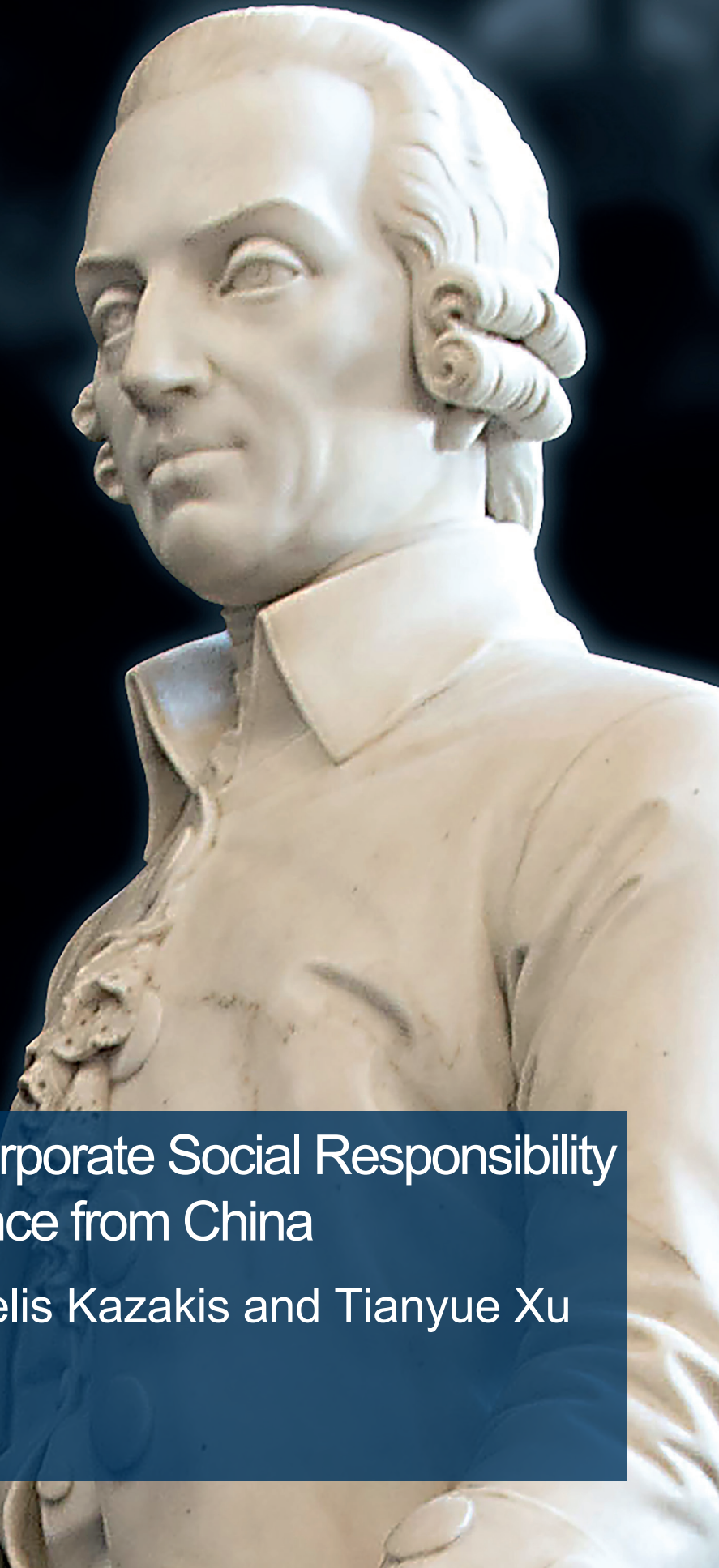




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& Tax Avoidance: Evidence from China

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Paper no. 2021-18
November 2021

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22 November 2021

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Overconfident CEOs, Corporate Social Responsibility & Tax Avoidance: Evidence from China

Abstract

CEO overconfidence is a significant factor in corporate decisions. We investigate whether CEO overconfidence affects the relationship between corporate social responsibility (CSR) and tax avoidance using a dataset of Chinese listed companies. We find that firms with higher CSR scores avoid paying more taxes. This relationship is moderated, however, by CEO overconfidence. While firms with higher CSR scores avoid more taxes on average, those led by overconfident CEOs avoid less. We contend that overconfident CEOs are less likely to use CSR strategically to mitigate risk. Our conclusion stands up to a battery of sensitivity tests, including the use of CSR sub-dimensions.

Keywords: Corporate social responsibility; Tax avoidance; CEO overconfidence.

JEL codes: G30, H26

1 Introduction

Tax revenue is the primary funding source for public services, but it is also an expense for companies. As a result, many companies risk damaging their reputation and harming stakeholders by implementing various tax avoidance strategies to maximise profits. Corporate Social Responsibility (CSR), a complex mix of social obligations that companies accept as part of their corporate citizenship role, is built on ethical performance. CSR began as a concept in Western economies and has been transformed into a more systematic mechanism over time.

Previous literature focuses mainly on the relation between corporate tax planning and overall CSR with the results being highly debated. Moreover, we still know little regarding the various subcomponents that potentially disclose the nature of this complicated relation. For example, the KLD index, which is widely used to examine CSR-tax avoidance relationships in the United States, focuses on non-shareholder concerns such as corporate governance, employee, customer, community, diversity, human rights, product, and environmental protection (e.g., Hoi et al., 2013; Watson 2015). However, it is unclear whether some of the CSR components from the Western concept are directly applicable to countries with different market mechanisms, such as socialist market economies.

In this paper we examine the effect that chief executive officers' (CEOs) overconfidence, has on the relation between corporate tax planning and overall CSR. Then, we examine the way that each subcomponent of CSR is moderated by CEO overconfidence to identify those specific stakeholders that are crucially affected by overconfident CEOs. As the primary leader of a modern company, CEOs play a critical role in corporate strategic decisions and resource allocation. The upper echelons theory suggests that corporate behaviour is not always determined solely by economic factors, and manager characteristics also play a significant role (Hambrick and Mason, 1984). Overconfidence, as one of the common forms of psychological factors, is particularly noticeable in managers. Overconfident CEOs are prone to exaggerating

their abilities and expecting unrealistic outcomes (Bhandari and Deaves, 2006; Taylor and Brown, 1988; Weinstein, 1980). Such behaviour leads them to make more risky tax avoidance decisions (Hsieh et al., 2018; Olsen and Stekelberg, 2016). Previous research suggests that overconfident CEOs are more engaged in CSR activities when they desire media attention and fame (Petrenko et al., 2016), but are less involved when prioritising profitable investments over CSR activities (Al-Shammari et al., 2019; Chatterjee and Hambrick, 2007). Thus, how CEO overconfidence affects the relationship between CSR and tax avoidance remains an open question. To this end, this study examines why and how CEO overconfidence can affect the relation between CSR investment and tax avoidance.

We investigate this question in the Chinese context, which we argue it presents several advantages. First, the Chinese economic system is based on a socialist market economy whose major characteristics is the presence of both public and state ownership. Under such a system, the role of the government in promoting CSR is indispensable. The Chinese government has implemented several policies to encourage companies to be transparent about their social commitments. For example, in 2006, the Shenzhen Stock Exchange published "Guidelines on Social Responsibility for Listed Companies" to guide listed companies in developing effective social responsibility codes and publicising CSR reports (Noronha et al., 2013). Later, in the "Notice on Strengthening Social Responsibility of Listed Companies" in 2008, the Shanghai Stock Exchange suggested that listed companies should consider non-commercial contributions to stakeholders while pursuing economic benefits and protecting shareholder interests (SSE Shanghai Stock Exchange, 2008).

Second, the presence of many state-owned enterprises (SOEs), which account for a large proportion of Chinese public companies, is a distinguishing feature of the Chinese economy. SOEs are public-private partnerships that are funded by the state or government. Their primary function is to maximise societal resources while protecting societal rights. SOEs are

encouraged to take the lead in actively assuming social responsibility, reducing their incentives to engage in tax evasion (Bradshaw et al., 2019; Gao, 2009). Thus, considering the presence of many SOEs, we can examine another dimension of the relationship between CSR strategies and tax avoidance. Third, China is in a unique phase of transition to a market economy. The Chinese government has implemented several preferential policies for companies, such as providing government subsidies, lowering the entry threshold for some industries, and allocating superior resources to stimulate economic development. Because of this, the success some firms have might be perceived as a result of superior ability by overconfident managers. Such an outcome, however, may lead to bias in decision-making. Hence, we take advantage of the role of Chinese national conditions to examine how CEO overconfidence affects the relationship between CSR and tax avoidance.

Although Chinese listed firms have been facing growing pressure to be transparent to the public, their primary motivators for engaging in CSR activities are external pressure and regulatory compliance (Marquis and Qian, 2014). The rapid development of China has resulted in an uneven pattern and a flawed institutional framework. Companies might use these institutional flaws to their advantage. They aim to alleviate public concerns about unethical behaviour by investing in ethical capital and signalling that they care about their shareholders and stakeholders. Hence, some Chinese listed firms may choose to window dress their tax avoidance behaviour through CSR, pursuing profit while portraying a socially responsible image.

In our analysis, we use a panel dataset of Chinese A-share-type companies for the period 2010 to 2019. Accounting and financial variables are drawn from the China Stock Market and Accounting Research (CSMAR) database, while corporate social responsibility information is taken from HEXUN CSR database. The integrated CSR scores are rated based on five sub-CSR dimensions (shareholder responsibility, societal responsibility, environmental responsibility,

supplier, customer and consumer rights responsibility, and employee responsibility). We use the GAAP effective tax rate (ETR) and current ETR to capture the extent of corporate tax avoidance.

We first document that CSR and tax avoidance are positively and significantly associated. Socially responsible Chinese listed firms are more likely to use CSR strategically to cover their tax avoidance behaviour, in line with the risk-management perspective proposed by Abdelfattah & Aboud (2020), Huseynov & Klamm (2012), Watson (2015), and (Hasan et al., 2019). Importantly, the positive relationship between CSR and tax avoidance we document, is significantly weakened in the presence of overconfident CEOs. That is, although overconfident CEOs might be more likely to avoid corporate taxes, this is not happening via higher CSR. When their firm is committed to CSR activities, corporate tax avoidance decreases considerably. This result is robust to alternative tax avoidance and CEOs overconfidence measures. To understand better which stakeholders drive our baseline results, we further investigate the interaction between the different sub-components of the CSR score and CEOs overconfidence. We find that the interaction between each sub-component of CSR and CEO overconfidence is positive throughout our specifications, confirming our baseline results. However, it seems that the interaction between shareholders' responsibility (CSR_{shr}) and CEO overconfidence is 2 – 3 times larger and strongly significant than the rest. Finally, to reduce measurement errors and concerns about endogeneity, we measure firm CSR using the provincial average CSR. Because China is a large country with significant regional heterogeneities, this instrument is a good fit for our analysis.

