the strength of the national tax revenue. The ownership and control of SOEs belong to the government. The government directly affects SOEs. The government requires state-owned enterprises to bear more tax expenses through administrative approaches. At the same time, the government controls the assessment, appointment, and removal of CEOs of SOEs. To keep the position or favor the government, CEOs have the incentive to bear more taxes to ensure the stability of fiscal income and increase the reputation value of the enterprise.

Unlike state-owned enterprises, the goal of non-state-owned enterprises is to maximize the company’s value. They have higher incentives for tax avoidance to reduce tax costs, retain more cash flow in the enterprise, and increase shareholders’ value. The non-state-owned enterprises bear less social responsibility, and the public is less critical of them in tax avoidance. Therefore, compared with

state-owned enterprises, CEOs pay less tax to the government and benefit shareholders, which are less likely to be fired in non-state-owned companies.

From managers' view, CEOs in state-owned enterprises are often administrative appointments that bear many administrative responsibilities. In contrast, CEOs of non-state-owned enterprises are agents elected by the board of directors. The differences make them have different attitudes towards corporate tax avoidance.

State-owned enterprises face greater public pressure than non-SOEs when they fail to fulfill their social responsibilities (Kao et al., 2018). Besides, public pressure may bring huge political and reputation costs (Dyrenge et al., 2016). When SOEs engage in tax avoidance activities, it not only cannot meet the government's objectives but also damages the public image of state-owned enterprises. Based on the above analysis, this paper puts forward the second hypothesis.

H2: Compared with non-SOEs, tax avoidance in state-owned enterprises significantly impacts forced CEO turnover.

4. Research design

Our sample is companies listed on both the Shanghai Stock Exchange (SHSE) and the Shenzhen Stock Exchange (SZSE) from 2010 to 2018. The main reason for the sample period beginning in 2010 is that China implemented the new enterprise income tax law in 2008. Revising the new income tax law has reduced the maximum enterprise income tax rate from 33% to 25%. Therefore, it is expected that the implementation of this policy in 2008 will significantly affect the tax avoidance of enterprises. In addition, the global financial crisis that started in 2008 partially impacted China's economy, leading to the fluctuation of national policy. In short, to avoid the impact of the new income tax law and the global financial crisis, this paper takes 2010 as the starting year of the research sample.

Next, the samples are screened as follows steps:

1. Remove the samples whose pre-tax accounting profit is less than or equal to zero.
2. Remove the abnormal samples whose income tax expense is less than or greater than pre-tax accounting profit.
3. Delete the abnormal samples whose debt cost is less than or greater than one.
4. Exclude firms with incomplete information on the key variables.
5. Delete the listed companies in the financial industry because the accounting standards in the financial industry are different from other industries, and the relevant indicators are not comparable.
6. Delete companies marked as ST or * ST because of irregularities and negative profits for two or three consecutive years.
7. Excluding the samples with an abnormal income tax rate (the actual income tax rate is less than 0 and greater than 1).

The research data comes from the CSMAR database. In addition, all variables are winsorized at the 1% and 99% levels. In 2010–2018, there are 11,000 firm-year observations.

To test whether tax avoidance will affect the probability of forced CEO turnover, this paper uses Linear probability models (LPM) to test the hypothesis (Chang & Wong, 2009):

$$\begin{aligned} \text{Forced CEO turnover}_{i,t+1} = & \alpha + \beta_1 \text{tax indicator}_{i,t} \\ & + \beta_2 \text{Control Variables}_{i,t} + I_j + T_t + \varepsilon_{i,t} \end{aligned} \quad (1)$$

This paper estimates the model (1) and gives the results of ETR, CASH_ETR, BTD, and DDBTD, respectively. Control variables can be divided into two aspects. This paper uses (Duality structure and CEO's tenure) variables to control the characteristics of CEOs (Shivdasani and Kang, 1995). This paper controls firm characteristics through capital structure, corporate size, and companies' ownership. This paper also controls for three firm characteristics: capital structure, size, leverage, and the ownership of the largest shareholders (Armstrong et al., 2012). This paper uses the accounting performance indicator (ROA) to measure profitability. The dummy variable (State) indicates whether state or private shareholders control a listed firm. This paper calculates industry-adjusted returns (AR) as the firm's industry-adjusted annual stock return (including dividends) (Hubbard et al., 2017).