We advance the literature in several ways. First, in the large debate regarding the relationship between CSR and tax avoidance, we provide new evidence from China, a socialist market economy, with new CSR data. Previous studies on CSR and tax avoidance are mainly done for Western economies and provide mixed results (Davis et al., 2016; Hoi et al., 2013;

Lanis and Richardson, 2015, 2012). Further, although some studies on this topic have utilized Chinese data, they rely heavily on the Rankins CSR scores (RKS), which are based on corporate disclosures (Gulzar et al., 2018; Lin et al., 2017). Such data might be prone to false information. By using HEXUN CSR scores we minimize the discrepancy between CSR reports and CSR performance.

Second, given previous literature's rather mixed findings regarding the relation between corporate tax aggressiveness and CSR, we add to the literature by investigating how CEO's overconfidence affects it. We provide robust evidence that overconfident CEOs significantly moderate the tax avoidance CSR relation. As far as we know, this is the first study that uses CEOs' overconfidence to explain the relationship between corporate tax planning and CSR. Our findings partially reconcile the literature's debated findings and enhance our understanding about corporate tax planning – CSR relation. Our findings show that overconfident CEOs do not use strategically CSR to tax avoid.

Third, we respond to Huseynov & Klamm (2012), who advocate for the use of several components of CSR to assess the relationship between CSR and tax avoidance. We provide evidence that the subcomponent that mainly drives our baseline results is the shareholders' responsibility. Its interaction with CEO overconfidence consistently provides as the stronger finding in terms of economic and statistical significance.

This paper proceeds along the following lines. Section 2 contains a review of the literature. Section 3 outlines our hypotheses. Section 4 discusses the research design and data, while Section 5 presents the findings. Section 6 brings the paper to a close.

2 Literature review

2.1 CSR and tax avoidance

CSR can be broadly defined as the voluntary CSR performance of firms in improving or contributing to the environment and society (Mackey et al., 2007). Although taking on CSR often means compromising the individual interests of the business and its shareholders in the short term, to produce and develop sustainably, firms must obtain various resources from the general social environment (Branco and Rodrigues, 2006). While corporations benefit from society's opportunities, they should assume social responsibility for their economic activities. Therefore, the business behaviour of an enterprise should not only consider economic benefits but also consider whether the corporate behaviour has created benefits for other stakeholders in the entire society.

There have been theoretical and empirical debates in the past about whether firms should consider the interests of stakeholders and act as socially responsible citizens or take the perspective of shareholders and act as an interest maximiser. Even though scholars' conceptions of CSR and tax avoidance differ, the role of CSR in corporate tax avoidance can be seen from two opposing perspectives, namely corporate culture theory and risk management theory.

Tax revenue is the primary source of fiscal revenue for providing public goods and is of great importance to the development of the state and social civilisation. Taxation is seen as necessary and crucial by most people. However, it deprives taxpayers of certain vested interests, leading them to engage in various forms of strategic tax avoidance to avoid paying taxes. Aggressive tax avoidance is common in today's commercial models (Campbell and Helleloid, 2016; Davis et al., 2016). Tax avoidance refers to the behaviour of enterprises that take reasonable measures to reduce their actual tax burden. Companies view tax as an expense that undermines the legitimacy of the tax law (Sikka, 2010). Engaging in tax avoidance reduces the

amount of money available to the government for public construction, causing a significant loss to society.

2.2 The relation of CSR and tax avoidance through the lens of corporate culture

According to the corporate culture perspective, CSR is a shared belief within a business that can influence firm decisions and employee behaviour (Kreps, 1990). Tax avoidance is unethical behaviour and costly to society and also harmful to the long-term viability of businesses (Moser and Martin, 2012). Thus, companies that value corporate culture are likely to devote resources to socially responsible activities that do not necessarily maximise corporate efficiency. Since tax avoidance violates the codes and ideals of an ethical corporate culture, the greater a company's commitment to social responsibility, the more likely it is to pay its fair share of taxes. Lanis and Richardson (2012) use various proxies for tax avoidance and support the negative and significant relationship between CSR and tax avoidance from Australian listed firms. Lanis and Richardson (2015) further support this view by using tax disputes as a direct tax measure to improve the index of tax avoidance. Likewise, Hoi et al. (2013) using a US sample, find that companies with low social responsibility levels are associated with higher tax avoidance levels.

Moving away from western countries, Lin et al. (2017) conducted a study on this issue and the effect of the institutional environment based on self-reported and unverified CSR information. Their results suggest that Chinese listed firms in higher institutional regions pay a fair share of taxes because they have higher social responsibility. Mao and Wu (2019) revealed a negative indirect and unconditional effect of CSR on tax avoidance in Chinese listed firms, suggesting that CSR performance reduces profitability and result in less tax avoidance. Liu and Lee (2019) partition Chinese firms into subgroups of state-owned and private firms and support a negative relationship between tax avoidance and CSR in state-owned companies due to

government-led policy and regulation. Muller and Kolk (2015) propose that subsidiaries of Indian multinational enterprises (MNE) with a higher reputation for CSR are associated with higher effective tax rates. Mgbame et al. (2017) use Nigeria-listed firms as their sample, indicating the substitute role of CSR in tax avoidance.

2.3 The relation of CSR and tax avoidance through the lens of risk management

Researchers from the perspective of risk management believe that the purpose of CSR is a tool to manage potential risks (Godfrey, 2005; Godfrey et al., 2009). The fulfilment of CSR by enterprises is mostly based on self-interested motives or instrumental motives. On the one hand, companies exercise strategic CSR to generate positive financial returns to maximise stakeholder benefits and abuse the right of agents (Jha and Cox, 2015; Porter and Kramer, 2006). On the other hand, corporates respond to the institutional needs of the public and NGOs by exercising CSR in consideration of organisational legitimacy and establishing a positive image in advance to offset negative publicity (Bebbington et al., 2008; Marquis and Qian, 2014). Therefore, stakeholders will show loyalty to companies that practise CSR and believe that negative events were unintentional actions. Sikka (2010) proposes that even though firms claim to be socially conscious, they avoid tax by projecting the ideal image.

As a result of being socially responsible and gaining public acceptance, risk managers may prefer tax avoidance options and use CSR as a tool to cover for facilitating tax avoidance if the benefits outweigh the costs. By establishing stakeholder relationships in advance, firms can minimise the risk of suffering significant losses if the firms are found to pay fewer taxes. Kotchen and Moon (2012) document that the company has less incentive to fulfil its social responsibilities unless they compensate for economic losses caused by improper business practices. The positive relationship between CSR and tax avoidance was confirmed by Davis et al. (2016) in US firms, indicating the complementary role of tax avoidance in CSR. In

addition, Col and Patel (2019) find that the CSR ratings improve and are associated with a higher level of tax avoidance two years after establishing a subsidiary in a tax haven. Furthermore, Watson (2015) proves that when current or future earnings of firms are low, the motivation of firms to engage in social responsibility activities is to maximise profits, and they will not give up tax avoidance because of social responsibility.

3 Hypothesis development

3.1 CSR investment and tax avoidance in China

The concept and practice of CSR are intertwined with the cultural identity of firms. On the one hand, Confucian culture, the foundation of Chinese culture, instructs people on ethical behaviour. It promotes benevolence, credit, fairness, morality, and sincerity of behaviour and affects the way people think and act, which in turn affects their CSR decisions and economic behaviour (Wang and Juslin, 2009). Moreover, to survive in a harsh and competitive business environment, a company has to take into account the needs and interests of its stakeholders, as well as those of its employees, communities, and the environment (Desai and Dharmapala, 2009).

Consumers pay more attention to firm branding due to the rapid growth of mass media and the growing importance of branding. Thus, it is critical for companies to improve their public image and increase exposure to their brands. Many companies donate a portion of their profits to specific social causes such as environmental protection as a non-marketing CSR strategy to create a positive perception of their brand among consumers and to create an image of being a good citizen among regulators and increase public recognition of the company (Wickert, 2016). In the short term, this will not generate a lot of money for the company, but it will establish a good reputation and a positive image for the company's long-term growth.

Therefore, due to the moral and economic benefits, Chinese corporations have an incentive to engage in socially responsible activities and reduce tax avoidance.

On the other hand, even though Confucian culture favours ethical behaviour, previous studies indicate that tax avoidance is pervasive in Chinese companies. They avoid paying taxes by manipulating revenue, inflating expenses, concealing income, and shifting profits to jurisdictions with lower tax rates (Cai and Liu, 2009; Lin et al., 2012). Albeit the importance of corporate social responsibility in China is gradually increasing, it does not mean that the overall awareness of CSR among Chinese firms has reached a high level. The legitimacy of a company to pursue profit is unquestionable, and CSR compliance is a costly endeavour for companies (Lin et al., 2017). Hence, firms may approach different dimensions of CSR opportunistically to create a superior performance appearance at a lower cost. In addition, participating in socially responsible activities can mitigate the negative consequences of irresponsible behaviour, thereby lowering the overall risk of firms, including tax evasion (Godfrey, 2005). Since CSR disclosure is generally mandatory in China (see e.g., Chen et al., 2018), listed companies are constantly subjected to public scrutiny. It offers more incentives for firms to promote and enhance their good corporate image through CSR strategy.

In addition, the institutional environment constrains firms' socially responsible behaviour (Campbell, 2007). In contrast to fully developed Western markets, the misconduct of corporations in developing countries relies heavily on a flawed institutional environment (Zhao et al., 2014). Thus, the way corporations behave regarding CSR differs depending on the institutional environment. According to Marquis and Qian (2014), the motivation for CSR in the Chinese context is mainly a passive choice due to external pressure and compliance. In other words, firms will not take the initiative to fulfil CSR unless they are facing external pressure or self-interest. Therefore, we argue that the fulfilment of CSR by Chinese listed firms has a self-interested purpose. The situation in Chinese listed firms is consistent with the

instrumental view, disguising their tax avoidance incentives by fulfilling CSR activities and regarding CSR as a risk management tool to hedge the potential negative effect of their tax avoidance behaviour. Based on the above, this paper proposes the following hypothesis:

H1: A higher level of CSR is associated with higher tax avoidance.

3.2 The role of CEO's overconfidence

The upper echelons theory proposes that the heterogeneity of executives will influence corporate organisational activities through a series of personal decision-making and management behaviours, ultimately influencing corporate strategic decisions and performance (Hambrick and Mason, 1984). As a decision-maker of the firm, the CEO has a substantial influence on organisational efforts and behaviour. CEO overconfidence has long been considered a common personality trait among CEOs (Cooper et al., 1988). It is a psychological bias that arises from the exaggerated belief of CEOs in their abilities and knowledge before making a decision (Bhandari and Deaves, 2006). Overconfident CEOs believe that they are better than others and are determined to be excellent and have higher expectations of the company's future returns (Malmendier and Tate, 2005). They are associated with lower dividend pay-out (Deshmukh et al., 2013), more investment and financing activity (Malmendier and Nagel, 2011; Malmendier and Tate, 2005), more aggressive M&A decisions (Malmendier and Tate, 2008) and risk-taking (Kim et al., 2016).

On the one hand, CEOs engage in CSR activities to lessen investor and stakeholder risks, strengthen commercial ties with business partners, and lower operational risk perceptions of the company by investors (Fombrun et al., 2000; Godfrey, 2005). Rational CEOs choose to distribute appropriate benefits to stakeholders through CSR channels to obtain the support of potential future resources of stakeholders.

However, CEOs overconfidence affects their participation in CSR programmes. First, overconfident CEOs are prone to overestimate their actual abilities and the likelihood of success, leading them to believe that they have control over the situation (Hayward and Hambrick, 1997; Li and Tang, 2010). Overconfident executives may underestimate the ability and necessity of stakeholders to provide resources, thus neglecting the exchange of benefits with other stakeholders through CSR channels. Tang et al. (2015), using a sample of S&P firms, show a negative relationship between CSR and CEO overconfidence. According to the authors, more slack firms have less reliance on external resources from stakeholders. Park et al. (2020) find that CEOs believe their capabilities are more crucial than CSR activities in US companies. Thus, overconfident CEOs are less likely to hedge the company's operation risk when they are optimistic about the risk of investment projects (Ben-David et al., 2013; Deshmukh et al., 2013).

On the other hand, McCarthy et al. (2017) document that overconfident CEOs divert resources away from CSR activities due to risk underestimation. Hence, when making decisions based on internal factors, overconfident CEOs may overestimate the available potential resources and their ability, and overlook the CSR safety net provided by the responses from stakeholders, resulting in fewer CSR activities and investments. Hall and Murphy (2002) argue that overconfident CEOs who are more confident about investment projects than outside investors are likely to believe that the capital market undervalues the firm. Thus, overconfident CEOs may focus more on revenue-generating projects but overlook CSR projects that usually generate low immediate cash inflows, which potentially limits CSR project investment.

Furthermore, overconfident CEOs' blind optimism and overestimation of their knowledge may lead them to directly engage in tax avoidance activities as they underestimate tax avoidance costs and magnify the ability and benefits of tax avoidance. Olsen and Stekelberg (2016) document that tax avoidance is positively associated with CEO overconfidence. Likewise, Hsieh et al. (2018) also find that firms with overconfident CEOs and CFOs are more

tax aggressive, and due to the guidance from an overconfident CEO, an overconfident CFO will be more motivated than a non-overconfident CFO to execute companies' tax avoidance policies. Al-Shammari et al. (2019) find that in the content of Indonesian firms, the corporates will engage in more tax avoidance due to the strong policy preference of overconfident CEOs when they make firm decisions. Thus, overconfident CEOs tend to directly avoid tax payments as they generally ignore the constraints of objective conditions and possible risks and adverse consequences in the process of tax planning, and overestimate their ability to control risks and decision-making ability.

In developing countries, CSR decisions heavily rely on the values and beliefs of CEOs (Moon and Shen, 2010). CSR decisions are guided by CEOs as ethical actors, especially when external propellants like citizen mobilisation and regulatory capacity are still lacking. In addition, Chinese policymakers have allocated superior resources to stimulate economic growth. Overconfident CEOs may misjudge the total amount of internal and external potential resources and their ability to deal with resource shortages. They underestimate the role of stakeholders, which makes them less motivated to fulfil their CSR commitments and results in aggressive tax avoidance strategies to boost profits. Thus, overconfident CEOs tend to directly avoid tax payments and do not hedge through CSR activities. With the above in mind, our paper proposes the following hypothesis:

H2: CEO overconfidence moderates the relationship between CSR tax avoidance.

Based on H2, we anticipate that any positive relationship between CSR and tax avoidance resulting from risk management theory will be less potent when firms are led by overconfident CEOs. The reason is that overconfident CEOs are less likely to invest in CSR in the first place and also, they tax avoid directly without “wasting” resources for hedging through CSR.

In what follows, we disentangle how CEO overconfidence interacts with each different dimension of CSR and how this effect correlates with tax avoidance. Previous studies argue that overconfident CEOs are likely to have contradictory views and priorities regarding various stakeholders due to their relevance and importance (De Roeck et al., 2016). Al-Shammari et al. (2019) show that overconfident CEOs are positively and significantly associated with externally-oriented CSR activities, while the relationship between CEO overconfidence and internal-oriented CSR activities is negative and insignificant.¹ Because externally oriented CSR activities provide a channel for overconfident CEOs to meet their need to gain more attention from the audience, they are more likely to allocate more firm resources to external stakeholders to improve their image and maintain their reputation. Therefore, since overconfident CEOs may pursue additional CSR in a specific dimension and each CSR dimension has its defining characteristics, we argue that overconfident CEOs' differing views of each CSR dimension could affect their tax planning.

Shareholder responsibility.—According to principal-agent theory, there is an inconsistency between the benchmark objectives considered by the principal (i.e. shareholders), who seek to maximise profit wealth, and the agent (i.e. CEOs), who seeks to maximise personal welfare and social reputation value (Jensen and Meckling, 1976). The significant information asymmetry between principal and agent provides more opportunities for managers to put self-interested motivations into practice. Compared to rational CEOs, overconfident CEOs have higher optimistic expectations about the firms' future performance and are more risk-taking. Overconfident managers believe they have enough knowledge to control adverse events and are more likely to engage in speculative activities (Malmendier and Tate, 2005). In other words, they believe that only more complex and challenging investment projects can match their

¹ External CSR refers to CSR activities aimed at external stakeholders, such as environmental-oriented activities, community-oriented activities, and philanthropic contributions. Internal CSR activities are defined as responding to employee and diversity needs such as offering training, fair compensation and promotions, and a diverse workplace where minorities and women are treated equally.

superior talent and ability. Tax avoiding without “wasting” money for hedging the risk through CSR is such a case. Therefore, overconfidence helps CEOs reinforce the risk appetite and pursue their personal interests to have opportunistic behaviours that harm shareholders. Based on the above prediction, the hypothesis is formulated as follows:

H2a: CEO overconfidence attenuates the positive relationship between shareholder CSR and tax avoidance.

Societal responsibility.—Although corporate philanthropic giving is an organisational act, decisions on corporate giving are made by the CEO (Buchholtz et al., 1999). Therefore, the behavioural characteristics of managers should play a very crucial role in corporate philanthropic giving (Werbel and Carter, 2002). Societal giving provides an outlet for overconfident CEOs to align their self-interests (Mao and Wu, 2019). Overconfident people usually have a strong desire for expression, power and fame (Wallace and Baumeister, 2002). Overconfident CEOs have a greater incentive to philanthropic giving because they can gain public respect, and satisfy their attention-seeking behaviour. Chatterjee and Hambrick (2007) and Petrenko et al. (2016) show that overconfident CEOs incline to enhance their sense of moral superiority and seek recognition and attention by engaging in more CSR initiatives. Al-Shammari et al. (2019) classified CSR into internal and external oriented activities. They document a significant and positive relationship between external CSR activities but an insignificant relationship between internal CSR activities. Thus, we argue that overconfident CEOs would put more effort into participating in CSR activities related to social charity and donations, hedging the risk of tax avoidance while satisfying their quest for fame and power. We formulate the hypothesis as follows:

H2b: CEO overconfidence amplifies the negative relationship between social CSR tax avoidance.

Employee responsibility. — As overconfident CEOs strongly believe in their ability and excellent problem-solving skills, they show a strong belief in firm prospects. Externally – oriented CSR seems to attract overconfident CEOs, because allow them to gain more attention from the audience, and consequently to improve their image and maintain their reputation (see Al-Shammari et al. 2019). Therefore, we argue that internally – oriented CSR like the employee responsibility, that does not add to their narcissistic tendencies, should not be a priority for overconfident CEOs. Thus, we argue that overconfident CEOs would be more reluctant into participating in CSR activities related to employee responsibility in order to tax avoid. Based on the above prediction, we propose the following hypothesis:

H2c: CEO overconfidence moderates the employee CSR – tax avoidance relationship.

Supplier, consumer and customer right responsibility.—According to Hermalin (1998), the leadership of an overconfident CEO motivates stakeholders such as suppliers and consumers to put in more effort voluntarily. Phua et al. (2018) find that overconfident CEOs induce more commitment from suppliers and facilitate firm-supplier bilateral relationships. Hence, overconfident CEOs may make less investment in supplier rights CSR to earn their trust as they build a stronger connection between suppliers and firms through relationship-specific investment and their enormous efforts and over-optimism.

In addition, overconfident CEOs crave praise and admiration from consumers and customers, which encourages them to invest more in new products and innovations. Byun & Al-Shammari (2021) show that CEO narcissism is associated with lower product recalls as they are afraid of being a source of blame and losing profits. Although Kashmiri et al. (2017) find a positive relationship between CEO narcissism and product safety, it also indicates that overconfident CEOs tend to earn respect directly from consumers and customers with

innovative and attractive products rather than investing in customer and consumer rights CSR. If this holds, someone would expect that overconfident CEOs, would prefer not to “waste” money for hedging tax avoidance risk through customer, and consumer rights CSR, but rather invest directly to innovative and attractive products for their customers. Therefore, our hypothesis is stated in the following:

H2d: CEO overconfidence moderates the positive relationship between supplier, customer, and consumer rights CSR tax avoidance.

Environmental responsibility.—Environmental responsibility refers to green processes and green products during the manufacturing process. It is one of the efficient ways for companies to protect the environment and take environmental responsibility and promote the sustainable development of the economy and enterprises (Chen et al., 2006). However, green innovation is a long-cycle and large investment project with considerable uncertainty. The investment in environmental protection projects may lead to a slowdown of cash flow. Since overconfident CEOs tend to be more sensitive to firms’ investment cash flow (Malmendier and Tate, 2005), they may be more likely to prioritise their limited resources to projects with fast fund recycling and high returns to make more investment rather than environmental CSR investment. Thus, our hypothesis is the following:

H2e: CEO overconfidence attenuates the positive the relationship between environment CSR tax avoidance.

4 Research design and data

4.1 Sample selection

We construct our sample using various data sources. The total sample consists of about 10,200 observations (2,087 unique firms) from 2010 to 2019. It is based on all the A-share Chinese

listed companies on the Shanghai Stock Exchange and the Shenzhen Stock Exchange. Chinese stock markets classify shares as A shares (for domestic investors), B shares (for overseas investors), and H shares (for large institutional investors who trade for corporate and individual clients their accounts). Due to the sizable shares and the fact that negotiable shares can only be traded publicly on the A-share market, this research focuses on Chinese A-share listed companies.