4.1. TO_FORCE

There were 1,701 CEO turnovers during the sample period. In table 1, there are 12 reasons for CEO turnover, which are provided by the CSMAR database. Change of job is taking up the highest part, accounting for 28.81% of the turnover. The second is contract expiration, which represents 27.81%, and the third is personal reasons (12.17%). Only 0.76% falls in the dismissal category. This paper reclassifies reasons for job changes, resignations, personal reasons, and reasons not given (Firth et al., 2006). Other turnovers are normal except if the CEO is less than 60 years old and the stated reason is retirement. This paper classifies this turnover as forced (Huson et al., 2004). Table 2 summarizes the reasons for forced and normal CEOs turnover and the corresponding frequency. By reexamining 958 cases (the combination of job changes, resignations, personal reasons, and reasons not given) through a search for CEO resumes, 432 cases are not forced. Of those, 241 cases remain as board chairman or vice-chairman, and 191 are promoted (186 CEOs were promoted as chairman or vice-chairman; 5 CEOs became government officials). This paper classifies the remaining 526 cases as forced turnover. These included 78 CEOs who accepted new positions ranked lower than the CEO position and 448 cases without any traceable destination information. In conclusion, 1154 normal turnover events accounted for 67.84% of the total and 516 cases of forced turnover (32.16%).

Table 1. Reasons for CEO turnover presented in CSMAR database.

Reasons	Freq.	Percent
Change of job	490	28.81%
Retirement	46	2.70%
Contract expiration	473	27.81%
Change in controlling shareholders	3	0.18%
Resignation	160	9.41%
Dismissal	13	0.76%
Health	34	2.00%
Personal reasons	207	12.17%
Corporate governance reform	94	5.53%
Legal disputes	4	0.24%
Completion of acting duties	76	4.47%
No reason given	101	5.94%
Total	1701	100.00%

Table 2. Classification of CEO turnover.

Reasons for turnover	Number of observations	Frequency (%)
1.Normal turnover	1154	67.84%
Retirement	38	2.23%
Contract expiration	473	27.81%
Change in controlling shareholders	3	0.18%
Health	34	2.00%
Corporate governance reform	94	5.53%
Legal disputes	4	0.24%
Completion of acting duties	76	4.47%
Important government position taken up	5	0.29%
Remaining as board chairman or vice chairman	241	14.17%
Promoted to board chairman or vice chairman	186	10.93%
2. Forced turnover	547	32.16%
New position ranked lower than CEO position	78	4.59%
retirement ageless than 60	8	0.47%
Dismissed	13	0.76%
Information unavailable	448	26.34%
Total number of observations	1701	100.00%

Table 3. Variable definitions.

Variables	Variables Name	Definition
Independent Variables	ETR	ETR equals tax expenditure to pre-tax income
	CASH_ETR	CASH_ETR means cash tax payment to pretax income
	BTD	Book-tax difference (BTD) means that the total differences between book and taxable incomes.
	DDBTD	DDBTD means a measure of unexplained total book-tax differences
Dependent Variables	TO_FORCE	TO_FORCE is a dummy variable that equals 1 if there was a forced turnover and 0 otherwise.
Control Variables	STATE	If a firm has a greater percentage of state shares, State takes the value of 1, and 0 otherwise.
	TENURE	Tenure indicates that the number of years that a CEO has served in a listed firm.
	SIZE	Size means the size of a listed firm, measured as the natural logarithm of the book value of total assets.
	AR	Firm's industry-adjusted annual stock return (including dividends)
	DUALITY	Duality is used to measure whether the CEO is concurrently as a chairman. It is a dummy variable. The value 1 if the CEO and the Chairman of the Board of Directors are the same person, and 0 otherwise.
	LEV	Leverage is defined as total liabilities divided by total assets.
	ROA	ROA=after tax profit/ total assets

4.2. Tax indicators

Hanlon and Heitzman (2010) find that there are many approaches to measure tax avoidance to ensure the robustness of research conclusions. This paper uses four measures from the balance sheet dimension and cash flow statement dimension: effective tax rate (ETR), cash effective tax rate (CASH_ETR), book-tax difference (BTD), and discretionary book-tax difference (DDBTD). They are the core variables in the study of tax avoidance and have been used in many studies (Li et al., 2019). They conclude that a higher ETR or cash-ETR indicates lower tax aggressiveness, while a higher BTD and DDBTD indicate a higher tax avoidance.

4.3. Effective tax rate

Effective tax rate (ETR) is the simplest measure used by many scholars (Bertrand and Schoar, 2003; Richardson and Lanis, 2012). The lower ETR reflects the lower tax expenditure caused by tax avoidance (Blaylock et al., 2012).

$$ETR_{it} = \text{income tax expense} / (\text{pre} - \text{tax income}) \quad (2)$$

4.4. Cash-ETR

Our second measure is Cash-ETR which reflects firms' actual cash tax payments for a given level of pre-tax income (Chyz & Gaertner, 2017; Coles & Hoi, 2003; Lanis & Richardson, 2012).

$$CASH_ETR_{it} = \text{cash tax payment} / (\text{pre} - \text{tax income}) \quad (3)$$

4.5. Book-tax difference

Book-tax difference (BTD) refers to the difference between book accounting profit and the taxable income declared to the tax authority, which was proposed by Plesko (2003). The larger the BTD, the greater the difference between the accounting profit and the taxable income (Desai & Dharmapala, 2006).

$$TD = (\text{pre} - \text{tax income} - \text{taxable income}) / (\text{total asset}) \quad (4)$$

$$CTaxable\ income = (\text{Income tax expense} - \text{deferred income tax expense}) / (\text{Nominal income tax rate}) \quad (5)$$

4.6. Discretionary book-tax difference

Discretionary book-tax difference (DDBTD) are the residuals from the following model (8) (Desai & Dharmapala, 2006). DDBTD can more accurately measure and reflect tax avoidance behavior. DDBTD can be calculated from the model (8). $TACC_{it}$ is total accruals profit scaled by total assets; u_i is the average value of the residual for firm i over the sample period; $\varepsilon_{i,t}$ and is the deviation in year t from firm i 's average residual u_i . The residual from this regression (DDBTD) can

be used as a tax avoidance measure. DDBTD represents the part of the BTD that cannot be explained by accrued profit.

$$CTACC = (\text{profit} - \text{cash flow from operating activities})/\text{total asset} \quad (6)$$

$$BTD_{it} = \alpha * TACC_{it} + u_i + \varepsilon_{i,t} \quad (7)$$

$$DDBTD = u_i + \varepsilon_{i,t} \quad (8)$$

5. Empirical results

5.1. Descriptive statistics

Table 4 presents descriptive statistics. The average length of tenure is 5.286 years. Duality is not a common feature of the corporate governance structure in listed companies; only 27.2% of the CEOs also serve as the board's chairman.

Table 4. Describe statistics.