The financial accounting and corporate governance information are obtained from the CSMAR database. CSR ratings are collected from the HEXUN database for a period spanning from 2010 to 2019. Although most CSR studies in Chinese content use *Rankins CSR* rating as a proxy of CSR performance, Rankins' CSR rating generally focuses on CSR reporting quality and content analysis (Zhong et al., 2019). Recent literature has embraced the HEXUN CSR rating system as a more accurate means of assessing CSR performance (Wen et al., 2020; Yang et al., 2019; Zhao and Xiao, 2019). The sources of information that HEXUN uses to assess CSR performance are based on publicly available information from both firms' CSR reports and the annual reports from the official websites of the Shenzhen Stock Exchange and Shanghai Stock Exchange. It quantifies firms' CSR performance with integrated CSR ratings and five CSR categories (shareholder responsibility, societal responsibility, environmental responsibility, supplier, customer and consumer rights responsibility, and employee responsibility). HEXUN uses the weighted sum of mathematical computation indices (13 second-class and 37 third-class indices) to rate firms' CSR scores. The CSR ratings range from 0 to 1 in this study. A higher CSR performance rating indicates that the company is more socially responsible.

Our sample selection criteria are the following. First, we exclude finance firms and public utilities. These firms' financial indicators cannot precisely reflect the effects on tax avoidance due to their different adoption of financial structures and tax regulations and unique institutional environments in these industries. Second, observations with negative pre-tax income are

excluded as they could affect the interpretation of the effective tax rate. Third, observations with stock codes “ST” (special treatment) or “PT” (particular transfer) are excluded because they were subject to significant financing constraints due to the unusual financial position of these companies. To minimize the influence of outliers, we winsorize tax measures at 1st and 99th percentiles and exclude the observations greater than one or less than zero (Dyreg et al., 2010). The detailed definitions of all variables and their sources are provided in Table 1.

[Insert Table 1 about here]

Table 2 reports the descriptive statistics for all the variables in the regression. Due to the different data requirements of tax avoidance proxies, the number of observations for the main data analysis varies from 4,896 to 10,240 observations.² The mean for *ETRgaap* and *ETRcurrent* is 20% and 21.7%, respectively, which is lower than the statutory corporate income tax rate of China (25% for the sample period we examine) and consistent with prior studies. With a standard deviation of 0.177, the mean integrated CSR rating is 29.1%, indicating poor integrated CSR performance and wide variance in how different companies fulfil their social obligations. Among the five CSR dimensions, the mean of shareholder responsibility (*CSRshr*) is 15%, which is substantially higher than the mean value of supplier, customer and consumer right responsibility (*CSRscrr*, 1.7%), societal responsibility (*CSRsr*, 4.7%), employee responsibility (*CSRer*, 2.6%), and environmental responsibility (*CSRemr*, 1.9%). This suggests that the Chinese listed firms in this sample pay more attention to being responsible toward shareholders compared to the other CSR dimensions. The mean value for the CEO overconfidence proxy, *HighFE*, is 7 billion CNY (approximately \$1 billion) indicating that a large number of Chinese CEOs overestimate their firm’s future earnings. The

² In two of the initial specifications where we run regressions with only the *ETRgaap* or *ETRcurrent* as dependent and total CSR as the only control we can have a larger number of observations. Unfortunately, running the full specification regressions we lose observations.

mean value of *TaxPref* is 69.3%. The standard deviation is 0.461, suggesting that 69.3% of the companies in this sample enjoy a preferential tax rate with wide inter-company variance.³

[Insert Table 2 about here]

4.2 Empirical model

To study the effect of CSR on tax avoidance and the moderating effect of CEO overconfidence in this relationship, we utilize the following models.

$$TAXAV_{i,t} = \beta_0 + \beta_1 CSR_{i,t} + \sum_{k=2}^n \beta_k FIRM_{i,t} + \varphi_{i,t} + \varepsilon_{i,t} \quad (1)$$

$$TAXAV_{i,t} = \alpha_0 + \alpha_1 CSR_{i,t} + \alpha_2 HighFE_{i,t} + \alpha_3 CSR_{i,t} \times HighFE_{i,t} + \sum_{k=4}^n \alpha_k FIRM_{i,t} + \varphi_{i,t} + \varepsilon_{i,t} \quad (2)$$

In the above equations, $TAXAV_{i,t}$ is the dependent variable for tax avoidance. This study uses two tax avoidance proxies: the Generally Accepted Accounting Principles effective tax rate (ETR_{gaap}), and the current effective tax rate ($ETR_{current}$).⁴ $CSR_{i,t}$ denotes the CSR rating of company i in year t . Following the relevant literature, we also include other standard firm controls to rule out concerns for alternative explanations. $FIRM_{i,t}$ is a vector of firm-level control variables that includes ROA, leverage, cash, capital, R&D, market-to-book ratio, the preferential tax rate of a company, equity income, as well as intangible assets. ϕ captures various fixed effects, such as industry, year, and ownership fixed effects, as well as two-way fixed effects of industry and ownership with year.⁵

The variable of our main interest in eq. (2) is the interaction ($CSR_{i,t} \times HighFE_{i,t}$), where $HighFE_{i,t}$ controls for the CEO's overconfidence. Due to the information disclosure requirements of the Chinese security market, this study, following Lin et al. (2005) and Li and

³ Further statistical information at the sectoral level can be found in Appendix Table A1. Variables' correlations are in Appendix Table A2. Information about HEXUN's CSR subcomponents is in Appendix Table A3.

⁴ We also use for robustness test the cash ETR, $CETR$, as well as the book-tax difference, BTD .

⁵ There are seven types of ownership in our dataset—state owned firms (it includes centrally owned and locally government owned firms), privately owned firms, foreign investment firm, other type of investments, joint ventures of state and foreign investments, joint ventures of state and private investments, joint ventures of private and foreign investments.

Tang (2010), uses the management earnings forecast-based overconfidence proxy, *HighFE*. The information for forecasted earnings is provided in the range of estimates quarterly. Thus, based on the quarterly difference between forecasted net profits and actual profits, *HighFE* is calculated based on the highest difference within a year. *HighFE* equals zero if the difference between forecasted and realised net profits is negative. Therefore, the greater the *HighFE*, the more confident the CEO will be. Besides the management earnings forecast-based overconfidence proxy, *HighFE*, we also use the ratio of the sum of top three managers' salaries to the sum of all managers' salaries divided by 100, *HighOCS*, as a second overconfidence proxy for our robustness tests. The detailed definitions of all variables and their sources are provided in Table 1.

5 Results

5.1 Corporate tax avoidance and total CSR

Table 3 presents the results of the current effective tax rate and the GAAP effective tax rate on integrated CSR ratings and control variables. The dependent variable is *ETRcurrent* in columns (1) - (2) and *ETRgaap* in columns (3) - (4). Columns (1) and (3) contain integrated CSR, as well as year, industry, and firm ownership fixed effects. Columns (2) and (4) include all variables. The integrated CSR ratings are found to be negatively associated with both tax rate measures and significant at 5% and 10% respectively. This result suggests that firms with good CSR performance are found to avoid more taxes, consistent with the findings of Lanis and Richardson (2012), Davis et al., (2016), and Hasan et al. (2019) that firms fulfil more CSR as a cover for engaging in more tax avoidance activities. For the most exhaustive case when the dependent variable is *ETRcurrent*, we find the coefficient of *CSR_t* to be -0.018, suggesting that an increase in the CSR score by one standard deviation, will decrease *ETRcurrent* by

0.003 (calculated as -0.018×0.177). Given the mean value of $ETR_{current}$ (i.e., 0.217) and the tax payment for the mean firm of our sample (i.e., 154 million CNY), our estimation indicates that a one standard deviation increase of CSR is associated by a non-negligible tax reduction equal to 2.3 million CNY ($1.5\% \times 154$ million). We find a similar coefficient for CSR_t when the dependent variable is ETR_{gaap} . These results provide support for our first testable hypothesis, highlighting the use of CSR as a risk management tool to hedge the potential negative effect of Chinese listed firms' tax avoidance behaviour.⁶

[Insert Table 3 about here]

5.2 CEOs' overconfidence

Crucial in our analysis is the study of the CEO's overconfidence in the relation between CSR and tax avoidance. Table 4 reports the result of tax avoidance on integrated CSR and CEO overconfidence. Columns (1) and (3) contain year, industry, and firm ownership fixed effects, while columns (2) and (4) incorporate industry-year and firm-ownership-year fixed effects. The variable of our interest is the interaction term between CSR and CEO overconfidence, ($CSR_{i,t} \times HighFE_{i,t}$). Its coefficient spans between 4-6%, is positive and statistically significant at the 1% level. This indicates that overconfident CEOs do not use CSR as a risk management tool to hedge for the tax avoidance risk. This finding is in accordance with our second hypothesis, whereby overconfident CEOs are more likely to avoid taxes directly, they will prefer not "wasting" money for CSR safety "coverage". Alternatively, our prior findings

⁶ In Appendix Table A4 we look at how different components of CSR affect tax avoidance. Except for social responsibility (CSRsr), we find that all coefficients are negative and statistically significant, indicating that firms with higher CSR scores avoid more taxes. Moreover, as CSR could be an endogenous variable, we utilize a 2SLS instrumental variables estimation. The exclusion restriction is the average CSR at the province a firm is located. The results from this test, in Appendix Table A5, show the same effect qualitatively, albeit the coefficients are several magnitudes larger. However, this is standard in 2SLS estimations due to Local Average Treatment Effect (LATE).

point to a positive relationship between CSR and tax avoidance, however, this channel works only when a firm is led by capable, and not overconfident, managers. As far as we know, this is a novel finding that partially reconcile and explain the highly contradicted findings of this literature.

[Insert Table 4 about here]

5.3 Robustness

We first use alternative measures of tax avoidance to ensure the robustness of CEOs' overconfidence effect. To this end, we use the cash effective tax rate (*CETR*) and the total permanent book-tax-difference (*BTD*) as alternative tax avoidance measures. We calculate *CETR* by dividing the difference between current tax expense and current tax payable by profit before tax (Dyreng et al., 2010). Due to the disclosure of cash tax paid information, this study follows the calculation of Bradshaw et al. (2019), which calculates the cash tax paid as the current tax expense plus the difference between income taxes payable at the beginning of the year and year-end. Regarding book-tax-difference, Frank et al. (2009) argue that since temporary differences have been proven to reflect the level of earnings management, the actual tax avoidance of enterprises is mainly reflected in the permanent differences. Hence, we use the total permanent book-tax-difference (*BTD*) as the second alternative tax avoidance measure. We calculate this as the difference between accounting income and current tax expense divided by the opening balance of total assets. A higher (lower) *CETR* or lower (higher) *BTD* means less (more) tax avoidance.

Table 5 summarises the results for the two additional tax avoidance measures (*CETR* and *BTD*). The coefficients for *CSR_t* in columns (1) and (2) are significant at the 1% level. As higher *BTD* represents lower tax avoidance, the negative coefficient on *CSR_t* is consistent with the positive coefficient of *CETR*, suggesting that socially responsible firms avoid more taxes. As for the moderating effect of CEO overconfidence, the coefficient of $CSR_t \times HighFE$ is positive and statistically significant in columns (1) and (2) and negative in columns (3) and (4), in tandem with our prior findings.⁷

[Insert Table 5 about here]

We then examine the sensitivity of CEO overconfidence by using the relative compensation of the CEO as an alternative CEO's overconfidence proxy. Schrand and Zechman (2012) use the CEO relative compensation to the second-highest-paid executives to measure CEO overconfidence. There is a scarcity of data on CEO salaries in China due to limited disclosures. Therefore, following the study of Firth et al. (2007), we use the sum salaries of the top three managers divided by the sum salaries of all managers as the proxy of CEO overconfidence, called *HighOCS*. The top two or three executives perform the same functions as the CEO to participate in the daily operation decisions in Chinese companies. Higher values of *HighOCS* denote more overconfident CEOs.