Variables	Number	Mean	Standard Deviation	Minimum	Median	Maximum
Panel A: Control variables						
STATE	11000	0.338	0.473	0	0	1
TENURE	11000	5.286	2.837	0	4.984	21.19
SIZE	11000	22.13	1.254	19.99	21.95	25.74
AR	11000	0.0630	0.523	-1.437	-0.0210	16.95
LEV	11000	0.392	0.198	0.0510	0.382	0.818
ROA	11000	0.0620	0.0380	0.00900	0.0530	0.193
DUALITY	11000	0.272	0.445	0	0	1
Panel B: Performance variables						
TO FORCE	11000	0.0270	0.163	0	0	1
ETR	11000	0.171	0.0710	-0.0110	0.158	0.365
CASH_ETR	11000	0.523	0.222	-0.00500	0.503	0.990
BTD	11000	0.00700	0.0270	-0.0580	0.00300	0.102
DDBTD	11000	0.00500	0.0270	-0.0660	0.00300	0.0920

Note: Variable definitions: ETR equals tax expenditure to pre-tax income. CASH_ETR means cash tax payment to pretax income. Book-tax difference (BTD) means that the total differences between book and taxable incomes. DDBTD means a measure of unexplained total book-tax differences. TO_FORCE is a dummy variable that equals 1 if there was a forced turnover and 0 otherwise. STATE presents a firm has a greater percentage of state shares, State takes the value of 1, and 0 otherwise. Tenure indicates that the number of years that a CEO has served in a listed firm. SIZE means the size of a listed firm, measured as the natural logarithm of the book value of total assets. AR presents firm's industry-adjusted annual stock return (including dividends). DUALITY is used to measure whether the CEO is concurrently as a chairman or not. It is a dummy variable. The value of concurrent is 1, otherwise it is 0. LEV is defined as total liabilities divided by total assets. ROA equals after tax profit divided total assets.

5.2. Correlations

The Pearson correlation coefficient between the main variables is shown in Table 5. In the table, “*, **, ***” indicate the significance levels at 10%, 5%, and 1%, respectively. It can be seen from the table above:

(1) The correlation coefficient between the effective tax rate (ETR) and forced CEO turnover (TO_FORCE) is -0.024 , the correlation coefficient between CASH_ETR and TO_FORCE is -0.039 , and the correlation coefficient between BTD (DDBTD) and TO_FORCE is 0.043 and 0.037 , respectively and significant at the 1% level. The results indicate that the higher the tax rate, the lower level of tax avoidance, and the CEO is unlikely to be fired, which is consistent with hypothesis 1A.

(2) The correlation coefficient between the STATE and the effective tax rate (ETR) and CASH_ETR is 0.13 and 0.103 , respectively, and is significant at 1%. The results indicate that the effective tax rate in state-owned enterprises is higher than that of non-state-owned enterprises, which is consistent with hypothesis 2.

Table 5. Pearson correlation coefficients.

VARIA BLES	STAT E	TEN URE	SIZE	AR	LEV	ROA	DUA LITY	TO FORCE	ETR	CASH _ETR	BTD	DDB TD
STATE	1											
TENUR E	0.100 ***	1										
SIZE	0.359 ***	0.038 ***	1									
AR	-0.01 1	0.001	-0.03 4***	1								
LEV	0.293 ***	0.022 **	0.554 ***	0.051 ***	1							
ROA	-0.10 2***	0.004	-0.12 1***	0.044 ***	-0.34 7***	1						
DUALI TY	-0.28 6***	0.011	-0.19 3***	0.021 **	-0.14 8***	0.030 ***	1					
TO FORCE	0.049 ***	-0.11 8***	0.056 ***	-0.00 2	0.037 ***	0.002	-0.02 5***	1				
ETR	0.130 ***	0.018 *	0.200 ***	-0.02 2**	0.226 ***	-0.13 8***	-0.07 4***	-0.024* *	1			
CASH_ ETR	0.103 ***	0.041 ***	0.129 ***	-0.04 6***	0.220 ***	-0.28 5***	-0.06 6***	-0.039* **	0.29 5***	1		
BTD	0.020 **	-0.00 2	-0.05 3***	0.006	-0.11 4***	0.297 ***	-0.01 6*	0.043** *	-0.4 96**	-0.286 ***	1	
DDBTD	0.030 ***	-0.00 8	-0.02 7***	0.011	-0.09 4***	0.215 ***	-0.01	0.037** *	-0.3 92**	-0.212 ***	0.788 ***	1

Note: This table reports Pearson correlation coefficients for the full sample. Forced CEO Turnover is measured at t+1

period, while all other variables as measured at t. *, **, *** Denote statistical significance at the 10 percent, 5 percent, and 1 percent levels, respectively, for one-tailed tests examining forced turnover quintiles, and two-tailed otherwise.

This paper calculates the variance inflation factors (VIF) for each independent variable to ensure multi-collinearity is not a problem. The VIFs do not exceed 2, suggesting that our models are not prone to multi-collinearity problems. After descriptive statistical analysis and the Pearson correlation coefficient test, we have a preliminary understanding of the relationship between tax rates and forced CEO turnover. This paper also conducts regression analysis to test the correctness of the hypothesis.

5.3. Regression analysis

Table 6 shows the regression results in LPM regression. The regression coefficient between the effective tax rate (ETR) and forced CEO turnover (TO_FORCE) is -0.1298 , between CASH_ETR and TO_FORCE, is -0.0367 , between BTD (DDBTD) and TO_FORCE, is 0.2422 (0.2357) and significantly above the 1% level. The results indicate that the lower the effective tax rate (cash effective tax rates), the higher the degree of corporate tax avoidance and the higher likely forced CEO turnover, which verifies hypothesis 1A, according to Gaertner (2018), I also conducted the linear Probability Model with year and industry fixed effects, and the result is consistent with hypothesis 1A.

Table 6. LPM in full sample.

	TO_FORCE	TO_FORCE	TO_FORCE	TO_FORCE
FULL SAMPLE	-1	-2	-3	-4
STATE	0.0107 (0.6448)	0.0114 (0.6878)	0.0115 (0.6882)	0.0119 (0.7132)
TENURE	-0.0176*** (-6.3830)	-0.0176*** (-6.3762)	-0.0176*** (-6.3799)	-0.0177*** (-6.3921)
SIZE	0.0210*** (3.5542)	0.0193*** (3.1971)	0.0213*** (3.6436)	0.0214*** (3.6496)
AR	-0.0016 (-0.5409)	-0.0018 (-0.6053)	-0.0012 (-0.3929)	-0.0012 (-0.4090)
LEV	-0.0354* (-1.7702)	-0.0335* (-1.6652)	-0.0354* (-1.7835)	-0.0352* (-1.7654)
ROA	0.1383* (1.6946)	0.0718 (0.7943)	0.1115 (1.33)	0.1410* (1.7522)
DUALITY	0.0277*** (3.8023)	0.0274*** (3.7483)	0.0279*** (3.8436)	0.0279*** (3.8467)
ETR	-0.1298*** (-3.6580)			
CASH_ETR		-0.0367** (-2.5172)		
BTB			0.2422*** (2.6327)	
DDBTD				0.2357**

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	TO_FORCE	TO_FORCE	TO_FORCE	TO_FORCE
				(2.4282)
_cons	-0.3411*** (-2.7059)	-0.3047** (-2.3459)	-0.3732*** (-3.0227)	-0.3749*** (-3.0355)
Year	Yes	Yes	Yes	Yes
N	10695	10695	10695	10695
adj. R2	0.022	0.022	0.022	0.022
F	10.8687	10.7843	10.9043	10.7655

Note: This table reports results for our main tests examining the effect of taxes on forced CEO turnover using a Linear Probability Model. Regression coefficients and standard errors are reported side-by-side. Forced CEO Turnover is measured as year t+1, while all other variables as measured at t. *, **, *** Denote statistical significance at the 10 percent, 5 percent, and 1 percent levels, respectively, for one-tailed tests examining forced turnover quintiles, and two-tailed otherwise.