⁷ We also include several control variables at the CEO and corporate governance levels to reduce the concern of omitted variables. CEO's age is added in the model as their views about CSR and tax avoidance may vary (Petrenko et al., 2016). We additionally control the CEO duality. It is a dummy variable set as one if a person holds the position of both CEO and chairman, otherwise zero. It is included to control CEOs' ability on firms' CSR decisions and potential self-interest actions (Chen et al., 2015). Third, we add CEO tenure in the model (the difference between the year that CEO was appointed and the specific year) as CEOs' may potentially accumulate power over firm if they have longer tenure (Cannella et al., 2009). Fourth, we add CEO's gender as gender diversity could result in better CSR performance (Hafsi and Turgut, 2013). Fifth, managerial ownership (the percentage of firms' shares held by managers in the total number of shares) is included to control executives' incentives on promoting CSR (Wen et al., 2020). Table A6 reports the results of tax avoidance and integrated CSR scores with the additional control variables.

In Table 6, the coefficients on the interaction term of $CSR_t \times HighOCS$ are once again positive and statistically significant at 5% and 10% levels, consistent with the finding that CEO overconfidence weakens the positive relation between CSR ratings and firms' tax avoidance.

[Insert Table 6 about here]

5.4 CEO overconfidence and the various CSR subcomponents

Next, we examine how CEO's overconfidence affects the relation between each CSR subcomponent and tax avoidance. We report these results in Table 7. We find that hypotheses H2a – H2e hold in all cases. Specifically, the interaction terms of $HighFE$ with $CSRshr$, $CSRer$, $CSRscrr$, and $CSRemr$ are all positive and statistically significant. The latter indicates that the tendency of overconfident CEOs to combine CSR towards (i) Shareholder responsibility ($CSRshr$), (ii) Employee responsibility ($CSRer$), (iii) Supplier, consumer and customer right responsibility ($CSRscrr$) as well as (iv) Environmental responsibility ($CSRemr$) with tax avoidance diminishes the more their company has invested in those CSR components. For the above cases, overconfident CEOs, prefer to avoid directly corporate taxes without “wasting” corporate funding to hedge tax avoidance risk. The only case CEO's overconfidence acts as an amplifying force is when the firm has invested in societal responsibility. In this case, firms that have invested in societal responsibility towards stakeholders pay more taxes, and the presence of overconfident CEOs does not change this position.

[Insert Table 7 about here]

6 Conclusion

The purpose of this study is to investigate the relationship between CSR and corporate tax evasion, and more precisely, the moderating effect of CEO overconfidence on that relationship. Based on a sample of Chinese listed firms from 2010 to 2019, we first find that CSR has a

positive and statistically significant effect on firms' tax avoidance. We contend that CSR obligations are strategically used by Chinese listed companies. This viewpoint is consistent with the risk-management perspective, according to which firms use CSR as a marketing tool to meet community and social expectations in order to offset the negative impact of their tax evasion.

Next, we show that CEO overconfidence tends to dampen this positive relationship between firms' tax avoidance and CSR. As far as we know, this is the first study that uses CEOs' overconfidence to explain the relationship between corporate tax planning and CSR. Our findings show that overconfident CEOs do not use strategically CSR to tax avoid. We contend that overconfident CEOs overlook the value of CSR as a hedging mechanism and fail to leverage it strategically. These findings partially reconcile the literature's debated findings on this relation.

We examine the impact of five sub-CSR dimensions and discover that firms prioritise economic benefits over other factors when investing in CSR activities. Only societal CSR is negatively related to tax evasion. Shareholder, employee, environmental, and supplier, customer, and consumer rights CSR are all linked to increased tax evasion. Next, we discover that the aforementioned relation is significantly reduced in the presence of overconfident CEOs for all the cases except the case of societal CSR, where CEO overconfidence seems not to have a strong effect.

This study extends prior literature by adding new evidence on the relationship between CSR and tax avoidance in the Chinese context. As a result, we distinguish our work from previous studies that focused primarily on Western-type economies. Our paper also contributes to the growing body of research examining the economic consequences of CEO overconfidence. Our findings show that CEO overconfidence significantly affect the relation between corporate tax avoidance and CSR engagement. This partially can explain and thus reconcile the

contradicted findings of the relevant literature about this relation. We believe that future research will delve deeper into the aforementioned relationship in other emerging markets such as Russia, India, and Brazil, where CSR investment is gaining traction.

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Table 1: Variable definitions

Variables	Definition	Source
ETRgaap	Total tax expenses divided by pre-tax income.	CSMAR
ETRcurrent	Current tax expense divided by profit before tax.	CSMAR
CETR	Cash effective tax rate measured as the gap between current tax expense and current tax payable divided by profit before tax.	CSMAR
BTD	Total book-tax difference measured as the difference between accounting income and current tax expense divided by opening balance of total assets.	CSMAR
CSRt	The integrated CSR score divided by 100 and ranging from 0 to 1. Total CSR ratings are calculated as the weighted sum of 13 second-class and 37 third-class indices based on HEXUN dataset.	HEXUN
CSRshr	Shareholder responsibility score divided by 100.	HEXUN
CSRscrc	Supplier, customer, and consumer rights responsibility score divided by 100.	HEXUN
CSRsr	Societal responsibility score divided by 100.	HEXUN
CSRemr	Environmental responsibility score divided by 100.	HEXUN
CSRer	Employee responsibility score divided by 100.	HEXUN
HighFE	Based on the quarterly difference between forecasted net profits and actual profits, <i>HighFE</i> is calculated based on the highest difference within a year in trillion CNY.	CSMAR
HighOCS	The ratio of the sum of top three managers' salaries to the sum of all managers' salaries divided by 100.	CSMAR
ROA	The ratio of operating income and year-end total assets.	CSMAR
Size	The natural logarithm of the book value of year-end total assets.	CSMAR
Lev	Total debt divided by year-end total assets.	CSMAR
Cash	Cash and cash equivalents divided by year-end total assets.	CSMAR
PPE	Net fixed assets divided by year-end total assets.	CSMAR
RD	Research and development expense divided by year-end total assets.	CSMAR
MB	Market to book ratio, the sum of year-end market value of equity, divided by the year-end book value of equity.	CSMAR
TaxPref	A binary variable equal to 1 if firms potentially enjoy a preferential tax rate. Firms in this category include: (1) small micro firms, (2) firms with national key support of new and high technology, (3) firms (parent or subsidiary) registered in Guangdong, Fujian, Shenzhen and other provinces and cities of some preferential areas, (4) some firms with investment of high integrated circuit manufacturing, (5) non-resident firms.	CSMAR
EQIN	Equity income in earnings divided by year-end total assets.	CSMAR
INTANG	Intangible asset divided by year-end total assets.	CAMAR
CEOAge	CEO's age.	CSMAR
CEODuality	A dummy variable set as one if a person holds the position of both CEO and chairman, otherwise zero.	CSMAR
CEOTenure	The difference (in weeks) between a specific year and the year a CEO was appointed.	CSMAR
CEOGender	A dummy variable set as one if a person is a male.	CSMAR
MANO	The managerial ownership, which is measured as the percentage of firms' shares hold by managers.	CSMAR

Table 2: Summary statistics

This table shows the descriptive statistics of the variables used in the analysis. Detailed definitions of all variables are in Table 1.

Variables	Obs.	Mean	Std.dev.	p25	p50	p75
ETRgaap	10,240	0.200	0.123	0.135	0.168	0.246
ETRcurrent	9,800	0.217	0.135	0.144	0.184	0.262
CETR	4,551	0.235	0.168	0.131	0.194	0.288
BTD	3,904	0.022	0.0190	0.008	0.017	0.030
CSRt	9,800	0.291	0.177	0.182	0.232	0.302
CSRshr	5,227	0.150	0.052	0.114	0.151	0.190
CSRscor	5,227	0.017	0.048	0.000	0.000	0.000
CSRsr	5,227	0.047	0.038	0.025	0.037	0.058
CSRer	5,227	0.026	0.031	0.008	0.015	0.030
CSRremr	5,227	0.019	0.055	0.000	0.000	0.000
HighFE	5,293	0.007	0.142	0.000	0.000	0.000
HighOCS	8,222	0.414	0.107	0.332	0.400	0.484
ROA	9,800	0.686	0.546	0.378	0.562	0.828
Size	9,800	22.130	1.320	21.190	21.930	22.850
Lev	9,800	0.149	0.139	0.023	0.124	0.238
Cash	9,800	0.019	0.127	-0.032	0.004	0.045
PPE	9,800	0.221	0.158	0.103	0.189	0.310
RD	9,800	0.002	0.009	0.000	0.000	0.000
MB	9,800	0.020	0.016	0.012	0.016	0.023
TaxPref	9,800	0.693	0.461	0.000	1.000	1.000
EQIN	9,800	0.007	0.019	0.000	0.001	0.006
INTANG	9,800	0.045	0.046	0.018	0.034	0.057
CEOtenure	4,896	51.750	35.940	22.000	46.000	73.000
CEOgender	4,896	0.939	0.240	1.000	1.000	1.000
CEOage	4,896	48.990	6.466	45.000	49.000	53.000
CEOduality	4,896	0.330	0.470	0.000	0.000	1.000
MANO	4,896	0.157	0.201	0.000	0.036	0.300

Table 3: Impact of CSR on tax avoidance

This table reports results for the association between CSR and tax avoidance. The dependent variables are *ETRcurrent* and *ETRgaap*. All models include year, industry and firm ownership fixed effects. Robust standard errors, clustered at the firm level, and t-statistics are reported in parentheses. **, ** and * indicate significance levels at the 1%, 5%, and 10%, respectively. A complete description of variables along with their sources is in Table 1.