The empirical test in table 6 confirms the relationship between corporate tax avoidance and forced CEO turnover. In China, state-owned enterprises occupy an essential part of listed companies. It is necessary to distinguish the nature of property rights to explore the difference between SOEs and non-SOEs. Therefore, an empirical test of hypothesis 2 is carried out. Table 7 shows that in state-owned enterprises, the effective tax rate (ETR) and CASH-ETR are negatively correlated with TO_FORCE and are significant at the 1% level, BTD (DDBTD) is significantly positively correlated with TO_FORCE and significant at the 1% level. Compared with SOEs, table 7 shows that the relationship between tax rates and forced CEO turnover is not significant in non-state-owned enterprises, which is consistent with Hypothesis 2. Table 7 shows that the lower the effective tax rate of the state-owned enterprise group, the higher the degree of corporate tax avoidance, and the greater the possibility of mandatory CEO turnover.

Table 7. Differences between SOEs and non-SOEs.

VARIABLES	ETR	CASH_ETR	BTD	DDBTD
(1) Estimating using LPM full sample	-0.1298*** (-3.6580)	-0.0367** (-2.5172)	0.2422*** (2.6327)	0.2357** (2.4282)
(2) Estimating using LPM in SOEs	-0.3752*** (-5.4373)	-0.1615*** (-5.4374)	0.8919*** (4.2166)	1.0125*** (4.4485)
(3) Estimating using LPM in non-SOEs	0.0187 (0.4845)	0.0279* (1.711)	-0.0162 (-0.1649)	-0.0906 (-0.9075)

Note: This table reports results for our main tests examining the effect of taxes on forced CEO turnover using a Linear Probability Model in SOEs. Regression coefficients and standard errors are reported side-by-side. Forced CEO Turnover is measured as year t+1, while all other variables as measured at t. *, **, *** Denote statistical significance at the 10 percent, 5 percent, and 1 percent levels, respectively, for one-tailed tests examining forced turnover quintiles, and two-tailed otherwise.

6. Robustness tests

In this subsection, this paper performs a series of additional tests to ensure the robustness of our results.

6.1. Logit

This paper also conducts a logit model to support hypothesis, which shows in table 8. The result is consistent with the LPM model.

6.2. Changes of tax rates after forced CEO turnover

If low taxes played a role in the CEO's firing, we expect these trends to be reversed under new management. There is a positive relationship between ETR (CASH_ETR) and TO_FORCE. The results are shown in Table 9, which shows that tax rates increase following forced turnover.

6.3. Falsification tests

This paper conducts a falsification test to ensure primary results are not spurious or the result of correlated omitted factors generally inherent to CEO turnover. Specifically, we re-estimate our main tests after substituting Unforced CEO Turnover for Forced CEO Turnover. According to table 2, we obtain 1,154 normal CEO turnover cases, which are unlikely to result from organizational stress or crisis that drives board action to deliberately change its leader or firm strategy (Fee et al. 2013). The results of our falsification test (reported in Table 8) support our hypotheses, as UNFORCED CEO turnover is not significantly positively related to tax indicators.

Table 8. Changes of tax rates after forced CEO turnover.

	1	2	3	4
	L_ETR	L_CASH-ETR	L_BTD	L_DDBTD
TO_FORCE _{i,t}	0.0069* (1.7315)	0.0246** (2.156)	-0.0019 (-1.0279)	-0.0003 (-0.1805)
STATE	0.0098 (0.6486)	-0.0067 (-0.1502)	-0.0005 (-0.1005)	-0.0023 (-0.4048)
TENURE	0.0019** (2.1588)	0.0045 (1.635)	-0.0004 (-1.0863)	-0.0004 (-0.8619)
SIZE	0.0004 (0.0943)	-0.0221* (-1.7563)	0.0044*** (2.6232)	0.0031** (2.0427)
AR	0.0019 (1.6394)	0.0221*** (5.258)	0 (0.0386)	-0.0002 (-0.3228)
LEV	0.0227 (1.5997)	0.0973** (2.0645)	-0.0173*** (-2.6054)	-0.0116* (-1.7497)
ROA	-0.0186 (-0.4072)	-0.8015*** (-5.2415)	0.0256 (1.0307)	0.0163 (0.6055)
DUALITY	0.0019	-0.01	-0.0003	-0.0003