	ETRcurrent (1)	ETRcurrent (2)	ETRgaap (3)	ETRgaap (4)
CSRt	-0.025*** (-2.656)	-0.018* (-1.787)	-0.018** (-2.034)	-0.016* (-1.655)
ROA		0.011*** (2.611)		0.005 (1.482)
Size		0.003 (1.633)		0.000 (0.124)
Lev		0.123*** (7.827)		0.128*** (8.292)
Cash		-0.059*** (-7.145)		-0.035*** (-4.937)
PPE		-0.066*** (-4.224)		-0.030*** (-1.979)
RD		0.318* (1.885)		0.008 (0.047)
MB		-0.577*** (-4.127)		-0.389*** (-3.236)
TaxPref		-0.030*** (-7.117)		-0.037*** (-9.109)
EQIN		-0.812*** (-8.149)		-0.499*** (-4.898)
INTANG		0.142*** (2.828)		0.089** (2.082)
Intercept	0.222*** (65.994)	0.174*** (4.097)	0.201*** (65.518)	0.217*** (5.190)
Observations	14,812	9,800	18,377	10,240
Adjusted R-squared	0.117	0.156	0.128	0.161
Cluster	Firm	Firm	Firm	Firm
Year FE	√	√	√	√
Industry FE	√	√	√	√
Ownership FE	√	√	√	√

Table 4: Moderating effect of CEO overconfidence

This table reports the moderating effect of CEO overconfidence on the association between CSR and tax avoidance. The dependent variables are *ETRcurrent* and *ETRgaap*. *HighFE* denotes CEO's overconfidence. Robust standard errors, clustered at the firm level, and t-statistics are reported in parentheses. **, * and * indicate significance levels at the 1%, 5%, and 10%, respectively. A complete description of variables along with their sources is in Table 1.

	ETRcurrent		ETRgaap	
	(1)	(2)	(3)	(4)
CSRt	-0.015 (-0.941)	-0.016 (-0.973)	-0.013 (-0.978)	-0.012 (-0.884)
HighFE	-0.034*** (-3.616)	-0.035*** (-3.040)	-0.032*** (-3.921)	-0.027*** (-3.061)
CSRt × HighFE	0.049*** (3.276)	0.052*** (2.718)	0.046*** (3.538)	0.040*** (2.675)
ROA	0.004 (0.647)	0.001 (0.158)	0.003 (0.520)	0.002 (0.373)
Size	0.007** (2.444)	0.007** (2.218)	0.006** (2.074)	0.006** (2.140)
Lev	0.123*** (5.444)	0.117*** (5.031)	0.133*** (5.694)	0.132*** (5.474)
Cash	-0.062*** (-5.679)	-0.060*** (-5.317)	-0.036*** (-3.941)	-0.036*** (-3.772)
PPE	-0.080*** (-3.829)	-0.075*** (-3.472)	-0.042** (-2.076)	-0.043** (-2.066)
RD	0.195 (1.151)	0.173 (1.019)	-0.098 (-0.639)	-0.103 (-0.618)
MB	-0.766*** (-5.876)	-0.821*** (-6.346)	-0.577*** (-4.977)	-0.560*** (-4.910)
TaxPref	-0.032*** (-5.172)	-0.033*** (-5.066)	-0.039*** (-6.641)	-0.039*** (-6.378)
EQIN	-0.585*** (-4.394)	-0.590*** (-4.091)	-0.216* (-1.665)	-0.212 (-1.533)
INTANG	0.161*** (2.714)	0.192*** (3.078)	0.112** (2.050)	0.137** (2.391)
Intercept	0.092 (1.460)	0.101 (1.501)	0.092 (1.432)	0.084 (1.270)
Observations	5,293	5,227	5,453	5,383
Adjusted R-squared	0.129	0.132	0.158	0.151
Cluster	Firm	Firm	Firm	Firm
Year FE	√	√	√	√
Industry FE	√	√	√	√
Ownership FE	√	√	√	√
Industry-year FE	-	√	-	√
Ownership-year FE	-	√	-	√

Table 5: Results with alternative tax avoidance measures

This table reports the moderating effect of CEO overconfidence on the association between CSR and tax avoidance. The dependent variables are *CETR* and *BTD*. *HighFE* denotes CEO's overconfidence. Robust standard errors, clustered at the firm level, and t-statistics are reported in parentheses. **, ** and * indicate significance levels at the 1%, 5%, and 10%, respectively. A complete description of variables along with their sources is in Table 1.

	CETR		BTD	
	(1)	(2)	(3)	(4)
CSRt	-0.049*** (-2.790)	-0.048*** (-2.621)	0.021*** (7.894)	0.022*** (7.466)
HighFE	-0.029** (-1.974)	-0.030 (-1.560)	0.006 (1.584)	0.006* (1.689)
CSRt × HighFE	0.046** (2.186)	0.050* (1.729)	-0.010* (-1.818)	-0.011** (-1.989)
ROA	0.004 (0.392)	0.005 (0.512)	0.002** (2.051)	0.002** (2.099)
Size	0.011*** (3.325)	0.010*** (2.843)	0.000 (0.187)	0.000 (0.409)
Lev	0.151*** (5.621)	0.157*** (5.691)	-0.037*** (-11.025)	-0.036*** (-10.428)
Cash	-0.040*** (-2.670)	-0.045*** (-2.812)	0.011*** (5.605)	0.010*** (5.036)
PPE	-0.015 (-0.533)	-0.013 (-0.470)	-0.003 (-1.015)	-0.005* (-1.683)
RD	-0.065 (-0.260)	-0.066 (-0.270)	0.012 (0.297)	0.025 (0.561)
MB	-0.455* (-1.908)	-0.444* (-1.729)	0.144*** (3.853)	0.149*** (3.530)
TaxPref	-0.042*** (-5.652)	-0.043*** (-5.411)	0.002** (2.424)	0.003** (2.554)
EQIN	-0.968*** (-5.364)	-0.988*** (-5.423)	0.240*** (8.327)	0.245*** (8.337)
INTANG	0.234*** (3.207)	0.267*** (3.628)	-0.021* (-1.800)	-0.024* (-1.948)
Intercept	0.016 (0.218)	0.036 (0.441)	0.012 (1.104)	0.010 (0.819)
Observations	4,551	4,485	3,904	3,835
Adjusted R-squared	0.109	0.112	0.263	0.260
Cluster	Firm	Firm	Firm	Firm
Year FE	√	√	√	√
Industry FE	√	√	√	√
Ownership FE	√	√	√	√
Industry-year FE	-	√	-	√
Ownership-year FE	-	√	-	√

Table 6: Results with an alternative CEO overconfidence measure

This table reports the moderating effect of CEO overconfidence on the association between CSR and tax avoidance. The dependent variables are *ETRcurrent* and *ETRgaap*. *HighOCS* denotes CEO's overconfidence. Robust standard errors, clustered at the firm level, and t-statistics are reported in parentheses. **, ** and * indicate significance levels at the 1%, 5%, and 10%, respectively. A complete description of variables along with their sources is in Table 1.

	ETRcurrent		ETRgaap	
	(1)	(2)	(3)	(4)
CSRt	-0.103*** (-2.808)	-0.100*** (-2.596)	-0.081** (-2.536)	-0.080** (-2.383)
HighOCS	-0.075** (-2.291)	-0.078** (-2.297)	-0.046 (-1.505)	-0.049 (-1.557)
CSRt × HighOCS	0.214** (2.490)	0.213** (2.393)	0.150** (2.032)	0.151** (1.977)
ROA	0.011** (2.481)	0.011** (2.377)	0.005 (1.411)	0.006 (1.523)
Size	0.002 (0.981)	0.002 (0.719)	-0.001 (-0.527)	-0.001 (-0.344)
Lev	0.121*** (7.107)	0.121*** (6.896)	0.131*** (7.694)	0.131*** (7.482)
Cash	-0.053*** (-5.354)	-0.049*** (-4.579)	-0.042*** (-4.733)	-0.041*** (-4.313)
PPE	-0.066*** (-3.865)	-0.063*** (-3.572)	-0.038** (-2.255)	-0.040** (-2.270)
RD	0.307* (1.676)	0.242 (1.303)	-0.012 (-0.057)	-0.065 (-0.301)
MB	-0.660*** (-5.663)	-0.682*** (-5.720)	-0.460*** (-4.474)	-0.413*** (-3.876)
TaxPref	-0.032*** (-7.270)	-0.034*** (-7.365)	-0.037*** (-8.961)	-0.038*** (-8.873)
EQIN	-0.772*** (-7.045)	-0.757*** (-6.602)	-0.519*** (-4.726)	-0.519*** (-4.635)
INTANG	0.130** (2.456)	0.133** (2.438)	0.077* (1.683)	0.081* (1.707)
Intercept	0.236*** (4.912)	0.248*** (5.008)	0.276*** (5.745)	0.268*** (5.460)
Observations	8,222	8,172	8,589	8,545
Cluster	Firm	Firm	Firm	Firm
Adjusted R-squared	0.157	0.156	0.159	0.154
Year FE	√	√	√	√
Industry FE	√	√	√	√
Ownership FE	√	√	√	√
Industry-year FE	-	√	-	√
Ownership-year FE	-	√	-	√

Table 7: Heterogenous effect of CEO overconfidence on the relation between CSR subcomponents and tax avoidance

This table reports the moderating effect of CEO overconfidence on the association between tax avoidance and sub-CSR dimensions. The dependent variables are *ETRcurrent* and *ETRgaap*. *HighFE* denotes CEO's overconfidence. *CSR** are the different CSR subcategories. Robust standard errors, clustered at the firm level, and t-statistics are reported in parentheses. **, ** and * indicate significance levels at the 1%, 5%, and 10%, respectively. A complete description of variables along with their sources is in Table 1.

	ETRcurrent (1)	ETRgaap (2)	ETRcurrent (3)	ETRgaap (4)	ETRcurrent (5)	ETRgaap (6)	ETRcurrent (7)	ETRgaap (8)	ETRcurrent (9)	ETRgaap (10)
CSRshr	-0.662*** (-11.378)	-0.753*** (-13.888)								
CSRshr × HighFE	0.297** (2.087)	0.382*** (2.671)								
CSRsr			1.283*** (13.033)	2.131*** (21.974)						
CSRsr × HighFE			0.448* (1.871)	-0.082 (-0.444)						
CSRer					-0.118 (-1.585)	-0.172*** (-2.635)				
CSRer × HighFE					0.185** (2.331)	0.157*** (2.676)				
CSRscrr							-0.023 (-0.447)	-0.085** (-2.077)		
CSRscrr × HighFE							0.159*** (2.977)	0.128*** (3.078)		
CSRemr									-0.025 (-0.613)	-0.072** (-2.037)
CSRemr × HighFE									0.143** (2.374)	0.123*** (2.690)
HighFE	-0.066** (-2.118)	-0.080*** (-2.641)	-0.023*** (-3.159)	-0.018*** (-3.375)	-0.028** (-2.517)	-0.002 (-0.283)	-0.023*** (-2.881)	-0.019*** (-3.289)	-0.022*** (-2.976)	-0.018*** (-3.327)
ROA	0.003 (0.481)	0.003 (0.691)	0.001 (0.140)	0.002 (0.379)	-0.001 (-0.142)	0.001 (0.219)	0.001 (0.157)	0.002 (0.401)	0.001 (0.140)	0.002 (0.379)
Size	0.014*** (4.767)	0.014*** (4.963)	0.006** (2.088)	0.007** (2.415)	-0.000 (-0.051)	-0.002 (-0.970)	0.007** (2.388)	0.008*** (2.625)	0.006** (2.103)	0.007** (2.376)
Lev	0.017	0.026	0.121***	0.132***	0.125***	0.117***	0.117***	0.130***	0.120***	0.133***

	(0.695)	(1.102)	(5.227)	(5.488)	(6.012)	(5.997)	(5.084)	(5.394)	(5.226)	(5.517)
Cash	-0.039***	-0.012	-0.060***	-0.036***	-0.047***	-0.022***	-0.060***	-0.036***	-0.060***	-0.036***
	(-3.480)	(-1.234)	(-5.362)	(-3.847)	(-4.645)	(-2.830)	(-5.335)	(-3.808)	(-5.347)	(-3.820)
PPE	-0.102***	-0.068***	-0.074***	-0.042**	-0.033*	0.027	-0.074***	-0.043**	-0.073***	-0.041*
	(-4.889)	(-3.478)	(-3.439)	(-1.997)	(-1.784)	(1.557)	(-3.456)	(-2.066)	(-3.414)	(-1.951)
RD	0.206	-0.039	0.175	-0.108	0.279*	-0.108	0.174	-0.103	0.174	-0.110
	(1.207)	(-0.274)	(1.031)	(-0.649)	(1.933)	(-0.702)	(1.023)	(-0.623)	(1.027)	(-0.658)
MB	-0.803***	-0.514***	-0.827***	-0.545***	-0.818***	-0.506***	-0.808***	-0.533***	-0.827***	-0.548***
	(-6.488)	(-4.875)	(-6.324)	(-4.829)	(-5.982)	(-4.420)	(-6.252)	(-4.733)	(-6.324)	(-4.864)
TaxPref	-0.028***	-0.032***	-0.033***	-0.039***	-0.017***	-0.012**	-0.033***	-0.039***	-0.033***	-0.039***
	(-4.354)	(-5.634)	(-5.063)	(-6.388)	(-2.920)	(-2.532)	(-5.062)	(-6.375)	(-5.057)	(-6.364)
EQIN	-0.517***	-0.122	-0.591***	-0.214	-0.484***	-0.073	-0.589***	-0.213	-0.591***	-0.214
	(-3.595)	(-0.932)	(-4.115)	(-1.545)	(-4.043)	(-0.775)	(-4.077)	(-1.528)	(-4.107)	(-1.539)
INTANG	0.138**	0.077	0.193***	0.136**	0.175***	0.088*	0.193***	0.137**	0.193***	0.137**
	(2.255)	(1.406)	(3.094)	(2.383)	(2.920)	(1.862)	(3.095)	(2.399)	(3.098)	(2.400)
Intercept	0.058	0.042	0.109	0.068	0.168***	0.136**	0.091	0.058	0.108	0.071
	(0.939)	(0.685)	(1.639)	(1.052)	(2.633)	(2.371)	(1.360)	(0.894)	(1.617)	(1.095)
Observations	5,227	5,383	5,227	5,383	5,227	5,383	5,227	5,383	5,227	5,383
Cluster	Firm	Firm	Firm	Firm	Firm	Firm	Firm	Firm	Firm	Firm
Adjusted R-squared	0.178	0.218	0.132	0.152	0.215	0.376	0.133	0.153	0.132	0.152
Year FE	√	√	√	√	√	√	√	√	√	√
Industry FE	√	√	√	√	√	√	√	√	√	√
Ownership FE	√	√	√	√	√	√	√	√	√	√
Industry-year FE	√	√	√	√	√	√	√	√	√	√
Ownership-year FE	√	√	√	√	√	√	√	√	√	√

Appendix

This appendix contains additional statistics and robustness tests.

Table A1: This table presents statistics for the main dependent and control variables by different sectors.

Table A2: This table presents variables' correlations.

Table A3: This table presents information regarding the CSR subcomponents in the HEXUN database.

Table A4: This table shows regression results of different CSR subcomponents on tax avoidance.

Table A5: This tables present a 2SLS estimation, where CSR is considered an endogenous variable and the instrument is the average provincial CSR a firm is located.

Table A6: This table shows the moderating effect of CEO overconfidence incorporating additional governance controls.

Table A1: The number of firms per industry

<i>Industry</i>	<i>Obs.</i>	<i>Average ETRcurrent</i>	<i>Average ETRgaap</i>	<i>Average CSRt</i>	<i>Average CSRshr</i>	<i>Average CSRsr</i>	<i>Average CSRer</i>	<i>Average CSRscr</i>	<i>Average CSRerm</i>
Agriculture	132	0.114	0.093	0.246	0.128	0.032	0.027	0.034	0.024
Oil, gas, coal, metal & mineral extraction	299	0.289	0.250	0.325	0.149	0.047	0.046	0.032	0.052
Manufacturing	7,274	0.200	0.175	0.280	0.154	0.046	0.030	0.024	0.027
Electricity, gas, water production & supply	385	0.220	0.209	0.334	0.148	0.077	0.032	0.044	0.033
Construction	327	0.262	0.223	0.297	0.149	0.048	0.041	0.023	0.035
Retail and wholesale	688	0.275	0.250	0.298	0.142	0.074	0.030	0.028	0.023
Hotel and lodging industry	36	0.252	0.253	0.308	0.159	0.087	0.021	0.024	0.017
Real estate	583	0.311	0.265	0.381	0.155	0.131	0.048	0.030	0.017
Integrated companies	76	0.250	0.215	0.253	0.130	0.069	0.026	0.017	0.010
<i>Total</i>	9,800	0.217	0.191	0.291	0.152	0.055	0.032	0.025	0.027

A2: Variable correlations

	ETRgaap	ETR	CSRt	CSRshr	CSRscrr	CSRsr	CSRer	CSRremr	HighFEtp	HighOCS	ROA	Size	Lev
ETRgaap	1												
ETR	0.69***	1											
CSRt	0.08***	0.02**	1										
CSRshr	-0.17***	-0.23***	0.49***	1									
CSRscrr	0.01	0.00	0.91***	0.23***	1								
CSRsr	0.53***	0.35***	0.42***	0.08***	0.26***	1							
CSRer	0.02*	0.02**	0.87***	0.22***	0.83***	0.19***	1						
CSRremr	0.00	0.00	0.87***	0.19***	0.87***	0.11***	0.87***	1					
HighFEtp	-0.01	-0.01	0.04***	0.04***	0.04***	-0.01	0.04***	0.03**	1				
HighOCS	-0.02**	-0.04***	-0.06***	0.00	-0.07***	0.04***	-0.08***	-0.10***	0	1			
ROA	0.07***	0.05***	0.05***	-0.02**	0.07***	0.00	0.05***	0.07***	0.01	0.0100	1		
Size	0.18***	0.18***	0.32***	0.12***	0.24***	0.23***	0.32***	0.25***	0.03*	-0.21***	0.06***	1	
Lev	0.17***	0.17***	-0.03**	-0.34***	0.05***	0.11***	0.05***	0.05***	-0.02	-0.07***	0.00	0.33***	1
Cash	-0.05***	-0.07***	-0.0100	0.09***	-0.03***	-0.03***	-0.03***	-0.03***	0.00	0.0100	-0.03***	-0.05***	-0.07***
PPE	0.00	-0.04***	-0.05***	-0.17***	0.05***	-0.15***	-0.04***	0.08***	0.00	-0.07***	0.03***	0.04***	0.30***
RD	-0.06***	-0.0100	-0.03***	0.03***	-0.03***	-0.03***	-0.03***	-0.04***	0.00	-0.02**	-0.06***	0.01	-0.04***
MB	-0.10***	-0.11***	-0.07***	-0.02**	-0.05***	-0.07***	-0.06***	-0.06***	0.00	0.13***	-0.0100	-0.34***	-0.20***
TaxPref	-0.24***	-0.19***	-0.09***	0.06***	-0.05***	-0.29***	-0.06***	-0.02**	0.02	-0.07***	-0.05***	-0.20***	-0.13***
EQING	-0.06***	-0.09***	0.03***	0.05***	0.03***	0.00	0.03***	0.01	0.00	0.09***	0.00	0.04***	-0.01
INTANG	0.02**	0.05***	-0.07***	-0.05***	-0.04***	-0.10***	-0.05***	0.00	-0.01	-0.04***	0.01	-0.03***	-0.01
CEOtenure	0.01	0.01	0.04***	0.03***	0.04***	0.03**	0.03***	0.03***	0.04***	0.00	-0.01	0.10***	0.02
CEOgender	-0.01	-0.01	-0.01	-0.02	0.00	-0.04***	0.02**	0.01	0.01	-0.08***	0.03**	0.04***	0.03***
CEOage	0.02**	0.01	0.02**	0.03***	0.010	0.01	0.02**	0.01	-0.01	-0.0100	0.02	0.13***	0.04***
CEOduality	-0.07***	-0.05***	-0.09***	0.04***	-0.10***	-0.07***	-0.11***	-0.10***	-0.01	0.06***	-0.07***	-0.19***	-0.11***
MANO	-0.16***	-0.12***	-0.11***	0.16***	-0.12***	-0.18***	-0.16***	-0.11***	0.00	-0.04***	-0.13***	-0.35***	-0.23***
	Cash	PPE	RD	MB	TaxPref	EQING	INTANG	CEOtenure	CEOgender	CEOage	CEOduality	MANO	
Cash	1												
PPE	-0.11***	1											
RD	-0.02**	-0.06***	1										
MB	-0.08***	-0.05***	0.07***	1									
TaxPref	0.01	-0.01	0.09***	0.03***	1								
EQING	-0.01	-0.08***	-0.01	0.09***	-0.09***	1							
INTANG	-0.07***	0.11***	0.10***	0.05***	0.00	-0.01	1						
CEOtenure	-0.10***	0.02	0.06***	0.04***	-0.01	0.02**	0.00	1					
CEOgender	-0.02*	0.03***	0.03***	-0.01	0.00	0.02*	-0.01	0.00	1				
CEOage	-0.05***	0.06***	0.02**	0.00	-0.06***	0	0.03***	0.22***	0.04***	1			
CEOduality	0.04***	-0.09***	0.05***	0.04***	0.09***	-0.06***	-0.03***	0.09***	0.03***	0.16***	1		
MANO	0.10***	-0.14***	0.03***	-0.02*	0.22***	-0.13***	-0.02**	-0.07***	-0.04***	-0.11***	0.25***	1	

Table A3: HEXUN rating system

<i>Shareholder responsibility</i>	Earnings Solvency Returns to shareholder Credit approval Innovation
<i>Employee responsibility</i>	Performance Safety Caring for employees
<i>Supplier, customer, and consumer rights responsibility</i>	Product quality After-sales service Integrity
<i>Environmental responsibility</i>	Environmental protection consciousness Environmental management system certification Investment in environmental protection Number of pollutant discharge types Number of energy-saving measure types
<i>Social responsibility contribution</i>	Ratio of income tax to total profits Public donation amount

Table A4: Impact of CSR subcomponents on tax avoidance

This table reports results for the association between different CSR subcomponent and tax avoidance. The dependent variables are *ETRcurrent* and *ETRgaap*. All models include year, industry and firm ownership fixed effects. Robust standard errors, clustered at the firm level, and t-statistics are reported in parentheses. **, ** and * indicate significance levels at the 1%, 5%, and 10%, respectively. A complete description of variables along with their sources is in Table 1.