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	1	2	3	4
	L_ETR	L_CASH-ETR	L_BTD	L_DDBTD
	(0.5568)	(-0.8947)	(-0.2065)	(-0.1783)
_cons	0.1373	0.9372***	-0.0852**	-0.0600*
	(1.6327)	(3.4538)	(-2.3821)	(-1.8613)
Year	Yes	Yes	Yes	Yes
N	4478	4478	4478	4478
adj. R2	0.008	0.046	0.132	0.099
F	2.0282	8.3209	24.8909	19.0775

Note: This table reports ETR, CASH_ETR, BTD and DDBTD for firms experiencing forced turnover. Forced CEO Turnover is measured as year t+1, while all other variables as measured at t. *, **, *** Denote statistical significance at the 10 percent, 5 percent, and 1 percent levels, respectively, for one-tailed tests examining forced turnover quintiles, and two-tailed otherwise.

Table 9. Falsification test.

	1	2	3	4
	L_UNFORCED	L_UNFORCED	L_UNFORCED	L_UNFORCED
STATE	-0.0298	-0.0294	-0.0294	-0.0299
	(-0.9138)	(-0.9018)	(-0.9003)	(-0.9137)
TENURE	-0.0345***	-0.0345***	-0.0345***	-0.0345***
	(-9.5848)	(-9.5886)	(-9.5881)	(-9.5822)
SIZE	0.0406***	0.0407***	0.0406***	0.0408***
	(5.1558)	(5.1379)	(5.1494)	(5.171)
AR	-0.0076*	-0.0075*	-0.0075*	-0.0074*
	(-1.7271)	(-1.7070)	(-1.7235)	(-1.7013)
LEV	-0.0328	-0.0332	-0.0332	-0.0322
	(-1.0483)	(-1.0583)	(-1.0596)	(-1.0295)
ROA	0.0045	0.0198	0.0215	-0.0121
	(0.0422)	(0.1598)	(0.1897)	(-0.1102)
DUALITY	-0.0656***	-0.0657***	-0.0657***	-0.0655***
	(-5.6541)	(-5.6524)	(-5.6556)	(-5.6363)
ETR	-0.0238			
	(-0.4681)			
CASH_ETR		0.0023		
		(0.1101)		
BTD			-0.029	
			(-0.2183)	
DDBTD				0.138
				(0.8947)
_cons	-0.6422***	-0.6509***	-0.6464***	-0.6513***
	(-3.8747)	(-3.8599)	(-3.9021)	(-3.9299)
Year	Yes	Yes	Yes	Yes
N	10695	10695	10695	10695
adj. R ²	0.04	0.04	0.04	0.04
F	31.8288	31.8529	31.8545	31.8211

Note: This table reports results for our falsification tests examining the effect of taxes on unforced CEO turnover using a Linear Probability Model. Regression coefficients and standard errors are reported side-by-side. Forced CEO Turnover is measured as year $t+1$, while all other variables as measured at t . *, **, *** Denote statistical significance at the 10 percent, 5 percent, and 1 percent levels, respectively, for one-tailed tests examining forced turnover quintiles, and two-tailed otherwise.

7. Conclusions

Therefore, this paper analyzes the impact of corporate tax avoidance on CEO turnover. This paper finds a negative relationship between tax rates and forced CEO turnover. Listed companies with lower tax rates will cause social concern, leading to public doubts and inspections by tax authorities, which will further damage the company's reputation. CEO turnover is the quick and easy way to respond to public accusations. This paper also finds that SOEs undertake more social responsibilities than non-SOEs. The main contributions of this paper are as follows: From the theoretical perspective, this paper conducts systematic research on corporate tax avoidance and CEO turnover and analyzes the relationship under different ownerships. In practice, this paper puts forward relevant policy recommendations for the long-term development of enterprises and social responsibilities.

Conflict of interest

All author declares no conflicts of interest in this paper.

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