	ETRcurrent (1)	ETRgaap (2)	ETRcurrent (3)	ETRgaap (4)	ETRcurrent (5)	ETRgaap (6)	ETRcurrent (7)	ETRgaap (8)	ETRcurrent (9)	ETRgaap (10)
CSRshr	-0.712*** (-16.021)	-0.793*** (-18.188)								
CSRsr			1.058*** (15.580)	1.673*** (21.508)						
CSRer					-0.116** (-2.459)	-0.153*** (-3.556)				
CSRscrr							-0.036 (-1.149)	-0.082*** (-3.039)		
CSRremr									-0.036 (-1.314)	-0.070*** (-2.794)
ROA	0.012*** (3.012)	0.006* (1.924)	0.009** (2.096)	0.003 (0.834)	0.011** (2.578)	0.005 (1.459)	0.011*** (2.598)	0.005 (1.475)	0.011*** (2.592)	0.005 (1.459)
Size	0.012*** (6.738)	0.010*** (5.847)	-0.003 (-1.540)	-0.007*** (-4.100)	0.003* (1.757)	0.001 (0.569)	0.003 (1.351)	0.001 (0.297)	0.003 (1.386)	0.000 (0.264)
Lev	0.027* (1.680)	0.027* (1.757)	0.125*** (8.591)	0.112*** (8.187)	0.125*** (7.953)	0.128*** (8.318)	0.126*** (8.046)	0.129*** (8.366)	0.126*** (8.052)	0.129*** (8.403)
Cash	-0.038*** (-4.722)	-0.010 (-1.511)	-0.049*** (-6.469)	-0.019*** (-3.226)	-0.060*** (-7.211)	-0.036*** (-5.068)	-0.060*** (-7.164)	-0.035*** (-5.023)	-0.060*** (-7.169)	-0.035*** (-5.026)
PPE	-0.086*** (-5.698)	-0.049*** (-3.418)	-0.036*** (-2.600)	0.015 (1.105)	-0.066*** (-4.232)	-0.031** (-2.017)	-0.065*** (-4.162)	-0.029* (-1.908)	-0.065*** (-4.137)	-0.028* (-1.874)
RD	0.337** (2.071)	0.040 (0.281)	0.346** (2.295)	-0.054 (-0.349)	0.324* (1.917)	0.016 (0.093)	0.318* (1.884)	0.006 (0.037)	0.317* (1.879)	0.005 (0.028)
MB	-0.530*** (-4.189)	-0.315*** (-3.042)	-0.631*** (-4.917)	-0.466*** (-4.587)	-0.569*** (-4.081)	-0.370*** (-3.121)	-0.584*** (-4.150)	-0.380*** (-3.199)	-0.584*** (-4.152)	-0.383*** (-3.216)
TaxPref	-0.025*** (-6.092)	-0.031*** (-7.943)	-0.021*** (-5.290)	-0.020*** (-5.910)	-0.030*** (-7.107)	-0.037*** (-9.077)	-0.030*** (-7.120)	-0.037*** (-9.066)	-0.030*** (-7.122)	-0.037*** (-9.075)
EQIN	-0.709*** (-7.389)	-0.382*** (-3.999)	-0.658*** (-7.856)	-0.280*** (-3.558)	-0.811*** (-8.134)	-0.499*** (-4.886)	-0.811*** (-8.172)	-0.498*** (-4.893)	-0.812*** (-8.173)	-0.500*** (-4.908)
INTANG	0.110**	0.053	0.164***	0.116***	0.142***	0.088**	0.143***	0.088**	0.144***	0.090**

	(2.384)	(1.344)	(3.432)	(3.070)	(2.823)	(2.048)	(2.853)	(2.052)	(2.867)	(2.095)
Intercept	0.092**	0.127***	0.228***	0.262***	0.168***	0.199***	0.182***	0.207***	0.181***	0.208***
	(2.376)	(3.356)	(5.650)	(6.777)	(3.955)	(4.809)	(4.297)	(5.013)	(4.272)	(5.040)
Observations	9,800	10,240	9,800	10,240	9,800	10,240	9,800	10,240	9,800	10,240
Adjusted R-squared	0.205	0.231	0.222	0.332	0.156	0.162	0.156	0.161	0.156	0.161
Cluster	Firm	Firm	Firm	Firm	Firm	Firm	Firm	Firm	Firm	Firm
Year FE	√	√	√	√	√	√	√	√	√	√
Industry FE	√	√	√	√	√	√	√	√	√	√
Ownership FE	√	√	√	√	√	√	√	√	√	√

Table A5: Instrumental variables

This table reports the results of a two-stage least squares estimation. Column (1) shows the result of first stage, using the integrated CSR as the dependent variable and the average provincial score of integrated CSR as an instrument. Columns (2) to (5) show the second-stage results. The dependent variables in the second stage are *ETRcurrent* and *ETRgaap*. Robust standard errors, clustered at the firm level, and t-statistics are reported in parentheses. **, * and * indicate significance levels at the 1%, 5%, and 10%, respectively. A complete description of variables along with their sources is in Table 1.

	First-stage		Second-stage		
	CSRt (1)	ETRcurrent (2)	ETRcurrent (3)	ETRgaap (4)	ETRgaap (5)
CSRprovince	0.010*** (10.786)				
\widehat{CSRt}		-0.106** (-2.208)	-0.099** (-1.975)	-0.129*** (-2.591)	-0.110** (-2.157)
ROA	0.007 (0.996)	0.009** (2.185)	0.008** (2.043)	0.004 (1.268)	0.005 (1.321)
Size	0.065*** (23.490)	0.009*** (2.588)	0.009** (2.332)	0.008** (2.087)	0.007* (1.827)
Lev	-0.272*** (-13.063)	0.107*** (5.641)	0.107*** (5.446)	0.108*** (5.820)	0.111*** (5.747)
Cash	0.016* (1.689)	-0.057*** (-7.078)	-0.058*** (-6.965)	-0.030*** (-4.437)	-0.032*** (-4.665)
PPE	-0.037* (-1.707)	-0.075*** (-4.660)	-0.072*** (-4.399)	-0.038** (-2.412)	-0.039** (-2.420)
RD	-0.010 (-0.050)	0.310* (1.796)	0.233 (1.385)	0.014 (0.085)	-0.048 (-0.266)
MB	0.885*** (4.431)	-0.461*** (-3.418)	-0.462*** (-3.439)	-0.233* (-1.932)	-0.207* (-1.739)
TaxPref	0.013** (2.290)	-0.031*** (-6.934)	-0.032*** (-7.083)	-0.036*** (-8.537)	-0.037*** (-8.710)
EQIN	0.139 (1.259)	-0.788*** (-7.415)	-0.784*** (-7.252)	-0.476*** (-4.371)	-0.477*** (-4.380)
INTANG	-0.192*** (-3.538)	0.116** (2.248)	0.120** (2.295)	0.071 (1.582)	0.075* (1.653)
Intercept	-1.402*** (-17.972)	-0.057 (-0.801)	0.062 (0.611)	-0.030 (-0.413)	-0.005 (-0.059)
Cragg-Donald Wald F-statistics		107.57	107.57	103.54	103.54
Kleinbergen-Paap LM statistic		68.25	68.25	67.21	67.21
Stock-Yogo critical values 10%		16.38	16.38	16.38	16.38
Observations	11,128	9,416	9,416	9,831	9,831
Adjusted R-squared	0.281	0.139	0.141	0.134	0.143
Cluster	Firm	Firm	Firm	Firm	Firm
Year FE	√	√	√	√	√
Industry FE	√	√	√	√	√
Ownership FE	√	√	√	√	√
Industry-year FE	-	-	√	-	√
Ownership-year FE	-	-	√	-	√

Table A6: The moderating effect of CEO overconfidence with additional corporate governance controls

This table reports the moderating effect of CEO overconfidence on the association between CSR and tax avoidance. The dependent variables are *ETRcurrent* and *ETRgaap*. *HighFE* denotes CEO's overconfidence. Robust standard errors, clustered at the firm level, and t-statistics are reported in parentheses. **, ** and * indicate significance levels at the 1%, 5%, and 10%, respectively. A complete description of variables along with their sources is in Table 1.

	ETRcurrent		ETRgaap	
	(1)	(2)	(3)	(4)
CSRt	-0.013 (-0.785)	-0.015 (-0.874)	-0.010 (-0.702)	-0.008 (-0.568)
HighFE	-0.033*** (-3.494)	-0.037*** (-3.073)	-0.032*** (-3.788)	-0.027*** (-2.860)
CSRt × HighFE	0.050*** (3.309)	0.058*** (2.972)	0.045*** (3.380)	0.041*** (2.584)
ROA	0.002 (0.366)	0.000 (0.013)	0.001 (0.161)	0.000 (0.067)
Size	0.007** (2.041)	0.007* (1.929)	0.004 (1.240)	0.004 (1.284)
Lev	0.128*** (5.397)	0.123*** (5.030)	0.142*** (5.851)	0.143*** (5.642)
Cash	-0.061*** (-5.168)	-0.059*** (-4.846)	-0.036*** (-3.637)	-0.039*** (-3.800)
PPE	-0.088*** (-3.992)	-0.082*** (-3.573)	-0.054** (-2.530)	-0.055** (-2.487)
RD	0.129 (0.801)	0.096 (0.594)	-0.095 (-0.634)	-0.104 (-0.630)
MB	-0.798*** (-5.690)	-0.842*** (-6.095)	-0.672*** (-4.923)	-0.657*** (-4.993)
TaxPref	-0.030*** (-4.607)	-0.031*** (-4.481)	-0.036*** (-5.966)	-0.035*** (-5.668)
EQIN	-0.600*** (-4.468)	-0.593*** (-4.014)	-0.204 (-1.572)	-0.194 (-1.383)
INTANG	0.161** (2.503)	0.193*** (2.878)	0.099* (1.699)	0.122** (2.044)
CEODuality	0.004 (0.768)	0.006 (1.245)	-0.002 (-0.462)	-0.000 (-0.025)
CEOAge	-0.000 (-0.119)	-0.000 (-0.115)	0.000 (0.685)	0.000 (0.766)
CEOTenure	-0.000 (-0.657)	-0.000 (-0.873)	-0.000 (-0.548)	-0.000 (-0.994)
CEOGender	0.001 (0.147)	0.002 (0.194)	0.000 (0.056)	0.000 (0.051)
MANO	-0.026** (-2.342)	-0.025** (-2.183)	-0.046*** (-4.324)	-0.045*** (-4.067)
Intercept	0.112 (1.509)	0.112 (1.435)	0.139* (1.927)	0.130* (1.746)
Observations	4,896	4,830	5,040	4,965
Cluster	Firm	Firm	Firm	Firm
Adjusted R-squared	0.133	0.137	0.165	0.160
Year FE	√	√	√	√
Industry FE	√	√	√	√
Ownership FE	√	√	√	√
Industry-year FE	-	√	-	√
Ownership-year FE	-	√	-	√